

Understanding Drivers for Acceptance and Use of Digital Care Services for Seniors: Learning from a Value-Focused Thinking Study in Poland and Sweden

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Abstract

In order to maximize sustainability of digital services for seniors, the opinions of the main stakeholders and the broader context of independent and healthy ageing should be taken into consideration. Therefore, we applied a Value-focused thinking (VFT) approach to understand values held by seniors in the context of implementation of ICT for independent and healthy ageing. To this end, we conducted interviews with seniors in Poland and Sweden, which are countries with very diverse approaches to digital care services (DCS). Based on the interviews with seniors, we discovered 7 common fundamental objectives and 11 means objectives supporting the fundamental goals with varying understanding depending on a country, which allowed us to discuss the drivers for acceptance and use of DCS for seniors.

Keywords: Value-focused thinking, digital care services, elderly, Poland, Sweden.

1. Introduction

Nowadays, population ageing is a typical phenomenon in developed countries. This process will be deepening in the future and will involve most countries in the world, challenging existing care models, social structures, and family relationships (European Commission, 2017; Harper, 2014). In this situation, we must adapt to an ageing and shrinking workforce, at the same time experiencing the growing number of elderly people, and find effective and financially feasible ways to deliver high-quality health and social care for all, including more and more older people (European Commission, 2021).

However, the demographic changes create not only a real challenge for society, but in particular for the older population and their helping formal and informal carers. Older adults should bear some responsibility for making sure they maintain their health, adopt a healthy lifestyle, and are engaged in their families and communities. The

challenge for helping carers is to shift away from traditional stereotypes and ageism and suggest interventions that focus on wellness and older adults' reserve capacities rather than on illness, patients, and symptoms (Bar-Tur, 2021; Foster & Walker, 2015).

In this respect, research conducted in the UK highlighted that many older people demonstrated a desire to cope with their illness and maintain independence. However, there are environmental factors which interfered with these efforts including lack of professional advice on self-care strategies, poor communication and coordination of services, and lack of information on services such as care pathways (Abdi et al., 2019). In the same vein, older adults in the Netherlands reported several unmet care needs including e.g. lack of a holistic approach, insufficient attention to the patient's state of functioning, their limitations in daily life and well-being, lacking personal continuity of care (Rimmelzwaan et al., 2020).

Prior studies suggest that supporting activities should incorporate practicing positive ageing and well-being strategies to increase autonomy, environmental mastery, and purpose in life, as well as a healthy lifestyle. This can be achieved together with various care services entailing the medical, physical, and mental health services. Supporting activities should be adjusted to individual older adults' level of functioning, special needs, and motivation (Bar-Tur, 2021; Harper, 2014).

The use of ICT and the evolution from a traditional to a digitalized model of services are often viewed as a solution for issues related to the ageing of the population and increasing healthcare expenses (Frennert, 2019). In this respect, two out of three key messages of the WHO Symposium on the Future of Digital Health Systems in the European Region (WHO, 2019) emphasize the need for transition of health care to predictive and preventive models of care and indicate that digitalization of health systems should put the individual at the center of their own health and well-being.

Despite these efforts, many of the initiatives fail because of narrow technology-driven focus and ad-hoc approaches as well as inadequate strategies (Greenhalgh

et al., 2020). To successfully introduce ICT solutions as part of existing care systems, ICTs need to be seen as means to achieve higher goals such as enhancing quality, improving well-being, increasing safety and efficiency of care (Östlund & Frennert, 2022; Sheikh et al., 2021).

Researchers developing new, more holistic models of care based on the efficient use of ICT applications posit that while social and informal care is essential to maintaining health and well-being and preventing the health problems of an ageing population, there are still gaps in knowledge about how best to organize it and how best to combine it with healthcare (Rigby et al., 2013). In particular, as suggested by a review by Nordin et al. (2021), future research should engage older adults and health professionals in developing technology based on their needs. Further, factors that influence older adults' use of ICT should be evaluated to ensure that it is successfully integrated into their daily lives. Similarly, in order to successfully design IS for well-being, it is necessary to involve all relevant stakeholders, ranging from users to companies that provide and/or use technology, as well as governance actors in the society (Spiekermann et al., 2022).

Following this argument, the current study seeks to answer: *What are the key values and drivers for acceptance and use of digital care services for seniors in Poland and Sweden?*

The current study focuses on values held by seniors in Poland and Sweden, as these countries demonstrate significant differences with respect to various technology-related and socioeconomic considerations such as social and healthcare system (Soja et al., 2019). The paper is organized as follows. In the next section, we provide the background for our study. Then we describe our research method, which is followed by the presentation of results. Next, we discuss our findings, explain implications, and provide concluding remarks.

2. Background

2.1. Demographic and healthcare-related considerations

Population ageing, defined as an increase in the share of older people in the population, is a typical phenomenon in developed countries (e.g. European Commission, 2017). According to UN projections (UN, 2019), in Europe, the share of people aged 60 years and more will increase from 2020 year to 2050 by about 9% and will constitute about 40% of the total population. Accordingly, the share of people at a more advanced age of 80 and more will increase by about 5% and will constitute 10% of the population. At the same time, the potential labor resources in the group aged 20–59 years

will fall by 7,6% to the level of 47% of the total population.

Furthermore, the expected demographic changes will affect Eastern Europe with more severe consequences due to migration processes (Potančoková et al., 2021). This is especially visible in the case of Poland as compared to Sweden. Within the group aged 20-59, the drop will amount to around 10,3%, while in Sweden only 3,2% in the period 2020-2050. At same time, the population 60+ will increase by 13% in Poland and 5% in Sweden.

The needs of ageing population will be challenging for society because of the increased number of older adults in the population, not followed by the same growth of available financial and human resources. This will put existing health and care systems at risk because of a strong increase in people no longer working, often in need of long-term health and social care, combined with an imbalance between active and inactive people, and a lack of formal and informal caregivers (Bloom et al., 2015; European Commission, 2021; Harper, 2014).

In the case of the analyzed countries, the situation in the health care system and its digitization is as follows. Due to the low level of public financing, the Polish health care system has significant shortages of the workforce and problems with access to health services. There is a shortage of formal long-term care facilities and services and a high degree of dependency on informal care provided by family members. The self-assessment of health of Poles (before the COVID-19 pandemic) was lower than the EU average. The indicator also worsens with age: only 25% of Poles over 65 declared good health in 2019, compared to 40% in the EU (OECD, 2021). Several e-health solutions have been implemented in recent years. However, most e-health tools only digitize the administrative process that used to be analog, and electronic tools do not include qualitative support for health professionals (Kowalska-Bobko et al., 2021).

In Sweden, the healthcare system is providing good access to high-quality care, but at a relatively high cost. Maintaining high-quality services, ensuring equal access to care, especially for people living in remote regions, and achieving better coordination of care for people with chronic diseases are becoming a problem. Almost half of Swedes aged 65 reported at least one chronic disease in 2017 and just over 10% of people aged 65 and over reported some limitations in basic activities of daily living, which may require assistance and it is much lower than the EU average. National electronic health records have been the norm in Sweden since their introduction in 2009, and since the end of 2016 the use of digital care contacts via video conferencing and text messages - particularly in primary care - has grown rapidly (OECD, 2019).

2.2. Drivers of acceptance and use of digital care services for seniors

Prior research suggests that there are various drivers for acceptance and use of DCS by seniors. These might include personal characteristics of an older adult, his/her past experience and knowledge, and also environmental factors. In this respect, De Regge et al. (2020) put forward the notion of personal and interpersonal drivers that influence attitudes toward and intentions to use gerontechnologies, i.e. technologies incorporating gerontological design principles.

In the context of personal drivers, Chen and Chan (2014) posit that personal attributes like technology self-efficacy and anxiety were more decisive than perceived benefits for predicting gerontechnology usage behavior of older adults. Similarly, computer self-efficacy has been demonstrated as significant factors of technology adoption by older users in the study by Hall et al. (2015).

Wildenbos et al. (2018) suggest that a number of seniors' personal characteristics might pose barriers to mobile health usage. These include cognitive ability, motivation, physical ability, and perception. On a more positive note, Hoque and Sorwar (2017) mention a number of factors impacting the seniors' behavioral intention to adopt mHealth services, such as performance expectancy, effort expectancy, social influence, technology anxiety, and resistance to change. Also, as suggested by research conducted by Sorwar et al. (2022), perceived usefulness of technology and trust appear significant factors for technology adoption by seniors.

The senior's health status and particularly the type of health decline appears a significant driver for technology use. As posited by Levine et al. (2018), seniors with new dementia, relocation to a nursing home, and declining physical performance seem especially poor candidates for technology interventions. In the same vein, Lai et al. (2022) suggest that initiatives to increase digital health use should target specific older adult subgroups. In particular, they suggest targeting younger older adults who are better educated and with stronger social network as such people are more likely to use digital technology.

The role of family and positive attitudes toward technology has been emphasized by De Regge et al. (2020) in their study in the context of gerontechnologies. In particular, De Regge et al. posit that family members' knowledge and beliefs in technology were the keys to promoting the actual use of gerontechnologies among older adults. In addition, the authors postulate that to foster technology acceptance among older adults it is important to strengthen the trust in and the attitude toward gerontechnologies.

Knapova et al. (2020) suggest that older adults' readiness to use e-health technology is predicted by their ICT usage. The authors also indicate an important role of psychological factors, such as the need for cognitive closure, which is defined as a desire for a definite answer and an aversion toward ambiguity. In this respect, the authors posit that individuals with a high need for closure perceived more barriers to ICT usage.

The knowledge about drivers for acceptance and use of DCS by seniors is still fragmented and relates to various contexts, different types of seniors, and various forms of ICT-solutions. Therefore, there is still a need for deeper and more general understanding of the drivers for acceptance and use of DCS by seniors. In the current study we do that by studying seniors' values.

3. Method

Value-focused thinking (VFT), applied in this study as a way for identifying individual values of seniors, was proposed by Keeney (1992) to improve decision-making in a specific context by grounding strategic decisions in values identified in that context. The VFT approach differs from traditional (problem-solving) approaches for decision-making. In particular, in the VFT approach, decision makers are encouraged to identify 'what they care about', whereas in traditional approaches they base their choice of a solution on availability (Keeney, 1992). As a result, the value-focused thinking approach helps decision makers to be proactive in decision making by creating value-based options instead of being limited to the available alternatives.

The current study was conducted following the VFT approach (Keeney, 1992), consisting of three steps: Identifying values, Structuring and restating values, and Classifying objectives. The research approach has been illustrated in Figure 1.

During the first step of our study, individual values held by seniors in the studied countries were identified and transformed into value-based objectives in-line with the VFT approach. Following VFT, we started the process of identifying value-based objectives by conducting interviews with the concerned people. In so doing we conducted in-depth interviews with 15 seniors in each of the studied countries (Soja et al., 2021). As indicated in a review by Peek et al. (2014), the median number of senior respondents interviewed during in-depth interviews in prior studies investigating the use of technology for ageing in place was 15. To ensure a relatively good representativeness and diversity of samples, we have chosen respondents of both genders (7 men and 8 women), aged 65-85 (the median respondent age in each country was approximately 78 years), with different places of residence (i.e. city, suburbs, rural

area) and varied health status (i.e. subjective evaluation from excellent to bad health status).

Our research belongs to pre-implementation studies, which typically use presentations to explain different types of technology for ageing in place to the respondents (Peek et al. 2014). By digital care services we mean care services where different kinds of ICT solutions are used/complement traditional care. Therefore, during the data gathering process we provided the interviewees with examples of these solutions such as health monitoring technologies, memory supporting technology, and technology assisting independent eating. For instance, we described how monitoring technology could trigger an alarm in case of emergency which would be send to carers allowing them to react on time. Such an example shows how an ICT solution maintains independent living at home.

During the interviews, as suggested by Keeney (1992), we used techniques to elicit respondents' implicit values, therefore we focused on trade-offs, consequences, impacts, concerns, fair and balance. The sample interview questions were "If there were no limitations, how would you like to use ICT to maintain independent and healthy ageing? What are the biggest problems today regarding maintaining independent and healthy ageing using ICT? What advantages for different stakeholder groups do you see in using ICT for independent and healthy ageing?". The interviews were transcribed and analyzed. During the analysis, to identify individual values in the gathered data, we focused on statements expressing problems, consequences, better or worse alternatives, or goals. The first step of the analysis resulted in a list of statements that were numbered, written as values, and input into a database. This step was conducted separately in each country.

During the second step, the statements were stated in a common value form in order to eliminate duplicates. Next, each value was converted into an objective, following the VFT rule that each value is anchored in an objective (Gregory & Keeney, 1994). Then, the value-objectives which were dealing with similar issues were grouped together into categories. The categories were labeled. To ensure a common interpretation of the categories, the data was analyzed by all the three authors. At the beginning, the objectives were categorized separately for each country. Then, the categories identified in each country were discussed in a group of researchers involved in this study and common cross-countries categories were created. It was an iterative process where some categories were re-named, merged, or/and removed. The process ended when all the researchers agreed that the categories were stable and an additional iteration did not bring any

additional changes. The first two steps of the VFT approach were initially performed in our prior study conducted in Poland, Sweden and Latvia (Soja et al., 2021). These steps were re-iterated and the data were analyzed in greater detail in the current study in order to achieve a better categorization of sub-objectives and prepare input data for the next step of the analysis.

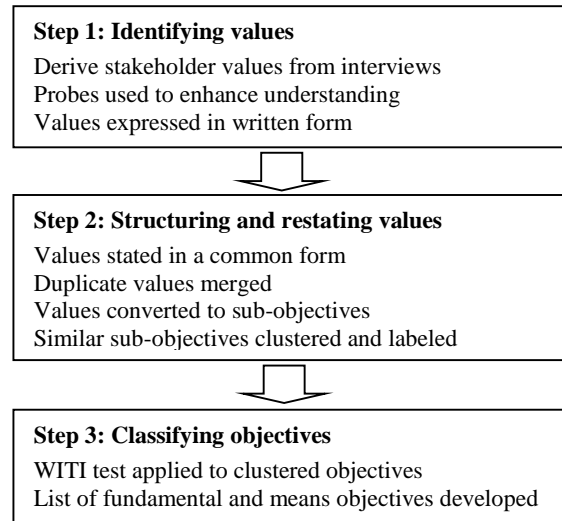


Figure 1. Research approach

The third step in the VFT approach is the classification of objectives into two groups: 'fundamental' and 'means' objectives (means and ends). Fundamental objectives are essential objectives in a given decision context, while means objectives help to achieve the fundamental objectives (Keeney, 1992). The WITI (Why Is That Important) test was used to classify the objectives (Keeney, 1992). During this test, each objective was investigated by asking a question "Why is this objective important in the decision context?". If the answer was that a given objective was important because of its implications for some other objective, it was classified as a means objective; otherwise, it was classified as a fundamental objective. In our study, the decision context is to maintain independent and healthy ageing with the support of ICT. We assume that the disclosed fundamental goals along with the means of achieving them will indicate drivers for acceptance and use of digital care services for seniors.

4. Results

This section includes the short descriptions of value-based objectives defined on the basis of opinions of seniors from Poland and Sweden. To highlight different opinions declared by either Polish or Swedish seniors, the relevant text has been formatted in italics. In the first subsection fundamental value-based objectives

were presented (Table 1). Then, in the second subsection, means value-based objectives were described (Table 2).

4.1. Fundamental value-based objectives

Ensure seniors' dignity – Technology should help seniors reduce their feeling of being a burden to the family and help them to feel respected and needed.

Ensure seniors' privacy – Seniors' awareness regarding handling their personal/health information and the importance of maintaining seniors' privacy was highlighted. It is important to know who can access information. *Additionally, Swedish seniors emphasized the importance of being aware about who decide about, interpret, and collect the information, and how the new solutions impact their privacy. They also emphasized the importance of considering privacy of other people*

living in the same household, having control over monitoring and be able to not feel controlled at home.

Increase seniors' activity – The important role of ICT in increasing self-development at older age was underlined. *Swedes more strongly emphasized that apps and/or social robots could inspire them to physical activity and stressed that they would like to use technology for entertainment.*

Increase seniors' independence – Seniors emphasized the importance of being able to live independently at home and cope with everyday activities, to be self-reliant, and to be able to operate the implemented technical aids. *Poles also wanted to have a possibility to control their health status by themselves.*

Maintain seniors' health – *Only Polish seniors emphasized the importance of maintaining health and expected that technological solutions would minimize deterioration of their health and ensure health monitoring in order to be aware of its condition.*

Table 1. Fundamental objectives in Poland and Sweden

Overall objective: Maintain independent and healthy ageing	
<p>Ensure seniors' dignity</p> <ul style="list-style-type: none"> • Increase seniors' feeling about being respected • Reduce seniors' feeling about being a burden <p>Increase seniors' activity</p> <ul style="list-style-type: none"> • Ensure seniors' physical activity • Ensure technology use for entertainment • Increase seniors' self-development <p>Maintain seniors' health</p> <ul style="list-style-type: none"> • Ensure health status monitoring • Minimize deterioration of health status <p>Maximize usefulness for family</p> <ul style="list-style-type: none"> • Decrease burden on family • Maximize solutions' usefulness for family living outside • Reduce relatives' anxiety 	<p>Ensure seniors' privacy</p> <ul style="list-style-type: none"> • Increase seniors' awareness of information security • Maintain seniors' privacy <p>Increase seniors' independence</p> <ul style="list-style-type: none"> • Ensure independent living at home • Ensure unaided solution's use • Increase seniors' self-reliance <p>Maximize seniors' safety</p> <ul style="list-style-type: none"> • Decrease seniors' fear of getting lost • Increase the sense of safety and security • Reduce seniors' anxiety <p>Minimize loneliness</p> <ul style="list-style-type: none"> • Ensure family's support • Ensure personal contact with people • Increase social involvement • Minimize isolation

Maximize seniors' safety – The importance of feeling safe stressed. *Polish seniors also emphasized the importance of decreasing their fear of getting lost and reducing their anxiety.*

Maximize usefulness for family – Technological solutions should reduce the burden on the family related to elderly care, *allowing the family to gain more time for themselves, which was especially emphasized by Poles. They also pointed to the usefulness of technology for families living far from seniors.* Polish and Swedish seniors emphasized that the technology should help reduce relatives' anxiety about the safety and health of the elderly.

Minimize loneliness – It is important to prevent loneliness, ensure contact with people and minimize

isolation. In addition, *Polish seniors mentioned the role of family in preventing their loneliness.*

4.2. Means value-based objectives

Create supporting environment – The importance of creating an environment that would maintain active and healthy ageing supported by ICT solutions emphasized. The awareness of ICT's impact on society to prevent possible negative consequences of digitalization underlined. The importance of creating pre-conditions for digitalization emphasized. *Polish seniors stressed that it is important to support country development and establish companies that would provide technical solutions. Swedish seniors*

emphasized the importance of maximizing municipalities' financial investments in digitalization of care, investments in financial resources and skills that would encourage digitalization, and informing relatives and peers about existing solutions. Swedes also underlined the importance of sufficient support in using technology and warned for too radical digitalization, which could lead to injustice and social gaps, digital exclusion, unbalance in power between different groups, and introduction of too many solutions.

Ensure seniors' digital inclusion – Seniors highlighted the importance of digital inclusion and

mentioned that it is important to involve seniors in development and testing of new technical solutions; however, Swedes emphasized the latter notion to a greater extent. Swedish seniors also emphasized the importance of involving seniors in discussions and sharing their technical knowledge, concerns, and experiences on different forums. Polish seniors emphasized the importance of wider Internet access as a pre-condition for digital inclusion.

Ensure solutions' availability – Seniors underlined the importance of affordable solutions and stressed that the solutions should be subsidized.

Table 2. Means objectives in Poland and Sweden

Means value-based objective	
<p>Create supporting environment</p> <ul style="list-style-type: none"> • Avoid too radical digitalization • Create pre-conditions for digitalization • Ensure sufficient support in using technology • Increase awareness of ICT's impacts for society • Support country's development <p>Ensure solutions' availability</p> <ul style="list-style-type: none"> • Ensure solutions' affordability • Ensure solutions' subsidization <p>Foster seniors' positive attitudes</p> <ul style="list-style-type: none"> • Ensure seniors' consent to use the solution • Increase seniors' trust in technology • Maximize readiness to help • Minimize fear of using technical solutions • Promote positive attitudes towards technology <p>Increase seniors' technical skills and knowledge</p> <ul style="list-style-type: none"> • Increase seniors' confidence in using technology • Increase seniors' technical skills • Maximize seniors' knowledge regarding technology <p>Maximize solutions' quality</p> <ul style="list-style-type: none"> • Ensure development of solutions meeting challenges arising in the future • Ensure solutions' certification • Maximize manual's comprehensibility • Maximize solutions' efficiency • Maximize solutions' reliability <p>Support seniors in daily activities</p> <ul style="list-style-type: none"> • Ensure development of solutions supporting seniors in daily activities at home • Maximize seniors' leisure time 	<p>Ensure seniors' digital inclusion</p> <ul style="list-style-type: none"> • Ensure access to Internet • Increase seniors' involvement in sharing their technical knowledge • Increase seniors' involvement in solutions' development and testing <p>Facilitate communication</p> <ul style="list-style-type: none"> • Encourage relatives to use technical solutions to contact seniors • Improve communication with family • Improve communication with other people <p>Improve care quality</p> <ul style="list-style-type: none"> • Ensure access to free care • Ensure preventive treatment at home • Ensure sufficient care • Increase access to various kinds of care • Increase care personnel's IT literacy • Increase efficient use of resources <p>Maximize alignment with seniors' needs</p> <ul style="list-style-type: none"> • Ensure development of easy to use solutions • Ensure development of solutions useful for individual needs • Ensure friendly design of the solution <p>Maximize support for care personnel</p> <ul style="list-style-type: none"> • Ensure access to fast information about health status • Improve carers' conditions of employment • Increase awareness of new technical solutions • Maximize solutions' usefulness for care personnel

Facilitate communication – Seniors strongly emphasized the need to improve communication with the family. The need to facilitate communication with other people was also highlighted, but to a lesser extent.

Swedes also pointed to the need to encourage relatives to use technical solutions to contact them.

Foster seniors' positive attitudes – Promoting positive attitudes towards technology among seniors highlighted. This is possible if seniors give their consent

to use the solutions and when seniors trust in technology. *Polish respondents highlighted the importance of minimizing fear in relation to using technology and the role of willingness to support and help their less experienced peers.*

Improve care quality – Technological solutions should ensure accessible and effective care. In this aspect, *Poles uniquely indicated the need for properly targeted help, while Swedes strongly emphasized the need to get help quickly.* Access to different forms of care is necessary (i.e. traditional with human participation and mixed, where technology supports the traditional form). The role of technology in more efficient use of resources emphasized (e.g. lower costs, less time-consuming). *Swedes pointed to the need to increase care personnel's IT literacy.* On the other hand, *for seniors in Poland, it was important to ensure preventive treatment at home with the help of technology and to enable them to receive free care e.g. on a voluntary basis.*

Increase seniors' technical skills and knowledge – It is important to maximize seniors' knowledge of technology and increase their own technical skills, as well as confidence in using technology.

Maximize alignment with seniors' needs – Technology should be adjusted to seniors' needs, i.e. technology needs to be easy to use, be useful for seniors' individual needs and have a friendly design. *Polish seniors emphasized that the digital solutions should be able to react without human operation and that an older adult should not be forced to remember to bring it with him/her. Swedish seniors emphasized that the new solutions should be similar to the existing ones such as cell phones.*

Maximize solutions' quality – The importance of solutions' reliability emphasized. *Swedish seniors stressed the importance of developing solutions that would meet future challenges. Polish seniors stressed the importance of solutions certifications and efficiency as well as comprehensibility of the manuals.*

Maximize support for care personnel – Seniors highlighted the usefulness of solutions for care personnel and improvement of carers' employment conditions. *Swedes believed that technical solutions should give caregivers opportunity to spend more time with seniors, but Poles expected that technology would reduce the frequency of visits.* In addition, *Poles indicated the need to provide care personnel with quick access to information on the health status, and Swedes indicated the need to increase the care organizations' awareness of new solutions.*

Support seniors in daily activities – Seniors emphasized the importance of developing solutions that would support them in coping with daily activities such as cleaning or remembering things at home. Moreover,

Polish seniors stressed the importance of having more time for doing other things than just coping with basic everyday activities.

5. Discussion and implications

The research question for the current study focused on the identification of the key values and drivers for acceptance and use of digital care services for seniors in Poland and Sweden. Previous studies (see section 2.2) have identified various drivers for acceptance and use of digital care services by seniors as for instance personal characteristics of an older adult, his/her experience and knowledge, perceived usefulness and usability of the ICT solution as well as environmental factors. Our results, based on the VFT approach, rooted in values held by seniors confirm the previous results but also deepen our understanding of the drivers for acceptance and use of digital care services for seniors.

Three important findings have emerged. First, we found that achievement of higher goals such as ensuring seniors' dignity and privacy, increasing seniors' activity and independence as well as minimizing loneliness (see Table 1) are important drivers for acceptance and use of DCS. In this way our results contribute to the literature arguing that a successful implementation of ICT solutions needs to focus on achievement of higher goals and not solely concentrate on technology effectiveness and its usability (Östlund & Frennert, 2022; Sheikh et al., 2021).

Second, personal characteristics of an older adult, his/her experience and knowledge, usability of the ICT solution as well as environmental factors (see Table 2) earlier emphasized in the literature, are also important but are considered as means to achieve the more important higher (fundamental) goals. Third, we have identified important environmental factors beyond these previously found in the literature. For instance, the role of relatives and family in creating positive attitudes toward technology has been highlighted by De Regge et al. (2020), but we also found that seniors' may be motivated to use DCS because they are concerned about well-being of their relatives and want to decrease their burden (see Table 1).

The fundamental objectives (dignity, privacy, seniors' activity and independence and minimizing loneliness see table 1), derived from seniors' values in the context of using ICT for independent and healthy ageing, correspond to a greater extent to the eudaimonic perspective on subjective well-being which focuses on optimal psychological functioning through experience, development, and having a meaningful life, while a hedonic approach emphasizes happiness, positive emotions, and the absence of negative emotions, as well as life satisfaction (Spiekermann et al., 2022).

Our findings show further that seniors in both countries, and especially in Sweden, do not perceive ICT solutions and digitization only in the context of healthcare. Other goals mentioned earlier are also important. Fundamental objectives and means to achieve them, as perceived by seniors in the context of using ICT for an active and healthy life, largely relate to both the eudaimonic perspective on subjective well-being as well as hedonic perspective (Keyes, 1998; Spiekermann et al., 2022). These two perspectives together describe a social dimension of well-being that emphasizes such aspects as social acceptance, contribution, and integration (Keyes, 1998).

Many values perceived by seniors in our study, e.g. those related to health, dignity, and independence, refer to the definition of health proposed by the World Health Organization (WHO). According to WHO, health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. In such an understanding, health and well-being appear closely intertwined concepts (Spiekermann et al., 2022).

Understanding the complexity of value-based goals in the context of independent and healthy ageing is important when designing IS for well-being. In this respect, the researchers point out that when designing IS for well-being, it is far from a straightforward task to define the actual design goal and measuring specific well-being outcomes. In particular, it is first of all important to clearly conceptualize and break down the broad well-being concept into more specific constructs in order to clarify the nomological network. In addition, one has to be clear about whether the goal is to change user behavior or to adapt the IS to the existing behavior (Spiekermann et al., 2022). By identifying fundamental and means objectives our study contributes to a deeper understanding of well-being in the context of independent and healthy ageing supported by ICT.

Our study shows that there are both differences and similarities between drivers perceived by seniors in Poland and Sweden. In particular, our findings indicate that most of the fundamental goals are present in the opinions of respondents from both countries. The especially similarly perceived goals regardless of the country include ensuring seniors' dignity, increasing seniors' activity and independence, and minimizing loneliness.

On the other hand, the biggest differences concern health-related goals, which are perceived only by Polish interviewees. Other fundamental goals which differ significantly across countries are maximizing usefulness for family and seniors' safety, which are perceived more broadly by Poles. In general, it seems that Polish seniors focus more on basic needs, highlighting, for example, the values related to maintaining health or maximizing usefulness for family and safety. This can be largely

related to the weaknesses of the social and health care system in Poland, characterized by problems with access such as long waiting times and high reliance on informal care provided by family members (OECD, 2021).

While analyzing the differences, we may observe that the needs formulated by Swedish respondents are often more sophisticated and concern, for example, privacy-related considerations, which are perceived by Swedish seniors more from the perspective of active users or people better familiar with the problem of privacy in the field of ICT use. Such differences in perceptions can be explained by the higher level of digitization of the society and economy in Sweden as compared to Poland (Soja et al., 2019).

Taking into account the means objectives in Poland and Sweden, the differences might result, similarly to the fundamental goals, from socioeconomic considerations related to level of digitization of society and economy as well as the organization of social and health care systems in both countries. In this context, we might notice that respondents in Poland put a greater emphasis on economic and financial considerations and availability of solutions and care. While talking about the quality of care, Polish seniors mention access to free or subsidized care and the concern for the country's development is noticeable in their opinions.

Problems of the Swedish healthcare system are related to the relatively high costs of high-quality care, due to the increasing number of elderly people. The Swedish health system faces persisting challenges in providing equal access to care (OECD, 2019). These problems are perceived by Swedish respondents who reveal goals related to building an environment for technology development as a means of supporting an active and healthy life. As the Swedish society has longer experience in the use of new technologies in everyday life and health care, their approach is more long-term and conscious. In particular, they emphasize the notion of securing sufficient support in using technology and warn against too radical digitalization, which could lead to injustice and social gaps.

Despite the fact that many fundamental objectives are the same in both countries and some solutions might be common for countries with different socioeconomic considerations, it should be taken into account that the pace of digitization should be adapted to the local context. In this respect, in Poland we might notice a more basic, passive approach to technology. Digitization boils down to access to the Internet, seniors perceive themselves more as recipients of ready-made solutions, although they would like to test solutions. Seniors in Sweden, in turn, are more restrained and they experienced that digitization is not a solution to all problems. Nevertheless, they envision themselves as co-

creators of solutions and partners in the process of solutions development. Therefore, we might conclude that despite differences in the perceptions of ICT by seniors, their role in technology is crucial and should be emphasized in the process of digitization.

Our findings illustrate the risk of the short-term perception of the role of ICT. Such an perception is typical of transition economies, i.e. countries transitioning from a centrally planned economy to market economy. In this respect, extant studies suggest that in transition economies many ICT investments are conducted with the purpose of short-term operational improvements rather than long-term strategic considerations (Soja & Cunha, 2015; Soja & Weistroffer, 2016). The opinions of our respondents living in Poland, which is an example of a transition economy, appear to confirm prior research conducted in such an economic environment.

To sum up, we might conclude that there are some warnings stemming from the opinions of Swedish seniors. At the same time, there is the notion of appreciation of traditional values in the opinions of Polish interviewees. Therefore, an important question arises whether it is worthy to follow the more-developed and more-digitized countries. This appears an interesting avenue for future research.

6. Conclusion

Our preliminary study illustrates that when introducing new ICT solutions to support the ageing population, one should take into account the goals rooted in the values of older people. These are ensuring seniors' dignity and privacy, increasing seniors' independence and activity, maximizing seniors' safety, health and usefulness for family, and minimizing loneliness. All these goals, apart from maximizing health, relate to the needs of seniors from both Poland and Sweden, so they do not seem to depend on socioeconomic considerations, although some of them include different specific goals related to these differences. Thanks to the VFT approach, we also indicate measures that are important to achieve these goals from the point of view of seniors' values. They include maximizing solutions' quality and alignment with seniors' needs, ensuring seniors' digital inclusion and solutions' availability, improving care quality and communication, fostering seniors' positive attitudes and creating a supporting environment. As the goals fit into the multi-faceted understanding of well-being and maintaining health, and the measures include activities combining various aspects of ICT support for formal and informal care, the results provide better insights into the drivers for acceptance and use of DCS for seniors.

The main limitation of the current study is associated with the number of respondents, i.e. 15 for each country investigated, which limits the generalization of findings. In the future research we plan to conduct additional interviews in order to achieve data saturation and better stabilization of the objectives' categorization. We also aim to further analyze the data and create a means-ends network of objectives to capture the interrelations among the objectives.

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