



SEINÄJOEN AMMATTIKORKEAKOULU
SEINÄJOKI UNIVERSITY OF APPLIED SCIENCES

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SERVICE INNOVATION CAPABILITY IN SOCIAL AND HEALTH CARE SMEs

The impact of market orientation and technology orientation

Sanna Joensuu-Salo

Seinäjäki University of Applied Sciences, School of Business and Culture
P.O. Box 412, FI-60101, Seinäjoki, FINLAND
Phone: +358 40 8680144
E-mail: sanna.joensuu-salo@seamk.fi

Emilia Kangas

Seinäjäki University of Applied Sciences, School of Business and Culture
P.O. Box 412, FI-60101, Seinäjoki, FINLAND
Phone: +358 408300323
E-mail: Emilia.kangas@seamk.fi

Jutta Mäkipelkola

Seinäjäki University of Applied Sciences, School of Business and Culture
P.O. Box 412, FI-60101, Seinäjoki, FINLAND
Phone: +358 408300359
E-mail: jutta.makipelkola@seamk.fi

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ABSTRACT

Developing new services is vital for a service-based company to succeed in the long run. This requires both innovation capability and understanding customer needs. Previous research has shown that if a firm wishes to develop an innovation superior to the competition, it must have both a strong technology orientation and a strong market orientation. The objective of this study was to examine the effect of market orientation and technology orientation on service innovation capability in SMEs operating in the field of social and health care. In addition, this study examined the obstacles to using digitalization and new technologies in service innovations. Mixed methods design was applied so both quantitative and qualitative data was used. The results from the quantitative part of this study show that both technology orientation and market orientation have a positive and statistically significant effect on service innovation capability in SMEs operating in the field of social and health care. Furthermore, market orientation is the most important variable in the model. The results from the qualitative element again show that some of the hindering factors of using digitalization and new technologies arise from practices and attitudes of social and health care actors but others arise from the digitalization and new technologies themselves.

1. INTRODUCTION

Dynamic capability perspective originates from resource-based-view (RBV) (Barney, 1991) and from Penrose's initial thoughts, from a year 1959, that a company stays competitive when its resources are properly used (Penrose, 2009). Both views acknowledge path dependency in the development of resources. Dynamic capabilities perspective adds dynamism to traditional RBV by emphasizing processes that make change to the company's resource base (Teece, 2007). Dynamic capability is explicated as "*the capacity of an organization to purposefully create, extend, or modify its resource base*" (Helfat, Finkelstein, Peteraf, Singh, Teece & Winter, 2007: 7). Thus, dynamic capabilities are separated from ad hoc problem solving and are emphasized as systematic way of operating in a changing environment. Ordinary capabilities, instead, are capabilities that allows firm to make a living at this specific moment (e.g. Winter 2003; Maritan 2007). Both concepts utilized in this study, market orientation and technology orientation, have potential elements to bring dynamism to the service innovation capability investigated in this study. They serve as sources to new ideas and may affect the way how the capability is deployed on-wards and what is the outcome of the service innovation capability.

Innovation capability is a manifold construct, and it is thus hard to specify directly (Saunila & Ukko, 2014). Lawson and Samson (2001) define innovation capability as a theoretical framework aimed at describing the actions that can be taken to improve the success of innovation activities. There are only a small number of studies which have examined differences in innovation development within the manufacturing and service sectors, and within service enterprises, the focus has been on the knowledge intensity of sectors (Forsman, 2011). According to previous studies (see Evangelista, 2000; Forsman, 2011) service and manufacturing sectors show more similarities than differences with respect to the basic dimensions of innovation development. However, Jansen et al. (2016) argue that service innovation follows a different logic to product innovation and because of the limited understanding of how service innovation comes about, more detailed research into the organizational antecedents of service innovation is needed (Den Hertog et al., 2010; D'Alvino & Hidalgo, 2011).

Previous research has shown that if a firm wishes to develop an innovation superior to the competition, it must have a strong technology orientation (Gatignon & Xuereb, 1997). Technology orientation is becoming even more important in the digital era. Digitalization is transforming entrepreneurship in two ways (Autio, 2017). The first transformation is the shifting locus of entrepreneurial opportunities in the economy and the second is the transformation of entrepreneurial practices. The current wave of digitalization is considered as a third or fourth industrial revolution, or a second machine age (Valenduc & Vendramin, 2017). Autio (2017) uses the term "digital disruption" in describing the transformative impact produced by digital technologies and infrastructures on how business, economy, and the society operate. This creates opportunities for many SMEs but requires technology orientation from the company. An inquiry ordered by the Finnish Economic Affairs and Employment, brought up that due to the lack of resources, SMEs have modest possibilities to invest in development and implementation of digital services (Maksimainen, Uimonen, Koiste & Saarivuori, 2018).

The second important factor in innovation capability is market orientation. Market orientation has a link to service innovation, which in turn affects new product/service performance (Cheng & Krumwiede, 2012). In addition, market orientation has a positive impact on new product performance and innovation speed (Baker & Sinkula 2005; Kirca et al., 2005; Carbonell &

Rodriguez, 2010). It is important to notice that market orientation and technology orientation are both strategic orientations of the company. As Leng, Liu & Tan (2015) suggest, research should pay attention to both of these concepts when examining their effects.

Digital services are also increasingly required in the field of social and health care (Reddy & Sharma, 2016). In the Finnish social and health care sector, administrative processes are largely becoming digital. Service providers are obligated to use certain programmes if they want to offer public services. At the same time, customers have adopted digital services in many parts of their lives. However, along with digital services, face to face services are also needed (Zechner & Kulmala, 2015). According to Raunio et al. (2015) customers want welfare services that are easy to use, personalized, flexible and that have good general guidance. In addition, the technology needs to work well, without interruptions. Apart from digital transformation, the social and health care sectors in Finland are also facing structural changes; this appears in particular as privatization of services. Health care organizations have not traditionally been very customer-focused (McColl-Kennedy et al., 2012) but they are now gradually realizing the importance of a customer-oriented business approach (Thakur et al., 2012). However, according to Sharma et al., (2014) they often lack an understanding of how best to coordinate their resources and utilize their capabilities to address this challenge. Rethmeier (2010) states that due to constant health care reform, global economic fluctuations, and employee resistance, health care organizations face critical challenges, and it is hard to drive innovation in the organization.

In the context of SMEs Maksimainen et al. (2018) pointed out that the development of services, of any kind, can be challenging to a small operator because of the limited resources, both competence and time. They brought up that the time spent in improving technological matters, can be away from the normal daily tasks, e.g. in surgery. From the perspective of expenses, they noted that the costs in the implementation of new technology do not spread to the number of customers that well compared to large service providers. Instead, the recognized benefits for SMEs are the possible easiness and rapidness to absorb new technologies and change the prevailing ways to operate (Maksimainen et al., 2018).

The objective of this study is to examine the effect of market orientation and technology orientation on service innovation capability in SMEs operating in the field of social and health care. In addition, this study examines the obstacles to using digitalization in service innovations. The data for this study was gathered from Finnish social and health care SMEs. This study uses a mixed methods design applying both quantitative and qualitative data. The purpose is to understand more deeply the phenomena of service innovation in social and health care companies. Based on previous research, the following hypotheses are proposed:

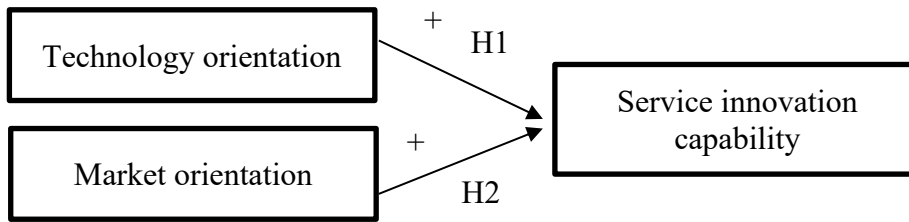
H1: Technology orientation has a positive relationship with service innovation capability in social and health care SMEs.

H2: Market orientation has a positive relationship with service innovation capability in social and health care SMEs.

Hypotheses 1 and 2 are tested with linear regression analysis. In addition, the qualitative part of this study with focus group interviews will deepen the understanding of the phenomenon by answering the following question: Which factors hinder the use of digitalization and new technologies in service innovations in social and health care SMEs?

Figure 1 presents the conceptual model tested with linear regression analysis with hypotheses 1 and 2.

Figure 1. Conceptual model of the study.



2. THEORETICAL FRAMEWORK

2.1. Technology orientation and digitalization in social and health care

Deshpande et al., (2016) define technology orientation “as one where firms have an R&D focus and emphasize on acquiring and incorporating new technologies in product development”. Technology orientation is one of the strategic orientations of the firm, and it is assumed that applying new technology solutions, products and services will create long-term success for the company (Gatignon & Xuereb, 1997; Hult et al., 2004). Technologically oriented firms have the ability and the will to acquire a substantial technological background and use it in the development of new products (Gatignon & Xuereb, 1997). Previous research has shown that technology orientation is positively related to organizational performance (Masa’deh et al., 2018).

Technology orientation can create leadership (Hamel & Prahalad, 1994), and in the era of digitalization, it is even more important to develop and adapt new technologies. Digitalization can be examined at the level of individual firms, at the level of industry and markets or at the level of society as a whole. Digitalization is not just digitizing things and processes or utilizing new technology, but it also contains changes to human behaviour, markets and core activities (Ilmarinen & Koskela, 2017).

At the moment, there are large expectations for digitalization and technology in Finnish social and health care organizations. Many solutions exist, but commercial breakthroughs are still rare. (Raunio et al., 2015.) Digitalization, the use of the internet and the amount of available data offers possibilities for radical changes. Utilization of data offers possibilities of renewing the way of working and doing business (Kiiski-Kataja, 2016) in the social and health care sector. One field of active development in technology focuses on the needs of ageing society, the prevention of illnesses, and using e-services with the goal of reducing the rising costs of social and health services (Hori, Ohashi & Suzuki, 2006). The use of big data enables the gathering and use of data from personal devices, information and research on large populations (Gellerstedt, 2016) and the use of artificial intelligence as a help in diagnostics.

Big companies have an advantage in adopting new technologies. Small companies usually do not have as much money to invest in the development process. The adoption of new technology requires planning and management, as it is a process that changes the way of working (Jauhiainen & Sihvo, 2015). Changes in work also mean resistance to change, which may be

amplified by work pressure (Ervelius, 2017). Digitalization may also require changes and renewal of the business model (Zott & Amit, 2017). Svejgaard Pros (2014) argues that e-services change the possession of the professionals. The line between professionalism and personal capabilities becomes less clear. The role of the professional becomes more supportive and the hierarchy between the service user and the professional becomes lower and more informal (Svejgaard Pros, 2014; Karinsalmi et al., 2018). According to Wälivaara et al. (2011), technology may serve as one channel of contact and as an additional contact, but it should not displace human contact, especially when psychological support, giving comfort or convincing are needed.

2.2. Market orientation in social and health care

Market orientation can be viewed from a cultural perspective as a part of organizational culture (Narver & Slater, 1990) or from a behavioural perspective as market-driven behaviours (Jaworski & Kohli, 1993). Market orientation has three different elements: organization-wide generation of market intelligence, dissemination of market intelligence, and organization-wide responsiveness to market intelligence (Kohli & Jaworski, 1990). Previous research has shown that market orientation has a direct or indirect effect on firm performance (e.g. Kirca, Jayachandran & Bearden, 2005), although this relationship can be moderated or mediated by different factors (González-Benito et al., 2014; Kirca et al., 2005; Liao et al., 2011).

Wood, Bhuian and Kiecker (2000) explored market orientation in a not-for-profit hospital setting and found a positive and strong association between market orientation and hospital performance. Hence, it is vital that social and health care companies develop their market intelligence generation, dissemination and responsiveness. Roselund and Kinnunen (2018) emphasize that market orientation in social and health care technological services should have already begun in the planning stage. Atilla et al. (2015) suggest that health care organizations benefit especially from market orientation behaviours in emerging markets, as a market-oriented strategy enables these organizations to understand and respond to their health care customers more effectively. They also showed that market-oriented strategies and operations improve hospital performance. Viswanathan et al. (2009) emphasize that understanding customer needs and welfare helps organizations to design products that improve life and enhance welfare. Thus, a market-oriented strategy allows organizations to incorporate the voice of the citizens into the product/service development process (Atilla et al., 2015). Previous research has shown that market orientation has a positive impact on service innovation (Cheng & Krumwiede, 2012). In addition, Masa'deh et al. (2018) found that market orientation contributed the most to the enhancement of organizational development followed by technology orientation.

Several measurement instruments have been developed to examine market orientation in different contexts, e.g. the MARKOR scale (Kohli et al., 1993) and MKTOR (Narver & Slater, 1990). However, Wood et al. (2000) criticize these scales for being tested in for-profit business corporations and not being validated in other contexts. Based on previous scales, Wood et al. (2000) developed their own market orientation scale to be used in social and health care. Their research was the first step in validating the relationship between market orientation and hospital performance. The domain and key elements of market orientation in the scale developed by Wood et al. (2000) are market intelligence generation, market intelligence dissemination and market intelligence responsiveness. Market intelligence generation refers to a) gathering, monitoring and analysing information concerning clients/customers and environmental factors and b) gathering information using formal and informal means. Market intelligence

dissemination refers to a) sharing of information concerning clients/customers and environmental factors and b) ensuring horizontal and vertical information flows, participation of all departments and personnel and other marketing tools. Market intelligence responsiveness refers to a) developing, designing, implementing and altering programmes, goods/services, and systems to promote, price and distribute programmes, goods/services and b) utilizing segmentation and goods/services differentiation.

2.3. Service innovation capability

Den Hertog et al. (2010) have developed a conceptual framework of dynamic service innovation capabilities for strategically managing service innovation. The basis of their framework is a model of six dimensions of service innovation. Those dimensions are: 1) Service concept, which describes the value that is created by the service provider in collaboration with the customer. This kind of innovation could be, for example, a new idea of how to organize a solution to a customer's problem. 2) New customer interaction, where the interaction process between the provider and the client is an important source of innovation. 3) A new value system or set of new business partners, which are increasingly materialized through combinations of service functions provided by a coalition of providers. 4) A new revenue model: those firms with new service concepts have to find new models to distribute costs and revenues in appropriate ways. 5) A new delivery system: personnel, organization, culture, which refers to the organizational structure of the service company itself (the company may need to develop e.g. new organizational structures; (inter)personal capabilities or team skills). 6) A new service delivery system: technological, which shows the observation that those ICTs have recently enabled numerous service innovations. Den Hertog et al. (2010) remarks that a service company can innovate in either every single dimension, or in a combination of several dimensions.

After outlining six dimensions of service innovations, they integrate those dimensions with the idea of dynamic capabilities. According to Teece (2007), dynamic capabilities embody difficult-to-replicate capabilities required to adapt to changing customer and technological opportunities. Dynamic capabilities theory aims to explain an organization's ability to modify their internal resources to match the external environment. Hence, the dynamic capabilities approach emphasizes the dynamic and temporal approach to the reconfiguration of resources (Helfat and Peteraf, 2009; Siren, 2014). According to Augier and Teece (2009), it is critical for business enterprises to figure out where to put their resources, realizing those opportunities, and then defending and/or moving on when competition inevitably appears. Augier and Teece (2009) divides dynamic capabilities into three classes: the capability to sense opportunities, the capacity to seize opportunities, and the capacity to manage threats through the combination, recombination, and reconfiguring of assets inside and outside the firm's boundaries. In short, dynamic capabilities relate to the ability to sense, seize, and reconfigure (Teece, 2007).

The outcome of this integration (six dimensions of the service innovation model and the dynamic capabilities approach) is a framework of six dynamic service innovation capabilities. Those six dynamic service innovation capabilities are: 1) *Signalling*, which is looking for and interpreting signals from the real world: it is thus the capability to see dominant trends, unexploited needs and promising technological options for new service configurations. 2) *Conceptualizing* intangible new service ideas between the service provider and the client is a specific capability. 3) *(Un-)bundling*, which means the capability to (un)bundle, enrich or blend the existing elements in a new way or in a new context. 4) *Coproducing and orchestrating*, which requires that the core service provider has to co-design and co-produce a service innovation with other suppliers and manage the accompanying alliance. 5) *Scaling and*

stretching means both the capability to diffuse the service concept and capability building a valuable service brand. 6) *Learning and adapting capability* implies reflecting one's own performance by keeping track of failed and successful service innovation efforts.

Jansen et al. (2016) provides the operationalization for this framework of dynamic service innovation capabilities that Den Hertog et al. (2010) have developed. They used two sub-samples of a multi-industry survey for purifying and validating an actual measurement scale. Their measurement scale captures to what extent firms have dynamic service innovation capabilities that are relevant for different processes concerning the creation and implementation of new services. However, since learning and adapting is explicitly defined as a meta-capability that helps an organization to reflect upon the other capabilities (Hertog et al., 2010) it is not seen as separate dimension. Similarly, (un-)bundling capability was discarded since it does not reflect a dynamic capability that can be related to observable activities. But then Jensen et al., (ibid.) divided the capability of sensing (signalling in the 2010 framework of Hertog et al.) into two parts: sensing user needs and sensing (technological) options. Eventually, the measurement scale of Janssen et al. (2016) contains five capabilities, which are: sensing user needs, sensing technological options, conceptualizing, coproducing and orchestrating, and scaling and stretching. With their measurement scale, Janssen et al. (2016) found that the presence of several capabilities has a positive correlation with gaining turnover from improved rather than existing products. In addition, coproducing and orchestrating correlated with having a rapid growth in market share, whereas scaling and stretching was now related to none of the outcome variables. Overall, it seems that firms who have stronger dynamic service innovation capabilities also tend to perform better.

3. METHODOLOGY

3.1. Mixed methods approach

We used a mixed-method design to collect information. In this study, as usual, mixed-method research involves both quantitative and qualitative methods and data. Hence, methodological pluralism is a key feature in our study as it is generally in mixed methods research (Burke & Onwuegbuzie, 2004). The empirical data used was collected from survey and focus group interviews. The survey data is a core component of our research, while the focus group interview is a supplementary component (Morse & Niehaus, 2009, 14). In other words, we conducted a quantitative mini-study and a qualitative mini-study in one overall research study. Nonetheless, as Burke and Onwuegbuzie (2004) have stated, to be considered a mixed-method design, the findings must be mixed or integrated at some point. We expect that the focus group interviews provide a deeper understanding of the obstacles of adopting digitalization and new technologies in service innovations in social and health care SME than the survey could produce. Hence, by mixing results gained from both mini-studies we are aiming to gain a comprehensive understanding of the service innovation capability of SMEs in social and health care.

3.2. Quantitative data gathering and measurement constructs

The data for this research was gathered from Finnish social and health care SMEs in the area of South Ostrobothnia. A list of social and/or health care firms was ordered from the Business Register of Statistics Finland. From that list, the survey was sent to 433 postal addresses. To increase the number of responses, the survey was re-sent to entrepreneurs by e-mail addresses.

It was possible to find only 188 emails for those 433 enterprises. In addition, 45 phone calls were made and surveys were passed on to entrepreneurs on two different occasions. Finally, 46 enterprises answered the survey. 72 percent of respondents were women. Half the enterprises had a turnover of over 250 000 euros, while the other half had a turnover under 250 000 euros. Even though the response rate was low, the respondents represented a wide spectrum of SMEs in social and health care. 61 percent were health care entrepreneurs from various fields and the rest of the respondents were entrepreneurs from the social work sector such as child welfare.

We measured technology orientation with a scale from Gatignon and Xuereb (1997). It had seven items (5-point Likert scale) with Cronbach's alpha 0.96. Market orientation was measured with a scale specifically developed for health care companies by Wood et al. (2000). They base their scale on previous scale development by Kohli, Jaworski and Kumar (1993). The resulting scale of market orientation consisted of 11 items. Four items were used to measure intelligence generation (MO1–MO4), three items were used to measure intelligence dissemination (MO5–MO7), and four items were used to measure intelligence responsiveness (MO8–MO11). The 5-point Likert scale was used in these items. Cronbach's alpha demonstrated high reliability for the scale (0.88).

Service innovation capability was measured using a scale from Janssen et al. (2015). We shortened the scale by measuring the four subconstructs as follows: sensing user needs and technological options (four items, Cronbach's alpha 0.87), conceptualizing (four items, Cronbach's alpha 0.91), coproducing and orchestrating (two items, Cronbach's alpha 0.80), and scaling and stretching (three items, Cronbach's alpha 0.89). In the model we united all these subconstructs to a one scale service innovation capability, which had high reliability (Cronbach's alpha 0.96). Table 1 presents the correlations, Cronbach's alphas, range, means and standard deviations for the scales.

Table 1. Correlations, Cronbach's alphas, range, means and standard deviations for the scales.

	Technology orientation	Market orientation	Service innovation capability
Technological orientation	1		
Market orientation	.41**	1	
Service innovation capability	.67***	.88***	1
Cronbach's alpha	.96	.76	.96
Range	1.0-5.0	1.55-5.0	1.1-5.0
Mean	2.4	3.4	3.3
Sd	1.1	.8	.9

** ,*** indicate significance at the 90 %, and 99 % level respectively.

Common method variance can cause problems in a study, if a single factor emerges from a factor analysis or if one general factor accounts for most of the covariances in the independent and dependent variables (Podsakoff & Organ, 1986). We tested the possible effects of common method variance for the variables collected using Harman's one factor test (Harman, 1976). All the items in the study (a total of 31 items) were factor analysed using principal axis factoring where the unrotated factor solution was examined, as recommended by Podsakoff et al. (2003). Kaiser's criterion for retention of factors was followed. The sample size seemed to be large enough for the factor analysis, based on the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO = .74) and Bartlett's test of sphericity ($p < .000$).

The factor analytic results indicated the existence of five factors with eigenvalues greater than 1.0. These factors explained 73 percent of the variance among the 31 items, and the first factor accounted for 49 percent of the variance. Since several factors, as opposed to one single factor, were identified and since the first factor did not account for the majority of the variance, a substantial amount of common method variance does not appear to be present. However, this procedure does nothing to statistically control for the common method effect: it is just a diagnostic technique (Podsakoff et al., 2003). Hence, the possibility of common method issues cannot be fully discarded.

We used standard linear regression analysis to test the hypothesized model. Tolerance and VIF-values were analysed to see that there was not a threat of multicollinearity between independent variables. In addition, there are several other assumptions that should be satisfied when using linear regression analysis related to homoscedasticity, autocorrelation and error terms (see Menard, 2010). All these were checked before using the regression analysis.

3.3. Qualitative data gathering

We applied the focus group method for the qualitative data gathering part. Focus groups have become increasingly popular in applied social research, especially in the field of health (Puchta & Potter, 2004). The focus group also functions as an adjunct to other research methods such as individual interviewing, participant observation, surveys or experiments (Wilkinson, 1998). The focus group provides a deeper understanding of the phenomena being studied. The group may encourage participants to make connections to various concepts and ideas through discussions that may not occur during individual interviews (Nagle & Williams, 2013). At the same time, the focus group offers an opportunity for the researcher to listen to local voices (Liamputtong, 2011, 4). Above all, focus groups are collective in their nature – giving participants opportunities to define what is relevant and important according to their experience (Liamputtong, 2011). In our project, we used focus group interviews for two reasons: first, to deepen the findings gathered in the survey, and secondly to create networks for possible future collaborations between the social and health care entrepreneurs.

We conducted the focus group in a way that would meet the criteria of focus group interviews by Puchta and Potter (2004). According to Puchta and Potter (2004) focus group moderation is a task-oriented activity: both moderators and participants aim for producing opinions about the chosen theme or issue. However, the interaction in a focus group is a flexible, open-ended thing, and is not mechanistic or deterministic. Puchta and Potter (2004) note that we should look at focus groups from a discursive perspective, and consider attitudes not as preformed but as performed. Then there is no need to be concerned whether individuals are precisely reporting their unique, private, inner attitude rather the opinions produced with this particular group of people in that given social context. According to Wilkinson (1999) the focus group is itself a social context. From a discursive perspective, a focus group provides a setting for considering interaction of people in a way that appears in everyday life: in conversation with others, in arguments, included in suggestions (Puchta & Potter, 2004).

Moderating a focus group is a complex set of formality and informality. Puchta and Potter (2004) outline a few important guidelines for the moderator(s) of a focus group. The moderator should generate a situation that is relaxed and informal while still managing the interaction. On the one hand, the moderator needs to lead the focus group participants to the correct answer or at least a useful one, while simultaneously presenting it as something arrived at by the members

themselves. The moderator should also beware of over-preparation and over-scripting the focus group action, rather using simply a checklist of questions. The moderator should encourage participants to POBA talk, which means talking of perceptions, opinions, beliefs, and attitudes instead of talking about knowledge, facts or truth. It is important to make it clear that the aim is not to find out how much participants actually know about the theme or issue, but rather their opinions, ideas and attitudes to it. It is also important to stress that a variety of opinions are desired and encouraged. (Puchta & Potter, 2004) Hence, the objective of the focus group is not to achieve a consensus on the issues discussed (Puchta & Potter, 2004; Liamputtong, 2011). However, it is important that the moderator obtains good and accurate information from the focus group (Liamputtong, 2011: 5).

Two members of the project team conducted the focus group interview. The focus group interview was organized during the digitalization workshop organized for social and health care entrepreneurs. Those entrepreneurs and experts invited formed the focus group (see Table 2 for the participants). There were 10 participants in total, plus two moderators in an arranged focus group. Typically, focus groups do not use random samples, but rather utilize convenience sampling (Nagle & Williams, 2013). Our participants were chosen to help the research gain a greater understanding the obstacles of using of new technology and digitalization in service innovations in social and health care SMEs. According to Nagle and Williams (2013), an optimal focus group has approximately five questions, which are open-ended because the intent of the focus group is to promote discussion. Our focus group interview was structured around the theme of digitalization and new technologies in social and health care enterprises. We had four questions in total, but for this study, we only analysed the focus group discussions that concerned the obstacles experienced in using digitalization and new technologies in service innovations.

Table 2. Focus group participants

Focus group participants	
Entrepreneurs in social or health care	7
Experts in social or health care	2
Experts in digitalization	1
Moderators	2
Total	12

4. RESULTS

4.1. Quantitative part

Standard linear regression analysis was used to test a model in which technology orientation and market orientation explain service innovation capability in SMEs. The results show (Table 3) that both technology orientation and market orientation have a positive and statistically significant effect on service innovation capability. Market orientation is the most important variable in the model (β .633). The whole model explains 78 % of the variance in service innovation capability.

Table 3. Regression results (standard deviations from the mean and β).

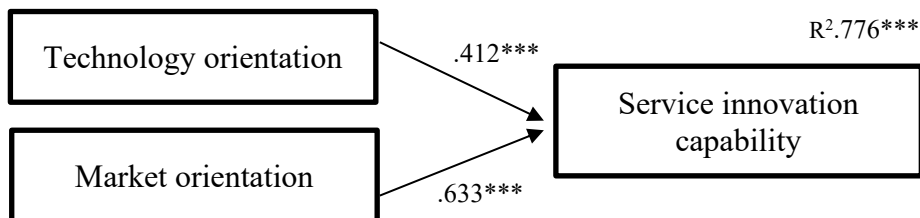
Dependent variable: service innovation capability	
Constant	-.242 (.311)
Technology orientation	.348*** (.065) β .412
Market orientation	.791*** (.097) β .633
R-squared	.786
Adjusted R-squared	.776
F statistics	79.170***

Standard errors are reported in parentheses.

*** indicates significance at the 99 % level respectively.

The results indicate that technology orientation and market orientation are able to explain majority of the variance in service innovation capability. This means that these factors are in the core in explaining how well social and health care SMEs are performing in innovating new services. Results show that market orientation is even more important factor explaining the service innovation capability than technology orientation. This means that for innovating new services, market intelligence generation, market intelligence dissemination and market intelligence responsiveness are the key factors. Figure 2 presents the tested model for this study with adjusted R squared and β -values.

Figure 2. Linear regression model of the study.



Hypotheses 1 and 2 are both supported. Technology orientation has a direct and positive relationship with service innovation capability (β .412; $p < .000$). Market orientation has a direct and positive relationship with service innovation capability (β .633; $p < .000$).

4.2. Qualitative part

We used qualitative content analysis to categorize and analyse the focus group data to create comprehensive interpretation of the topic (Krippendorff, 2013). At first, we coded all the material from the focus group related to obstacles to using new technology and digitalization in service innovations in social and health care SMEs. Then we categorized those themes that focus group participants brought forth around the topic. At this stage, we held several rounds of discussion in our research group. Finally, we came up with the four key factors that hindered the development of new technology and digitalization in service innovations in social and health care SMEs. First we identified a hindering factor is *lack of resources*. Focus group participants felt that it is difficult to adopt new technologies because of a lack of resources. Firstly they said

that they do not have time to search and test new devices, software etc., and secondly they had doubts about the possible costs of introducing new technologies. As here, one entrepreneur says that she lacks both resources:

For me it is the time management. I do not have time to find out what possibilities are there and then learn to use these new things. ... I have to say also that those costs. It is [an] issue for small enterprise. (Entrepreneur1)

The second hindering factor is a *lack of mutual language* between the social and health care providers and technology developers. According to focus group participants, technology developers are using a jargon that is not commonly intelligible for social and health care actors and in addition, developers do not have a very good understanding of the actual needs of the social and health care sector. As one of the entrepreneurs said:

In particular, the fields are so separate at the moment. So technology people are very good creating these tools but then they don't understand the end-user. And then the opposite way the health care experts do not necessarily have the knowledge or the skills or the understanding how to create these technologies. (Entrepreneur2)

The third hindering factor identified is the *old-world attitudes* of entrepreneurs, employees and customers. A focus group participant said that in social and health care sector there appears a rigid attitude towards adopting or developing new technologies and digitalization. Both entrepreneurs, and employees and customers, are rather suspicious of new technologies and digitalization. Especially among older employees, there is not a high interest in adapting to new technologies, as one entrepreneur describes:

It is more about the own willingness... If I am not interested (technology), why should I adopt it? (Entrepreneur3)

The fourth and last hindering factor identified is *impractical technology*. Focus group participants brought up that the existing technologies are still quite crude and inoperative. They felt that available technological solutions for social and health care are still in an early phase. Both social and health care entrepreneurs and experts wish that those new technological innovations and devices were more user-friendly and more functional. Current technological solutions are, on the other hand, so generic that they are thus unworkable for the use of small enterprises, and secondly some devices designed for customers are very uncomfortable to use.

Then these devices, which are available now, are clumsy and there are too much alternatives. (Entrepreneur4)

5. DISCUSSION

The first objective of this study was to examine the effect of technology and market orientation on service innovation capability. The results show that market orientation is positively related to service innovation capability. The effect of market orientation is even more important than technology orientation, which is also positively related to service innovation capability. This

confirms the findings of Cheng and Krumwiede (2012). Huhtala et al. (2014) also found that market orientation and innovation capability are linked: in their study innovation capability mediated the effect of market orientation on business performance. The results of this study show that market orientation is an important factor in social and health care. High market orientation improves the understanding of customer needs and competition environment, which in turn enhances the capability to innovate new services. It is interesting that market orientation was a more important factor affecting the service innovation capability than technology orientation. This may indicate that with social and health care, service innovations may be more customer-driven than technology-driven. However, technology orientation was also positively related to service innovation capability. Social and health care firms with high technology orientation have a higher capability to innovate new services. Digitalization is transforming the sector rapidly, and therefore it is important to have access to networks developing new technology in the field. Firms need both market and technology orientations. Tsou, Chen & Liao (2014) also found that proactive market orientation and technology orientation affect innovative competences. They argue that managers need to understand the market trends and technology available, and need to be able to customize corresponding services. This study also confirms this in the field of social and health care SMEs.

The second objective of this study was to examine the obstacles to using digitalization and new technologies in service innovations. The results show that some of the hindering factors arise from practices and attitudes of social and health care actors but others from the new technologies and their developers. Entrepreneurs related that those technological devices or applications that they have in use or that they have tested are quite ineffective and that this diminishes the use and adoption of new technologies. It seems that developers of technological devices and applications for the social and health care sectors do not yet understand the end-user well enough. However, Pajarinen and Rouvinen (2018) note that technological development is always cumulative: fundamental ideas need many complementary ideas around to be advantageous. Besides ineffective technologies, a lack of mutual language between the social and health care providers and technology developers hinders the adoption of new technologies in social and health care SMEs. It seems that activities and operation logics, along with jargon, are so different in the social and health care sector, than in the technological or digitalization sectors that collaboration appears very difficult, at least for social and health care entrepreneurs.

At the same time, according to our results preferring old-time practices rather than adopting new digitalized practices characterizes many of the actors in social and health care SMEs. Sometimes implementation of new technologies might be rapid, but for the people and organization, the integration and adaption of new technological possibilities might even take decades (Pajarinen & Rouvinen, 2018). Furthermore, the social and health care entrepreneurs interviewed felt that they do have neither time nor financial resources to develop or adopt new technologies into their services. This might result from the fact that in those social and health care SMEs most of the employees, and also the entrepreneurs themselves, have an education and work experience mainly from the social and health care sector. Hence, they do not have any inner expertise for introducing digitalization or new technologies, and they would need to find a completely new person with digitalization skills who could explore and introduce suitable technologies for their services. Hiring new employees is a high expense for SMEs. Altogether, it seems that social and health care SMEs lack competence in combining technological and social and health care knowledge. Hence, our results are congruent with Sharma et al. (2014), who claim that health care organizations often lack an understanding of how to best coordinate their resources and utilize their capabilities to address new challenges. However, with social

and health care SMEs, it should also be taken into account that the available resources are often limited.

This research verifies the arguments of Maksimainen et al. (2018). The limited resources of competence and time creates problems for small enterprises to develop new services. Market orientation and technology orientation are both resources of a firm, but both of these require time and competence that may be lacking from small firms. However, those SMEs that are able to acquire and develop these resources will have competitive advantage in a long run. In the social and health care sector in Finland, big companies are buying small ones in the market. For SMEs operating in this field, it is important to develop market and technology orientations in order to succeed and survive in the sector. High market and technology orientation improves the capability to deliver new services in the market and enables firms to become technological pioneers in the field. One practical strategy for social and health care SMEs with limited resources could be recruiting professionals with broad competencies – from technology, marketing, and social and health care. Another strategy is open innovation and user innovation (Vuorela et al., 2013). The idea of open innovation comes from the notion that valuable ideas come from both inside and outside organizations (Chesbrough, 2006). The advantage of small businesses is their close activity with their customers – the end-users. Hence, SMEs could and should involve their customers more in their service innovation processes (Vuorela et al., 2013). Co-creation is one suggested and employed concept/tool for open innovation and user innovation activity in SMEs (Vuorela et al., 2013) but more research is needed, particularly from social and health care SMEs.

6. CONCLUSIONS AND LIMITATIONS

Originally, Teece, Pisano & Shuen (1997) has introduced the concept of dynamic capabilities to capture rapidly changing environments. Further, Helfat et al. (2007) have introduced how the performance of dynamic capabilities can be measured from two perspectives: evolutionary fitness and technical fitness. The former, evolutionary fitness refers to firm's ability to change its' practices to keep up with the changes in the markets whereas; the latter, technical fitness shows how well a capability performs its' function. Thus, the service innovation capability of social and health care organization can be conducted with high quality and doing things right (technical fitness), but in order to become competitive in the light of market demand and competition, the elements of evolutionary fitness are also needed, that is, *"how well the capability enables the firm to make a living by creating, extending, or modifying its resource base"* (Helfat et al., 1997: 7).

In this study, the utilized measures, market orientation and technology orientation support firm's ability to explore ideas and diffuse the gathered knowledge into the organization. When companies sense and seize new ideas, the final requisite left from the dynamic capability perspective, is the organization of resources in accordance to the market led changes. Teece (2007) calls this reconfiguring, including the management practices of companies. In this study, we answered the last element, reconfiguring, by explicating obstacles that hinder service and health care SMEs to move forward with the ideas of developing digital services.

The results of the qualitative part of this study revealed that in the context of social and health care SMEs, challenges arise that can even affect the evolutionary fitness of service innovation capability. Lack of resources and common language, impractical technology and old-world-attitude are all attributes that can hinder the re-organization of resources. When absorbing new

technology, multiple skills are required: how to buy and compare new solutions, how to modify functions to own purposes, how to keep up with the budget, let alone the technology itself and the training of employees, as well as the customers. In SMEs, a small organization can be a benefit when it comes to the flexibility in implementing new solutions.

Still, as these obstacles exist, we would suggest further research in SME context, where the role of manager-owner would be investigated in the light of new technology absorption. Teece (2007) recognizes managerial role in creating dynamic capabilities, and it would be interesting to find out what kind of influence manager-owner's viewpoints have on the organizational level capability development and following outputs.

There are some limitations to this study. First, the data was collected from one country and one region. Hence, the results cannot be generalized in all contexts. Second, the data for the quantitative part is quite small. However, the qualitative part adds knowledge for this phenomenon. By using mixed-method, we managed to grasp this complex phenomenon at least slightly more profoundly than by using one research method alone.

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