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Susanne Frennert & Katarina Baudin

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The concept of welfare technology in Swedish municipal eldercare

Susanne Frennert[a] ⬤ and Katarina Baudin[b]

aSchool of Chemistry, Biotechnology, and Health, KTH, Stockholm, Sweden; bSchool of Health Care and Social Welfare, Mälardalen University, Eskilstuna, Sweden

ABSTRACT

Purpose: An ageing population presents a challenge for municipal eldercare in Sweden due to difficulties recruiting staff and there being a strained economy. A strategy involving welfare technology is presented as one such solution. An important group to carry out this strategy involves those who work with welfare technology in municipal eldercare. In this paper we describe their perception of welfare technology, and the challenges and opportunities they perceive in utilizing it.

Methods: A self-administered online questionnaire was distributed to all Swedish municipalities and answered by 393 respondents. Analyses show that the respondents were representative of the different professions who work with welfare technology within municipal eldercare.

Results: Welfare technology was perceived as being more reliable and safer than humans with regards to supervisions and reminders. The respondents acknowledged factors that slowed down the implementation of welfare technology in municipal eldercare organizations, such as resistance to change, lack of finances, lack of supporting evidence, lack of infrastructure, high staff turnover, difficulties with procurement and uncertainties about responsibility and laws.

Conclusions: We found that the people who work with and make decisions about welfare technology in municipal eldercare organizations were generally very positive about the deployment and use of such technology, but there appear to be problems within municipal eldercare organizations to realize this vision. The lack of structured implementation processes and coherent evaluation models indicates inequality of the access to welfare technology and, as a result, even though Swedish eldercare is publicly funded, the availability of welfare technologies and their usage differ between municipalities.

➤ **IMPLICATIONS FOR REHABILITATION**

- The research findings show that implementing welfare technologies in municipal eldercare must include transformed working processes and long-term strategies or they may lead to conflicts of priorities or unstructured implementation processes.
- Structured implementation processes and coherent evaluation models are needed for equality of access and availability of welfare technologies in municipal eldercare.
- High staff turnover negatively affects the deployment of welfare technology and the root cause of high staff turnover needs to be addressed.

Introduction

Welfare technology is a concept that has been used by policy makers in the Nordic countries over the last decade, referring to a digital transformation and system-wide approach beyond a single assistive technology [1]. Welfare technology is defined as knowledge and use of a technology that can maintain and/or increase the feeling of safety, activity, participation and independence for a person of any age who has or is at an increased risk of having/developing a disability [2–8]. Since welfare technology is designed for people with diverse abilities and disabilities, there are a multitude of low- and high-tech devices that fit this description [9]. It includes technology such as robots, sensors, GPS alarms and digital reminders [6,10], which are suggested to help people in an ageing society [11–13]. Another promise of welfare technology is that it may enable older people to remain at their own homes for

longer [7]. This can be accomplished by providing digital surveillance, digital reminders, remote-communication with a health care personnel if needed, and by having physical examinations via cameras in their own home (i.e., not having to travel to their GP) [14].

The Nordic concept of welfare technology is closely associated with the promise of an improved public sector with services to support patients and independence as well as cost-effectiveness and improved working environments for healthcare and social care professionals [15]. In 2016 the Swedish government, together with the Swedish Association of Local Authorities and Regions, decided on a new eHealth vision for healthcare and social services [16]. The vision indicates the ambition of Swedish authorities regarding development welfare technology and of an even larger focus and allocation of resources towards an enhanced pace of

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digitalization over the next ten years. In this context, welfare technology is regarded by the Swedish government as the prerequisite for meeting the demands of future Swedish homecare and healthcare [16]. Considered efforts have been spent on promoting and developing policies for welfare technology and digital transformation in eldercare [17,18]. The consequences for failing to use welfare technology are exemplified as increased welfare costs and lower quality of care for the individual care receiver [6,14,19]. However, limited research has been undertaken to learn how these policies and the discourse surrounding welfare technology affect the perceptions and expectations of people who work with and make decisions about welfare technology in municipal eldercare organizations in Sweden.

Research about the use of information and communication technology (ICT) in the care of older people show that resistance and barriers that hinder the uptake of technology in these situations is common. One example is a meta-synthesis about remote monitoring technologies in the U.S.A. [20]. Mahoney (2011) found that union representatives were often resistant to technological change because they believed that technological interventions, if successful, would be used as substitutes for care staff. Furthermore, both care staff and union representatives perceived technological innovations as adding work to an already heavy workload. The meta-synthesis also shows that for healthcare technology to be accepted among care staff, it has to meet the perceived needs of care receivers [20].

In a similar manner, a literature review of English-language publications about the attitudes of healthcare staff to information technology reveals that different technical barriers, as well negative attitudes towards information technology due to time costs and the lack of technical support, have impeded the introduction of information technology in the care of older people [21]. Another example is a paper on the resistance to implementing welfare technology in Norwegian municipal healthcare services [22]. The authors describe four main forces of resistance: organizational, cultural, technological and ethical. Each of these increased the time required to implement information technology in municipal healthcare services. A study by the Canadian researchers Lapointe and Rivard (2005) suggests that resistance among care staff can be observed as ranging from passive uncooperative to aggressive when implementing information technology in hospital settings [23]. The above studies illustrate negative attitudes towards the use of information technology in the care of older people.

The above studies contrast with how welfare technology is portrayed in the Swedish political agenda, in which welfare technology offers fundamental, positive changes to Swedish eldercare [16]. This introduces a key question: does the political discourse impact perceptions about welfare technology through advocacy and by financing research and development into welfare technology to realize the political vision? In our analysis we draw on Foucault's theory of discourse. According to one of Foucault's definitions, discourse is "practical actions that systematically form the objects they are talking about" [24]. Such practical actions produce meaning, create subjects and construct what is possible and not possible to say in different institutions and contexts, such as policies for eldercare. Who can speak, how, when, about what and with what authority [25]? Thus, discourses not only use prescriptions of characters, they also produce them. The dissemination created in the discourse between those who can speak and in what way they do it, is penetrated by power relations. Power here is not a question of any particular person having power against anyone else. Instead, power is something that is constantly present and positions different subjects and their relationships to each other [26]. Discourse is often established by people with power or authority. In this way, discourses can be used as an effective way to limit alternative ways of thinking and speaking. The concept of welfare technology has been used in Sweden and other Nordic countries as a way of describing the use of technology to improve the supply of products and services to citizens. Welfare technology is seen as an appropriate way of dealing with the issues of increasing resources for eldercare and is framed as fulfilling the needs and wishes of older individuals to be independent, active and socially engaged [18]. However, how welfare technology is perceived by people who work with and make decisions about welfare technology in the context of municipal eldercare is under-researched and forms the topic of this paper [7,19,27]. Although welfare technology is a Nordic concept, technology in home care is constantly increasing all over the world [2,3,6,28–32] and it is therefore of importance to understand how people who work with technology in healthcare perceive the opportunities and challenges of technology deployment in eldercare.

Aim

This paper seeks to explore the following key questions: (1) how do those who work with and make decisions about welfare technology in municipal eldercare perceive welfare technology? and (2) what challenges and opportunities do they identify in utilizing welfare technology?

Method

Material

To assess the perceptions of professionals working in municipal eldercare in relation welfare technology, we developed an online questionnaire. The questionnaire covered four areas of open-ended questions: the concept of welfare technology; advantages and potentials of welfare technologies; barriers to using welfare technology; and evaluation methods (Table 1). The questionnaire also covered areas of closed questions with a fixed number of options for the respondent to choose from: perception of speed of technological change; participation in decision making in regards to welfare technology; experimentation and exploration of welfare technology at work; involvement in procurement; and

Table 1. The open-ended questions.

Areas of open-ended questions	Questions
The concept of welfare technology	• What do you include in the concept of welfare technology?
Advantages and potentials of welfare technology	• According to you, under what circumstances is welfare technology superior or even more reliable than humans?
	• What kind of potential and advantages do you perceive with welfare technology?
Barriers to using welfare technology	• What kind of barriers do you perceive in using welfare technology at work?
	• What kind of problems do you perceive related to exploring or buying welfare technology?
Evaluation methods	• Do you evaluate welfare technology? If yes, how do you evaluate welfare technology?

about you (forthcoming article). The questionnaire was pilot tested with three potential users. The potential users were asked to answer the questions and to determine face-validity in the end by answering; "Please write your reflections and comments about the question concerning readability, clarity and layout". The pilot answers were analyzed. The authors also read and discussed the potential users' comments about the content and face-validity. The results showed that the survey was easy to answer; it took 10–15 min for pilot users to answer the full survey. Furthermore, the questions were appropriate, complete and effective to fulfill the purpose of our study. The psychometric properties in the questionnaire were both validity and reliability tested [33].

Procedure

A self-administered online questionnaire was distributed in May 2018 to a registrar in each Swedish municipality ($n = 290$). The registrar received a hyperlink to access the online questionnaire and was asked to distribute the link to those who are involved with welfare technology at the municipality's eldercare organization. The respondents were informed that their participation was anonymous and voluntary, that the data files with their answers were confidential and that the answers could not be linked to an individual, and about the aim of the questionnaire (i.e., to determine how people who work with and decide about welfare technology in eldercare consider and evaluate welfare technologies). The questionnaire consisted of closed questions with a fixed number of options for the respondent to choose from and open-ended questions in which the respondent could respond without a word limitation (Table 1). Our initial aim was to write one article. However, as the analysis unfolded, three things became clear: first the open-ended questions emphasize assumptions about end-user generated narratives of welfare technology, while the closed questions emphasize different aspects. Second, the closed questions generated quantitative data, while the open-ended questions generated qualitative data and therefore could not be analyzed and reported in the same manner. Third, we received very rich and detailed data in the open-ended questions and it was impossible to keep the essence of the qualitative data when trying to fit both the qualitative and quantitative data into one article. Therefore, this study will focus on the qualitative analysis of the data.

Qualitative analysis

Qualitative data analyses were performed using NVivo software. The data were analyzed according to the principles of qualitative data analysis, with inductive and deductive phases [34]. The analysis was conducted in several steps. First, two researchers read the free-text responses separately to get an overall picture of the material; each researcher then reduced the data into essential expressions concerning the conceptions, impacts, functions, evolutions of and barriers to welfare technology. Next, each researcher coded the text into meaning units, wrote condensed meaning units and interpreted the underlying meaning; the condensed meaning units were examined in relation to similarities, variations and differences and grouped into sub-themes. The researchers then compared their separate analyses and investigated whether there was a pattern in the data according to the professional affiliations of the respondents; however, no such trend was visible in the qualitative data. The final stage saw the researchers come to a consensus regarding categories and classified the sub-themes into four main themes related to the four open-ended questions: what is included in the concept of welfare technology; circumstances when welfare technology is superior or even more reliable than humans; problems related to exploring or buying welfare technology; and evaluation of welfare technology (Table 2).

Ethics

The guidelines of research ethics issued by the Swedish Research Council [35] were followed. The research does not cover any sensitive information and therefore does not require ethical approval according to the Swedish regulations on research ethics [35].

Results

The online survey was circulated to 290 Swedish municipalities; 393 people who work with and make decisions about welfare technology completed it. Table 3 shows the professional affiliation of the respondents. A majority of the respondents had lengthy experience working within eldercare, with a median of 20 years. Most of the respondents were women (86%), which also reflects the reality of health care sector in that is a female-dominated occupation [36].

Table 2. Themes and sub-themes.

Themes	Sub-themes
The concept of welfare technology	• Welfare technology as an enabler for the individual and for the healthcare provider • Welfare technology as a simplifier • Welfare technology that increases and/or maintains the quality of life for care receivers • Different kinds of technology
Advantages and potential of welfare technologies	• Increased reliability and safety • Increased quality of care for care receivers • Increased efficiency for caregivers
Barriers to using welfare technology	• Resistance to change • Lack of funding • Lack of supporting evidence or proof • Lack of infrastructure • Difficulties with procurement • Uncertainties about responsibility and laws • High staff turnover • Proponents of welfare technology leaving their position
Evaluation methods	• Lack of evaluations • Implement technologies used by other municipalities and those evaluated elsewhere • Strategy for evaluation and implementation • Methods depending on the technology and the project

The results provide new information regarding perception of welfare technology, and the challenges and opportunities perceived in utilizing it by Swedish eldercare professionals (Table 2).

The concept of welfare technology

The survey responses suggest that the concept of welfare technology is associated with positive purposes such as enabler, simplifier and as support for care receivers and care staff.

The respondents referred to welfare technology as various kinds of technology that *enable* new approaches of delivering both traditional and emerging types of welfare services to people in need of care. Welfare technology was perceived as *enabling* new ways of working that would benefit both the individual care receiver and the healthcare provider. The respondents advocated that welfare technology can streamline and enhance the quality of welfare services supplied by the municipal eldercare organization.

Furthermore, more than nine out of every ten respondents reported that welfare technology may *simplify* everyday life for care receivers and care staff by providing a higher degree of mobile data accessibility. For example, care staff would be able to access digital records while on the go rather than rely on paper copies; in turn, these records could then be updated much more quickly than on the current system. Welfare technology was also thought to enable care receivers to access their own data and care plan, which in turn would facilitate increased involvement in and understanding of their own care. As one of the respondents wrote: "*Data sharing and digital records make welfare services more assessible for care receivers. It enables the care receivers to be more involved in their care*" (male eHealth/IT strategist).

Almost eight out of every ten respondents referred to the definition of welfare technology: knowledge and use of technology that can maintain and/or increase the feeling of safety, activity, participation, and independence for a person of any age who has or is at an increased risk of having/developing a disability [7,37,38]. As in the definition, the respondents' concept of welfare technology involved *increasing or maintaining the care receiver's quality of life*. One of the respondents described this as: "*welfare technology and digital solutions will directly or indirectly increase the quality of life for people with impairments. It will increase their feeling of safety and make them more independent*" (female chief responsible for rehabilitation).

The respondents often mentioned the abstract idea that welfare technologies are enablers, simplifiers and serve as a support for both care receivers and care staff; others gave concrete *examples of technologies* that they viewed as welfare technology. For a brief selection of examples that were mentioned by the majority of respondents, please see Table 4.

Advantages and potentials of welfare technologies

Respondents were asked, "According to you, under what circumstances is welfare technology superior to or even more reliable than humans?" Prevailing answers to this question referred to technology as *more reliable and safer than humans*. Statements expressed that technology would decrease the risk of human errors and that the automation of decision-making processes and administrative tasks would provide faster, more accurate and fairer treatment for care receivers. Examples were given in which humans were portrayed as making decisions based on emotions, while technology that supported the decision-making process or automated the decision-making process were portrayed as providing objective and fair treatment. Digital reminders were also seen as superior to humans, as articulated by one of the respondents: "*Digital reminders are almost always safer than the human memory…*". Similarly, another respondent wrote: "*Automation of administrative tasks and decision-making processes will decrease the risk of mistakes due to human factor errors. Therefore, it will become a faster, more fair and accurate treatment of care receivers*" (female occupational therapist).

Another area in which welfare technology was described as having an advantage to humans was in surveillance and supervision. Nearly seven out of every ten respondents expressed beliefs that welfare technology could provide around-the-clock surveillance and quick "check-ups" through digital-supervision that would not otherwise be made. Digital night camera supervision was also mentioned as an advantage to physical night visits. This is because digital "sightings" do not disturb the sleep of the care receivers as much as physical visits do. As one of the respondents described it: "*… camera supervision at night is much better than physical visits. It allows disturbance-free sleep and the care receiver does not need to worry about having unknown people going into her bedroom in the middle of the night*" (male specialist dementia nurse). Furthermore, GPS alarms that enable care receivers with

Table 3. Professional affiliation of the respondents ($n = 393$).

Professional affiliation	Responses
Nurse (specialist within dementia care)	13%
Nurse (chief responsible for medical)	19.8%
Nurse (chief responsible for rehabilitation)	7.1%
Occupational Therapist /Physiotherapist)	26.2%
Unit manager	26.2%
eHealth/IT strategist	7.4%
Sex (n: 393)	
Female	85.7%
Male	14.3%

Table 4. Examples of welfare technologies that were mentioned by the majority of respondents.

Welfare technology	Objectives
Surveillance cameras	Replaces physical visits with digital surveillance. The cameras can be used for digital visits during the day or night.
Key-free locks	Enables the home help staff to open different homes with their mobile phones; in this way they do not have to drive and retrieve keys if the round or visit schedule changes.
GPS alarms	Allows care staff to see the location of a care receiver.
Virtual doctors	Medical opinions or medical examination via video links; the patient does not have to leave her home to get a medical opinion.
Security safety bracelet with sensors	Analyses the movement patterns and can warn if there is an increased risk for falls; the technology is believed to help prevent accidents and can raise an alarm so that personnel can quickly aid the care receiver in case of a fall.
Mobile access to journals	Enables home help staff digital access to the patient's journal on their smart phones so they do not have to drive back and forth to an office for documentation or bring paper lists.
Digital signing of medications and drugs	Replaces paper lists and provides a digital notification if any action has not been carried out.
e-services	Enables digital communication with healthcare providers.

dementia to move around freely both indoors and outdoors while keeping the care staff updated on the care receiver's whereabouts were also mentioned as superior to having a full-time human companion watching the care receiver. GPS alarms were cited as an advantage to humans, both in terms of costs and by giving the person with dementia the feeling of freedom in that they do not require a constant companion. Although nine out of ten respondents expressed enthusiasm towards welfare technology, a few mentioned that welfare technology must be used as a supplement to traditional care, not as a substitute.

Barriers to using welfare technology

While almost all of the respondents in the survey embraced the benefits that welfare technology is believed to offer, eight out of ten respondents also highlighted the problems and barriers they encountered when trying to explore, test and implement welfare technology in the municipal eldercare organization in which they worked.

One barrier mentioned multiple times was *resistance to change* exhibited by management, politicians, the IT department, older care receivers and the frontline care staff. In some municipalities, management and politicians thought that welfare technology was too expensive and they did not understand the benefits compared to the high costs. In others, the IT department did not share the vision of the eldercare organization regarding the desire to diversify welfare technologies to better align with the needs of individual care receivers, but instead sought to develop technological platforms built for single applications. The resistance to change exhibited by frontline care staff in the municipalities was due to the staff already feeling overburdened by care work. One of the respondents stated her frustration: *"The problems consist primarily of creating a willingness to change in the organisation. The changes take place faster than the organisation can cope. We are overburdened with work already…"* (female unit manager). Another respondent had similar concerns: *"… there is a fear of trying out new technology. A lack of commitment to familiarize with new technology, and therefore to understand the possibilities. This is a problem at all levels of the organization, from the elderly care receivers to the executives. We already have too much operative work as it is. We want a change in how eldercare is running, but no one wants to change. It is always someone else or something else that needs to change. Not us caregivers, but the older care receivers need to change but they are not into technology"* (female specialist dementia nurse). Echoing this statement, about half of the respondents mentioned that older care receivers had difficulty accepting, using and embracing *all* new digital technologies; they wanted traditional caregiving through human-to-human interaction.

Lack of finance was another problem that some of the respondents faced. Some eldercare organizations already had problems keeping to the allocated budget and had further requirements that negatively affected the exploration, testing and deployment of welfare technology.

Lack of supporting evidence and proof of the benefits and positive outcomes of using welfare technology was also articulated as a problem. One of the respondents described this as *"… a slow process. Projects have been running for several years in so-called test apartments but the results are little known or disseminated to the rest of the eldercare organization"* (male chief responsible for rehabilitation). This answer illustrates that municipal eldercare organization are running test projects, but it is unclear whether the projects are evaluated, what the results are and what the

overall aims of the projects are. Other respondents highlighted the same problem, with their municipal eldercare organization running several projects related to welfare technology without providing any proof or evidence of the outcomes, or ensuring the desired benefits for the entire municipal eldercare organization.

About half of the respondents mentioned a *lack of infrastructure* as a barrier to using welfare technology. They were encouraged to explore welfare technologies on their own, but buying welfare technology involved a complicated procurement process. The municipal *procurement processes* were mentioned as taking a very long time and the decision for procurement was taken on a centralized level in the municipality. One of the respondents expressed this as follows: *"Exploring I can do, if you mean to read and find out about welfare technologies or visit conferences, but to buy welfare technology in a municipal context is not a simple procedure. It is complicated and takes time. This is not something I can do by myself"* (female unit manager). One-fifth of the respondents mentioned that they had problems understanding what kinds of welfare technologies were *legal* and *lawfully right* to use in particular eldercare situations. They perceived that there were many out-of-date laws that were unsuitable for interpreting the use of welfare technologies in modern eldercare practices. This created uncertainty and insecurity, and seemed to be one of the reasons why a majority of municipal eldercare organizations implemented welfare technologies that other municipalities had already tested and implemented. A few of the respondents highlighted that the routines and guidelines for implementing welfare technology were not followed in practice. As one of the respondents wrote: *"The implementation process is not followed. Those who are the closest to the care receivers obtain the least training when it comes to welfare technology. Also, a risk assessment is often not conducted before the implementation"* (female chief nurse responsible for medical).

Another major barrier mentioned by nearly all of the respondents was *high staff turnover*. This resulted in problems because as the people who had been trained to use the technology quit, new staff had to learn how to use it. Since care staff change continuously, the training likewise needed to be continuous so that all staff were up-to-date. However, training sessions were often done in one batch, which required the "old staff" to train the new; this was perceived as interrupting the workflow and an added burden. Another problem mentioned in regard to the high staff turnover was that often one person was a driving force behind testing a welfare technology. When this person left the organization, the "welfare technology project" often stopped as well. *High staff turnover* was also mentioned to exist among executives and management of the eldercare organizations, which in turn creates different priorities regarding welfare technology depending on who was leading the department. The lack of continuity among care staff and management was seen as a major structural barrier for long-term strategies of welfare technologies. One of the respondents expressed this as follows: *"The priorities vary tremendously depending on who is the principal of the eldercare organization. In recent years, we have changed executives several times, every 9 months on average. The different executives have had varied interest in welfare technology, from a high interest in technology and with a total focus on welfare technology to those uninterested in technology. Therefore, it has been extremely difficult to work with long-term strategies for welfare technology since the priorities change depending on who is leading the eldercare organization. Sometimes it is a complete standstill and sometimes too fast forward"* (female specialist dementia nurse).

Evaluation methods

We asked the respondents, "How do you, in your eldercare organization, evaluate welfare technology?" Nearly nine out of every ten respondents across different occupations acknowledged that evaluation of welfare technology was important, and should be done better and more thoroughly than it was at present. Eight out of ten of the respondents highlighted a *lack of evaluations*. For example, one declared: *"We make too few evaluations, and the ones we do are poorly conducted"* (male unit manager). Almost two out of every ten respondents mentioned that they do not do any evaluations since the implementation of a certain welfare technology is a political decision that they just accommodate.

Instead of conducting evaluations, almost all of the respondents across different occupations mentioned that they implemented welfare technologies that had already been tested and used in other municipalities. Based on these responses, it appears that there is a belief that evaluation results can be extrapolated from one eldercare organization to another.

Discussion

In this paper we explore how welfare technology is understood by people who work with and make decisions about such technology in the context of municipal eldercare. An online survey was designed and distributed to all Swedish municipalities ($n = 290$); 393 respondents submitted answers. This paper analyses the responses to the open-ended questions with a focus on: (1) how do those who work with- and make decisions about welfare technology in municipal eldercare perceive welfare technology? and (2) what are the challenges and opportunities they identify in utilizing welfare technology?

In general, the respondents held positive attitudes about welfare technology. Welfare technology was perceived as an enabler, a simplifier and as a support for both care receivers and care staff, which is very much aligned with the definition of welfare technology. In particular, the definition of welfare technology describes its capabilities (e.g., maintain and/or increase the feeling of safety, activity, participation and independence) and also outlines a positive image that the majority of respondents seemed to share.

As exemplified by Foucault's writing, discourses enable, limit and reproduce thoughts and actions about what we hold to be true and important during a certain time in history [25,26,39]. The notion of discourse plays a central role in Foucault's thinking; he uses the term to refer to ways of thinking and talking about certain topics that are united by common assumptions. For example, Foucault showed how discourses on insanity had changed dramatically from the Middle Ages to the present [40]. In the Middle Ages, insanity was generally regarded as harmless, while in modern times, insanity has been shaped by a scientific, medically-based discourse, with emphasis on disorder and treatment. According to Foucault, power operates through discourses, thus shaping the general attitude [40]. In this sense, definitions affect how we talk about certain things. Our survey shows that most of the respondents were familiar with the definition of welfare technology and participated in the positive discourse surrounding it. Welfare technology was highly regarded in terms of reliability and safety compared to human workers, who were perceived as being more subjective and unreliable due to their emotions and state of mind, and prone to errors because of their heavy workload. These findings contrast with the results of other research, which shows resistance towards technologies in the care of older people [20–23,41].

The generally positive attitudes towards welfare technology may be explained by the political discourse surrounding welfare technology [18,42]. The Swedish government has set a vision for eHealth 2025 to strengthen the long-term development of health, medical care and social services: "*Sweden will be best in the world at using the opportunities offered by digitalization and eHealth to make it easier for people to achieve good and equal health and welfare, and to develop and strengthen their own resources for increased independence and participation in the life of society*" [16]. The arguments for using welfare technology are embedded within the challenges of dealing with an ageing population and the shortage of care workers. The consequences for failing to use welfare technology are portrayed as increased welfare costs and higher taxes for citizens, or lower quality of care for the individual care receiver [6,18,19].

Another reason may be a result of the Swedish government funding selected municipalities to conduct experiments about embedding welfare technologies into eldercare practices [43]. Some of these municipalities experimented with the use of night surveillance cameras, which replace physical visits with digital surveillance during the night, while others experimented with GPS alarms, which allows care staff to see the location of care receivers (ibid.). The findings of these experiments have been widely distributed through the media and at national conferences, and, as a result, the experiences and changed care practices may have shaped the perception of welfare technology among people working in other municipalities [44]. A telling example is that the most commonly used welfare technologies in Swedish municipalities are the ones that the selected municipalities initially tried out: GPS alarms and night surveillance cameras [44]. In 2018, about 863 care receivers who lived at home had camera surveillance at night and 707 care receivers had GPS trackers [44]. The argument for GPS trackers is that it enables the care receiver to be out and about, which in turn will enable independence and participation in society (e.g., possibility to visit libraries, local shops or go to meeting places). The argument for camera surveillance at night is that care receivers will not be woken up as result of a physical visit or get scared by having strangers visiting their home at night. The emotive arguments involve independence, safety and integrity, and, as such, welfare technologies exemplify ideas of what good life in old age should look like [45]. This positive vision appears in various forms in the respondents' answers. However, the respondents also acknowledge barriers that hinder the uptake of welfare technology.

The respondents of our survey mentioned that there was resistance to change among politicians and managers, some care staff and some older care receivers. Furthermore, they mentioned problems with the municipal IT infrastructure, tedious procurement processes, lack of finance and insecurity about legal matters. Lack of proof or evidence of the benefits with welfare technology was also mentioned as a hindrance to the deployment of welfare technology. This lack of evidence is likely explained by the scarcity of evaluations carried out on welfare technology at municipal eldercare organizations. Nearly eight out of every ten respondents mentioned that they did not evaluate welfare technology that might be deployed in the future. One reason given for this was that the municipal eldercare organization acts as a result of the decisions made by municipal politicians. If the politicians decide that a welfare technology should be implemented then the municipal eldercare organization does so. Another reason for the lack of evaluation could be due to high staff turnover. The respondents mentioned that the high staff turnover at all levels of the eldercare organization hindered long-term strategies for welfare

technology. If the driving force or principal leader of the implementation quit before the post-implementation stage, the drive to follow up and evaluate the technology might fade, or other priorities might move to the foreground. This is something that needs to be investigated further: the effects of staff turnover at all levels in the eldercare organizations on the implementation and evaluation of welfare technology.

Limitations

A number of matters regarding employing welfare technologies in a municipal context have been stressed. It is not always clear whether these matters are the result of the local context and its infrastructure, or whether they result from the more general outlook of deploying welfare technologies in a municipal context. Another limitation worth mentioning is that due to the anonymous responses, the geographic spread of the municipalities is not known.

However, since the number of municipalities is 290 and responses rate was 392, the spread is interpreted as good. Furthermore, Grint and Woolgar argue that technology can be seen as being an open text [46]. In this regard, a welfare technology is "written" or constructed by developers, in marketing and political discourse, targeting a certain group of users. These users, however, interpret the welfare technology and make sense of and give meaning to it. There is always more than one way to interpret a technology, but this study shows that a majority of the respondents had an equal interpretation of welfare technology as a concept. Furthermore, the interpretation mirrored the political discourse of welfare technology [16]. This was also visible in the results, as almost all of the respondents across different occupations mentioned identical examples of welfare technologies (e.g., Table 4) and articulated very similar narratives across the range of different eldercare professionals. Hence, the results present a useful and credible understanding of the concept of welfare technology among those who work with and make decisions about welfare technology in Swedish municipal eldercare.

Conclusion

Welfare technology is a Scandinavian concept that describes technology that can provide welfare services, and has its origin in political discourse and policymaking. In this paper we show how the discourse surrounding welfare technology is noticeable in the thinking of people who work with and make decisions about welfare technology in municipal eldercare, thus creating cultural and social expectations. Overall, the respondents had positive attitudes towards welfare technology and high hopes for its capabilities to improve working conditions for care staff and the quality of life for older care receivers. However, the responses show that the welfare technology discourse differs from the reality on the ground. While welfare technology was perceived as progressive and cutting-edge, the organizational structure and culture was perceived as regressive and resistant to change. This was attributed to a lack of finances, lack of infrastructure, difficulties with procurement and uncertainties about responsibilities and laws. Another major barrier was the high staff turnover at all levels in the organization. The high turnover among management and executives of the departments resulted in different priorities and short-term strategies, while the high turnover among frontline care staff resulted in the "old" frontline care staff spending time teaching the "new" staff how to use the technology, which interrupted the workflow and added to the work burden. Responses indicate the need for intuitive welfare technology with little or no training required, as well as the demand for a practical welfare technology evaluation model.

Disclosure statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

ORCID

Susanne Frennert http://orcid.org/0000-0002-9522-5469

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