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"These devices have not been made for older people's needs" – Older adults' perceptions of digital technologies in Finland and Ireland

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A B S T R A C T

This article examines how older adults use and perceive digital technologies in Finland and Ireland. These two countries are at different stages regarding two important global trends – demographic ageing and digitalization. Finland, being the fastest ageing society in Europe, is also one of the leaders in implementing digital technologies in social and health care services. In contrast, Ireland is a demographically younger and less digitalized society. Drawing on focus group discussions on the usage of digital technologies, conducted with older adults in both countries, we analyse how digital technologies are adopted and viewed by older generations. The analyses showed that older adults associate digitalization with both advantages and drawbacks. To encapsulate these two contrasting aspects, we developed the term Janus-faced conceptions of technology. This concept encapsulates how the successful adoption of digital technology facilitates everyday activities whereas the inability to utilise technologies results in feelings of alienation and being out-of-touch. The digital divide was found to occur not only between generations but also between different socioeconomic groups of older adults.

1. Introduction

Societies are shaped by a variety of mega trends, including population ageing and digitalization [9,14,18–21]. Digitalization is perceived as a potential solution to the rising care and pension costs of ageing populations [21,44]. The promise attached to digital technology is that it offers more effective ways to organise public services and care workers' time, and tools for self-care [41,46]. Thus, digitalization is seen as a cost-effective response to ageing populations [37].

Modern digital technologies also provide people with the opportunity to work remotely and access entertainment. Indeed, the internet can be used for reading newspapers, producing and consuming blogs, booking holidays, and for searching and sharing information on health and well-being [2]. Technology is also a useful tool for older adults to keep in contact with friends and family, and to engage in games and hobbies, but lack of support networks can hinder technology uptake [33,45,47]. At the same time, many everyday services are becoming web-based. In Finland, banks encourage people to use online services through their pricing policies and by reducing provision of face-to-face services. The majority of Finns already use the online taxation system, which is strongly encouraged, and within a few years, citizens will be

expected to manage their tax affairs solely online. The law on electronic drug prescriptions came into force in Finland in 2007 and since 2017, electronic prescriptions have been mandatory in public and private health care. Paper prescriptions are allowed only in exceptional cases. Public and private social and health care providers are developing on-line service systems. In Helsinki, 10% of all public sector home care visits are already made virtually [22].

While digitalization is advancing rapidly in Ireland, it has not yet the same level as Finland (Table 1).

As Table 1 shows, while broadband penetration and percentage of households with a broadband connection are higher in Finland than in Ireland, the most striking difference can be found in e-health. 99.6% of recording and storage of individual administrative patient data is done electronically in Finland in contrast to 63.7% in Ireland. In health and social services in Ireland, while databases are used, they are not linked, and communication between units (such as a hospital and community nurses) happens through letter post, faxes and telephone calls. In some cases, nurses and carers have developed ad-hoc responses to alert team members when there are any changes to the daily routine, for example by using a WhatsApp group for each client. However, this solution does not provide a link to family members or others engaged in home care

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Table 1
National differences in adoption of technology in Finland and Ireland.

	Finland	Ireland
Broadband penetration (as a percentage of total population)	30.7	20.2
Percentage of households with a broadband connection	66	43
Percentage of households with an Internet connection	72	63
Electronic exchange of patient data for at least one purpose	91	47
Electronic recording and storage of individual administrative patient data	99.6	63.7

Source: adapted from Currie & Seddon [38].

services and cannot safely share information with primary care team members and General Practitioners [51].

The evidence of less digitalization in Ireland can also be observed in banking. While there is a push to move services online, it is still possible to collect one's pension in Ireland in cash from a post office counter on a weekly basis, using paper-based documentation. This has as much to do with the Irish cultural, social and political context, where it is considered important to keep rural post offices open and profitable. Research shows that in Ireland younger participants (18–29 and 30–49 age groups) were most likely to use Internet banking, whereas older participants (50–64 and especially 65+) preferred conducting financial transactions face-to-face with a bank employee [36].

In addition to digitalization, population ageing shapes currently the Western societies [9,14]. In Finland, population ageing is already advanced compared to most other European countries, and the oldest-old (+85) is the fastest growing age group. The percentage share of people aged 85 and over in the Finnish population is projected to be 3.8% in 2030 and 6.7% in 2060. Furthermore, people over 65 currently constitute 21.5% of the population, and are projected to constitute 28.9% of the total population in 2060 [13]. In contrast, Ireland is one of the 'youngest' countries in the developed world, with only 13.4% of the population in the 65 and over age group [25].

Technologies are commonly proposed as one solution to the demographic challenges [14,15,44] despite the fact that people aged 65+ use the internet and digital technologies less frequently than younger age groups [5–7,48]. Furthermore, the literature [10–12] indicates that some older adults are at risk of becoming marginalized in access to online services. In fact, some older adults are at risk of being doubly marginalized, first because of their age and second because they are less likely to use digital technologies [2,5–7]. There are also differences between different groups of older adults, with lower socioeconomic groups [6,12,48] being most likely to become excluded from the benefits of digital technologies.

There is a notable difference in older adults' internet use between Finland and Ireland. In Finland, 80% of people aged 65–74 have used the internet, and 57% use it on a daily basis [3], while in Ireland, 33% of people aged 60–74 used the Internet on a daily basis in 2018 [27]. However, when we look at people aged 75–89, these percentages drop to 41% for experience of internet use and 23% for daily internet use in Finland [3]. The Irish National Digital Strategy describes internet use among those aged over 75 as 'negligible' at only about 3% [4,26].

Digitalization does not evolve in a vacuum: it is moulded by different sociocultural, historical, and economic factors, including the stage of population ageing [40]. In addition, it is important to avoid repeating the stereotypical division between younger people as fluent ICT-users and older adults as non-users or reluctant users since previous empirical studies show that older adults are a heterogeneous group in their willingness, skills and preparedness to use ICT [44]. Countries with older populations, such as Japan [50], have shown a high level of interest in developing technologies for health and social care. It is important that the development of technology is informed by an evaluation of benefits and drawbacks from end users' point of view and that these evaluations are not based solely on cost calculations [1,44,47, Authors, forthcoming]. In this article, we investigate how different groups of older adults perceive and utilise digital technologies.

2. Materials and methods

The data used in the study were collected by authors in two separate research projects In Finland and in Ireland: Ageing and social well-being (SoWell) and A multi stakeholder co-creation platform for better access to long-term care services (SoCaTel).

2.1. The Finnish data

The SoWell project studies older adults' expectations, needs and activities regarding their well-being and enjoyment of a good life in old age. By applying a participatory approach involving cooperation with other projects, organizations, authorities and older adults themselves, the SoWell project maps older adults' own views of social well-being and best ways to improve it. In addition, the aim is both to generate discussion on the different meanings of social well-being and to highlight the diversity among older adults.

The Finnish data consist of seven group discussions with older adults that took place in autumn 2018 in the city of Tampere and the surrounding area in southern Finland. One focus group was organised by contacting directly the chairperson of a senior citizens' council and the rest of the groups were organised with the help of people working with older generations. The inclusion criteria were being retired and not having a cognitive illness. Forty people participated of whom 27 were women and 13 men, and their ages range from 55 to 101. The participants were from all socioeconomic groups representing people with different levels of income and education, including some with only primary education. Groups also included people under financial pressure, who themselves brought up the matter and spoke about their worries, for example, when purchasing medication. This information was gathered through focus groups discussions. Groups assembled to discuss well-being, one topic being how digitalization affects well-being, and discussions lasted from 82 to 106 min. Discussions were audio recorded and transcribed verbatim into 173 text pages.

2.2. The Irish data

The Irish material reported here relates to the SoCaTel project. The project seeks to respond to the needs of the growing ageing populations in Europe by improving the accessibility and responsiveness of social and care services with the help of ICT. The project aims to address gaps in the area of social services by introducing a multi-stakeholder platform for the co-creation, and later deployment, of long-term care services.

The Irish data analysed here pertain to the first stage (focus groups and interviews) and the second stage (workshop) in the project, conducted in Dublin and the surrounding area in February–October 2018. The study involved a total of 104 participants who took part in 21 focus groups, three in-depth interviews (when individuals who were not available for group sessions), and one workshop. Researchers spoke to a total of 46 older adults living independently, 20 men and 26 women. Participants were recruited through day-care centres, social club meetings and support groups within the Dublin area and in a nearby county, which has a mix of rural and urban areas. The ages of the older adults ranged from mid-fifties to 99. The sample contains older adults from low-income inner city neighbourhoods, affluent urban areas, and a mixed-income rural area. The discussions covered participants' experiences of care services and their experiences and attitudes towards technology.

In addition to the focus groups, a workshop was held in October 2018, using purposive sampling to recruit a sub-sample of participants from the first stage. The aim of the workshop was member checking [29] and also to explore further the key themes that had emerged in the focus group discussions. Six service users and 13 providers participated in the workshop. Member checking, also known as participant or respondent validation is a technique for exploring the credibility of results. Data are returned to participants to check for accuracy and resonance with their

experiences [29]. Focus group discussions, interviews and workshop sessions lasted 60–90 min, and were audio-recorded, professionally transcribed verbatim, and anonymised. During and after the fieldwork, authors Virpi Timonen and Luciana Lolich wrote memos and field notes reflecting on what had been learned from the conversations. They recorded their impressions about the participants' experiences and used these to question some of their pre-existing ideas. Pseudonyms have been used in the data extracts below. The transcribed data from the older adults' focus groups and the workshop in Ireland amount to 362 pages.

An overview of the Finnish and Irish data used in this article can be found in Table 2.

2.2.1. Data analysis

As the two datasets were not collected in tandem, we conducted secondary analysis using theoretical sampling. Theoretical sampling can be employed in secondary analysis of data provided that the data is sufficiently 'rich' to inform the development of new concepts (Timonen, forthcoming). Existing datasets can be used to sample theoretically for concepts, to achieve theoretical saturation, and to derive additional theory that is related to, but goes 'over and above' the original purpose of data collection. While the two studies had different goals, both examined older adults' attitudes towards and experiences of technology and therefore it is not surprising that the datasets were amenable to further interrogating through secondary data analysis.

Data analysis is based on the Grounded Theory method [23,24]. Grounded Theory studies maintain a high level of openness to novel and unexpected findings in the process of enquiring into experiences and processes. First, the authors familiarized themselves with the data from their respective projects by reading and re-reading the focus group transcriptions. The analyses started with looking for narration linked to digitalization in general or use of technology. The participants drew from their own experiences but referred also to the experiences of their friends and acquaintances in reflecting on the meaning of digitalization and technology and use of technological devices. Focus groups are a particularly useful tool for exploring both individual and shared views because they provide a context where the participants can comment on other people's talk and bring forward differing views while they also can and often do develop shared views as a group [43]. The participants in both countries contrasted their personal experiences of technology use with those of the other participants, but also negotiated and developed shared views of meaning of technology in people's lives and in society. Open coding was employed to illuminate variation in digitalization talk. For example, segments of the discussion where the participants were talking about their concerns about the digitalization of banking services were initially coded as "questioning the digitalization of banking services". Focused coding was employed in searching for similarities and differences between the coded extracts. For example, codes concerning worries about the effects of digitalization on the availability of services were grouped under "availability of services".

Table 2
Description of the Finnish and the Irish data.

Country and project	Data used in the study	Description of the data
Finland: SoWell	Focus groups • Autumn 2018 • Topic: Well-being (including a theme on digitalization)	• Participants: 40 (27 women, 13 men) • Age: 55–101 years • Duration of discussions: 82–106 min (audio-recording) • Transcription: 173 pages
Ireland: SoCaTel	Focus groups and a workshop • Spring and autumn 2018 • Topic: Care services and technology	• Participants: 46 (26 women, 20 men) • Age: 55–99 years • Duration of discussions: 60–90 min (audio-recording) • Transcription: 362 pages

Through thorough investigation of the preliminary codes, categories were elaborated and revised and some new categories emerged. By scrutinizing categories and reading the authors' notes written during the coding process, relationships between different categories were identified. Higher-level categories were created by searching for similarities and differences in the lower-level categories. When comparing the findings across both the Irish and the Finnish datasets, a uniting feature was that digitalization and technology were portrayed in both positive and negative terms, often by the same participant or in the course of the same conversation. The participants brought forward the advantages and drawbacks of digitalization and technology in their own lives and in the lives of older adults in general. Based on these two high-level categories, we developed the core category that captures central processes in both datasets: Janus-faced digitalization. As explained below, this category does more than just encompass the 'positives' and 'negatives' of digitalization. The analysis process is encapsulated in Table 3.

Some limitations of the study should be noted. First, the Finnish and the Irish data have been collected for different purposes, as the Finnish focus groups focused primarily on well-being, technology being one of the topics of discussion, and the Irish focus groups and workshop focused on care services and technology. While both studies had technology and ageing at the heart of the research process, the context and extent of participants' talk about technology differed in the two studies. Second, although the participants in both countries were from all socioeconomic groups, there still were some differences in the Finnish and the Irish participants, since some of the Irish participants were from the Traveller minority ethnic group and there were none from a minority ethnic group in the Finnish study. Hence, although the inclusion of this minority ethnic group arguably has diversified our results, it also has influenced the comparability of the Finnish and the Irish data. Third, due to the sampling of the participants and the relatively small sample size, the results of this study cannot be generalized as such. Nevertheless, the results can be theoretically generalized –our participants are not the only older adults in the world with these kinds of experiences and attitudes towards technology.

3. Findings

The analysis showed that there was a duality of advantages of technology *versus* drawbacks and challenges of technology. The core category - Janus-faced technology - portrays this duality. Janus is the ancient Roman god of dualities who was seen to have two faces; one looking to the future and other looking to the past. This figure is also connected to transitions and passage of time as well as beginnings and endings and it encapsulates an anxious outlook towards the future and a nostalgia for the past and how things were. This image resonates with our data, where digitalization is portrayed at times as a 'saviour' and solver of all problems of human societies, but equally often as a root cause and an indication of all that is wrong with our current lifestyles. In this section, we examine our findings and illustrate them with data excerpts. All the names are pseudonyms. FFG refers to the Finnish Focus Groups and IFG to the Irish ones.

3.1. Advantages of technology

3.1.1. Technology easing everyday life

When discussing technology and digitalization, the participants found several possibilities to ease and improve their everyday lives. Access to different types of information was among the most frequently mentioned benefits of the internet. The Finnish participants searched information linked to different illnesses and health maintenance, searching services, practical guidance and information about various hobbies, and social contacts and entertainment. As Leena put it, "*you can find all the pieces of advice and knowledge and become wiser on the internet*" (FFG1). In addition to having experience in utilizing the internet, Anna had opinions on ongoing development of web services as well:

Table 3
The analysis process.1

	The core category	Janus-faced digitalization	
	High-level categories	**Advantages of technology**	**Drawbacks of technology**
Direction of the analysis (Lower-level categories)	**Lower-level categories**	*Technology easing everyday life* • access to information • entertainment • running errands *Technology enhancing communication* • staying connected • efficient interaction with service providers	*Technology developing too fast* • unfamiliarity of technology and lack of training/support provided • demands of constant learning *Changing functional abilities in old age* • declining functional abilities • poorly designed devices • poorly designed software *Unequal access to digital services* • accentuation of social inequalities • availability of services • availability of information on services *The dystopian future* • disappearance of human touch in services • domination of market forces

My computer is important to me since I play games with it quite a lot and there's also that Pinterest handicrafts programme, you know, and there is so much more on handcrafts and all, and YouTube, but that has been getting worse nowadays and it's not that good anymore compared to those times I was learning to use the Internet. (FFG6)

Ella knew how to support her own well-being with the help of the internet:

I do use the computer every day and then I browse the Web with my smart phone, since I got this coeliac disease, and I look for tips to prepare meals without gluten and what kind of dishes there are. For example, I did not know which bottle of syrup to pick up in a grocery store so I just checked on the Web that treacle is okay with coeliac disease. (FFG4)

In the Irish case, there were a few examples of people using technology to keep in touch with things that matter to them such as sports

and music. Younger family members typically had assisted the older adults in the initial set-up of the mobile phone or the laptop. Tom, who was originally from another part of Ireland, used his laptop to listen to the radio programmes broadcast from his hometown:

…it took a while to get used to that laptop, I get the papers up on it. And I get my all the sports. I get the local radio in [name of his home town], local radio here in [name of place he lives now]. I can get anything I think I want on it. But I'm still like everybody's still learning about the laptop let's put it that way (IFG24)

Digitalization of services was applauded for reducing queuing and making it smoother to run errands. Some participants in the Finnish study made laboratory appointments and handled their banking via the internet. In contrast, many Irish participants wished for the digitalization of services, hoping that their nurses could just 'click a button' and all their medical records would come up, instead of having to repeat 'the same thing over again' (IFG5).

3.1.2. Technology enhancing communication

In addition to entertainment, looking for information, and utilizing web-based services, digitalization enabled maintaining and even creating new social contacts. Helena shared many Finnish participants' perceptions by saying that "*it's cheap to make a call even abroad since my children installed WhatsApp*" (FFG1). WhatsApp and Skype were utilized especially in communication with family members living overseas. Video calls were appreciated for the feature that people far away were able to show their homes during the call. Participants knew about social media, although just a few utilized it themselves. Higher level of education was linked to more advanced use of technology, which is evident in the next excerpt from, Maria, a former university professor:

> Well, then there are those of us who are on Facebook, I just joined it a while ago. Actually, I joined it already when I worked as a professor, but I thought that I would not use it that much. However, I now have become quite active with it. I'm always looking what others are sharing. In a way, that is quite a social thing. (FFG1)

Contrary to a common stereotype, our participants had positive experiences of using social media and some were active users. However, internet use and especially social media use were more common among the younger and societally active participants. In the group of people active in politics and living in a city in Finland, all participants used the internet and social media but among the Finnish participants living in rural area only two out of six used the internet and nobody used social media. However, the sample does not allow us to make strong claims about the urban-rural divide in technology usage. The difference may rise from the urban context where more peer-support and different courses on technology use are available for seniors.

In Ireland, technology has not yet pervaded everyday activities to the same extent as in Finland. Therefore, in the Irish data, there are few examples of older adults using technology on a daily basis and the ones who did, tended to be people in the 'young old' age group, and with higher levels of education. In fact, many of the older adults in the Irish sample wished there were somewhat *more* technology in use in Ireland, as they could see that interactions with health and social care services in particular, would be a lot smoother and faster with the help of technology. Some older adults could also see the benefits of using technology for people with disabilities, for example for someone who is visually impaired and can now talk to the computer:

> …a friend of mine who is blind […] one development that's going ahead at the moment is that she can talk to the computer. And you can talk to the computer through a phone as well. And that's a much more friendly way of dealing with it, than a web page, I think you know. So in other words, using your natural voice and you get a natural response. (IFG14)

However, parallel to this wish, participants in Ireland expressed the strong view that face-to-face communication is absolutely central to high-quality service provision and as such, any technology that detracts from this human element was rejected. In other words, technology as something that facilitates personalised communication was welcomed, but elements of technology that eliminate the 'human touch' were rejected and indeed feared, as discussed below.

3.2. Drawbacks of technology

3.2.1. Technology developing too fast

While the participants discussed advantages brought by technology and digitalization in their everyday lives, they had also experienced difficulties with rapidly changing technology and digital devices. Many participants would have needed instructions and help with technology use. Elsa (FFG3) longed for instructions written clearly on paper to guide her in her computer use. Furthermore, information technology *per se* was perceived as unfamiliar. Alisa talked about her need for more knowledge about computers and technology in the Finnish data:

> I believe that I would need to take a course to understand thoroughly what this is all about. I utilized these technologies when I was at work, but then there always are new concepts and words, for example an account. I'm used to understanding that accounts are for money, but in computer language, account means something else. I get annoyed when I don't know. And I would like to be able to do everything by myself without some young man saying which key to tap. I want to accomplish things myself and understand what I'm doing, for example, I would like to know which things are in the memory of the computer and which are stored in some cloud, and so forth. (FFG3)

As Alisa's comment shows, the world of digitalization is much wider than just using a computer or other devices. Alisa wanted to build a coherent picture of how things are related in the digitalized world and to understand what she was getting involved with. In addition, after one learns to utilise equipment and software, one has to keep up with constant updating. In the same Finnish focus group, Mikko had found this too difficult:

> Getting old is like… your steps get shorter and then computers and all, to tell the truth, I am not familiar with them anymore. I used computers in my work and I had to familiarize myself with new programs and all, but no, time flies too quickly and I can't keep up. (FFG3)

Rapid development of technology combined with one's own physical decline may exacerbate feelings of being old and unable to keep up with others. Among the Irish participants, there was also a sense of rapidly advancing technology, and inevitability of technology invading all aspects of life. These rapid changes caused anxiety among some participants; Ryan told us that '*… it took people … say fifty thousand [years to learn to use a particular tool]. It took the Americans so long to learn how to use the phone and to learn this that and the other. And then they were saying how quickly people has to learn about texting and WhatsApp and all the different types of phones*' (IFG14). Some older adults in the Irish sample called for 'idiot-proofing' technology:

> But it's got to be made idiot proof, it's got to be made for people like me. And the problem with technology is it's becoming more complicated each day and it's like catch-up all the time. I'm sure you could have a basic service put in there that gives access to people through technology that doesn't require too much complication. (Workshop Table 3)

However, in contrast to Finland, this was generally seen as a prospect, rather than a present-day scenario already affecting people (the level of adoption of technology in Ireland is currently so low that people have not experienced the constant need to keep up with it yet). People in the Irish study sample tended to speak more in terms of potential and possibilities, because technology has not yet permeated structures to the same extent as in Finland. Research participants in Ireland were aware that more intuitive technology exists (that requires practically no skill or training from users) but were not personally familiar with this technology. The older participants in Ireland expressed a belief in the potential of technology, but also wondered if older adults would be able to keep up with its progress.

3.2.2. Changing functional abilities in old age

Older adults can encounter problems on the basis of the accessibility and design and physical characteristic of technology. Age-based decline in functional abilities challenged participants' ability to use technology. Leo (FFG7) stated that he had previously been a volunteer, teaching seniors to use a computer in a senior centre, but their shaking hands had prevented many of them from directing the cursor correctly. Pat (IFG9) shared a similar story with us, indicating IT competence, even

enthusiasm for computers in the past, but currently being hampered by health problems:

> … I qualified as a Microsoft office [instructor], before I had the aneurism […] I had an eye for the future; I was looking to another career after I left teaching. But the aneurism put pay to all that so I wouldn't have the concentration to teach anybody anything […] I wouldn't be able to act as an instructor. I get tired very fast. (IFG9)

In a similar fashion Anna, despite having experience of computers, rejected smart phones due to poor usability:

> I do use a computer, and we all have different kind of mobile phones, but I told my children, who were going to buy me a mobile phone, that I don't want any tiny screen that is unreadable, but I just want a phone to make calls and send text messages, that's enough for me. The computer is for banking and that kind of stuff, not the phone. (FFG6)

The "*unreadable tiny screens*" do not entice older adults to use modern technological equipment. Problems created by age-related decline in skills and functional ability were common causes of reducing the use of digital technologies, which is portrayed also in Elsa's account: "*I have a smart phone and when I try to write a text message with it, my hands tremble. This is my old age now*" (FFG3). Failure to use technology may indeed magnify the feeling of being old. In the next excerpt from the Finnish data, Markus responds to a question about his relationship with modern technological equipment:

> Well, my relationship with them is bad because I don't use them at all. I was able to use them until I got an infarction, but my hand doesn't work anymore. I'm right handed and got a right-sided infarction and now when I click the mouse, there always is the second and the third click automatically at the same time. It's not working, one doesn't want to begin all over again and again. (FFG4)

Markus had suffered a seizure that ended his technology use. This is something that may of course happen with younger people as well. The participants stressed that older adults' functional abilities should be taken into account much more seriously in product development than they are right now.

3.2.3. Unequal access to digital services

Participants in Finland spent a lot of time discussing the rapid change in banking services. Even those who utilized digital banking services themselves considered digitalization of banking services a bad solution on a general level. Many had witnessed banking halls crowded with older adults and were annoyed that older adults had to spend hours queuing. Bank charges for those not using digital services were considered unacceptable as well. Stories were recounted of older adults paying three euros for enquiring about their account balance by phone and seven euros for paying an invoice at a bank counter. The fact that banks have limited their counter services radically annoyed participants. For example, bank offices may offer their clients cash withdrawals and other counter services only 2 h per day or one day per week. Elias portrays the development in Finland:

> When I was 50 years old I got money from the bank whenever. Now you can get your own money only during some limited time [laugh]. That's so unreasonable. (FFG7)

Elias articulated many participants' wonderment and confusion by portraying banks' attitude as: "*you can't get any money from here – this is a bank.*" This situation - brought about by adoption of advanced technology at the cost of personal banking services in Finland – is portrayed as absurd and retrograde by the older adults. No such experiences of deep alienation in their daily lives were relayed by participants in the Irish context. Despite a strong push to online banking, these services are used mostly by younger groups [36] with older adults still preferring

paper forms and face-to-face interaction. However, some people were able to see problems ahead for older adults in Ireland if digitalization continues to increase, for example in the banking sector. Participants felt that proper training and support for older adults was necessary if digitalization was introduced into services. Harry, a member of a Men's Shed group[1] commented:

> There's huge other challenges ahead for older people. […] the banking and the computerisation is abysmal. I can use it. But I can guarantee you the vast majority and I'm talking about we've forty members [of the Men's Shed]. […] cannot manage the internet banking scenario. To get benefits of cheaper bills, to get benefits of, they walk into the bank and it's a machine. They're told there's two machines there but no training provided. (IFG22)

Even relatively modest steps towards, for instance, automated phone-based services and more regular updating of their information in the health and social care system, were experienced as burdensome and irritating by participants in the Irish sample. Iris illustrated this frustration by relaying her interaction with various utility companies:

> Any of these services that you ring, ESB [Electricity Supply Board], gas, all you ever get is an answering machine. I've got to a stage now that they tell you press one, press two, press three, press four. And eventually you might get someone and […] when someone answers me, I just say […]: Would you mind telling me if you're a human being, or a machine? (IFG9)

Even though some services or welfare benefits can now be applied for or renewed online in Ireland - for example a medical card (which entitles some people to free public health services) – this option exists *alongside* the offline (paper) option. In our sample, older adults seemed to prefer paper documents and even then, many needed help from family or professionals to complete them. At the extreme end of this difficulty with the digitalization of services, we found the case of Irish Travellers (traditionally itinerant ethnic minority group) who not only prefer paper forms but also had health and social care professionals travel to them to complete the forms with them. For Travellers, personal connections and assistance in dealing with the social and health care system are very ingrained, even more so than for the general older population. Many of the services came directly to the Travellers' centre, making the notion of online access a remote idea for this group. Mary, the facilitator who was part of the focus group with Travellers explained:

> If there was a medical card form anything like that [that was about to expire] that's part of our work. We go around we'll say two months before the medical card run out. We advise them to apply for a medical card. But they need help with filling in the forms. We do it in the caravans [mobile homes where Travellers live] with them… (IFG15)

As there are functional literacy issues even in Europe, the need for assistance with both paper-based and digital services persists [49]. In Finland, digitalization of services was regarded as potentially detrimental for access because some people lack an internet connection and some who have it, cannot use it to search for information. For example, the participants expressed their annoyance about news and current affairs programs on TV, because they felt that limited information is disclosed during the actual programme, but the audience is guided to go the program website where more information can be found or the discussion

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continues. For those without easy access or any access at all to the internet, this is clearly frustrating. In Finland, the participants found it particularly annoying that even the publicly owned broadcasting company (YLE) does this, although it is funded by compulsory annual tax paid by all taxpayers, including retired people. Many of the participants in the Finnish study were extremely annoyed by the "visit our website" chant they encountered everywhere.

The participants in both contexts were worried about the digitalization of society, because they felt that some people would be marginalized by the digital leap. They stressed their concern over the trend to put public information exclusively on the internet although many older adults are not using it. Some older adults are not using the internet because of their own attitude towards it, but many suspected that there are also financial restrictions to getting the necessary computer equipment. Both the equipment and the internet connection cost money and there is, hence, a hazard of growing socio-economic inequalities in access to services. Digitalization may widen the gap between the rich and the poor, but also between generations, as Aino stated:

These devices have not been made for older adults' needs, but they have been made for young people. They can type them easily, but I already have problems in typing text messages, because I always tap the wrong place and then I have to correct it. And if you ask what it does to my well-being, then, well, for my well-being it's anything but good because I get annoyed immediately. It's a good thing my husband then yells at me and tells me not to smash the device against the wall. (FFG5)

As the extract above shows, the participants articulated that digitalization is a challenge, particularly for the older generations. The young, on the other hand, were seen to manage it and many participants told us that their young relatives help them with their digital problems. Among the Irish participants, too, there was a strong sense of a generational gulf: young people were portrayed as technologically competent and as an important source of assistance with technology, as 'warm experts' [34]. In fact, in response to a question about what would make technology use easier, one participant exclaimed "get yourself a granddaughter!"

3.2.4. The dystopian future

Some participants suspected that we are going too quickly and completely into the digital world. These participants thought that this development was motivated by the maximization of economic efficiency. Thus, the participants thought that promotion of digitalization is not necessarily being done to make citizens' lives easier, but to make a profit. Henri shared his view about the root causes of digitalization:

We have been forced into it. Capitalist has forced us. I mean, we are doing the bank clerk's job. And the bank clerk is now a cleaner or unemployed. And we, the unlucky ones, are doing the bank clerk's job at home. (FFG7)

Leo continued after Henri, saying that "*then we also get to pay for it, we pay a monthly payment*". In other words, from the participants' point of view there is a transfer of tasks from the bank to the citizens and furthermore, citizens now need to pay a monthly fee for the privilege. Elias (FFG7) said that he never uses self-service checkouts in grocery stores in order to help preserve jobs for people. These societal doubts on technology development and digitalization might not be age-related but intergenerational, yet older generations have longer perspectives on societal development and should therefore be heard carefully regarding the digitalization of societies. In the Irish context also, discussions of technology in many cases gave rise to fears of a dystopian future. This concern for future generations related primarily to fears of young people losing the ability to communicate due to over-use of technology. These concerns are a form of generativity, as older adults do not want to see technology 'robbing' young people of important things in life (e.g. work,

conversations). Such fears for the future are intertwined with concerns about technology in their own day-to-day lives. In some cases, these fears went as far as feeling somewhat alienated from society, driven by technologies that were unfamiliar and inaccessible.

4. Conclusions

Our aim was to shed light on how older adults perceive and utilise digital technologies. Based on this study, we argue that older adults are active agents who make sense of the digitalising world and take actions to cope within it. Older adults talked about technology and digitalization from their own point of view but they also considered its societal aspects and expressed concerns for the effects of digitalization on younger people and citizens in general. From an individual perspective, they recognized that digitalization entails opportunities and may affect their everyday lives in positive ways. Our participants enjoyed various leisure activities, used social media for communication and sought information from the internet in a similar fashion than found in other studies [33,45,47,48]. In more digitally advanced Finland, they also utilized online services such as e-banking and online appointment systems. However, at the same time, being part of the digitalizing world as an older person means that one encounters various threats of losing control over one's own life. Older adults' declining functional abilities combined with unsuitable devices, and constant need for upskilling due to constant changes in ICT-systems and devices resulted in some cases in reduction of ICT use and in feelings of being old and out-of-touch, which is a sentiment found in previous studies [46,47]. Experiences of losing control in one's own life were reflected in concerns over older generations becoming alienated from local communities and a society as a whole. These worries were related to unequal opportunities to benefit from technology and digitalization.

Our findings are encapsulated in the core category of Janus-faced digitalization. One can benefit from its advantages, but because of obstacles that often manifest themselves with advancing age, this ability is threatened, leading to challenges in mastering technology and digitalization. People who have had positive user experiences with technology tended to see opportunities with digitalization, whereas negative experiences or lack of experience with technology cause worry and apprehension. When people feel that their inability to utilise technology is linked to their advanced age, feelings of generational injustice may occur. On the other hand, availability of help from younger generations clearly increased positive user experiences and views of digitalization. However, not all older adults have access to this kind of social resource. It is also important to note that the benefits and drawbacks of technology are often understood and experienced in parallel, by the same older adults; technology features as a two-sided phenomenon in their lives, with both pull and push factors that encourage and discourage engagement with technology. Appreciating this duality is important for policymakers and developers working in technology applications for older adults.

The heterogeneity of old people as users of technology is often forgotten [44], but our findings highlight the differences between sociocultural contexts (Finland and Ireland) and among older adults themselves. In some cases, older adults are characterised and guided by their ability and willingness to embrace technology, in other cases by their disinclination to have anything to do with it. These differences are linked to their social positions in terms of gender, education, profession and ethnicity, as well work-life experiences since increasing numbers of older adults have used digital technologies during their working lives [44].

The main differences between the Finnish and Irish datasets arise from the fact that digitalization is much more visible in the lives of Finnish older adults than in the lives of Irish older adults due to Finland's strategy to digitalise public and private services. In Finland, older adults may choose to live without smart phones or computers, but running errands requires engagement with digital devices and the

internet – or going through much more complicated processes, if one tries to avoid technology use. In Ireland, it is still possible to live one's daily life - running errands, applying for services and socializing with family and friends - with little or no engagement with technology [39]. Consequently, while some issues such as feelings of alienation and not being able to keep up with digital changes, were a real risk for the Finnish participants, they are still only an imagined future threat for many Irish participants.

However, the Finnish data showed also that the usage of the internet and digitalization of services can facilitate information seeking and application of services, and enrich social and cultural life. Digitalization has the potential to increase communication within and between generations. Based on these findings, it could be suggested that the hopes of the Irish participants for digitalization (such as easier communication with service providers) may come true, and some of their fears may turn out to be unfounded.

Our findings suggest that the digital divide is not necessarily between younger and older adults [see 5,7,44], but between different user groups. The findings lend support to previous literature [6,12,45] indicating that socially active, educated and relatively wealthy older adults master the digitalizing world better than their age peers with lower socioeconomic status do. People's position in society, and the economic, political, cultural, and affective resources they have, shape their relationship with technology alongside age-based and health-related issues. It could be said that the digital divide is not so much rooted in the older person's ability but more in the resources available to that older person, which makes the divide a social problem demanding social solutions.

Ageing and old age provide distinct perspectives on technology use. Our analyses showed that rapid changes of technology can enhance feelings of being old and unable to keep up with others. In addition, age-based (and health-based) decline in functional abilities in combination with experiences of failing to use technological devices resulted in feeling old and "out of date". Old age, being socially and culturally constructed [31,32], also becomes defined by the individual's ability to master the digitalizing world. Digitalization can thus add to the issues that make older adults feel alienated from society.

Based on this study, certain issues should be considered carefully when digitalising services. It is important to look at the individual's characteristics, such as age and social position, but also it is important to consider issues at social level, such as guidelines and regulations on age friendly design (e.g. size of screens and buttons) and intuitive software. Some agencies for IT literacy recommend writing website text for a reading age of 9 [35], and similar guidelines could be applied to software development pertaining to health and care services, i.e. that a 9-year old should be able to use it. This might correspond to the 'intuitive' technology that many of the participants called for. When older adults deploy digital technologies, training, support, and easy access helplines are needed. Running traditional services alongside newly introduced digitalized services at least for the duration of a transition period was of high importance for our participants. Not all older adults have the economic, political, cultural and social resources [29,34,48] to utilise and benefit from the latest technology. For example, ethnic minorities generally have little power to influence the design and implementation of technologies and not all older adults have younger family members, friends or neighbours to help them navigate digitalization. Hence, digitalization potentially increases inequality while the goal is the opposite. For example, one of the initial purposes of telemedicine was to mitigate healthcare inequalities caused by distance [42,47]. We argue that if age-related aspects are not properly taken into account, digitalization of services will increase ageism and inequality in access to public services.

The findings of this study suggest that digitalization may enrich and facilitate everyday lives of older adults in many ways. However, digitalization is also perceived as a threat and alienating issue that may serve to deepen the inequality between older adults with different

financial and social standing, and different social, physical and cognitive resources. Whether this experience deepens into a permanent gap between the digitally included and excluded is largely dependent on how the process of digitalization is managed in the future. To fully make use of the promise of digitalization to improve the lives of older adults, both advantages and drawbacks of digitalization need to be acknowledged and addressed.

CRediT authorship contribution statement

Jari Pirhonen: Conceptualization, Data curation, Formal analysis, Methodology, Writing - original draft, Writing - review & editing. **Luciana Lolich:** Conceptualization, Data curation, Formal analysis, Methodology, Writing - original draft, Writing - review & editing. **Katariina Tuominen:** Conceptualization, Data curation, Formal analysis, Methodology, Writing - original draft, Writing - review & editing. **Outi Jolanki:** Conceptualization, Data curation, Formal analysis, Methodology, Funding acquisition, Writing - original draft, Writing - review & editing. **Virpi Timonen:** Conceptualization, Data curation, Formal analysis, Methodology, Funding acquisition, Writing - original draft, Writing - review & editing.

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Appendix A. Supplementary data

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