

# Administrative Burden in Digital Self-Service: An Empirical Study About Citizens in Need of Financial Assistance

Ida Heggertveit<sup>✉1</sup>, Ida Lindgren<sup>2</sup>, Christian Østergaard Madsen<sup>3</sup> and Sara Hofmann<sup>1</sup>

<sup>1</sup> University of Agder, Kristiansand, Norway  
ida.heggertveit@uia.no

<sup>2</sup> Linköping University, Linköping, Sweden

<sup>3</sup> The IT University of Copenhagen, Copenhagen, Denmark

**Abstract.** The aim of this paper is to investigate what challenges arise for vulnerable citizens when welfare service provision is digitalized. We analyze the challenges citizens experience in the application process using the theoretical concept of administrative burden, i.e., learning-, compliance-, and psychological costs imposed on the citizen by policy implementation. The financial assistance service provided by the Norwegian Labor and Welfare Administration (NAV) is our empirical example. Our results show that digitalizing financial assistance creates new administrative burdens for vulnerable citizens. While frontline workers offer important help to citizens in the application process, they can also impose additional burdens on the citizen. Our study contributes with empirically grounded insights on the administrative burdens related to digital self-service, which causes citizens to turn to frontline workers for support. We offer a theoretical contribution by linking digitalization and administrative burden.

**Keywords:** Digital Self-Service, Administrative Burden, Executive Functioning, Financial Scarcity, Digital Divide

## 1 Introduction

There is a current trend towards digital self-service as first choice for citizens' interaction with government [1] as digitalization can provide citizens with easier access to public welfare services. However, even when digital self-service is the primary channel, citizens still turn to traditional channels, e.g., call centers and physical contact centers [2-4]. In the dawn of e-government, government organizations foresaw that digital self-service would reduce the need for call centers and physical meetings [5, 6]. However, citizens still use traditional channels, especially when they experience problems [3].

Channel choice (CC) research [3, 4, 7-9] has examined citizens' choice of communication channels in public service encounters and identified influencing factors

related to the nature of service and citizens' interaction needs. Furthermore, CC is also influenced by citizens' digital skills, where scholars have illustrated clear inequalities in different citizens' ability to use technology [10]; sometimes discussed under the 'digital divide' label [11]. Recently, the concept of *administrative burden* has been presented as a possible influence on citizens' CC [12]. Administrative burden is defined as "*the learning, psychological, and compliance costs that citizens experience in their interactions with government*" [13]. The underlying idea is that public service provision is associated with a certain amount of work. Depending on how the service interaction is designed, more or less work is distributed to the citizen who uses the service [12]. Studies show that citizens in most need of governmental support are also the most likely to experience administrative burdens when applying for public welfare services [14]. In this paper, we refer to this group of citizens as *vulnerable citizens*. We especially focus on vulnerable citizens in need of financial support, as financial scarcity is often associated with increased stress-levels, potentially reinforcing administrative burdens and inequalities [14]. Previous studies have shown that digital self-service can impose administrative burdens on citizens in need of financial support, by forcing citizens to conduct work previously performed by professional caseworkers [12]. Furthermore, automated systems can impose administrative burdens on citizens that are not covered by the automation and therefore must apply manually [15].

Many studies have focused on what effects digitalization of public welfare services have on interactions between government and citizens [1, 3, 16, 17] and how relationships between frontline workers, citizens, and technology are affected by citizens' use of digital self-service [3, 16]. However, we need more in-depth studies on how digitalization of welfare service provision affects vulnerable citizens' channel behavior. Scholars have called for studies on citizens' channel behavior related to transactions, where the service process includes filling out forms, filing applications, and exchanging money [3].

The aim of this paper is to investigate what challenges arise for vulnerable citizens when welfare service provision is digitalized. We ask: *What challenges do citizens in financial need experience during benefit application that causes them to contact frontline staff for help?* We analyze the challenges experienced in the service process by applying a diagnostic tool for assessing administrative burdens [13]. We use the financial assistance service provided by the Norwegian Labor and Welfare Administration (NAV) as our empirical example. We study the challenges arising for citizens applying for financial assistance by interviewing NAV frontline staff who support citizens in their interactions, and other topic experts from NAV. Financial assistance is a fitting area for our study for two main reasons. First, NAV promotes citizens to apply for this benefit through an online self-service application. Second, and more importantly, financial assistance is a welfare benefit aimed to secure a minimum income and improve living conditions for vulnerable citizens. We therefore highlight the *scarcity* that occurs when you have less than you feel you need [18] to illustrate the role of individual experiences of financial scarcity as a prerequisite for applying for the service. Often, citizens applying for financial assistance are also experiencing other types of scarcity as well (lack of job, lack of social network) and health issues, adding to their vulnerability. Financial scarcity can lead to reduced individual cognitive ability

and mental accounting [18]. These stress factors can influence the ability to cope with digital self-service application processes. However, this study will focus on the effect of financial scarcity.

Our study contributes with empirically grounded insights on how vulnerable citizens experience burdens when they are referred to digital self-service as their main channel of interaction with public organizations. We also offer a theoretical contribution by linking digitalization and administrative burden. The consequence of these burdens are important to convey and understand in order to avoid that structural societal inequalities [15] are reinforced by digitalization of public service provision.

This paper is organized as follows: Section two presents the concept of administrative burden and the role of executive functioning. Section three presents our research approach and the diagnostic tool used for analyzing administrative burdens. In section four, we present our findings and illustrate the main burdens found in the study. In section five, we discuss our findings and finally, we conclude the main findings and suggest areas for future studies on this topic.

## 2 Administrative Burden and Executive Functioning

Administrative burden refers to “*an individual’s experience of policy implementation as onerous*” [13]. It was initially used to analyze problems employees experience in implementing and performing policy tasks in the public sector [13]. Herd & Moynihan shifted the focus to various costs that *citizens* might face in interaction with the state [14], [13]. Recently, information systems scholars expanded the concept to the e-government area [12], [15]. Administrative burden [13] consists of three components (Table 1). First, *learning costs* relate to the time and effort the citizen must invest to learn about the service and establish eligibility, what conditions to satisfy, and how to access the service. Second, *compliance costs* relate to resources and work the citizen needs to put in to reach eligibility status, e.g., collecting documentation and responding to discretionary demands made by the administrators. Third, *psychological costs* relate to the negative psychological effects, e.g., stress, frustrations, losing power or autonomy and stigma, arising from applying and participating in an unpopular program.

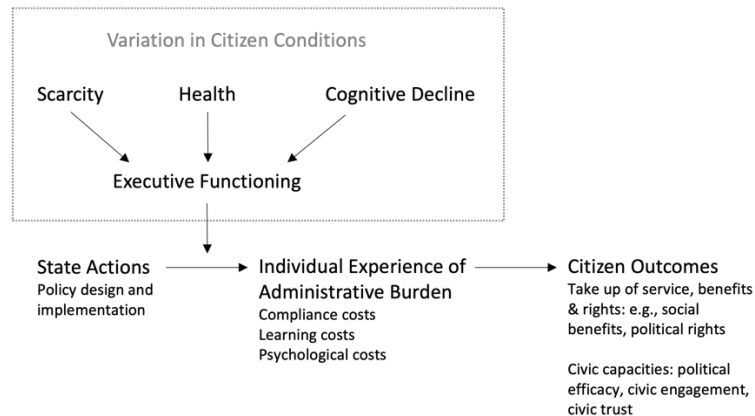
**Table 1.** The components of administrative burden [13], p.23

Type of cost	Description
Learning cost	Time and effort expected to learn about the program or service, ascertaining eligibility status, the nature of benefits, conditions that must be satisfied, and how to gain access
Compliance cost	Provision of information and documentation to demonstrate standing; financial costs to access services (such as fees, legal representation, travel costs); avoiding or responding to discretionary demands made by administrators
Psychological cost	Stigma arising from applying for and participating in an unpopular program; loss of autonomy that comes from intrusive administrative supervision; frustration at dealing with learning

and compliance costs, unjust or unnecessary procedures; stresses that arise from uncertainty about whether a citizen can negotiate processes and compliance costs

---

Herd & Moynihan suggest that human capital e.g., money, social networks, intelligence, health and education, influence how people cope with and are affected by administrative burdens [13]. Together with Christensen et al. they argue that citizens' degree of executive functioning can explain why individuals are influenced differently by administrative burdens. They present a model of how citizens' executive functioning influences their ability to respond to state actions (see figure 1). Executive functioning is a neuropsychological construct that refers to an individual's ability to "(1) reason and generate goals and plans, (2) maintain focus and motivation to follow through with goals and plans, and (3) flexibly alter goals and plans in response to changing contingencies" [19]. These are essential abilities when identifying, understanding, and complying with public programs, services, and benefits. Citizens with low executive functioning often have difficulties in forming goals, planning, carrying out a plan and performing effectively. Further, they may be challenged by short-sighted temptations, reduced emotional control, and poor social regulations [14]. Executive functioning is negatively affected by individuals' experience of scarcity (e.g., lacking money, time, or social support), health issues (e.g., mental problems, depression, physical pain, and the use of medications and drugs), and cognitive decline (e.g., age-related cognitive decline) [14]. Notably, even highly educated, and digitally skilled citizens may experience problems interacting with the government when they experience health issues. Moreover, citizens with low executive functioning are more likely to experience burdens in these interactions, and these burdens, in turn, are likely to reinforce citizens' problems by inducing stress.



**Fig. 1.** Human Capital and Administrative Burden: The Role of Executive Functioning [14]

*Scarcity* refers to “having less of something that you feel you need” [18]. Our focus is on financial scarcity. Experiences of financial scarcity can explain why some people

find a set of rules, forms and procedures more emotionally difficult and onerous than others [14]. We find the concept of administrative burden particularly fitting for a study of public services related to financial assistance, because citizens who apply for financial support often find themselves in complex situations and their experiences surrounding their financial situation tend to be stressful.

### 3 Research Settings

This study was conducted as part of a larger research project financed by the Norwegian Labor and Welfare Administration (NAV) (reference blinded for review). Our work is qualitative and within the interpretive research tradition [20].

We focus on *financial assistance*, which is a welfare benefit offered to financially vulnerable citizens in Norway. Financial assistance and its eligibility criteria are based on the Act of Social Services. Financial assistance is a temporary benefit with the aims to cover citizens' necessary expenses. Rates are based on individual assessments, but they are often compared to national guidelines for living costs. It can be difficult for citizens to understand if they lack income to cover the basic because this is related to a subjective feeling of scarcity. It can also be difficult to understand what expenses are covered by the national guidelines. Everyone has the right to apply for this benefit and to have NAV conduct an individual assessment of their application. The purpose of this welfare benefit is to secure a minimum income, improve living conditions, promote transition to work, social inclusion, and active participation in society. The provision of financial assistance typically involves two government roles: *frontline workers* and *case workers*. Frontline workers are those the citizens can call when they have questions about the application process. Case workers, in turn, are the professionals that assess and decide whether the citizen is eligible for support. For citizens to receive financial assistance, they must be able to show that they lack financial assets to cover fundamental costs (e.g., rent, heat, food, basic clothing). There is no fixed rate, meaning that the financial assistance is based on the individual need of the citizen applying for support. NAV promotes citizens to apply for financial assistance by using a digital self-service to make the service more efficient. In addition, caseworkers can allocate time for job-oriented counseling [21].

### 4 Method

We conducted three in-depth semi-structured interviews with six employees at NAV. The purpose of these interviews was to identify the steps in the application process, the channels citizens use, and what problems arise during citizens' interaction with NAV. We interviewed NAV employees, rather than citizens, because employees are experts with aggregated knowledge of the entire service process we are studying. Through their work, they have gained an overview of the citizens' most frequently asked questions and encountered problems. We regard NAV employees as "highly knowledgeable

informants”, who provide a collective picture and useful retrospectives [22]. Frontline workers are experts in the form that they have privileged access to citizens and the decision-making service process. Interviewing experts can provide knowledge and orientation to the specific field. They provide high technical knowledge of the field in relation to information needed to apply and the application procedure. Furthermore, they provide us with knowledge about interactions, routines, and social practices [23].

All interviews were conducted and recorded via Microsoft Teams and transcribed.

To complement the interviews, we analyzed NAV’s official website and read available information on financial assistance. We also studied the design and content of the digital form that citizens need to fill in to apply for financial assistance. Further, we studied internal training documentation for caseworkers on how to promote citizens to use digital channels. Lastly, we analyzed the results from NAV’s yearly analysis of future challenges and trends (called *Horizon Scan*) and their user survey on citizens’ chosen communication channels and typical problems in interacting with NAV. Table 2 provides an overview of our empirical data.

**Table 2.** Empirical data: An overview.

	Respondent	Time	Period
Interviews	Interview with two representatives from the digitalization group within NAV, including a UX designer (UXD) and a caseworker (CW)	1 hour 17 min.	Autumn 2021
	Interview with two frontline workers from NAV call center, (FW1 & FW2)	1 hour 50 min.	Autumn 2021
	Interview with two frontline workers from NAV call center, (FW3 & FW4)	1 hour 15 min.	Autumn 2021
Documents	Website of NAV Digital application form Internal training document for caseworkers NAV’s Horizon Scan NAV’s yearly user survey		Spring 2022

We analyzed the empirical material using a qualitative content analysis approach, as suggested by Mayring [24]. The analysis was both deductive and inductive. The analysis was deductive in the sense that we critically analyzed the material using the diagnostic questions for identifying administrative burdens, as presented by Herd and Moynihan (see Table 3). During the analysis, we also allowed for inductive themes to emerge from the material.

**Table 3.** Diagnostic Questions About Administrative Burden [13] p. 258

Component	Diagnostic questions
Learning costs	Is it easy for potential participants to Find out about the program? Establish if they are eligible? Understand what benefits are provided? Learn about application processes? How many questions and forms are there to complete? How much documentation is needed?
Compliance costs	Do the participants have to input the same information multiple times? Is the information sought already captured via administrative data? Is it possible to serve the person in a less intrusive way, such as phone rather than in-person interviews? Do applicants have easily accessible help? How frequent is reenrollment? How much time must people commit to the process? What are the bottlenecks? What are the financial costs?
Psychological costs	Are the interactions stressful? Do people receive respectful treatment? Do people enjoy some autonomy in the interaction?

## 5 Findings

This section presents our analysis and findings on what challenges arise for vulnerable citizens when they apply for financial assistance. Citizens contacting the call center have usually tried to help themselves through the self-service but have run into problems. When a citizen contacts NAV call center by chat or telephone, the frontline worker judges the citizen's cognitive and digital skills, e.g., language and general understanding, and access to Bank-ID (necessary to use the application). Citizens who are found to have sufficient skills, are referred to seek information themselves on the webpage. *"We very often refer to nav.no, where it is very well explained"* (interview, FW3). Citizens who are found to have insufficient understanding, poor language skills, or need physical assistance, are sometimes offered a physical meeting with a caseworker at a local NAV office. Our study does not account for what happens during physical meetings. Below, we account for those issues that are typically dealt with by frontline workers through telephone, chat, and email, e.g., whether the citizen is eligible for financial assistance, what they can apply for, what documentation they need to attach and how to fill out the form correctly. We structure our findings based on the overarching components of administrative burden; learning-, compliance-, and psychological costs.

## 5.1 Learning Costs

When in need of financial assistance, citizens must first learn about the service and how to apply. The frontline workers receive many questions from citizens that illustrate difficulties in learning about these aspects. We identified two salient themes related to learning costs in the application process: 1) difficulties in understanding eligibility criteria, and 2) language barriers and lack of bureaucratic skills.

### 5.1.1 Difficulties in understanding eligibility criteria

There are several learning costs associated with understanding and determining the eligibility criteria for financial assistance for vulnerable citizens. According to the frontline workers, citizens typically contact them as a complement to navigating the website. Some eligible criteria are mentioned on the webpage, such as having a legal residence in Norway and not living abroad when applying. There is also a video about the application process on the NAV webpage on how to “get started with your digital application”, but only in Norwegian. Still, citizens need to determine whether they are eligible and what they can apply for. For example, the webpage informs the citizens that they can apply for living expenses, using examples such as food, rent, electricity, and clothes. Even so, the citizens struggle to understand what to write in the self-service application’s open text field “*what are you applying for*” and the additional field “*give a brief justification for the application*”.

For some citizens, financial assistance is just one of several economic benefits they apply for. Financial assistance covers many aspects (e.g., living expenses, housing expenses and dental treatment) and is often seen as the most suitable for urgent financial needs. As explained by the caseworker “*In my experience, many users do not think about what they may be entitled to before they apply. They often seek several benefits in hope of getting money. Because they need money. It is uncertain whether they understand the content and what they are actually entitled to*” (interview, CW).

According to the Act of Social Service, all citizens have a right to apply for financial assistance and to receive individual assessment of their application. Citizens can take a chance and apply even if they do not fully understand the eligibility criteria. To hinder unnecessary case work, frontline workers have a gate-keeping job for caseworkers when it comes to help citizens determine eligibility for this welfare service. For example, citizens who contact the call center, are asked if they have savings to use, an expensive car to sell, or other possibilities to be self-sufficient. Nevertheless, according to the case worker, “*many people apply for financial assistance without being entitled to it*” (interview, CW). Citizens and caseworkers can have a different view on the importance of keeping a car as a part of their life expenses. This is an example of an individual’s experience of scarcity that can be difficult to explain in the free text area of the online self-service application.

There are different criteria for sending documentation based on what the citizen is applying for and if the citizen has applied earlier. Citizens struggle with finding the right digital application (if they have more than one) to attach the documents, and they struggle to find the correct documents and upload them. This part of the digital self-service application causes many applicants to abort the entire process.



For emergency situations, case workers must respond within 24 hours e.g., when the citizen is without food, or the electricity is shut down. The frontline worker often becomes an important gatekeeper and interpreter of the citizens' situation and must decide whether the situation is an emergency or not based on the citizen's accounts. According to the frontline workers, many citizens lack cognitive skills themselves to understand what is defined as an emergency. *"The user does not understand what an emergency is according to the Social Service Act"* (interview, FW4). *"Users that do not know what emergency aid means and think rent is emergency. They call and say they need an answer now, and they call several times a day. We must therefore handle these phones so that the caseworker is freed from spending time on 15-20 such phone calls during the day"* (interview, FW4).

### **5.1.2 Language barriers and lack of bureaucratic skills**

Learning about NAV's benefits to citizens, and how to apply, is difficult for many citizens, vulnerable or not. In a survey performed by NAV, 35 % of the respondents answered that it is difficult to understand information about rules and duties. About 40 % found it difficult to understand what rules are used to make the decision and how NAV has arrived at the amount they have been paid [25]. Also, the terminology used on NAV's webpage is difficult for many citizens to understand. The frontline workers mentioned that many of the vulnerable citizens applying for financial assistance find it difficult to understand the definitions of the central terms used in the application process, such as "income". For example, some citizens do not know that their savings are defined as income.

In the self-service application, the steps in the digital application contain question marks next to them with additional information on each step. Still, many citizens fail to understand what is expected of them and *"they do not always have the skills to acquire that knowledge"* (interview, FW3). Citizens often find it difficult to understand the application form and terminology used in relation to their own life situation, which can be complicated and not necessarily match all the steps in the application form. Also, many citizens lack sufficient knowledge on how the public sector works, and *"young people in particular may not understand the bureaucratic language"* (interview, CW). According to NAV's own user surveys, young citizens with high education and good digital competence contact NAV more frequently to get answers to questions [25].

Sometimes, difficulties in understanding stem from insufficient language skills. For example, immigrants are overrepresented as applicants of financial assistance [25] and often do not speak Norwegian well enough to understand the information on NAV's webpage and self-service online. Citizens with dyslexia also have problems understanding the information in the digital channels. However, according to the frontline workers, burdens fall disproportionately harder on immigrants in contrast to citizens with reading and writing difficulties or dyslexia, where frontline workers can read the questions out loud, using a simpler language, when guiding them through the digital application.

## 5.2 Compliance Costs

The form used to apply for financial assistance has nine questions. In addition, applicants must supply NAV with documentation that illustrate their eligibility. Applying the diagnostic questions related to compliance costs in the process, we identified two interrelated themes; 1) difficulties in supplying the documentation needed, and 2) difficulties in getting informed help by frontline workers.

### 5.2.1 Difficulties in supplying the documentation needed

Supplying NAV with the necessary documentation is difficult and this is the step in the application process where citizens spend the most time; and can hence be seen as a compliance cost. Many citizens also abort their application during this step due to problems with uploading the right documents. *“There is an incredible amount of documentation to attach (...) In a way, you must put together your entire accounts. I would think it’s a full-time job for a few days to get everything in place”* (interview, FW2). This is particularly problematic the first time a citizen applies for financial assistance. If a citizen has applied for financial assistance before, it is possible to reuse previously submitted documentation to NAV.

The documents NAV require differ depending on why the citizen need financial assistance. Therefore, this requirement is not specified. Many citizens struggle with this and need help to find out. Frontline workers try to reduce this burden by recommending citizens to upload any document they see could help in assessing their eligibility. The motto among frontline workers is to advice citizens to upload too much, rather than too little. *“At least, that’s my motto. Several of us who respond to financial assistance follow it”* (interview, FW4). This recommendation can create uncertainty and, in turn, become a burden if the citizen uploads unnecessary documents.

The frontline workers report that non-digital citizen face more compliance costs than citizens with digital competences. Non-digital citizens need to collect the application form at the local NAV office or print it out from the municipal’s website (where this is available). If they need help in the process and go to a physical office to get help, they are limited by the opening hours. Also, they are limited by the fact that the frontline workers cannot access their personal information (as discussed below). Put together, *“they are the weakest in society, but they are also the weakest in terms of opportunities for us to look at their case and themselves to see”* (interview, FW3).

### 5.2.2 Difficulties in getting informed help by frontline workers

When citizens need help, they are directed to the call center and its frontline workers. While frontline workers can help with many things, they do not have access to the citizens’ personal files. The Social Service Act prevents frontline workers’ access to the case and prevents frontline workers from sharing information and answering questions in written channels. *“I would like to emphasize that we generally have very little transparency. We cannot see what they have applied for, the documentation they have attached, or the decision letter. We provide guidance on a general basis and can only see small things as if the payment is on the way or not. Otherwise, we do not have*

*access to the user's case*" (interview, FW3). Consequently, frontline workers cannot give informed help based on the specifics of the citizen's case, other than from what information the citizen is conveying during the telephone call. The frontline workers report that the amount of inquiries solved in the frontline is low compared to other services: *"we pass on many of them (...) unfortunately, it is difficult when we have so little transparency. We can rarely answer them when they call"* (interview, FW1).

Citizens sometimes have personal case workers. Many citizens call claiming to have urgent needs, wanting to speak to their case worker. The relationship between the citizen and the case worker is created through physical meetings and phone calls. If the frontline worker considers a citizen's call and errand as urgent, they can transfer the call from the citizen directly to the caseworker. The caseworker can decline the call and tell the frontline worker to leave a message. *"Several users state that it was better to contact someone who could actually answer questions about their case because they had access to the professional system, instead of contacting someone who does not know anything about their case and then get more diffuse answers, or maybe not an answer at all. (...) I don't find it very surprising that users miss getting detailed answers. I've always thought it's been important"* (interview, CW). Frontline workers say that the best solution would be direct contact between the citizen and the caseworker, and that citizens should have more insight in their own cases. *"Because these are people in particularly vulnerable situations [it is important to] establish a bond between the user and caseworker to provide the best possible follow-up"* (interview, CW).

### **5.3 Psychological Cost**

Citizens who need financial assistance are often marginalized (being immigrants, unemployed, suffering mental or physical illnesses, drug use, etc.). This can be associated with increased stress levels [14]. Our respondents state that the benefit application process for financial assistance can add to this stress for vulnerable citizens. By applying the diagnostic questions, we identified one salient theme related to psychological costs: 1) Stress and frustration.

#### **5.3.1 Stress and frustration**

According to our informants, citizens who apply for financial assistance express that they experience stress and frustration in the application process. This may be due to the problems discussed above related to learning and compliance. But stress and frustration can also arise for other reasons. The frontline workers express that most citizens who reach out for help in the application process say that they are under time pressure. Financial assistance is one of the services at NAV with the shortest lead time, from application to decision, but for many citizens in need of financial assistance, the lead time is not perceived as fast enough. From the frontline- and case workers' perspective, the feeling of time pressure is often a result of bad planning (on behalf of the citizen). Oftentimes, *"they somehow fail to envision case processing time and are in a constant backlog. It's always NAV's fault"* (interview, FW1). Many of the citizens applying for

financial assistance are in a vulnerable situation and “*may not have the cognitive abilities to plan ahead*” (interview, FW1).

In general, although stressed, citizens usually manage to keep a good tone when they call the call center. In contrast, frustrated citizens often use a harder tone in written communication, e.g., in chat messages and emails (“write to us”-sites) where frontline workers are sometimes addressed as “idiots” and “stupid”. These are clear signs of frustration and stress experienced by the citizens. Unfortunately, these outlets of frustration can negatively influence the citizen’s opportunity to receive financial assistance by creating a feeling of unwillingness in the frontline worker: “*Today I had to ask someone in the chat to keep a friendly tone. I do not want to help people who aren’t nice either. I will of course help, but not at any cost. We must be able to maintain a friendly tone*” (interview, FW1). The interactions are also influenced by the citizens disorders. “*My general impression is that there is a lot of intoxication and mental disorders overrepresented. These conversations are especially demanding because there can be shouting, yelling, insults and much more*” (interview, FW4).

## 6 Discussion and conclusions

The aim of this paper is to investigate what challenges arise for vulnerable citizens when welfare service provision is digitalized. We asked, *What challenges do citizens in financial need experience during benefit application that causes them to contact frontline staff for help?*

By referring citizens to help themselves through digital self-service, the citizens are forced to search the agency’s webpage and self-service forms for information on what services they are eligible for, how to apply, and how to illustrate eligibility. Citizens in need of financial assistance are typically suffering from scarcity or health issues. Therefore, searching this information on their own can be difficult.

Our analysis, using the diagnostic tool for assessing administrative burden, shows that learning-, compliance- and psychological costs are induced in several ways (see Table 4).

**Table 4.** Summary of findings

Component	Findings
Learning costs	Difficulties in understanding eligibility criteria Language barriers and lack of bureaucratic skills
Compliance costs	Difficulties in getting informed help by frontline workers Difficulties in supplying the documentation needed
Psychological costs	Stress and frustration

Our findings are in line with previous research on administrative burden[13]. When digitalizing financial assistance, citizens must find out about the service on their own. They also need to establish how to apply and if they are eligible, based on information from NAV’s webpage. This creates learning costs as the citizen must learn about both

the benefit, and the specific vocabulary associated with it [13] Citizens with language barriers and low bureaucratic skills are overrepresented among those applying for financial assistance, making this burden harder [14]. When it is difficult to understand what is required, it is also difficult to comply with the service requirements [13]. We have identified several interaction effects between the three learning costs. For example, combinations of learning- and compliance costs are clearly illustrated in our case. The frontline workers testify that many of those who reach out to them for help find it difficult to understand NAV's information on what is required of them. Therefore, they also struggle to comply with the requirements. Herd and Moynihan [13] state that psychological cost can be an effect of learning- and compliance costs. In the empirical material we see signs of what Christensen et al [14] illustrate, namely that low executive functioning negatively affects citizens ability to complete an application process, and that this in turn, reinforces stress levels and further reduces the citizen's ability to complete the process. Interestingly, we also illustrate how a citizen's stress and frustration can cause bad behavior towards the frontline worker, which in turn may reduce the frontline workers' willingness to help the citizen.

This study provides empirical examples of how administrative burdens can be manifested in e-government practice. By using the diagnostic tool for assessing administrative burdens [13], we provide clear examples of how digital self-service creates additional burdens for some of the most vulnerable citizens in society. We particularly show how already vulnerable citizens in society risk being affected by even more administrative burdens due to their life situation. Burdens hurt vulnerable people more than others, and therefore worsen existing inequality in society. This study provides attention to the consequences of digital developments in social welfare systems. Digital public service provision is often presented as a way of improving life and service quality for citizens. We show how digital self-service can do the opposite for a small, albeit important, group of citizens in society. For some citizens, it is vital to have personal meetings with professionals who can describe and explain the service requirements in simple terms and provide hands-on guidance through the application process.

## **7 Implications, limitations, and future research**

Our study contributes with empirically grounded insights on how vulnerable citizens experience administrative burdens when applying for financial assistance through digital self-service. These insights also provide theoretical contributions, linking digitalization and administrative burden. It is important to convey and understand the consequences of these burdens to avoid those structural societal inequalities that risk being reinforced by digitalization of public service provision.

Our study furthermore provides some practical implications, relevant to NAV. Our analysis shows that information about financial assistance and online self-service application makes it easier for citizens to apply for financial support from their own homes at any hour of the day. However, self-service requires that the applicants understand the eligibility criteria, how to fill out the form correctly and how to upload the right documents. Many citizens call to get information on the status of their

application or try to influence the outcome of their case. Some even start new applications to get in contact with caseworkers at NAV while they are waiting for a reply on previously made applications. Citizens who have applied digitally can forward requested documentation and get an overview of their applications if they log in to NAVs webpage. However, citizens struggle with navigating their way to find this feature on the NAV webpage. Easier access directly between citizens and caseworkers, or more transparency in the application process for citizens applying, could help reduce psychological costs.

Our study has several limitations. First, it is only based on a few interviews. Second, there are no interviews with citizens included in the study; thus, we have no first-hand accounts of how citizens themselves experience the self-service process. However, our interviews with frontline workers and other topic experts have provided us with an aggregated view of the various problems citizens face. To expand the scope, the study builds on documentation where user surveys with citizens responds are involved. Nevertheless, future research is needed based on interviews with citizens and observations of citizens' behavior in the application process. We need further insights on individuals' variations and differences in using of self-services, their understanding of empowerment, and why some citizens chose to use digital self-services, and others chose to reject them. Therefore, the next step in our study is to expand our research of administrative burdens by involving the citizens applying for financial assistance.

## 7.1 Disclosure

This research for this paper was co-financed by the Norwegian Labour and Welfare Administration (NAV) and the Research Council of Norway [project number 316246]. First author has first-hand experience from working as a caseworker with financial assistance at NAV before the service became digital in the period 2013 – 2016.

## 8 References

1. Lindgren, I., Madsen, C.Ø., Hofmann, S., Melin, U.: Close encounters of the digital kind: A research agenda for the digitalization of public services. *Government Information Quarterly*, vol. 36, pp. 427-436 (2019)
2. Madsen, C.Ø., Hofmann, S., Pieterston, W.: Channel choice complications. In: *International Conference on Electronic Government*, pp. 139-151. Springer, (Year)
3. Pieterston, W.J., Ebbers, W.E.: Channel choice evolution: An empirical analysis of shifting channel behavior across demographics and tasks. *Government Information Quarterly* 37, 101478 (2020)
4. Madsen, C.Ø., Kræmmegaard, P.: Channel choice: A literature review. In: *International Conference on Electronic Government*, pp. 3-18. Springer, (Year)
5. Layne, K., Lee, J.: Developing fully functional E-government: A four stage model. *Government Information Quarterly* 18, 122-136 (2001)
6. Norris, D.F., Reddick, C.G.: Local E-Government in the United States: Transformation or Incremental Change? *Public Administration Review* 73, 165-175 (2013)

7. Reddick, C.G., Anthopoulos, L.: Interactions with e-government, new digital media and traditional channel choices: citizen-initiated factors. *Transforming Government: People, Process and Policy* 8, 398-419 (2014)
8. Ebbers, W., Pieterse, W., Noordman, H.N.: Electronic government: Rethinking channel management strategies. *Government Information Quarterly* 25, 181-201 (2008)
9. Teerling, M.L., Pieterse, W.: Multichannel marketing: An experiment on guiding citizens to the electronic channels. *Government Information Quarterly* 27, 98-107 (2010)
10. Ebbers, W.E., Jansen, M.G., van Deursen, A.J.: Impact of the digital divide on e-government: Expanding from channel choice to channel usage. *Government information quarterly* 33, 685-692 (2016)
11. Van Deursen, A., Van Dijk, J.: Internet skills and the digital divide. *New media & society* 13, 893-911 (2011)
12. Madsen, C.Ø., Lindgren, I., Melin, U.: The accidental caseworker—How digital self-service influences citizens' administrative burden. *Government Information Quarterly* 39, 101653 (2022)
13. Herd, P., Moynihan, D.P.: *Administrative burden: Policymaking by other means*. Russell Sage Foundation (2019)
14. Christensen, J., Aarøe, L., Baekgaard, M., Herd, P., Moynihan, D.P.: Human capital and administrative burden: the role of cognitive resources in citizen-state interactions. *Public Administration Review* 80, 127-136 (2020)
15. Larsson, K.K.: Digitization or equality: When government automation covers some, but not all citizens. *Government Information Quarterly* 38, 101547 (2021)
16. Breit, E., Egeland, C., Løberg, I.B.: Cyborg bureaucracy: Frontline work in digitalized labor and welfare services. In: J.S Pedersen, Wilkinson, A. (eds.) *Big Data*, pp. 149–169. Edward Elgar Publishing (2019)
17. Madsen, C.Ø., Kræmmergaard, P.: The efficiency of freedom: Single parents' domestication of mandatory e-government channels. *Government Information Quarterly* 32, 380-388 (2015)
18. Mullainathan, S., Shafir, E.: *Scarcity: Why Having Too Little Means So Much*. Penguin Group, Great Britain (2013)
19. Suchy, Y.: Executive functioning: Overview, assessment, and research issues for non-neuropsychologists. *Annals of behavioral medicine* 37, 106-116 (2009)
20. Walsham, G.: Interpretive case studies in IS research: nature and method. *European Journal of information systems* 4, 74-81 (1995)
21. Løberg, I.B.: Efficiency through digitalization? How electronic communication between frontline workers and clients can spur a demand for services. *Government Information Quarterly* 38, 101551 (2021)
22. Eisenhardt, K.M., Graebner, M.E.: Theory building from cases: Opportunities and challenges. *Academy of management journal* 50, 25-32 (2007)
23. Döringer, S.: 'The problem-centred expert interview'. Combining qualitative interviewing approaches for investigating implicit expert knowledge. *International Journal of Social Research Methodology* 24, 265-278 (2021)
24. Mayring, P.: Qualitative content analysis. *A companion to qualitative research* 1, 159-176 (2004)
25. NAV: NAV's Horizon Scan 2021. In: Welfare, D.o.L.a. (ed.), (2021)