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The accidental caseworker – How digital self-service influences citizens' administrative burden

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ABSTRACT

Following a large worldwide uptake of digital public services, several countries have turned to mandatory digitization, whereby citizens or companies must use digital self-service applications to apply for public services. However, previous research on the adoption of digital public services has predominantly focused on simple, or even hypothetical, services and situations. We identify a knowledge gap concerning citizens' experience of actual interactions with digital self-service for more complicated social services and benefits. Therefore, we explore digital self-service from the perspective of citizens using the concept of administrative burden as a theoretical lens. Specifically, we analyze data from in-depth empirical studies encompassing observations, interviews, and focus group discussions with single mothers who have applied for public benefits following divorce or family separation. We present a descriptive process model for citizens' application for public benefits. Next, we illustrate how digital self-service influences citizens' administrative burden throughout this process. An important contribution reveals that citizens' administrative burden increases—they must learn how to complete tasks that professional caseworkers previously conducted and comply with government demands concerning digital self-service applications and specific data formats. However, digital self-service can also reduce citizens' administrative burden through the online provision of information and automatic data transfers. Further, digital self-service offers an anonymous application process that may reduce the psychological costs and stigma associated with receiving public benefits. Finally, our research contributes new insights at the theoretical level, linking the concept of administrative burden to complex digital self-service use from a citizen perspective.

1. Introduction

In recent decades, there has been a significant uptake of digital public services across the world. Research on digital government has several branches that deal with citizens' adoption of digital services (Hofmann, Räckers, & Becker, 2012) and citizens' choice of communication channels for contact with public authorities (Pieterson & Ebbers, 2020; Madsen & Hofmann, 2019; Madsen, Hofmann, Pieterson, 2019) . Further, digital divide studies examine the causes and consequences of citizens' lack of access to information technology (IT) and limited IT skills (Ebbers, Jansen, & van Deursen, 2016; van Deursen & van Dijk, 2009). However, these studies mostly occur in voluntary settings and mainly address citizens' intention to use generic, digital services for simple tasks such as looking up information. Thus, there have been calls for in-depth studies on the use of specific public services, especially those that involve complicated user journeys and economic transactions (Hofmann et al., 2012; Pieterson & Ebbers, 2020; Lindgren, Madsen, Hofmann & Melin, 2019).

Recent research shows that citizens in developed countries generally have proficient digital skills and a high level of access to digital technologies (Skaarup, 2020). Denmark is a welfare state that is frequently regarded as a front runner concerning public sector digitization (European Commission, 2020). For example, in Denmark, digital self-service has been mandatory since 2015 for citizens when interacting with government organizations to apply for public services and benefits. Mandatory digital self-service, combined with mandatory use, is a relatively new phenomenon that has not received much scholarly attention (Berger, 2014; Schou & Hjelholt, 2019; Lindgren et al., 2019). The mandatory use of self-service in Denmark entails high take-up of digital self-service among citizens and therefore allows for studies on more complex and context-specific forms of interactions between citizens and public authorities (Ebbers et al., 2016; Pieterson & Ebbers,

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2020; Schou & Pors, 2019) . However, as citizens and companies may require help to complete digital applications, the traditional support channels were not closed down (The Danish Government et al., 2011). Consequently, previous studies show that citizens turn toward traditional channels, especially the telephone, when they encounter problems related to government services (Pieterson & Ebbers, 2020); this pattern surfaces in the Danish context (Madsen & Christensen, 2019).

This article investigates citizens' interactions with the government through digital self-services when applying for public benefits. Empirically the study is set in Denmark, and we apply *administrative burden* (Moynihan, Herd, & Harvey, 2015) as a theoretical lens to explore citizens' experiences (e.g. problems) when using digital self-service to apply for public benefits. Administrative burden is here understood as "*the learning, psychological, and compliance costs that citizens experience in their interactions with government*" (Herd & Moynihan, 2018, p. 22). We have chosen to study digital self-service related to divorce and family separation because it involves administratively complex processes and several public organizations. Therefore, this setting is suitable to shed light on how administrative burden is experienced. As we will illustrate in the third section below, previous studies have found that variations in citizens' living conditions, such as economic scarcity and stress—which are likely to occur during divorce or separation—increase the experience of administrative burden (Christensen, Aarøe, Baekgaard, Herd, & Moynihan, 2020). Our research concerns individual citizens' perceptions of their interactions with the government, and for this reason, we apply a qualitative approach (Blaikie, 2012; Creswell, 2014). The following question guides this study: *How do citizens experience administrative burden from digital self-service when interacting with the government to apply for public services?*

We present new empirically grounded knowledge about citizens' experiences of digital self-service and administrative burden. Subsequently, we offer empirical and theoretical contributions to the digital government literature from the perspective of citizens. We believe that applying a citizen perspective is essential, as digital self-service shifts responsibilities and work tasks from caseworkers to citizens and places new demands on citizens and their competencies (Breit, Egeland, Løberg, & Røhnebæk, 2020; Pors & Schou, 2020; Skaarup, 2020). The following section presents the context of our study, including the digital strategy and the history of the focal organization, the authority Udbetaling Danmark (UDK). Section three outlines the related research and focuses on the theoretical lens of administrative burden. In section four, we describe our research approach. In section five, we present our findings, apply our theoretical lens, and discuss our results in relation to previous studies. We conclude the article and suggest further research possibilities in section six.

2. Background and study setting

Digitalization is often presented as a cost-saving measure for the public sector (Chadwick & May, 2003; Lindgren et al., 2019). Its proponents also argue that it will bring additional benefits such as increased availability and improved public services to citizens and businesses (Jæger & Löfgren, 2010; Rose, Persson, Heeager, & Irani, 2015). The Danish public sector has used self-service solutions for decades, also in analog form, especially through forms for tax calculation and tax returns. In 2011, however, it became mandatory for citizens and companies in Denmark to communicate digitally with government agencies and use digital self-service solutions to apply for most public services (The Danish Government et al., 2011). The strategy was rolled out through four waves from 2011 to 2015, beginning with simple tasks such as tax payments and student loans, then expanding to citizen service areas related to the municipality and state, and finally to more complex and administratively burdensome tasks in the fields of employment, social services, and immigration. The digitalization strategy and associated policy documents focus primarily on the transition from traditional to digital forms of inquiry, especially digital mail, and the resulting economic consequences.

The strategy promises "*billions in administrative savings throughout the public sector*" as a direct result of mandated digital communication and self-service (The Danish Government et al., 2011). These savings are expected to result from increased internal efficiency within the public administration and the transition from traditional forms of communication such as letters, telephone calls, and personal meetings to digital mail and digital self-service (Hofmann, Madsen, & Distel, 2020). Thus, the recipients of public services now must perform several work tasks that professional caseworkers previously completed. According to a government-funded report that accompanied the 2011 digitalization strategy, mandatory digitalization would also lead to better services for citizens and businesses. Moreover, public organizations would be incentivized to improve their services to increase uptake and reduce traffic to traditional channels (The Boston Consulting Group, 2012). Official statistics have shown that both digital and traditional channel use increased after the introduction of the mandatory digitalization strategy (Statistics Denmark, 2016).

3. Focal organization: Udbetaling Danmark

In 2010, the Danish central government, together with local government organizations (municipalities), entered an agreement to centralize "*parts of the objective case processing in a large-scale organization*" (ATP, 2011, p. 4). The large-scale organization, Udbetaling Danmark (UDK; *eng: Payment Denmark*), was established in 2012. Subsequently, UDK became responsible for administering multiple social benefits, including family benefits, housing benefits, and pensions distributed by municipalities. UDK was thus to follow the joint public digitization strategy. Citizens must serve themselves via the web-portal borger.dk (*citizen.dk*) but can also call a designated phone number for help. It is also possible to set up an in-person meeting at a UDK office, but this is difficult in terms of, e.g., availability, as the centers are located outside of major cities.

With the establishment of UDK, 1500 of the 2000 full-time equivalent personnel who administered the services in question were moved from the municipalities to UDK. The 500 personnel who remained in the municipalities were to handle holistic guidance across services and personal service for non-digitally ready citizens and others with special needs (ATP, 2011). After a two-year transition period, UDK achieved an annual efficiency gain of DKK 300 million (40 million euros) by reducing the number of annual full-time employees from 1500 to 850 (The National Audit Office, 2016).

The establishment of UDK and mandatory digital self-service is interesting in several ways. First, both are examples of state actions, where expectations of financial savings drive the reduction of caseworkers' involvement in the administration of public services (Boston Consulting Group, 2012; The Danish Government et al., 2011). Further, there is an underlying assumption that case processing can be conducted objectively, and work tasks, especially data entry, can either be performed by citizens or fully automated. Likewise, the financial calculations behind mandatory digitization and UDK are based on assumptions that citizens' direct inquiries to caseworkers can be replaced by digital communication and online information retrieval (e.g., Boston Consulting Group, 2012, p. 4). In contrast, studies on Danish citizens' interaction with the government show that they still frequently use the telephone channel for certain services (Madsen & Kræmmergaard, 2015; Madsen & Kræmmergaard, 2018). Thus mandatory digital self-service, and the associated transfer of tasks from public authorities to citizens, also cause problems for some users. In order to better understand these problems, and citizens' experiences of digital public services, we turn to the concept of administrative burden.

4. Theoretical and analytical lens: Administrative burden

The concept of *administrative burden* was introduced by Burden et al.

(2012, p. 742), and they define it as "*an individual's experience of policy implementation as onerous*." It was initially used to analyze the difficulties that public sector employees experience in implementing and performing policy tasks (Burden et al., 2012). With colleagues, Pamela Herd and Donald Moynihan have further expanded the concept (Christensen et al., 2020; Herd & Moynihan, 2018; Moynihan et al., 2015). They unpack administrative burden(s) as a compound concept that combines insights from public administration, social psychology, and behavioral economics to describe "*the learning, psychological, and compliance costs that citizens experience in their interactions with government*" (Herd & Moynihan, 2018, p. 22).

The focus on the citizen's perspective is important, as much previous research has focused on the burdens that bureaucrats experience (Herd & Moynihan, 2018). Administrative burden is divided into three components (Herd and Moynihan, 2018; see Table 1). The concept of *learning costs* concerns the time and effort the citizen must invest to learn about the nature of a program, service, or benefit. Also, the citizen must understand and determine what is required for eligibility, what conditions to satisfy, and how to gain access. The second component, *compliance costs*, concerns the work and resources needed to reach eligibility status, e.g., providing the correct information and documentation, paying fees or traveling costs to access the service, and avoiding or responding to discretionary demands made by administrators. The final aspect, *psychological costs*, concerns the psychological effects (e.g., stress and frustration) of losing power and autonomy due to intrusive administrative supervision. It may also stem from the frustration of dealing with learning and compliance costs, procedures seen as unjust or unnecessary, and stigma arising from applying for and participating in an unpopular program.

In addition to these three components, administrative burdens can also be understood as consequential, constructed, and distributive (Herd & Moynihan, 2018). First, administrative burdens are the costs that citizens bear when interacting with the government that, in turn, influence their understanding and perceptions of the government. Administrative burdens are thus *consequential*—they affect whether people will be able to exercise the fundamental rights of citizenship, access benefits that can improve their quality of life, and alter the effectiveness of public policies. Second, administrative burdens are *constructed* because they are the product of state actions, e.g., policy design and implementation (Christensen et al., 2020). In this paper, we discuss administrative burdens as potentially problematic consequences of citizens' interaction with digital self-service; however, administrative burdens are not inherently negative. In fact, administrative burdens are often unavoidable and sometimes serve as legitimate and justifiable policy tools to achieve ideological goals, e.g., deter fraud and ensure that only eligible citizens access public service (Herd & Moynihan, 2018). However, administrative burdens can also be unanticipated and unintended products of policy makers' lack of understanding of the implications that follow their decisions.

In this article, we do not deal with whether administrative burdens are intentional products of policy design or not; like Herd and Moynihan (2018) and others, we focus on citizens' experiences of administrative burdens related to public service provision. Related to this concept, administrative burdens are *distributive*—they are not equally distributed across citizens (Herd & Moynihan, 2018). Instead, administrative burdens are targeted toward some groups more than others, and those who need public services the most are typically those most negatively affected by burdens. This feature is demonstrated by Larsson (2021), who shows how automation of child benefits in Norway can lead to more significant administrative burdens for those citizens whose situations are atypical and who, therefore—unlike the rest of the population—are not automatically allocated the benefits to which they are entitled. Based on an analysis of the socio-economic circumstances of those eligible for child benefits, Larsson (2021) further illustrates that citizens living in poorer areas and those in most need of the benefits are overrepresented in the group that is not auto-enrolled (although eligible). As a consequence, administrative burdens can exacerbate structural inequalities in society.

Table 1
The Components of Administrative Burden (Herd & Moynihan, 2018, p. 23).

Type of cost	Description
Learning costs	Time and effort expended 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 costs	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 costs	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

5. Administrative burden and cognitive resources

Administrative burdens are understood as *individual experiences*, leading to challenges for empirical studies of the topic and calling for new ways to investigate citizens' interactions with the government. Herd and Moynihan (2018) suggest that human capital—such as education, money, social networks, intelligence, psychological resources, and health—influences how people are affected by and cope with administrative burdens. This idea is investigated further by Christensen et al. (2020), who present a model of how citizens' cognitive resources, in particular *executive functioning*, affect experiences of administrative burdens. 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" (Suchy, 2009, p. 106). These are all essential abilities when identifying, understanding, and complying with public programs, services, and benefits. 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).

Christensen et al. (2020) illustrate that people with low executive functioning tend to experience more administrative burdens in their interactions with the government: low executive functioning can negatively affect and reinforce individuals' experience of learning and compliance costs, as well as their ability to deal with psychological costs associated with public service interactions. In turn, this affects already vulnerable individuals' ability to access services, benefits, and rights, which decreases their civic capabilities and trust in government (Christensen et al., 2020; Herd & Moynihan, 2018). In simple terms, the poor, the sick, and the elderly generally find interactions with the government more burdensome than others. Research also illustrates how administrative burdens can exacerbate poor living conditions among vulnerable individuals (Chudnovsky & Peeters, 2021). Because administrative burdens affect some citizens more than others, special attention should be given to those with limited resources and the services specifically designed to help them.

Herd and Moynihan (2018) present a number of diagnostic questions that can be used to identify and characterize the administrative burdens experienced by citizens (see Table 2). We use these questions as a point of departure for analyzing citizens' digital self-service experiences and will return to them in the methodology section (Section 4).

6. Administrative burden and digital government

The research on administrative burden is based on a set of normative

Table 2
Diagnostic Questions About Administrative Burdens (Herd & Moynihan, 2018, 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?
Compliance costs	How many questions and forms are there to complete? How much documentation is needed? Does the participant 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 interactions stressful? Do people recieve respectful treatment? Do people enjoy some autonomy in the interaction?

assumptions that we correspondingly inherit when we apply this analytical lens. Specifically, we assume that citizens are better served when public services are visible, accessible, easy to comply with, and respectful (Herd & Moynihan, 2018). For these reasons, although administrative burdens may be necessary to protect critical public values (Rose et al., 2015), burdens should be minimized as much as possible. One way of reducing administrative burdens is to extend the use of administrative data and information technology in service provision (Christensen et al., 2020; Herd & Moynihan, 2018; Moynihan et al., 2015). For example, Moynihan et al. (2015) suggest that information technology and administrative data can be used to *auto-enroll* citizens in social programs or to *pre-fill* forms online; however, the role of information technology in reducing administrative burdens is not comprehensively discussed.

Similarly, digital self-service and digital government are not explicitly discussed in the literature on administrative burden. However, there are studies by digital government scholars investigating administrative burden (e.g., Arendsen, Peters, ter Hedde, and van Dijk (2014), and related phenomena. For example, the digital government literature includes studies on related topics such as the automation of public service delivery (Larsson, 2021), channel choice (Pieterson & Ebbers, 2020), no-stop government (Scholta, Mertens, Kowalkiewicz, & Becker, 2019), digital inequality (Ebbers et al., 2016), and the administrative competencies needed to use digital services (Grönlund, Hatakka, & Ask, 2007; Skaarup, 2020). Thus, we identify a great potential to unpack the nature of administrative burden in relation to citizens' experiences of digital self-service by combining insights on administrative burden with more recent experiences from digital government. Furthermore, we seek to contribute an empirically grounded study and have chosen a public service area where administrative burden is likely—services related to divorce and family separation—due to administratively complex processes and the involvement of several public organizations. The intricacy of the service process combined with the stress and frustration associated with divorce and having to deal with a new life situation makes this particular set of services likely to cause an administrative burden for some citizens.

7. Research approach

Our research concerns citizens' experiences of administrative burden related to digital self-service. By collecting and analyzing qualitative data, we explore different aspects of administrative burden as our participants experience it. Therefore, we chose a qualitative approach, which is suitable when the researcher seeks to understand a given phenomenon from participants' point of view (Blaikie, 2012; Creswell, 2014). While this approach is suitable for theory building and to make generalizations at the analytical and abstract level, it is not appropriate for statistical generalizations (Blaikie, 2012).

We have sought to follow the principles established for qualitative research (Creswell, 2014, pp. 185–186). Consequently, we have conducted part of our study in its natural setting (a call center) and analyzed citizens' digital application for public services holistically, from an initial life event to either the receipt of a service (or services) or the rejection of the application. We have gathered multiple data sources through observations, in-situ interviews, focus group discussions, and workshops. Our data analysis was reflexive, deductive (using the concept of administrative burden as an analytical lens), and inductive (sensitive to empirical insights, allowing themes and patterns to emerge from the data). Table 3 summarizes our empirical data.

The first author engaged in a series of observations of a call center for UDK Family Services, where they listened to 50 conversations between citizens and UDK case officers. Subsequently, the first author conducted short in-situ interviews (Bødker, Kensing, & Simonsen, 2009) with citizens about their actions prior to the phone call. This approach gave us direct and genuine access to the interaction between citizens and authorities and the citizens' evolving experience of digital self-service in its natural setting (Blomberg, Giagomi, Mosher, & Swenton-Wall, 1993). Prior to any direct engagement with the authors, caseworkers informed the citizens that their participation was voluntary, anonymous and that the decision to participate would not affect the citizens' cases.

Next, the first author held two focus group discussions and two subsequent workshops (Bødker et al., 2009; Krueger, 1994) with single women who had recently sought public benefits after a divorce or family separation. Focus groups are suitable for gaining insight into topics people may find difficult to talk about, such as divorce (Colucci, 2007). Through a semi-structured approach (Blaikie, 2012), we further addressed the issues we had uncovered in the call center. Additionally, our participants were able to bring forward new issues that they found relevant. Afterward, we invited the participants back to participate in workshops, which allowed us to discuss and clarify initial findings and interpretations from the focus group discussions (Creswell, 2014). The first author then translated the empirical materials in this paper from Danish to English and imported them into the software program MAXQDA for analysis.

7.1. Analytical strategy

To uncover the citizen perspective, we first created an overview in the form of a process model of the application processes experienced by our participants (Fig. 1). Inspired by the principle of sequencing from service design (Stickdorn, Schneider, Andrews, & Lawrence, 2011), we divided the model into steps according to the work tasks that citizens had to perform, from an initial life event (here, divorce or family separation) to the receipt of benefits or the rejection of the application. Then, we analyzed the participants' statements about the steps in this application process using administrative burden as a theoretical lens.

Table 3
Empirical data: An overview.

Technique and format	Participants	Setting and time
Observations and in-situ interviews	50 observations and in-situ interviews with citizens in telephone contact with UDK	Family Benefits Department, UDK Hillerød, April–May 2016
Focus groups and workshops	A total of eight recently single women in two focus groups and two workshops	First author's University, October 2016–January 2017

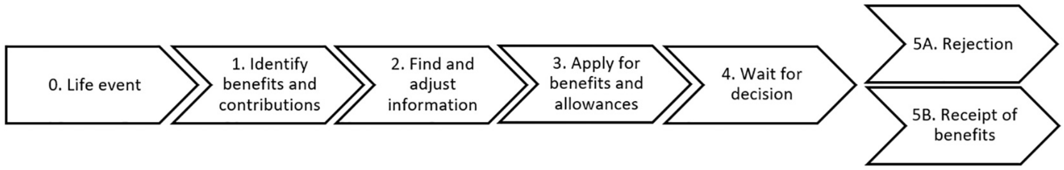

Fig. 1. Application process for public benefits from a citizen's point of view.

Administrative burden was operationalized into themes, as an analytical lens, in line with the diagnostic questions proposed by Herd and Moynihan (2018; see Table 4 below) and related research on administrative burden (Christensen et al., 2020; Moynihan et al., 2015).

8. Findings

To create an overview of our findings, we first present a process diagram for digital self-service from our participants' perspective. Next, we analyze how digital self-service affects our participants' administrative burden in relation to the analytical themes generated above: learning (in subsection 5.2.1), compliance (in subsection 5.2.2), and psychological costs (in subsection 5.2.3).

8.1. Digital self-service from a citizen perspective

Fig. 1 presents a general summary of the overall process to apply for public benefits. Each step contains different tasks that the citizen must solve. For example, for most participants, the process started with a specific life event: divorce or a family separation (step 0). They then sought to identify which benefits and contributions their situation merited (step 1). Note that the course may vary across participants at an individual level. For instance, one of the participants began by examining which benefits and contributions she might access (step 1). She did not leave her husband (step 0) until she was sure she could provide for herself and her children financially.

8.2. Step 0. Life event

The process typically begins with an initial life event—a divorce or a separation. Life events associated with other public services include pregnancy, childbirth, termination of employment, relocation, retirement, or the death of a family member.

Table 4
Questions guiding the analysis.

Component	Diagnostic questions
Learning costs	Was it easy for the participants to: - learn about the benefits and whether they were eligible for them? - learn which authorities were responsible for the benefits? - learn about the application processes?
Compliance costs	How much time and effort did the participants commit to the process? How did the participants describe their experiences regarding: - applying for benefits through the digital self-service applications? - finding and submitting proper documentation? - accessing help from the authorities for their applications? - automatic data transfer?
Psychological costs	Did the participants describe: - if the application process was easy or stressful? - if they were treated respectfully? - whether the self-service application offered them autonomy in the interaction?

8.3. Step 1. Identify services and responsible authorities

The first step in the application process is to uncover which benefits and contributions a particular situation merits, the official names of the benefits, and which authorities are responsible for administering them. We distinguish between *benefits* administered by the authorities and *contributions*, which are initially handled internally between citizens. We use the official terms that applied at the time of the study (between 2016 and 2017). Our participants mentioned five benefits and contributions from several authorities and sub-sections thereof: children and young people's benefits and the child allowance for single parents (UDK Family Benefits), housing allowance (UDK Housing Allowance), supplementary daycare (local municipality), student loan supplement for single parents (Student Loan Agency), and spouse and child allowances that are directed from one parent to another, possibly with the help of the state administration (now the Family Court). UDK Family Benefits and the Danish Tax Agency (SKAT) may also become involved in child support collection.

8.4. Step 2. Find and customize information

Step two consists of finding and transmitting the information to be used for the application and locating any necessary documentation in the form of payslips, lease agreements, and additional materials.

8.5. Step 3. Apply for benefits

The third step covers the use of digital self-service solutions to apply for services. It includes submitting and endorsing personal information and related documentation.

8.6. Step 4. Wait for an administrative response

After the application is submitted, citizens often do not have to take further action unless something goes wrong. If a caseworker discovers that the information is incorrect or incomplete, they can ask the citizen to submit additional details.

8.7. Step 5A. Rejection

The application process can result in two possible outcomes: the benefit can be granted, or the application rejected. If a citizen is still eligible for a benefit, they may re-apply if their application is rejected.

8.8. Step 5B. Receipt of benefits

If the application is approved, the citizen does not need to take further action unless their circumstances change. However, it may be necessary to verify that the disbursed amounts are correct. If the conditions of the citizens change, e.g., in the event of a salary increase or if they move in with a new partner, this may affect their entitlement to benefits or alter the amount they receive. Therefore, citizens must report any changed circumstances to the authorities. Finally, there are control mechanisms associated with certain services. For example, single parents must confirm their single status annually to UDK via a digital self-service.

8.9. Digital self-service in the light of administrative burden

This section presents our analysis of how mandatory digital self-service affects the administrative burden associated with citizens' applications for public services. Additional previous studies are used alongside the main analytical lens to shed light on emergent insights from the empirical material.

8.9.1. Learning costs of digital self-service

According to our participants, the requirements for digital self-service entail a sharp learning curve. In particular, the first stage of the application process—where the participants have to identify which benefits and contributions they are entitled to—was regarded as difficult. We identified five aspects that could increase the learning costs of digital self-service, covering: 1) language, 2) identifying relevant authorities; 3) uncertainty regarding the initiation of the application process; 4) interdependencies between the benefits; and 5) the infrequency of the live event. We identified one aspect that could 6) reduce learning costs, namely having information available online.

8.9.2. Language

The language used by the authorities and the official titles of services and contributions are the leading causes of frustration. Our participants have difficulty distinguishing between benefits and contributions, and they do not know their official designations. These are well-known issues that have not been created by digitalization. However, the digital self-service requirement can exacerbate the problems, as citizens must use the official terms to search for information online. In the past, when caseworkers were employed in the municipalities, they could offer guidance to the citizens.

Monica: *But again, now we're talking about the terms used by social workers: it's Russian to me. But the thing about being a recent divorcee or similar, suddenly you need to be able to juggle a lot—it's just "Ohh!" It is a brave new world. And those [the official terms] are words you do not always understand.* (Focus group 1).

Interviewer: *So, you have to learn their terms and concepts to be able to navigate the process?*

Camilla: *Yes, you have to be really on point for it to be an easy process. (…) You can manage if you are smart and have a little sense of the systems and know how to navigate them, but those Geordie Shore girls [a reality show], if they are in this situation, I think it must be difficult for them.* (Workshop 1).

8.9.3. Identifying the relevant authorities

The participants had to learn which authorities are responsible for the respective services before searching for the website or contacting them for help. This problem was revealed during our studies at the call center and repeated during the focus group discussions. Of the 50 calls to UDK Family Benefits we observed, 30 calls also concerned other authorities. Both citizens and caseworkers spent a lot of time transferring calls between departments and authorities. This process was often stressful to the citizens, who had to spend time and effort repeatedly explaining their problems. This aspect of learning costs was found inductively and is not covered by Moynihan and Herd's (2019) definition.

Stine: *I do not think I was fully aware that there was something called Udbetaling Danmark—if you are not in contact with the system or receive services. So,(…) that is what it is called?*

8.9.4. Uncertainty regarding initiation

We noted uncertainty among participants concerning whether the benefits were awarded automatically or whether citizens themselves should apply. This uncertainty regarding the division of responsibilities may be because some benefits, including the regular child benefit, which UDK Family Services also administers, are automatically allocated and regulated. We identified a similar problem regarding compliance costs and the submission of documents (see below).

8.9.5. Interdependencies within a silo structure

Another learning cost is associated with the application process itself, particularly deadlines and dependencies on other services. Several participants could not understand why they had been rejected for a benefit, as this was not always clearly explained. This outcome was particularly problematic when the award criteria for a benefit depended on another authority. A regularly cited example was the supplementary educational benefit and the municipalities' reduction of daycare costs. To receive these benefits, a person must first register with UDK as a single parent. Among our participants, digital self-service increased this problem, as some benefits—although interdependent—were administered and presented in isolation by various authorities across different websites.

Sofie: *Some benefits have to be applied for before others. (…) Fourteen days after I applied, my application for educational support was just canceled. I had to contact them to ask why. (…) You have to really reach out. Nobody told me that I couldn't apply for educational support before receiving the other [benefit for single parents].*

8.9.6. Infrequent life events

In relation to learning costs, it is crucial to note that the initial life event, divorce or family separation, occurs only for some and typically only once. Citizens, therefore, seldom have the necessary knowledge about the associated benefits. Moreover, they will not need this knowledge again unless they have to help others through similar processes. If such a life situation should reoccur, it often takes place only after a long time. The citizen may have forgotten the process, or the legislation and the responsible authorities may have changed. The frequency of life situations thus appears to affect learning costs significantly. Thus, the learning costs for other life situations, which occur more frequently, can be much lower because citizens can reuse their knowledge.

8.9.7. Reduced learning costs from information online

Finally, we also observed instances of reduced learning costs. When public organizations make information about public benefits available online, it can become easier for citizens to access, provided they know what to look for and where to find it. For example, several participants used social media to learn about, e.g., benefit eligibility and application processes. Unfortunately, the information posted on social media could be outdated or even incorrect.

In line with Christensen et al. (2020) and the concept of executive functioning, our participants' learning costs may have been high, as they were undergoing a life crisis. Several participants reported problems remembering and understanding complex information during their divorce. Further, some participants noted the scarcity of both time and money during this period. They had many other tasks to solve while applying for benefits, such as the sale and purchase of housing, moving, conversations with the bank, and negotiating any conflicts with a former partner. Finally, the participants were busy ensuring the welfare of their children. Following Christensen et al. (2020), it is highly likely that the type of life situation influences how citizens experience learning costs. We will return to the importance of this specific research context in the discussion section.

We should also note that the reported experiences of learning costs, in line with our research approach, varied across participants. Some found it easier to learn about benefit eligibility than others. For example, one of the participants was a social worker with an in-depth understanding of the public sector and its terminology as a result of her professional background. Consequently, she did not find it as challenging to learn about the benefits and the application process as other participants.

8.9.8. Compliance costs of digital self-service

Compliance costs relate to the specific rules that must be followed to complete the application and confirmation processes, submit documentation, and answer caseworkers' requirements. As our study takes place within the context of mandatory digital self-service, the majority of our findings could be regarded as compliance costs of the mandatory digitization strategy. We have identified three specific aspects, further analyzed below, which influence the compliance costs of digital self-service: 1) automatic data sharing, 2) different legal definitions of key concepts, and 3) accessing and scanning documents.

8.9.9. Automatic data sharing

Automatic data sharing between public authorities helps reduce the compliance costs for citizens and caseworkers when citizens do not have to enter information or only do so once. Danish authorities have comprehensive registration data, which is highlighted as the necessary foundation for digitization in both the research literature and policy documents (Jæger & Löfgren, 2010; The Danish Government et al., 2016). Danish authorities share a great deal of, but not all, data. To our participants, automatic data sharing was both regarded as helpful and as a cause of concern. Participants reported that when it worked, automatic data sharing made the application process more manageable and saved time and effort. However, several participants had difficulty distinguishing between what and when data and information were transmitted automatically and what information they must submit by themselves. This confusion partly stemmed from previous experiences, where some information was transferred automatically. Our participants repeatedly referred to public authorities as a single entity ("the public"), which they believed had access to all of one's information. They did not understand why they should enter or send information to an authority if they had previously submitted or received similar information to or from another authority. In the call center, we experienced how many citizens thought that information would be automatically transferred across public authorities. These callers were unaware that they had to initiate the application for specific contributions by submitting documents from one authority to UDK.

8.9.10. Different legal definitions of key concepts

The provision of information is particularly problematic when the authorities use common names for certain phenomena but have different underlying legal definitions. This difficulty applies, for example, to key concepts such as cohabitation, income, and wealth. Thus, a citizen can be classified as cohabiting in the definition of one authority but not according to another. Moreover, these different meanings prevent authorities from exchanging information while simultaneously placing great demands on citizens' administrative competencies, as they must be able to navigate the authorities' conceptual apparatus and underlying definitions. This problem is not created by digitization, but digital self-service and centralization (the establishment of UDK) entail increased compliance costs for citizens, who must now be able to distinguish between conceptual devices across authorities when submitting information. One participant had read legal texts and circulars to meet the demands:

Camilla: *I was reading law texts and all that stuff (…). I sat and read the daycare law daily, the service laws, and that sort of thing. (…) I have access to all that by virtue of my education [as an educator] (…). You would think it was all connected—no, not at all. It has to do with children, but it is vastly different.*

8.9.11. Accessing and scanning documents

Another type of compliance cost relates to the format in which information and specific documents must be accessed, scanned, and submitted. Participants experienced several practical problems in this regard. Some had a hard time finding documents because they were moving and had already packed their belongings. Others encountered difficulty documenting their former partner's income for the benefits calculated according to the household's total income. These problems should be regarded in light of the specific life event of divorce and family separation.

Notably, our participants reportedly experienced few problems with the actual use of the digital self-service solutions. Once they had identified the respective services and responsible authorities and found and adapted any required documentation, most of their tasks were solved.

Int: *Do you remember the application process itself, how it went?*

Lise: *As far as I remember, it was super easy because it used digital ID and so "You receive answers within such and such time about whether you are approved or not," and then it just arrived in my inbox—"You have been approved." (…) I do not remember exactly what the screenshot looked like; I just remember that it was not really that difficult. Once you got in there, it was just to* log *in with a digital ID and sign in good faith that you are living alone.*

8.9.12. Psychological costs of digital self-service

Herd and Moynihan (2018) describe psychological costs as the possible stigma associated with receiving public benefits and any stress or loss of independence associated with the application process. However, this stigma should be understood in its specific cultural context. In particular, it is likely higher in the United States, where Moynihan et al. have carried out their studies, than in a welfare society such as Denmark. Nevertheless, the psychological costs and stress associated with the application process are recurring themes in our participants' narratives. Again, it is essential to remember the context of divorce and family separation, which underpinned their experiences. Below we focus on three aspects, including 1) how the deadlines and possible interdependencies between benefits contribute to stress in the studied context. Several participants also mentioned the 2) lack of a personal caseworker (e.g., empathy and negotiation). However, we additionally observed an example of how 3) a digital self-service and its more anonymous application process can reduce the stigma of applying for public benefits.

8.9.13. Deadlines

Below, Camilla discusses the consequences, and her frustrations, of exceeding a deadline for applying for a quarterly paid benefit while she was experiencing scarcity.

Camilla: *But then I started crying, I just couldn't handle it anymore, and I didn't know what to do. It was right after we had parted ways. We parted on the 21st of January (…) when he officially moved, and on the 20th of January, I should have applied for some type of supplement (…); otherwise, I could not get what I should have now. And I had to go out on an internship salary, and as an educator, you get paid 7500 DKK [1000 euros] a month, but that was my rent, right? And I could not get any of those supplements at all because they must be applied for prior to the 20th during the first month of the quarter. So, there were three months where I could only pay rent. (…) But it was so connected with the SU [educational support] that I could not get SU as a single parent, and it was just horrible. And then I cried again (laughs).*

8.9.14. Lack of personal caseworker for empathy and negotiation

At the call center, we observed how many citizens asked for faster case processing and quicker payment of benefits. For some, public benefits were a necessity before they could afford a new place to live. Therefore, the case processing time can be associated with significant stress for the citizen experiencing economic scarcity, who may still have to live with a former partner. Continuing the above quote, we discussed whether one could negotiate with caseworkers to shorten the processing time or influence the caseworker's decision.

Int: *Did it work then?*

Camilla: *When I cried on the phone?*

Int: *Yes.*

Camilla: *Yes, yes (…). It's not something I do on purpose; I do not call and think, "Now I just have to cry."*

Pia: *[I have] just heard (…) also such a perfectly well-functioning (…)—a couple who have two children and now they did not get the exact nursery* *they wanted, and she also called in and explained how hard it was for them because of their jobs. Then it also took half an hour, and then a new offer was just sent instead. So, all those who remain on the waiting list and do not obtain their preferred place and just think, "Well, that is too bad," could, in principle, just call and then get ahold of the right person on the right day.*

These examples illustrate the impact of citizens' attempts to negotiate with a caseworker, requiring communication over the telephone, via video, or face to face. One cannot negotiate with a digital self-service solution. Citizens thus use the self-service solutions for the application itself but call afterward to negotiate. This approach contradicts the principle of objective case management, just as the use of traditional forms of inquiry and the continued interaction between citizens and caseworkers reduce the financial benefits of digital self-service. Finally, it is interesting that applying for a nursery is highlighted as an example of a service that can be negotiated, as it was the first area that was covered by mandatory digital self-service.

Several participants noted that it is uncomfortable not to have an overview of the application process, and they stated that they did not receive an adequate receipt stating, e.g., the case processing time. Similarly, some participants were looking for a permanent personal caseworker who could provide support, care, and empathy at a difficult time.

8.9.15. Anonymous application process

In contrast, a few participants preferred that the application process take place anonymously and online. To them, digital self-service entailed *lower* psychological costs by removing the stigma associated with publicly seeking benefits.

Int: *Do you think the form of communication (…) affects whether you want to apply for a service or not?*

Stine: *Yes. In my opinion, I actually think that this is about not having to call (…) and be in contact with someone who would sit and say, "OK, you have damn plenty," so if it was like that (…) sometimes it can be nice not to have to be in contact about those things. Because it may involve some difficult things with finances and one's private sphere (…). But I actually think it's very nice in that process that you could start there [online], quietly—OK, then I search and see what happens.*

Lise: *If I had to get up and stand with hat in hand in front of the municipality, then I actually think I would like to think about it one more time because I see it as a hugely uncomfortable situation to stand there and ask for something. But if I can just sit at home and do it with my digital ID, fine—if the scheme exists, then you're silly if you do not accept [benefits].*

9. Discussion

The study presented here, was guided by the research question: *How do citizens experience administrative burden from digital self-service when interacting with the government to apply for public services?*

We have conducted a qualitative study with the concept of administrative burden as our theoretical lens (Herd & Moynihan, 2018). As a research contribution, we have created and presented new empirical data about citizens' experiences of administrative burden related to digital self-service. We began by outlining the application process for public benefits from the perspective of citizens. Next, we analyzed the learning, compliance, and psychological costs our participants reported concerning their application for public benefits using digital self-service. Table 5 summarizes our analysis and answers our research question.

In contrast to previous research (Herd, Deleire, Harvey, & Moynihan, 2013), we mostly find examples of *increased administrative burden* due to digital self-service. However, several conditions must be taken into account regarding our findings. First, our study was undertaken in a specific context. In Denmark, digital self-service is *mandatory* to access many public services. While citizens can still use traditional channels to contact public authorities for help, they are expected and encouraged to find information about benefit eligibility by themselves online, and they must use digital self-service applications to apply for the benefits. This mandatory setting is likely to increase compliance costs. Second, another contextual condition is the *stressful life situation*, divorce or family separation, we addressed, which also may (at least temporarily) bring economic scarcity and uncertainty. According to the literature on administrative burden (Christensen et al., 2020), these conditions have been found to reduce people's executive functioning and increase the costs associated with administrative burden. Third, as we have shown, our study concerns public services with *complicated application processes*. The administrative costs will likely be lower for simpler or universal public services. Fourth, following the definition of administrative burden as an *individual's experience* (Herd & Moynihan, 2018), our study shows that the three types of costs are experienced differently by our participants. Some found it easier to identify the benefits than others. Some had difficulty distinguishing between key legal terms, while some did not. Finally, while several of the participants expressed a need for a

Table 5
Components of Citizens' Administrative Burden Due to Digital Self-service.

Components of administrative burden	Description (Herd & Moynihan, 2018, p. 23)	Digital self-service may cause citizens (sections 5.2.1, 5.2.2, and 5.2.3)
Learning costs	Time and effort expended to learn about the program or service, ascertaining eligibility status, the nature of benefits, conditions that must be satisfied, and how to gain access.	• increased costs, as the citizen must identify which benefits and contributions they are eligible for, and their official names • increased costs, as the citizen must also identify which authorities administer the benefit and whether the benefit is granted automatically, or if they must apply first • increased costs if eligibility for one benefit presupposes receipt of another benefit • increased costs related to the frequency of the life event • reduced costs from having access to information online, when citizens know where and how to search for it
Compliance costs	Provision of information and documentation to demonstrate standing; financial costs to access services (such as fees, legal representation, travel costs); avoiding or responding to the discretionary demands made by administrators.	• increased costs, as the citizen must initiate the application and execute it digitally, submitting digital information • increased costs, as the citizen must be able to recognize and review laws and concepts that differ across authorities (can also be regarded as a learning cost) • reduced costs due to automatic data transfer
Psychological costs	Stigma arising from applying for and participating in an unpopular program; loss of autonomy due to intrusive administrative supervision; frustration dealing with learning and compliance costs and unjust or unnecessary procedures; stresses that arise from uncertainty about whether a citizen can negotiate processes and compliance costs.	• increased costs due to the reduced overview of the application process and uncertainty about information and deadlines • increased costs if the form of interaction becomes impersonal (no empathy and negotiation) • reduced costs as the application process becomes anonymous and less stigmatized

personal caseworker, some appreciated the anonomity afforded by the digital application process. Taking the individual's perspective into account also means that the components of citizens' administrative burden due to digital self-service that we summarize in Table 5 are abstractions and simplifications based on multifaceted empirical data.

In line with previous research, we see that the administrative burden associated with digital self-service is constructed, consequential, and distributive (Christensen et al., 2020; Herd & Moynihan, 2018). The costs are *constructed*, as Udbetaling Denmark and the mandatory digitization strategy both result from state actions, specific policy designs intended to reduce the economic costs of administering public services. Second, making digital self-service applications mandatory is *consequential* for citizens, as this influences how they apply for public services. We have reported how participants have missed deadlines and subsequent benefits, as they were unaware of the overall application process.

Finally, we see that the burdens are *distributive* as our participants did not experience them equally. Digital self-service affects citizens by endowing them with a new role and tasks that caseworkers previously performed. This shift requires citizens, like the traditional caseworker, to acquire new digital and administrative skills to perform the tasks in question. Those citizens who are willing and able to do so are rewarded through increased insight into and faster administration of their errands. The citizens who are not capable, on the other hand, end up in a difficult situation where they are involuntarily expected to act as their own caseworkers and may miss some benefits to which they are legally entitled. This outcome indicates that self-service may increase the digital divide (Deursen & Dijk, 2009; Ebbers et al., 2016; Schou & Pors, 2019). Our study shows that some citizens, including the highly educated, still need help from public authorities and caseworkers (Madsen & Kræmmergaard, 2015). In line with Larsson's (2021) study on automation of child benefits, some participants report that they have completely or partially lost benefits because their situations are complex and span multiple authorities.

9.1. Implications for practice

In contrast to previous studies on the challenges of accessing and using IT and self-service solutions, we find that citizens also need *help navigating the public bureaucracy* with its silos, context-dependent rules, and key concepts (Skaarup, 2020). An important point here is that citizens, beyond using self-service solutions, must also learn *where* and *how* to obtain support. Digital self-service can thus contribute to a new form of digital divide and exclusion (Schou & Pors, 2019), which is not due to lack of access to IT or digital competencies but rather the lack of administrative competencies (Skaarup, 2020) that need to be taken into account when designing future self-service solutions.

The desire to achieve efficiency in public administration through digitization and mandatory self-service also places new demands on public authorities and their self-service solutions (Madsen & Kræmmergaard, 2018). The prerequisite for achieving financial gains is that citizens can experience a digital self-service process without regularly turning to authorities for help. Thus, self-service solutions need to be designed so that people can use them without a caseworker's education and experience and with lower administrative skills. In addition, designers must keep in mind that stressful life situations and feelings of scarcity can further reduce people's capacity to use self-service solutions. These are examples of high design expectations and responsibility.

Our participants demanded information presented from a citizen perspective (rather than the authority's) and expressed in easy-to-understand language (rather than the traditional administrative style). At the same time, they desired a comprehensive overview of services—across authorities and silos—rather than each authority simply outlining the services they administer. If public services are designed without such a citizen perspective in mind, the desired economic benefits for public organizations will likely be lower due to the increased cost of support. Our results mirror previous studies from the channel choice and multichannel management fields of e-government research, which show that the continued use of traditional channels is partly caused by problems that people experience or are unable to solve online (Pieterson & Ebbers, 2020; Madsen et al., 2019; Madsen & Kræmmergaard, 2018).

10. Conclusion, limitations and further studies

There are several specific conditions of our study. We have focused on a complex area and a difficult life situation: single parents who must seek benefits after a divorce or a family separation. In addition, most of our participants were highly educated. Our results must be viewed in light of these contextual characteristics. We also argue that it is crucial to develop further knowledge in this area to learn from complex and challenging situations.

What does the research context entail for the transferability of our findings to other settings? Our goal has been to explore administrative burdens and identify the costs related to digital self-service from the perspective of citizens. While the costs may not be experienced as strongly in other settings, we argue that some of the identified costs may also be found elsewhere. To the best of our knowledge, Denmark is the only country to make digital self-service applications mandatory for both citizens and businesses. However, there is an increasing trend toward making digital channels the first choice for government interactions (Pieterson & Ebbers, 2020; Lindgren et al., 2019; Tangi, Benedetti, Gastaldi, Noci, & Russo, 2021). Similarly, studies from other countries have also found that public digitization leads to changes in the division of labor between citizens and public authorities (Breit et al., 2020). Future studies could focus, e.g., on less complex and more recurring public services, where citizens have the opportunity to build administrative skills and use their experience. It would also be interesting to compare our findings with similar studies conducted in countries with other digital agendas, governance ideals, and administrative approaches to public services or dissimilar populations.

Further, we conducted the initial part of our study at a call center. There is an inherent focus here on a subset of interactions that generated the calls. However, this was a deliberate decision, as our focus was to explore the administrative burden related to digital self-service. We know from the channel choice literature that people turn to the telephone when they experience problems (Pieterson & Ebbers, 2020; Reddick & Anthopoulos, 2014). A call center study thus allowed us to obtain an initial and genuine insight into the various problems citizens face. To expand the scope, the second part of the study builds on focus group discussions and workshops that were conducted with citizens who had used digital self-service applications to apply for public benefits, irrespective of whether they had called for help or not. Nevertheless, future studies could complement the results in our study by analyzing actual use situations in people's homes, applying research techniques from ethnography such as observations or user diaries (Creswell, 2014).

We have conducted a qualitative, exploratory study focusing on administrative burden. As such, we can analytically generalize our findings to the abstract level and compare our results to those of other studies (Blaikie, 2012; Creswell, 2014). However, we cannot make statistical generalizations concerning the extent to which citizens need help with digital self-service or how many citizens experience administrative burden. Such questions are suitable for quantitative studies, for instance, through surveys or by measuring and analyzing support requests to call centers. Additionally, there are pros and cons to using administrative burden as a theoretical lens; it adds structure, clarity, and a focus to the study. However, there is a risk that we only see what the theory illuminates (cf. Walsham, 1995), and alternative analytical lenses may add further or even conflicting understanding of the phenomena.

Finally, our study also points to possible research venues concerning caseworkers and concepts related to their work. Future research could address the consequences of digital self-service and the shift of work tasks from caseworkers to citizens, the effect on caseworkers and their relationship and interaction with citizens, and the overall societal impact of this shift. A related topic concerns the notion of discretion (Lipsky, 2010). Previous studies have focused on how digitization and automation influence caseworkers and their ability to interpret rules in their subject fields. In the current study, we argue that digital self-service, to some extent, causes citizens to become their own, sometimes accidental, caseworkers. We also find that citizens seek to engage directly with caseworkers to negotiate aspects of their cases (see also Løberg, 2021). Therefore, future studies could address how digital self-service influences possible discretionary practices among citizens.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

Arendsen, R., Peters, O., ter Hedde, M., & van Dijk, J. (2014). Does e-government reduce the administrative burden of businesses? An assessment of business-to-government systems usage in the Netherlands. *Government Information Quarterly, 31*(1), 160–169. https://doi.org/10.1016/j.giq.2013.09.002

ATP. (2011). Sådan etablerer vi Udbetaling Danmark. Retrieved from http://www.penst.dk/~/media/PST/Files/Publikationer/2011/Saedan-etablerer-vi-udbetaling-danmark.ashx.

Berger, J. B. (2014). Mandatory e-government has arrived: The silent protest from staff calls for the committed scholar - resistance must never be futile!. In *Proceedings of the 25th Australasian conference on information systems, ACIS 2014*.

Blaikie, N. (2012). In *Designing social research. Polity* (p. 352), 2 nd edition ISBN-13: 978-0745643380 .

Blomberg, J., Giagomi, J., Mosher, A., & Swenton-Wall, P. (1993). Ethnographic field methods and their relation to design. In D. Schuler, & A. Namioka (Eds.), *Participatory design: Principles and practices* (pp. 123–155). New York: CRC Press.

Bødker, K., Kensing, F., & Simonsen, J. (2009). *Participatory IT design. Designing for business and workplace realities*. Cambridge, Mass: MIT Press.

Breit, E., Egeland, C., Løberg, I. B., & Røhnebæk, M. T. (2020). Digital coping: How frontline workers cope with digital service encounters. *Social Policy and Administration*. https://doi.org/10.1111/spol.12664

Burden, B. C., Canon, D. T., Mayer, K. R., & Moynihan, D. P. (2012). The effect of administrative Burden on bureaucratic perception of policies: Evidence from election administration. *Public Administration Review, 72*(5), 741–751. https://doi.org/10.1111/j.1540-6210.2012.02600.x

Chadwick, A., & May, C. (2003). Interaction between states and citizens in the age of the internet: "E-government" in the United States, Britain, and the European Union. *Governance: An International Journal of Policy, Administration, and Institutions, 16*(2), 271–300. https://doi.org/10.1111/1468-0491.00216

Christensen, J., Aarøe, L., Baekgaard, M., Herd, P., & Moynihan, D. P. (2020). Human capital and administrative Burden: The role of cognitive resources in citizen-state interactions. *Public Administration Review, 80*(1), 127–136. https://doi.org/10.1111/puar.13134

Chudnovsky, M., & Peeters, R. (2021). The unequal distribution of administrative burden: A framework and an illustrative case study for understanding variation in people's experience of burdens. *Social Policy and Administration, 55*(4), 527–542. https://doi.org/10.1111/spol.12639

Colucci, E. (2007). "Focus groups can be fun": The use of activity-oriented questions in focus group discussions. *Qualitative Health Research, 17*(10), 1422–1433. https://doi.org/10.1177/1049732307308129

Creswell, J. W. (2014). *Research design. Qualitative, quantitative, and mixed methods approaches (fourth)*. London, UK: SAGE.

van Deursen, A. J. A. M., & van Dijk, J. A. G. M. (2009). Improving digital skills for the use of online public information and services. *Government Information Quarterly, 26*(2), 333–340. https://doi.org/10.1016/j.giq.2008.11.002

Ebbers, W. E., Jansen, M. G. M. M., & van Deursen, A. J. A. M. (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. (2020). *Digital economy and society index (DESI) 2020: Thematic chapters*. European Commission.

Grönlund, A., Hatakka, M., & Ask, A. (2007). Inclusion in the E-service society – investigating administrative literacy requirements for using e-services. In M. A. Wimmer, J. Scholl, & A. Gronlund (Eds.), *Electronic Government: 6th International Conference (EGOV 2007)*. Berlin/Heidelberg: Springer. https://doi.org/10.1007/978-3-540-74444-3.

Herd, P., Deleire, T., Harvey, H., & Moynihan, D. P. (2013). Shifting administrative burden to the state: The case of medicaid take-up. *Public Administration Review, 73*(SUPPL.1), 69–81. https://doi.org/10.1111/puar.12114

Herd, P., & Moynihan, D. P. (2018). *Administrative burden: Policymaking by other means*. Russel Sage Foundation.

Hofmann, S., Madsen, C.Ø., & Distel, B. (2020, August). Developing an analytical framework for analyzing and comparing national e-government strategies. In *International Conference on Electronic Government* (pp. 15–28). Springer, Cham.

Hofmann, S., Räckers, M., & Becker, J. (2012). Identifying factors for e-government acceptance - a literature review. In *Proceedings of the international conference on information systems (ICIS 2012)* (pp. 1–10). Orlando, Florida, USA, Florida.

Jæger, B., & Löfgren, K. (2010). The history of the future: Changes in Danish e-government strategies 1994-2010. *Information Polity, 15*(4), 253–269. https://doi.org/10.3233/IP-2010-0217

Krueger, R. A. (1994). *Focus groups*. A Practical Guide for Applied Research: Sage Publications.

Larsson, K. K. (2021). Digitization or equality: When government automation covers some, but not all citizens. *Government Information Quarterly, 38*(1), 101547. https://doi.org/10.1016/j.giq.2020.101547

Lindgren, I., Madsen, C.Ø., Hofmann, S., & Melin, U. (2019). Close encounters of the digital kind: A research agenda for the digitalization of public services. *Government Information Quarterly, 36*(3), 427–436.

Lipsky, M. (2010). *Street-level bureaucracy, 30th annual edition: Dilemmas of the individual in public service*. Russel Sage Foundation.

Løberg, I. B. (2021). Efficiency through digitalization? How electronic communication between frontline workers and clients can spur a demand for services. *Government Information Quarterly, 38*(2). https://doi.org/10.1016/j.giq.2020.101551

Madsen, C.Ø., & Christensen, L. R. (2019). Integrated and seamless? Single Parents' experiences of cross-organizational interaction. *Selected Papers of the IRIS Issue, 9*.

Madsen, C.Ø., & Hofmann, S. (2019). Multichannel Management in the Public Sector: A Literature Review. *The Electronic Journal of e-Government, 17*(1), 20–35.

Madsen, C.Ø., Hofmann, S., & Pieterson, W. (2019, September). Channel choice complications. In *International Conference on Electronic Government* (pp. 139–151). Springer, Cham.

Madsen, C.Ø., & Kræmmergaard, P. (2015). The efficiency of freedom: Single parents' domestication of mandatory e-government channels. *Government Information Quarterly, 32*(4), 380–388.

Madsen, C.Ø., & Kræmmergaard, P. (2018). How to migrate citizens online and reduce traffic on traditional channels through multichannel management: A case study of cross-organizational collaboration surrounding a mandatory self-service application. In *Innovative perspectives on public administration in the digital age* (pp. 121–142). IGI global.

Moynihan, D., Herd, P., & Harvey, H. (2015). Administrative burden: Learning, psychological, and compliance costs in citizen-state interactions. *Journal of Public Administration Research and Theory, 25*(1), 43–69. https://doi.org/10.1093/jopart/muu009

Pieterson, W., & Ebbers, W. E. (2020). Channel choice evolution: An empirical analysis of shifting channel behavior across demographics and tasks. *Government Information Quarterly, 37*(3), 101478. https://doi.org/10.1016/j.giq.2020.101478

Pors, A. S., & Schou, J. (2020). Street-level morality at the digital frontlines: An ethnographic study of moral mediation in welfare work. *Administrative Theory and Praxis, 0*(0), 1–18. https://doi.org/10.1080/10841806.2020.1782137

Reddick, C., & Anthopoulos, L. (2014). Interactions with e-government, new digital media and traditional channel choices: Citizen-initiated factors. *Transforming Government: People, Process and Policy, 8*(3), 398–419.

Rose, J., Persson, J. S., Heeager, L. T., & Irani, Z. (2015). Managing e-government: Value positions and relationships. *Information Systems Journal, 25*(5), 531–571. https://doi.org/10.1111/isj.12052

Scholta, H., Mertens, W., Kowalkiewicz, M., & Becker, J. (2019). From one-stop shop to no-stop shop: An e-government stage model. *Government Information Quarterly, 36*(1), 11–26. https://doi.org/10.1016/j.giq.2018.11.010

Schou, J., & Hjelholt, M. (2019). Digitalizing the welfare state: Citizenship discourses in Danish digitalization strategies from 2002 to 2015. *Critical Policy Studies, 13*(1), 3–22. https://doi.org/10.1080/19460171.2017.1333441

Schou, J., & Pors, A. S. (2019). Digital by default? A qualitative study of exclusion in digitalised welfare. *Social Policy and Administration, 53*(3), 464–477. https://doi.org/10.1111/spol.12470

Skaarup, S. (2020). The role of domain-skills in bureaucratic service encounters. In *International conference on electronic government (Vol. 12219 LNCS, pp. 179–196)*. Linköping: Springer. https://doi.org/10.1007/978-3-030-57599-1_14.

Statistics Denmark. (2016). *ICT household survey 2016* (ICT Household Survey).

Stickdorn, M., Schneider, J., Andrews, K., & Lawrence, A. (2011). *This is service design thinking: Basics, tools, cases*. Hoboken, NJ: Wiley.
Suchy, Y. (2009). Executive functioning: Overview, assessment, and research issues for non-neuropsychologists. *Annals of Behavioral Medicine, 37*(2), 106–116. https://doi.org/10.1007/s12160-009-9097-4
Tangi, L., Benedetti, M., Gastaldi, L., Noci, G., & Russo, C. (2021). Mandatory provisioning of digital public services as a feasible service delivery strategy: Evidence from Italian local governments. *Government Information Quarterly, 38*(1), Article 101543.
The Boston Consulting Group. (2012). *Overgang til obligatorisk digital kommunikation i den danske offentlige sektor Selvbetjening på Udbetaling Danmarks områder*.
The Danish Government, Danish Regions, & Local Government Denmark. (2011). *The Digital Path to Future Welfare eGovernment Strategy 2011–2015*.
The Danish Government, Local Government Denmark, & Danish Regions. (2016). A stronger and more secure digital Denmark. *Digital Strategy*, 2016–2020.
The National Audit Office. (2016). Rigsrevisionens notat om beretning om etablering af Udbetaling Danmark. Retrieved from http://www.rigsrevisionen.dk/media/2104270/305-16.pdf.

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