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Article

## Digitalised Welfare: Access, Usage, and Outcomes Among Older Adults

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### Abstract

The slogan “digital first” has become a buzzword for public organisational development at the local, regional, and national levels in Sweden. The slogan alludes to the idea that providing information to and communication with citizens should take place primarily through digital channels. This idea is also popular in other parts of the digitalised world. Obviously, digital solutions have the potential to become pedagogical, reliable, and effective interfaces for governmental interaction with citizens. However, the extent to which they are actually accessible, brought to use, and valued among older adult users (more than 65 years of age) has not attracted much research interest. Drawing on national survey data, collected in November–December 2020, on Swedish citizens (aged 65 to 90 years), this article will start to compensate for this deficit. First, it analyses the extent to which citizens have physical access to required devices and how access is related to material, discursive, and social resources. Second, it analyses resources and usage of important platforms for public services for older adults: the Pensions Agency, health care, e-pharmacy, the Social Insurance Agency, and the Tax Agency. Finally, the article examines outcomes: feelings and attitudes towards experiences of encountering a digitalising society. The article demonstrates how all three levels of divides—access, usage, and outcomes—are clearly related to older adults’ access to material, discursive, and social resources, as well as to age and pre-retirement experience with computers. It is comparatively younger individuals with longer formal education and at least average incomes and social networks who benefit the most from digitalised public services.

### Keywords

Digital First; digital inclusion; digitalisation; digitalised public services; older adults; Sweden

### Issue

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### 1. Introduction

In a public letter to the then-Swedish-minister-of-digitalisation, Member of Parliament Thomas Hammarberg expresses worry (Hammarberg, 2021). Hammarberg refers to the rapid rate of digitalisation in Sweden and how this threatens to exclude “many people in the older generation” (Hammarberg, 2021, translation by the authors). Hammarberg refers to how digitalisation, among other things, has created difficulties for older adults “to get in touch with authorities and with institutions responsible for care and other

social services” (Hammarberg, 2021, translation by the authors). He also calls for the importance of analysing “what should be done to bridge the problems for the elderly that digitalisation has in fact created” (Hammarberg, 2021, translation by the authors).

The concerns expressed in Thomas Hammarberg’s letter to the minister point towards important facets of digitalisation. First, his letter identifies how the digitalisation of information and services is developing rapidly, and how this is happening in a way that threatens to exclude many people. Second, it signals the need to pay specific attention to older adults, as they are at risk of

lagging behind in the digital transformation of commercial and public services. Finally, the letter points to the need for analyses of how to overcome the problems digitalisation causes for older adults.

There are good reasons for a member of the Swedish parliament, who cares specifically for older adults, to be worried. In 2015, a national programme was launched with the overarching aim of digitalising health, social, and other welfare services. The programme is called “Digital First” and its explicit ambition is to make digital services the “default choice in public sector contacts with individuals and organizations” (Digg, 2022). The strategy has good intentions. It was formulated with the ambition to make administration and governance more effective, transparent, and accessible. While these are obviously legitimate ambitions, the strategy also reveals very little insight into one of the profound consequences of the digitalisation of public services: how applying digital technology to deliver such information and services *also* means providing citizens with very different conditions within which to stay informed and protect their social rights.

Admittedly, Swedes’ access to digital media, in general, is comparatively extensive; after Finland, Denmark, and the Netherlands, Sweden ranks as the fourth most digitalised country within the European Union (European Commission, 2022): 98% of the Swedes have access to a smartphone, 88% to a laptop, and 69% to a tablet. However, the distribution among the 65- to 85-year-olds is significantly lower; in this age range, 88% have access to a smartphone, 76% to a laptop, and 63% to a tablet. Older citizens are instead overrepresented as subscribers and readers of daily newspapers, and they prefer public service to other broadcast media (Ohlsson, 2022). With that being said, the 65- to 85-year-olds are not a homogenous group: 20% can be classified as silver surfers who have, more or less, the same usage patterns as younger generations (Olsson & Viscovi, 2020), while an equal number, 20%, are non-users (Olsson & Viscovi, 2022), and between these extremes there are of course further variations.

Thus, Digital First makes Swedish citizens dependent on digital devices in order to receive information from and interact with welfare services. As such, the policy overlooks a number of well-known problems related to important differences between citizens when it comes to the ability to access and use digital services. Such differences are linked to citizens’ varying access to economic and educational resources as well as to the character of their social networks (Olsson et al., 2019a; van Dijk, 2020). Age is a well-known key factor. With higher age, the probability of having fewer digital devices increases, and the same is true for the probability of having a more limited repertoire of usage (Friemel, 2016). Having said that, it is also important to point to the fact that older adults by no means are a singular category of users of digital media. Extant research has illustrated variations among older adults regarding both how they make use

of digital media (Llorente-Barroso et al., 2023) and online services (Sánchez-Valle et al., 2022).

Sweden’s Digital First, however, is by no means the only strategy of its kind. Similar ideas have flourished in many Western democracies during the early decades of the millennium. The European Commission makes an annual ranking of European countries which measures their degree of digitalisation of public services. In 2021, Finland was ranked number one in the Digital Economy and Society Index 2022, with Netherlands, Ireland and— notably—Denmark, and Sweden holding the other top positions (European Commission, 2022). The Danish case is interesting in this regard, as Denmark has come a particularly long way in establishing the idea of making public services digital by default (Schou & Pors, 2019).

These European initiatives share the ambition to make public services more efficient, transparent, and available. While doing that, they also share a blind spot with Sweden’s Digital First, that digitalisation of information and services also means the exclusion of some citizens from information and services. Older adults are specifically vulnerable in this regard, and the aim of this article is to contribute survey data on how Swedish older adults are positioned in the ongoing digitalisation of information and services. In order to offer such insights, the article centres around three distinct but interrelated research questions:

- RQ1: How does physical access to digital media vary between different categories of older individuals?
- RQ2: How does the usage of public service online platforms vary between different categories of older individuals?
- RQ3: How do outcomes in terms of feelings and attitudes towards being an internet user vary between different categories of older individuals?

## 2. Theoretical Framework

The research questions and the forthcoming analysis are informed by and contribute to two ongoing discussions within contemporary research on the societal consequences of digitalisation. First, the article relates to three decades of development in research on digital divides, but with a specific emphasis on divides among older adults. Second, it draws on and offers an empirical contribution to recent critical theorisation of digitalisation in public service contexts. More specifically, the article contributes by providing insights regarding the reconfiguration of the relation between welfare services and older adult citizens.

### 2.1. Three Levels (and Generations) of Digital Divides

In the early 1990s, media research had already started to pay close attention to digital divides (cf. Murdock et al., 1992). Since then, divides have been an important area

of research, with contributions from a range of other academic disciplines, such as political science and sociology. Despite major social and technological changes over three decades, divides still exist, and older adults are certainly not exempt. Morris and Brading (2007) even coined the expression “the grey divide” while identifying how older age groups are much slower to adopt technology than younger groups.

In an effort to both summarise extant research on digital divides and to point towards a future research agenda, van Dijk (2020) outlines a history of research on digital divides. van Dijk outlines three phases of research, focusing on different facets of divides. The first phase (1995–2003) of research focused mainly on the first level of divides, which means studies of *physical access* to computers and the internet (van Dijk, 2020, p. 7). The second phase added new layers to research on digital divides by also paying attention to users’ *skills and usage patterns*, a second level of divides (2004–present; van Dijk, 2020, p. 9). Starting around 2012, additional layers were brought into research on digital divides. With this third level of divides, users’ *outcomes and benefits* of usage have become prioritised areas in analyses of digital divides (van Dijk, 2020, p. 12).

For contemporary older adult users, all three levels remain relevant to include in analyses of digital divides. Thirty years after the breakthrough of digital media technology, the impression of a technology that is unequally distributed remains. Among older adults, physical access to technology is still to a large extent determined by people’s access to material, discursive, and social resources (Olsson et al., 2019a). Among older adults, people with access to economic and educational resources have a higher degree of digital access and, on average, also more media devices (Friemel, 2016; König et al., 2018). In addition, there is an evident negative relationship between age and physical access. On average, Sweden’s 65- to 69-year-olds have everyday access to 3.25 devices, whereas the oldest age category, the 85- to 90-year-olds, has access to 1.08 devices (Olsson & Viscovi, 2022).

On the second level, the focus is on individuals’ varying skills and capacity to handle digital technology, as well as the ways in which they put it to use. The variations turn out to be large among older adults. On the one hand, there are so-called silver surfers: older individuals whose digital media practices and skills resemble those of younger users and who use their devices frequently and in knowledgeable and versatile ways (Olsson & Viscovi, 2020). On the other hand, there are users who rarely use their digital media (Olsson & Viscovi, 2022), often with a single device (usually a smartphone) and only to execute rather simple tasks a few times a week. Also in this regard, both age and resources are important factors (Olsson et al., 2019b).

The third level, exchange and valuation, pays attention to how much people appreciate using digital services: what they feel that they gain from them and if

they feel secure and satisfied when using them (see also Van Deursen & Helsper, 2018). In this vein, Fristedt et al. (2021) have studied different generations’ evaluations of and attitudes towards digital media. Their analysis reveals how negative experiences and evaluations are much more common among older adult users than among younger ones. Fristedt et al. (2021) emphasise that even if older adult users can be statistically classified as included, this does not necessarily mean that they also are satisfied users. Stevic et al. (2021) discuss older adults’ experience with smartphones and show how the frequency of active usage correlates positively with well-being. Other recent studies have pointed towards connections between elderly users’ frequency of use and perceived quality of life (Viklund et al., 2022).

This article adds to the growing field of analyses of digital divides among older adults in two different ways. First, it offers an empirical contribution based on a recent national survey (2020) that attends to all three levels of divides. As such, the article offers a nuanced account of how different levels of divides influence older adult users’ opportunities to navigate in everyday life when information and services in general and public services in particular are increasingly offered digitally by default. Second, the article analyses outcomes, the most recent addition to analyses of digital divides. More concretely, this means analysing not only older adult users’ access to digital technology and their patterns of usage but also how they perceive and feel about their interaction with digital services.

## 2.2. Reconfiguring Citizenship

At the time when the internet made its big breakthrough in the Western world, in the mid-1990s, its potential significance as a carrier of public information and services had already become a subject of both scholarly and policy attention. For instance, the Swedish governmental bill on measures to broaden and develop the use of information technology, from March 1996, stated how ICTs “should be used to develop contacts and interaction between the general public, companies, and public administration. Citizens’...contacts with the public administration shall be made simpler and more open” (Swedish Government, 1995, p. 67, translation by the authors). Important shares of this initial and searching discussion on how to understand new, digital forms of interaction between governmental agencies and citizens found its more stable conceptual ground with the introduction of the notion of *e-government*.

E-government refers to “the strategic, co-ordinated use of information and communication technologies...in public administration and political decision-making” (Von Haldenwang, 2004, p. 417), and research has covered a lot of this ground during the last couple of decades. Research has studied e-government with policy development from a theoretical angle. These studies have often centred on differences between countries,

examining how variations in national approaches to e-government vary with reference to other policy reforms (Joseph & Avdic, 2016) and with political ideology (Schou & Hjelholt, 2018). Another common theme in research has been analyses of how e-government shapes and reshapes working life for professionals within welfare sectors (Baudin et al., 2020). Another research thread has paid attention to the actual design of e-government information and services, what their interfaces look like, and the extent to which they manage to attract users' attention and engagement (Sachau & Hutchinson, 2012). In some of these studies, the citizens' perceptions and preferences have also been included in the analyses (Ebbers et al., 2016; Verdegem & Verleye, 2009).

Research on e-government has so far brought a lot less attention to the fact that the digitalisation of public information and services also means a reconfiguration of what it means to be a citizen. It is a recent addition to the menu of research on the digitalisation of public services to ask critical questions about what it actually means for citizens—and citizenship—that public services become digitalised in ways that make “citizens responsible for provisioning welfare services themselves” (Schou & Pors, 2019, p. 465). In this emerging body of research, Denmark has been a particularly frequent example, not least because the Danish government has been especially anxious to digitalise public information and services. Research on the Danish case has been fruitful. It has offered analyses of patterns of digital exclusion as they appear at citizen service centres (Schou & Pors, 2019). It has offered critical reflections on the discourse on citizenship within Danish governmental digitalisation strategies (Schou & Hjelholt, 2018). It has also offered contributions based on ethnographic insights into how digitalisation reorganises frontline workers' bureaucratic practices and changes their professional identity (Pors & Schou, 2021).

To this growing body of critical studies, this article contributes empirical insights from the user side. In this vein, our survey data on older adults' access to, usage of, and experiences interacting with digital information and services offer insights into how older adults, as citizen users, respond to the opportunities to access digital information and services.

### 2.3. Analytical Model

In order to contribute insights regarding the reconfiguration of the relation between welfare services and older adult citizens, we depart from an analytical model that we have developed and applied within the scope of our previous research on older adults' digital practices and experiences. The analytical model is inspired by domestication research (cf. Morley & Silverstone, 1990; Olsson et al., 2019a) and pays specific interest to how older adults appropriate digital media with reference to their varying access to *material*, *discursive*, and *social resources*. Paying attention to the fact that older adults'

varying access to such resources matters for the ways in which they appropriate digital media also underscores how older adults are by no means a homogenous category of users (cf. Stone et al., 2017). Our specific way of operationalising the resources in this article will be presented in detail in Section 3. On a more general and brief note, material resources usually refer to economic resources, while discursive resources refer to intellectual resources, such as level of education and computer experience from working life. Social resources refer to older adults' social networks, for instance, their everyday social life with family, friends, and other contexts of sociability.

### 3. Material and Methods

In November–December 2020, a postal survey was sent to a simple random sample of 2,500 Swedish citizens, aged 65–90 years. The sample was drawn from the SPAR register, provided by the Swedish Tax Authority, where all residents officially living in Sweden are listed. Altogether, 1,610 questionnaires were completed and returned, i.e., a gross response rate of 64.4%. Respondents were given the option to fill in the questionnaire either on paper ( $n = 1,462$ ) or online ( $n = 148$ ).

The representativeness of the sample is acceptable. According to registry data from Statistics Sweden, the proportion of men and women aged 65–90 is 47.4 and 52.6%, respectively; in the sample, the proportion is 49.2 and 50.8%. When grouping the sample into five-year intervals, the deviation compared to Statistics Sweden is less than 1% in most cases, with the exceptions of 70–74 years (deviation = 3.5%) and 80–84 years (2.2%).

Education levels are not completely comparable with registry data, as Statistics Sweden classifies education in a slightly different way than the present survey. Furthermore, Statistics Sweden occasionally has incomplete data on individuals educated abroad, which also aggravates comparisons. Nevertheless, in the age group 65–90 years, and according to registry data, 27.9% are classified as compulsory medium, 20% as vocational, folk high-school, and 52.1% as upper secondary and higher. In the sample, the approximate corresponding proportions are 25.1%, 29.6%, and 45.3%.

All in all, randomisation cannot guarantee perfect representativeness; however, we believe our data are of sufficient quality to provide reasonable answers to our research questions.

In the analysis below, age, gender, education, income, marital status, association membership, place of residence, and pre-retirement experience with computers are used as independent variables. Education and computer experience serve as indicators of discursive resources, in the same way, marital status and membership are indicators of social resources, and, finally, income is a measure of material resources.

The item on education consists of 10 answer options that have been reduced to three levels: *short* (a maximum of nine years of primary school or equivalent),



*middle* (vocational training or upper secondary school), and *long* (matriculation degree or university). Income is self-reported and includes all pre-tax household income (pension, allowances, capital gains, etc.). Pre-retirement experience with computers is based on the question: Did you use computers or digital media in the last five years of your working life? The answer options vary from *to a very high degree* to *not at all*; the latter has been coded 0 in the dummy variable.

Dependent variables, such as physical access to devices (see Table 1) derive from two items. In the first item, respondents answer “yes” or “no” to the question of whether they are using a laptop, PC, tablet, e-book reader, smart TV, or any other mobile device with internet access. In the second, respondents answer “yes” or “no” to the question of whether they are using a smartphone of any kind. The items have been computed, and a dummy variable has been constructed for logistic regression analysis, where 0 means *no physical access* and 1 means *access to one or several devices*.

Usage of public service online services, analysed in Table 2, derives from five items where respondents have reported how often they use five different platforms: the Swedish Pensions Agency, the Social Insurance Agency, the Tax Agency, 1177.se (public health care), and finally, an item on e-pharmacy. The items have been computed and transformed into an index (Cronbach’s alpha reliability analysis = 0.755), for linear regression analysis, varying from 0 to 100, where 0 means *no usage at all* and 100 means *maximum usage*.

Outcomes in terms of attitudes and feelings as users of digital media, displayed in Table 3, are similarly based on an index (Cronbach’s alpha = 0.806), for linear regression analysis, consisting of six items with 5-point Likert scales:

1. In broad terms, digital media are a positive thing for me.
2. Digital development in Sweden is too fast for ordinary people.
3. It feels embarrassing not to know how to use digital technology.
4. Sometimes I feel stressed by being required to use digital technology.
5. I like to try new technical gadgets.
6. I am afraid to make mistakes when I am using internet banking.

The index varies from 0 to 100, where 0 means *a thoroughly negative position*, and 100 means *a thoroughly positive position*.

## 4. Results and Analysis

### 4.1. Access

The first-level divide dealt with physical access to computers and the internet and lasted, according to van Dijk

(2020), from 1995 to 2003. However, the subject is still highly relevant if we consider older generations. In our sample, 9.9% ( $n = 159$ ) report that they lack access to devices for internet usage, that is, the fundamental tools for gaining public online services. Let us now have a look at what factors explain inclusion and exclusion in this regard.

In Table 1 and Model 1, it can first be noted that there is no significant difference between women and men. The finding may seem trivial, but it is worth keeping in mind that through the history of home computing and digital media in Sweden, as elsewhere, men have always had greater access than women (Nordicom, 2000). Apparently, over time, the highly gendered access to media technology has become more equal, at least in terms of physical access.

Table 1 also reveals that age correlates negatively with access, a hardly unexpected result (Olsson et al., 2019a). The OR value of 0.826 means that with every added year, the odds ratio of having access decrease by 17.4% ( $1 - 0.826$ ), or, put another way, with every six-year interval of increasing age, the odds ratio of not having access doubles.

Discursive resources measured as formal education reveals that one level above elementary school ( $OR = 2.366$ ), more than doubles the odds ratio for access, which also applies to the next level of education ( $OR = 2.412$ ). Furthermore, material resources (i.e., income) also have an impact, but not in the same cumulative way as education. Income over 300,000 SEK more than doubles ( $OR = 2.874$ ) the odds ratio for access, while additional income over 600,000 SEK renders no significant increase. Social resources—operationalized as association membership ( $OR = 1.786$ )—also affect physical access positively, unlike marital status, and place of residence.

Overall, our data are to a considerable extent in line with extant research, referenced above: It is comparatively younger individuals, with longer formal education and at least average incomes and social networks, who are most likely to have access to online services. Thus, disconnected and disadvantaged in this matter are the oldest individuals with comparatively limited discursive, material, and social resources.

However, as Friemel (2016), among others, has found, pre-retirement experience with computers has a strong impact that might even out differences between groups. Work experience with computers, as a discursive resource, is therefore included in Model 2, and its impact is considerable. Individuals with computer experience have a sixfold higher odds ratio ( $OR = 6.070$ ) compared to individuals without.

Still, some effects from Model 1 remain, albeit to a slightly lower degree. The effect of age has changed only marginally, from 17.4 to 15.8% ( $OR = 0.842$ ), and income over 300,000 is still important. Individuals with the lowest incomes, below 300,000, are twice as likely as others ( $OR = 2.584$ ) to lack devices for internet usage.

**Table 1.** Logistic regression: Physical access.

	Model 1				Model 2			
	$\beta$	S.E.	OR	Sign	$\beta$	S.E.	OR	Sign
Gender								
(Female)	—	—	—	—	—	—	—	—
Male	-0.377	0.214	0.686		-0.311	0.28	0.733	
Age	-0.192	0.018	0.826	***	-0.172	0.02	0.842	***
Education								
(Short)	—	—	—	—	—	—	—	—
Middle	0.861	0.222	2.366	***	0.570	0.24	1.768	*
Long	0.880	0.299	2.412	**	0.691	0.31	1.995	*
Income								
(-300,000)	—	—	—	—	—	—	—	—
301,000–600,000	1.056	0.247	2.874	***	0.949	0.27	2.584	***
601,000	1.232	0.745	3.428		0.946	0.76	2.575	
Marital status								
(Single)	—	—	—	—	—	—	—	—
Couple	0.403	0.238	1.479		0.359	0.25	1.432	
Association membership								
(Non-member)	—	—	—	—	—	—	—	—
Member	0.580	0.206	1.786	**	0.312	0.22	1.367	
Residence								
(Rural area)	—	—	—	—	—	—	—	—
Urban area	0.338	0.287	1.402		0.177	0.31	1.194	
Computer use in working life								
(No work experience)	—	—	—	—	—	—	—	—
Work experience	—	—	—	—	1.803	0.23	6.070	***
Constant	14.407	1.383	—	***	12.568	1.47	—	—
Nagelkerke's $R^2$	0.45	—	—	—	0.52	—	—	—
Correct classification	89.1	—	—	—	89.5	—	—	—

Notes: Individuals without access have reported a lack of PC, laptop, smartphone, tablet, e-book reader, smart TV, or any other device that enables internet usage; OR stands for "odds ratio"; \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

Table 1 points out two things. First, resources and age matter, just as Schou and Pors (2019) have suggested. Individuals with fewer resources, and who are therefore more often in need of welfare services, are the ones most likely to be disconnected. Second, work experience has a strong impact: individuals who have acquired digital skills have a significantly lower risk of being excluded from online services. "Citizens are divided into new groups," Schou and Pors (2019, p. 474) argue, "depending on their ability to use digital platforms." These assumptions are supported by our survey data on access to digital devices.

#### 4.2. Usage

Let us look at individuals who actually have physical access, even though access as such does not guarantee internet usage. As mentioned above, 9.9% ( $n = 159$ ) report a lack of access. However, 15.4% ( $n = 243$ ) report that they never use the internet. Apparently, 5.5% with proper devices do not put them to use and hence are not using *online public services*. The linear regression analy-

sis in Table 2 displays the degree to which five different online platforms for public service are used.

Table 2, Model 1, reveals that gender remains insignificant; there is no difference between men and women when it comes to their frequency of usage of the online services in question. Again, age is an important factor; it is in fact the most important in terms of effect ( $\beta = -0.244$ ). Education—middle ( $\beta = 0.103$ ) and long ( $\beta = 0.080$ )—and income over 300,000 SEK ( $\beta = 0.093$ ), as well as association membership ( $\beta = 0.097$ ), all affect usage, while marital status—single or couple—does not. Individuals in urban areas use the services slightly more than people in rural areas ( $\beta = 0.082$ ).

Model 2, with work experience included, has once again the largest effect ( $\beta = 0.277$ ). Nonetheless, the impact of age ( $\beta = -0.196$ ), education ( $\beta = 0.065$  and  $\beta = 0.067$ ), association membership ( $\beta = 0.069$ ), and place of residence ( $\beta = 0.078$ ) remain. Thus, even when we analyse individuals with physical access to devices for online activities, variation in usage of public online services is a fact. And again, it is the relatively younger

**Table 2.** Linear regression: Usage of public service online platforms.

	Model 1				Model 2			
	B	S.E.	$\beta$	Sign	B	S.E.	$\beta$	Sign
Gender								
(Female)	—	—	—	—	—	—	—	—
Male	-0.322	0.825	-0.012		-0.082	0.806	-0.003	
Age	-0.583	0.072	-0.244	***	-0.469	0.072	-0.196	***
Education								
(Short)	—	—	—	—	—	—	—	—
Middle	3.475	1.102	0.103	**	2.191	1.091	0.065	*
Long	2.192	0.911	0.080	*	1.843	0.890	0.067	*
Income								
(–300,000)	—	—	—	—	—	—	—	—
301,000–600,000	2.636	1.057	0.093	*	1.743	1.039	0.062	
601,000–	0.625	1.093	0.019		-0.097	1.071	-0.003	
Marital status								
(Single)	—	—	—	—	—	—	—	—
Couple	-1.246	1.109	-0.040		-1.034	1.082	-0.033	
Association membership								
(Non-member)	—	—	—	—	—	—	—	—
Member	2.699	0.849	0.097	**	1.914	0.836	0.069	*
Residence								
(Rural area)	—	—	—	—	—	—	—	—
Urban area	3.227	1.185	0.082	**	3.068	1.156	0.078	**
Computer use: working life								
(No work experience)	—	—	—	—	—	—	—	—
Work experience	—	—	—	—	7.456	1.036	0.227	***
Constant	51.263	5.513	—	***	39.320	5.630	—	***
Adjusted $R^2$	0.119	—	—	—	0.161	—	—	—

Notes: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ ; the index varies from 0 to 100 and measures the usage frequency of five online platforms for public service.

and resourceful individuals—with computer experience, longer formal education, and stronger social networks, who live in urban areas—who tend to use public online services the most.

#### 4.3. Outcomes

This next measure, presented in Table 3, is not directly connected to public online services but is a more general measure of outcomes in terms of feelings and attitudes towards different aspects of being an internet user in a digitalising society, a society where more and more services are offered online only.

Table 3, Model 1, reveals that there is a difference between men and women, with men reporting a higher degree of satisfaction than women ( $\beta = 0.120$ ). It is not within the scope of the overall aim of this article to delve deeper into this discrepancy between men and women, but the varying and gendered level of satisfaction with online experiences is certainly a potential topic for future research endeavours. Age continues to have a negative impact; the older an individual gets, the more modest

the outcomes tend to be ( $\beta = -0.163$ ). Formal education ( $\beta = 0.093$  and  $\beta = 0.113$ ) and income over 300,000 SEK ( $\beta = 0.125$ ) are also conducive to a higher degree of satisfaction, as is being an association member ( $\beta = 0.108$ ).

In Model 2, where work experience is included and has a strong impact ( $\beta = 0.247$ ), the impact of gender becomes even stronger ( $\beta = 0.132$ ) compared to Model 1, while the impact of age is slightly more modest ( $\beta = -0.124p$ ). Longer education is still a significant factor ( $\beta = 0.102$ ) as is income over 300,000 SEK ( $\beta = 0.097$ ) and being an association member ( $\beta = 0.076$ ).

Overall, the outcomes vary, and to a large extent, the divides follow the patterns revealed by previous levels of divides. The patterns of digital inclusion and exclusion are persistent whether we focus on access to technology, usage of online public services, or general feelings and attitudes towards using them.

#### 5. Discussion

This article has centred around three research questions. RQ1 and the analyses deriving from that help reveal



**Table 3.** Linear regression: Attitudes and feelings.

	Model 1				Model 2			
	B	S.E.	$\beta$	Sign	B	S.E.	$\beta$	Sign
Gender								
(Female)	—	—	—	—	—	—	—	—
Male	4.470	1.132	0.120	***	5.216	1.195	0.132	***
Age	-0.598	0.112	-0.163	***	-0.455	0.110	-0.124	***
Education								
(Short)	—	—	—	—	—	—	—	—
Middle	4.646	1.637	0.093	**	2.711	1.604	0.054	
Long	4.577	1.356	0.113	***	4.110	1.315	0.102	**
Income								
(-300,000)	—	—	—	—	—	—	—	—
301,000–600,000	5.315	1.566	0.125	***	4.126	1.525	0.097	**
601,000–	3.698	1.604	0.077	*	2.694	1.559	0.056	
Marital status								
(Single)	—	—	—	—	—	—	—	—
Couple	-0.725	1.661	-0.016		-0.553	1.609	-0.012	
Association membership								
(Non-member)	—	—	—	—	—	—	—	—
Member	4.463	1.270	0.108	***	3.142	1.242	0.076	*
Residence								
(Rural area)	—	—	—	—	—	—	—	—
Urban area	1.751	1.776	0.030		1.706	1.721	0.029	
Computer use in working life								
(No work experience)	—	—	—	—	—	—	—	—
Work experience	—	—	—		12.575	1.574	0.247	***
Constant	82.510	8.405	—	***	65.118	8.430	—	***
Adjusted $R^2$	0.137	—	—	—	0.190	—	—	—

Notes: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ ; the index varies from 0 to 100 and measures feelings and attitudes towards different aspects of being an internet user.

how the degree of digital exclusion increases with age, and how both levels of discursive and material resources correlate positively with access to devices. Also, social resources matter, as older adults with larger networks generally have access to more devices than those with fewer social ties. RQ2 reveals very similar patterns. When focusing on the actual usage of online public services, the frequency decreases with age, which essentially means that online availability of public services does not necessarily make them more accessible to ageing adults. Also in this regard, material as well as levels of discursive and social resources have an influence. Older adults with higher incomes, higher levels of education, and stronger social networks are more likely to use public online services. Computer experience during working life is also important. It increases the probability of usage of online public services. Analyses deriving from RQ3 point towards very similar patterns of digital inclusion and exclusion. Also, feeling at home and satisfied with online services in general follows the same patterns as previous levels of divides.

Referring back to the theoretical framework, our data and analyses reveal how the different levels of digital divides are intimately related to one another. The degrees of access and usage and the outcomes from interaction with digital media covariate in a way that cements patterns of digital inclusion and exclusion among older adults.

These variations between groups of older adults become crucial as welfare services are increasingly offered “digital by default” (Schou & Pors, 2019). When citizens, including older adults, are to an increasing extent becoming “responsible for provisioning welfare services themselves” (Schou & Pors, 2019, p. 465), their relation to digital media gains in importance. Their access to digital media is not only a matter of convenience or entertainment but rather a requirement for getting in touch with health care services, for instance. Their usage of online public services is not an additional option but rather the default route for interaction with the tax agency. And whether or not they find themselves at home within the digital environment,

their actions as citizens nowadays have a digital frame. Following Schou and Pors (2019, p. 265), this creates a new ecology of citizenship within which “groups of citizens already at the fringes of the welfare system risk being further excluded.”

Referring to empirical evidence and analyses presented in this article, it is obvious that older adults with low levels of income and education, little computer experience, and weaker social networks are at risk of digital exclusion. These are important insights for both researchers and policymakers, not least in light of the fact that traditional channels over time have been aggravated. In a recent report, the Swedish National Audit Office (2021) pointed out that authorities in Sweden have significantly reduced their services for citizens to contact them, by phone as well as physically. For researchers, it is a call to keep track of problematic patterns of exclusion and perhaps also to indicate potential strategies to counteract them. For policymakers, it is a call for caution in the aspirations to make public information and services digital by default. In some ways, turning to digital solutions for information and services is probably an effective strategy. However, it is important to realise how such a strategy also comes with a price, as it threatens to also exclude important groups of citizens by making it more difficult for them to claim their social rights.

## 6. Limitations and Future Studies

As this article is based on data from a national survey, it manages to capture overarching patterns of older adults' experiences with digital media, from their access via their usage to outcomes of usage. These are important insights, but they are also limited in the sense that they say very little about what such overarching patterns actually mean in everyday life among various categories of older adult users. For instance, to what extent and in what ways do they also foster a sense among groups of older adults that they are at risk of being left behind in the general societal strive for digital solutions? Such insights would be valuable for evaluations of the idea of “digital first,” but grasping those calls for a very different research design, arguably a design that works closer to and pay interest in how various categories of older adults (from silver surfers to non-users) experience everyday lives with or without the ability to make use of digital services. Such research designs would include a mixed-methods approach in which survey data are combined with, for instance, ethnographic data on routine digital encounters in everyday life, or focus group data on how policy initiatives such as Digital First are perceived among various groups of actual citizens.

Having said that, we would also like to point towards the potential usefulness of international, comparative approaches. Comparing the Swedish experience of digitalisation to the experiences in other parts of Europe, as well as the rest of the world, could help bring additional insights. It would offer contextualising information

to Swedish data and insights from the Swedish case could help shed light on what are nation-specific and what are general patterns of outcomes for older adults in digitalising societies.

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## Conflict of Interests

The authors declare no conflict of interests.

## References

- Baudin, K., Gustafsson, C., & Frennert, S. (2020). Ongoing digital transformation: A cross-sectional study on the views of Swedish elder care personnel. *Journal of Medical Internet Research*, 22(6), Article e15450. <https://doi.org/10.2196/15450>
- Digg. (2022). *Digitalt som förstahandsval* [Digital by default]. <https://www.digg.se/kunskap-och-stod/svenskt-ramverk-for-digital-samverkan/rekommendationer-for-offentliga-organisationer/det-digitala-motet>
- Ebbers, W. E., Jansen, M. G., & van Deursen, A. J. (2016). Impact of the digital divide on e-government: Expanding from channel choice to channel usage. *Government Information Quarterly*, 33(4), 685–692. <https://doi.org/10.1016/j.giq.2016.08.007>
- European Commission. (2022). *Digital economy and society index (DESI)*.
- Friemel, T. (2016). The digital divide has grown old. *New Media & Society*, 18(2), 313–331. <https://doi.org/10.1177/1461444814538648>
- Fristedt, S., Svärdh, S., Löfqvist, C., Schmidt, S. M., & Iwarsson, S. (2021). “Am I representative (of my age)? No, I’m not”—Attitudes to technologies and technology development differ but unite individuals across rather than within generations. *PLoS ONE*, 16(4), Article e0250425. <https://doi.org/10.1371/journal.pone.0250425>
- Hammarberg, T. (2021). *Problem för äldre i det digitala samhället: Svar på skriftlig fråga 2020/21:1941 besvarad av Statsrådet Anders Ygeman (S)* [Problems for elderly in the digital society: Answer to written question 2020/21:1941 answered by Prime Minister Anders Ygeman (S)]. [https://riksdagen.se/sv/dokument-lagar/dokument/svar-pa-skriftlig-fraga/problem-for-aldre-i-det-digitala-samhallet\\_H8121941](https://riksdagen.se/sv/dokument-lagar/dokument/svar-pa-skriftlig-fraga/problem-for-aldre-i-det-digitala-samhallet_H8121941)
- Joseph, S., & Avdic, A. (2016). Where do the Nordic nations strategies take e-government? *Electronic Journal of e-Government*, 14(1), 3–17. <https://academic-publishing.org/index.php/ejeg/article/view/625>
- König, R., Seifert, A., & Doh, M. (2018). Internet

- use among older Europeans: An analysis based on SHARE data. *Universal Access in the Information Society*, 17(3), 621–633. <https://doi.org/10.1007/s10209-018-0609-5>
- Llorente-Barroso, C., Sánchez-Valle, M., & Viñarás-Abad, M. (2023). The role of the internet in later life autonomy: Silver surfers in Spain. *Humanities and Social Sciences Communications*, 10(1), Article 56. <https://doi.org/10.1057/s41599-023-01536-x>
- Morley, D., & Silverstone, R. (1990). Domestic communication—Technologies and meanings. *Media, Culture & Society*, 12(1), 31–55.
- Morris, A., & Brading, H. (2007). E-literacy and the grey digital divide: A review with recommendations. *Journal of Information Literacy*, 1(3), 13–28. <https://doi.org/10.11645/1.3.14>
- Murdock, G., Hartmann, P., & Gray, P. (1992). Contextualizing home computing: Resources and practices. In R. Silverstone & E. Hirsch (Eds.), *Consuming technologies: Media and information in domestic spaces* (pp. 146–160). Routledge.
- Nordicom. (2000). *Nordicom-Sveriges mediebarometer 1999* [Nordicom Sweden's media barometer 1999].
- Ohlsson, J. (Ed.). (2022). *Mediebarometern 2021* [Media barometer 2021]. Nordicom.
- Olsson, T., Samuelsson, U., & Viscovi, D. (2019a). At risk of exclusion? Degrees of ICT access and literacy among senior citizens. *Information, Communication and Society*, 22(2), 55–72. <https://doi.org/10.1080/1369118X.2017.1355007>
- Olsson, T., Samuelsson, U., & Viscovi, D. (2019b). Resources and repertoires: Elderly online practices. *European Journal of Communication*, 34(1), 38–56. <https://doi.org/10.1177/0267323118810852>
- Olsson, T., & Viscovi, D. (2020). Who actually becomes a silver surfer? Prerequisites for digital inclusion. *Javnost—The Public*, 27(3), 230–246. <https://doi.org/10.1080/13183222.2020.1794403>
- Olsson, T., & Viscovi, D. (2022). De frånkopplade: Analoga 65-plussare i ett digitaliserande Sverige [The disconnected: Analog elderly (65+) in a digitalising Sweden]. In H. Jönsson (Ed.), *Perspektiv på utsatthet och problem under åldrandet* [Perspectives on vulnerability and problems during aging] (pp. 76–98). Social Work Press.
- Pors, A., & Schou, J. (2021). Street-level morality at the digital frontlines: An ethnographic study of moral mediation in welfare work. *Administrative Theory & Praxis*, 43(2), 154–171. <https://doi.org/10.1080/10841806.2020.1782137>
- Sachau, L. L., & Hutchinson, S. R. (2012). Trends in culturally relevant interface design features for Latino web site users. *Educational Technology Research and Development*, 60(6), 1033–1050. <https://doi.org/10.1007/s11423-012-9270-5>
- Sánchez-Valle, M., Llorente-Barroso, C., & Abad-Alcalá, L. (2022). Perceptions and attitudes of Spanish “digital seniors” towards e-government. *International Journal of Electronic Government Research (IJEGR)*, 18(1), Article 28. <http://doi.org/10.4018/IJEGR.297228>
- Schou, J., & Hjelholt, M. (2018). *Digitalization and public sector transformations*. Springer.
- Schou, J., & Pors, A. S. (2019). Digital by default? A qualitative study of exclusion in digitalised welfare. *Social Policy & Administration*, 53(3), 464–477. <https://doi.org/10.1111/spol.12470>
- Stevic, A., Schmuck, D., Matthes, J., & Karsay, K. (2021). “Age Matters”: A panel study investigating the influence of communicative and passive smartphone use on well-being. *Behaviour & Information Technology*, 40(2), 176–190. <https://doi.org/10.1080/0144929X.2019.1680732>
- Stone, M. E., Lin, J., Dannefer, D., & Kelley-Moore, J. A. (2017). The continued eclipse of heterogeneity in gerontological research. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 72(1), 162–167. <https://doi.org/10.1093/geronb/gbv068>
- Swedish Government. (1995). *Åtgärder för att bredda och utveckla användningen av informationsteknik: Proposition 1995/96:125* [Measures to broaden and develop the use of information technology: Bill 1995/96:125]. [https://www.riksdagen.se/sv/dokument-lagar/dokument/proposition/atgarder-for-att-bredda-och-utveckla-anvandningen\\_GJ03125](https://www.riksdagen.se/sv/dokument-lagar/dokument/proposition/atgarder-for-att-bredda-och-utveckla-anvandningen_GJ03125)
- Swedish National Audit Office. (2021). *Var god dröj, myndigheterna digitaliserar* [Please wait, authorities are digitalising] (RIR No. 2021: 8).
- Van Deursen, A. J., & Helsper, E. J. (2018). Collateral benefits of Internet use: Explaining the diverse outcomes of engaging with the Internet. *New Media & Society*, 20(7), 2333–2351. <https://doi.org/10.1177/1461444817715282>
- van Dijk, J. (2020). *The digital divide*. Polity Press.
- Verdegem, P., & Verleye, G. (2009). User-centered e-government in practice: A comprehensive model for measuring user satisfaction. *Government Information Quarterly*, 26(3), 487–497. <https://doi.org/10.1016/j.giq.2009.03.005>
- Viklund, E. W., Nilsson, I., & Forsman, A. K. (2022). Nordic population-based study on internet use and perceived meaningfulness in later life: How they are linked and why it matters. *Scandinavian Journal of Public Health*, 50(3), 381–388. <https://doi.org/10.1177/1403494820987459>
- Von Haldenwang, C. (2004). Electronic government (e-government) and development. *The European Journal of Development Research*, 16(2), 417–432. <https://doi.org/10.1080/0957881042000220886>

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