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Administrative burden in digital public service delivery: The social infrastructure of library programs for e-inclusion

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Abstract

In their efforts to digitize public service delivery, countries increasingly use algorithms based on mathematical models, data and/or a combination of different administrative datasets to issue decisions, but recent studies point towards challenges around citizens' understanding, accessing, and filing objections to such automated decisions. This paper focuses on the social infrastructure supporting citizens that struggle with accessing such services. To address this, we ask: How does the social infrastructure affect administrative burdens associated with digital government services? This is studied in the Dutch context through expert interviews and observations of support programs in libraries. We find that although libraries as primary sites for these services may pose the disadvantage of being more difficult to reach for low-literate citizens, advantages are their organizational structure at the local level as well as their currently changing role to include a growing range of services, including (digital) skills courses.

KEYWORDS

digital inclusion, digital public service delivery, e-inclusion, infrastructure, libraries

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INTRODUCTION

Digital public services are ubiquitous in large parts of the world and increasingly communication with government is automated. This is often presented as a cost-saving measure, and some argue that it brings benefits to citizens in terms of speed and availability of services (Lindgren et al., 2019; Rose et al., 2015). While the opportunities are easily articulated in the context of 24/7 access to government websites and eligibility checks that are performed automatically, the implementation of digital public services ‘encounters a range of policy, legal, institutional, technological, and even cultural constraints’ (Veiga et al., 2016, p. 324). Digitalization and often also automation means that with the help of mathematical models, data and/or the combination of different administrative datasets, algorithms issue a decision on, for example, an application for social benefits (Dencik & Kaun, 2020). Several examples exist where such systems have led to unfair treatment of welfare recipients and studies raise alarm that this process not only creates excessive information asymmetry among government and citizens, but also disadvantages certain groups more than others.

Government’s focus on identifying fraudulent behavior among claimants has inadvertently led to ‘adding additional administrative burdens and excluding those who would otherwise be eligible for benefits as well as affecting citizens’ overall experience of the state’ (Fox et al., 2019, p. 106). The Dutch Childcare Allowance case is an example in which AI-based automation incorrectly labeled citizens as fraudsters and singled out dual-nationality families. The victims lost their allowance without having been given any reason. In many cases, benefits already received were reclaimed, leading to individual hardship of financial troubles, job, and potential home loss as well as mental health concerns (Volkskrant, 2020). In such scenarios, the decision-making process and the underlying AI-driven structure tend to be closed off to scrutiny or ‘black-boxed’, meaning they lack explainability and transparency (Larsson & Heintz, 2020; Lepri et al., 2018). This makes potential bias or unfair treatment hard to scrutinize and contest.

In this context, there is a lack of current discussions about the lived experience and agency of citizens while dealing with digital or even automated public services despite the fact that studies point towards barriers ‘on the front end of seeking enrollment in a public program’ (Fox et al., 2019, p. 114). This disregard of citizens’ experience of such Kafkaesque circumstances in a digital system can lead to a decline of citizen trust in government (Grimmelikhuijsen, 2012; Wichowsky & Moynihan, 2008), negatively affect political participation (Eubanks, 2011; Kim & Lee, 2012; Vigoda-Gadot, 2007) and cause opacity (Peeters & Widlak, 2018). The barriers to seeking public services have been captured by the ‘administrative burden’ concept, which is defined as an individual’s experience of policy implementation as onerous (Burden et al., 2012). Recent studies point towards additional hurdles in the context of digital application processes and the wider societal impacts of continuing to burden, especially those who are least advantaged (Fox et al., 2022; Herd & Moynihan, 2018). This affects the most vulnerable parts of the population, since citizens that are lower educated, have language barriers or experience a stigma when asking for government support struggle the most with digital application procedures and are often in need of support (Herd & Moynihan, 2018).

In this setting, the social infrastructure has been overlooked in the digital governance literature as a support mechanism in (partially) automated systems (for a notable exception see Linos et al., 2021). It however plays a vital role. Social infrastructure is defined as ‘physical places and organizations that shape the way people interact’, including libraries, schools, parks or swimming pools (Klinenberg, 2018, p. 5) and is especially important for ‘children, the elderly, and other people whose limited mobility or lack of autonomy binds them to the places where they

live' (Klinenberg, 2018, p. 14). These physical structures have gained an increasingly important role as government moves towards 'digital-by-default' in combination with the role of 'intermediary' institutions providing such structures (Heinrich, 2016).

This paper looks at the Dutch context and the role of libraries as 'intermediaries' in digital public service delivery. We ask: *How does the social infrastructure affect administrative burdens associated with digital government services?* This is studied through a series of expert interviews with national and local stakeholders, complemented by an observational case study in the Dutch city of Leiden.

Since 2018, there has been a push in the Netherlands to offer accessible and local help to those requiring assistance with communicating with government. This help is offered at the locations of, for example, different social organizations, community centers or libraries. The help offered per location can differ from a course that teaches digital or language skills to walk-in hours to ask questions (Bos, 2018). While at the municipal level several community-based organizations may be involved in offering these services, one national program has been implemented in libraries all over the Netherlands. In the short space of only several years, libraries have come to play a key role in the Dutch government's efforts to fill the digital gap. In this paper we explore the development of this social infrastructure, and we identify advantages and challenges of libraries as key nodes in this system. Finally, we argue for more research on the infrastructures for and citizens' experiences of support for access to digital public services.

This paper is part of the special issue on the 'Politics and Policy of Artificial Intelligence', which addresses the wide-ranging implications of technology use in the public space. The research joins the discussion on structurally disadvantaging certain groups—both in the set-up of AI-based systems (Kim, 2022; Rönblom et al., 2022, this issue) and within the service delivery process more specifically through, for example 'coded bias' (Ulinicane & Aden, 2022, this issue). Our paper further contributes to a growing discussion of the role of citizens in the space of datafying, digitizing and automating government. Especially those who tend to be excluded due to, for example, limited digital skills (e.g., Ginosar, 2021; Ingrams, 2019).

The paper is structured as follows. First, it gives an overview of the literature on digitizing and automating public service delivery, focusing particularly on e-inclusion and the role of CSOs. Second, it outlines the methodology of the research, including an overview of interviews and observations. This is followed by the presentation and discussion of the results of the study in the Netherlands. The concluding remarks summarize the analysis and open up questions for future research.

DIGITIZING AND AUTOMATING PUBLIC SERVICE DELIVERY

The push for 'digital-by-default' has limited the ability for citizens to choose their preferred channel of communication. In fact, recent studies show that upon encountering problems, especially vulnerable citizens prefer non-digital ways of communicating with government, such as picking up the phone or sending a postcard (Linos et al., 2021; Madsen et al., 2022). Linos et al. (2021) find that digital communications tend to reduce costs for government but impose sizable psychological burdens on disadvantaged communities that often lack confidence and technical skills to use these technologies for formal, bureaucratic communications' (Linos et al., 2021, p. 1). Additionally, the automation of services, scenarios in which decisions are returned to applicants with limited human interference, can lead to additional burdens for those citizens that have atypical situations and for whom the automated allocation of benefits for example is not possible.

'Extraordinary' circumstances then take longer to process and often require additional paper-work or documentation (Larsson, 2021).

Given this disconnect, Madsen et al. (2022) identify a knowledge gap concerning citizens' experiences of actual interactions with digital services. They show that many studies predominantly focus on simple or even hypothetical services as well as study citizen experiences in voluntary scenarios where the pressure to successfully complete a digital task is low.

Digital divide and e-inclusion

Conceptually these issues of access are framed in different ways. Most prominently, the 'digital divide' literature describes the interactions between individual citizens, technology and society and carries a broader set of implications for addressing social and political inequality (DiMaggio & Hargittai, 2001; Helbig et al., 2009). Robinson et al. (2003) summarize that 'the digital divide implies that significant minorities of the population are effectively denied access to a technology that, like other public facilities like libraries and super highways, is thought to be open to anyone' (Robinson et al., 2003, p. 2). This is further separated into first- and second-order effects, whereas first-order effects describe inequality in having access to the technology and second-order effects the inability to use the technology even if access is possible (Dewan & Riggins, 2005). The latter one is also being labeled as 'digital literacy'. This has since been further developed into the idea that the digital divide is multidimensional and that there are multiple divides across people's lives where there is a lack of access to for example, education or training (Helbig et al., 2009). Some label digital exclusion as a form of information and communication poverty and service poverty, as the inaccessibility of digital services endangers certain groups to be excluded from access to information and services outside of the channels that they master (Leppiman et al., 2021).

The conceptual understanding of digital divide has broadened to include digital inequalities beyond access in order to capture the multifaceted issues that play a role when digitizing public services. 'Researchers foregrounded digital inequalities related to knowledge, economic and social resources, attributes of technology such as performance and reliability, and utility realization' (Vassilakopoulou & Hustad, 2021, p. 1). In addition, Döring (2021), defines 'administrative literacy' to highlight processes before the bureaucratic encounter as well as to understand citizens' competencies beyond general education and other socioeconomic variables often used as proxies. This has facilitated a shift away from the term 'digital divide' to 'e-inclusion', which is predominantly applied in the European context. E-inclusion specifically highlights the 'empowerment and participation of people in the knowledge society and the degree to which ICT contributes to equalizing and promoting participation in society' (Weerakkody et al., 2012, p. 306).

A key dimension to this research is that part of the e-inclusion conceptualization that includes infrastructure. Infrastructural support puts into focus provisions by government and civil society that enable participation through, for example, availability of internet access technologies or courses teaching digital skills. This however, as Weerakkody et al. (2012) point out, is an under researched dimension of e-inclusion.

Taken together, research has shifted towards having more 'user-centered' studies. This has resulted in work that understands the digital divide in the context of individual factors, such as age, gender, ethnicity, income etc. in combination with structural support and moves away from purely focusing on access (Mossberger et al., 2006). This is also where a strong link can be made to citizen experiences with digital services and thus with the administrative burden and agency literature.

Administrative burden and agency in public services

Administrative burden is defined as an individual's experience of policy implementation as onerous (Burden et al., 2012). Moynihan et al. (2014) offer a more nuanced way to define this concept and suggest that there are three broad categories of costs that constitute administrative burden. These include (1) learning costs, (2) psychological costs, and (3) compliance costs.

Learning costs address aspects of citizen experiences that include learning about the government program, whether they are eligible, the nature of benefits, and how to access services as well as fluency in the dominant language, literacy and formal/informal norms of interacting with bureaucrats (Linos et al., 2021; Masood & Nisar, 2020). Linos et al. (2021) further indicate that learning cost also include 'the challenge of using a technology for any purpose', which depends on the 'technology's ubiquity, accessibility, and the user's general familiarity with the tool' (Linos et al., 2021, p. 710). Psychological costs describe citizens facing the stigma of participation in an unpopular program, as well as the loss of autonomy and increase in stress arising from program processes. Linos et al. (2021) add to this by arguing that 'psychological costs also accrue when individuals have low self-efficacy and lack the confidence to interact with bureaucrats, because of the demands a particular technology places on them' (Linos et al., 2021, p. 710). Compliance costs address the costs of citizens completing applications and re-enrollments, providing documentation of their standing, and avoiding or responding to discretionary demands (Moynihan et al., 2014). In essence, these costs cover all resources needed to follow administrative requirements. These can however differ across individuals and technologies (Linos et al., 2021). They include, for example, the costs of traveling to a place and paying for forms being printed compared to those with access to a printer at work or at home.

In relation to these concepts, Moynihan et al. (2014) however note that although they are presented as distinct from each other, it is often difficult to separate them in empirical studies, since, for example, a reduction in compliance costs may actually be attributable to the reduction in psychological costs. Recent research finds spillover among the different cost categories. Baekgaard and Tankink (2021), for example, highlight that individuals who have difficulty understanding rules or regulations (learning and compliance costs) may also experience stress or stigma (psychological costs).

Different characteristics of administrative burden have been explored in different streams of research, such as studies of red tape, political sociology, street-level bureaucracy, policy feedback, and program take-up. For this paper, we focus specifically on vulnerable individuals seeking access to public services at the local level and thus separate the actions of the state from the individual experiences of administrative burden. In other words, we do not address whether administrative burdens are products of policy design.

Administrative burden and the experience of a loss of agency is especially high in social welfare programs due to the goal of many governments to prevent fraudulent behavior as well as distinguish between eligible and ineligible citizens. Combining the idea of welfare support and agency in the process, administrative processes can reinforce the effect of stigma.

In particular, interactions with the state may be experiences of power, or more precisely, the loss of personal autonomy. As the interaction is experienced as degrading, intrusive, and directive, it erodes the basic need for autonomy. (Moynihan et al., 2014, p. 49)

In the context of individual experiences and characteristics, Christensen et al. (2020) suggest that 'executive functioning' affects the experiences of administrative burdens. Executive functioning is a neuropsychological construct that is defined as 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). Executive functioning is negatively affected by scarcity, which can include lacking money or time, as well as for example health issues or forms of cognitive decline. This implies that those in already precarious situations that apply for government services experience higher levels of administrative burden due to factors experienced in daily life. In short 'because administrative burdens affect some citizens more than others, special attention should be given to those with limited resources and the services designed to help them' (Madsen et al., 2022, p. 101653). Given these findings, the conceptual framing of administrative burden has been broadened to include individual and societal impacts and move beyond the focus on access to and efficiency of public services (Fox et al., 2019; Heinrich, 2016).

Social infrastructure

Given that 'those who are least advantaged tend to face more administrative burdens, even though they have fewer resources to manage and overcome them', support mechanisms are a vital element of citizens using public services (Herd & Moynihan, 2018, p. 6). This support is not only financial but includes resources that include various forms of human capital, such as education, (non)cognitive skills as well as a social network. As Herd and Moynihan (2018) point out, 'in some cases, having access to someone who can help negotiate the compliance burden of completing a form makes a difference' (Herd & Moynihan, 2018, p. 7). In fact, those who need services the most are those with lower or no income, limited education and might be challenged when it comes to language and communication. Studies further show that stresses of poverty may reduce cognitive capacities and thus increase the effect of administrative burden (Mani et al., 2013). Recent research further finds that citizens do not only need help accessing and using the specific digital services available, but also support in navigating public bureaucracy more generally. They require pointers about where and how to obtain government support. This includes receiving information 'from a citizen perspective' and communicated in 'easy-to-understand language' (Madsen et al., 2022). In the literature, such arrangements have been labeled as 'information intermediaries', who are situated in-between government services and citizens in need of support (Harvey et al., 2021; Heinrich, 2016; Mervyn et al., 2014).

In this context, Heinrich (2016) suggests, based on Kahn et al. (1976) to distinguish bureaucratic encounters into four categories, which include (1) organizational behavior, (2) bureaucratic encounters from citizen perspective, (3) bureaucratic encounters from government perspective, and (4) transactions where interactions outside of public organizations contribute or alleviate administrative burdens. The fourth dimension is one that has been mostly overlooked, but contributes to government-citizen interactions. Heinrich (2016) specifically points towards the roles that organizations in this setting may play in 'supporting citizens in their efforts to access public benefits, such as reaching out to potential eligible citizens who may be less likely to obtain information from formal governmental channels or who may need support in compiling documents required for application' (Heinrich, 2016, p. 418).

Libraries fulfill such a support role by providing hardware, software, and an internet connection. They also provide opportunities to improve digital literacy. Research in the field of library

and information science provides important insights on ‘the changing patterns of public use of libraries’ digital provisions and broader political and economic changes affecting the digitalization of libraries’ (Leguina et al., 2021, p. 2). Specifically, their role as access managers and educators in digital literacy (Gangadharan, 2017; Vaidhyanathan & Bullock, 2014). ‘To this end, it is useful to think of libraries as reserves of two key dimensions of digital capital, namely digital access (equipment, connectivity, daily and historic time online) and digital competence (literacy, communication, content creation, safety and problem solving)’ (Leguina et al., 2021, p. 3).

Taken together, we are looking at *how the social infrastructure that libraries offer impacts administrative burdens associated with digital government services*.

METHODOLOGY

The study takes place in The Netherlands, which is broadly representative of other high-income countries since libraries are prominent and accessible facilities to provide support and training for various citizens in need.

The study employs a combination of qualitative methods, namely semi-structured interviews, and site observations. This choice is motivated by several factors. First, such a combination of methods is ‘well suited to providing information systems researchers with rich insights into the human, social and organizational aspects of information systems development and application’ (Harvey & Myers, 1995, p. 22). Second, there is a lack of in-depth qualitative research into the experiences of users who seek out (offline) support as well as into the infrastructure of such support (Weerakkody et al., 2012).

For this paper, we conducted 7 expert interviews with 8 interviewees including library project managers, government administrators and civil society digital inclusion professionals in the Netherlands. In addition, we visited one public library and one community center in Leiden to conduct on-site observations. All interviews and observations were conducted in January–March 2022 (Table 1).

The questions outlined by Herd and Moynihan (2018) on the three burden dimensions served as a foundation for our data collection. During the interviews we asked the experts to reflect on the issue of digital inclusion in access to government services, the role that libraries and community centers have in this process, how offline support is currently being implemented and what they think should be done to expand digital inclusion. Regarding learning costs and compliance costs, we further asked about the specific programs that libraries undertake to relief administrative burdens, including walk-in hours for digital support and digital literacy courses. These are generally part of the Digital Support Desks (IDO), which became the main focus of our empirical research (see below). We also asked experts questions about the psychological costs that are part of the administrative burden, which generated answers related to shame and the relative accessibility of the library for low-literate citizens.

During one of our observations of a library in Leiden, we sat in the room where volunteers answered citizens’ digital access questions for two hours a week on a walk-in basis. We observed the three volunteers’ interactions with five citizens. During the observation, we focused on the accessibility of the space, the kind of questions citizens asked, and the process and manner in which the volunteers helped the citizens with these questions. In between support sessions, we were able to ask questions to the volunteers in order to learn more about their activities, motivations, and the challenges they see both for citizens with few digital skills, and in the current library system. We also had an informal conversation with the library coordinator on the general

TABLE 1 List of interviewees and on-site observations in chronological order

Date	Interview/Observation	Organization	Reference
January 12, 2022	Project Manager	Public Library , BplusC (Library plus Center for arts and culture)	Interviewee 1
February 7, 2022, 2–4 pm	Observation and informal interviews with 4 staff members/volunteers	Public Library , Leiden City, Walk-in hours for digital government support	PO 1
February 18, 2022	Team Member	NGO , Digital Inclusion focus	Interviewee 2
February 28, 2022	Research Team Member	Royal Library , Research Team	Interviewee 3
March 2, 2022, 1–2 pm	Site visit	Community Center , Leiden City	PO 2
March 3, 2022	Senior Policymaker	Ministry of the Interior and Kingdom Relations, Digital Inclusion	Interviewee 4
March 17, 2022	Program manager	Government service organization	Interviewee 5
March 21, 2022	Advisor	Royal Library	Interviewee 6
March 23, 2022	Program manager & Project lead	NGO , Digital Society focus	Interviewee 7 & 8

structure and attendance of the walk-in hours. During the site visit to the community center we observed the space and facilities and acquired information about social infrastructure for digital support through an informal conversation with one of the community workers and by studying the brochure and website of the center. These observations provide insights into the physical set-up of support (where and when), the way support is offered (how) as well as the reasons for which citizens walk into the facility (why). These observations confirmed the expert interviews in showing that the kind of support for digital governance sought in libraries often concerned questions around the use of the ‘DigiD’ (a digital identity management system, see below), and accessing government services, such as the tax office. Not all of the services sought posed an equal administrative burden, with some questions being solved with a quick one-time explanation, while for other questions citizens had to return the next weeks or were referred to another service, such as social work.

Analysis was approached as an iterative process, which allowed us to, during the period of data collection, recognize recurrent themes as well as information gaps that could be addressed in upcoming interviews. Fieldnotes and interview transcripts were then all read through to signal themes, which could then be grouped into factors that are important to the inclusion of vulnerable citizens in the digitalization of public service delivery (Table 2).

CASE

The library system in the Netherlands consists of approximately 150 library organizations, which together provide approximately 800 branches. Dutch libraries largely depend on municipal subsidies. However, a decline in membership as well as shrinking municipal budgets have resulted in lower subsidies in recent years. In addition, the financial crisis, a decrease in book demand and

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 re enrollment? 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 receive respectful treatment? Do people enjoy some autonomy in the interaction?

a range of online alternatives all play an important role in this. In some cases, this means that libraries have to cut back on staff and accommodation, and sometimes even have to close their doors. Latest numbers suggest that public library organizations received 445 million euros in subsidies in 2020, accounting for 85% of the total income. The vast majority, 431 million, came from municipalities (CBS, 2021; van de Burgt & van de Hoek, 2021). In principle, the national government does not finance libraries, and therefore makes little contribution to the income of libraries, except for national initiatives, such as the Digital Support Desk (IDO) project. This trend also means that libraries and library organizations are under pressure to find alternative sources of income.

In an effort to remain relevant, libraries are entering into alliances with theaters and educational institutions and are developing into public living rooms, including catering facilities. Dutch libraries are further increasingly focusing on community and policy issues, such as combating illiteracy and loneliness, bridging the digital divide and promoting social cohesion and inclusion.

Many libraries offer two nationally designed training courses for practical digital skill development, namely ‘Klik en tik’ and ‘Digisterker’, which teach participants how to use the internet safely, and how to access certain digital government services. Next to these organized courses, many offer digital assistance during ‘walk-in hours’, where volunteers or employees help citizens access government services digitally, install apps on their smartphones, or complete digital tax submissions. Due to the decentralized structure of this service, libraries have a lot of freedom in how they organize the services, e.g., through professional staff or volunteer work, and in which urban neighborhoods they make the services available.

So far, this has had limited effects on public perception of libraries in the Netherlands. Various studies have shown that this broadening is not widely reflected in the use and appreciation of libraries (KB, 2018; ProBiblio, 2015; Vakkari et al., 2014). During the COVID-19 pandemic, however, there was an upsurge in citizens looking for support. Specifically, interviewees report an influx of citizens struggling to book appointments for testing and vaccines online as well as

install the Dutch COVID app, which displays the QR code required for access to certain facilities. This also led to a lot of first- or one-time exposure of citizens and the hope of one program director is that this will lead to citizens coming back for other courses or services (Interviewee 1).

These library services are generally met with high levels of digital skills with 79% of Dutch citizens having basic skills. This is well above the European average of 58%. However, more than 20% between the ages of 16 and 65 do not achieve the basic level for digital skills (Non et al., 2021). There are further major differences between age groups and education levels. In particular, the skills of older people vary widely. The lack of basic digital skills in the older age groups is mainly caused by a lack of software skills, such as being able to work with programs such as Word and Excel. This research assumes that those who indicate that they have performed a certain activity, also possess the associated skills. It concerns the following skills (Eurostat, 2020; KB, 2021; Rathenau Instituut, 2020):

- Information literacy (including finding information on the Internet);
- Communication skills (including emailing and participating in social networks);
- Troubleshooting (including installing software or apps and internet banking);
- Software skills (including using software such as Word and Excel (basic skills) and writing code (advanced skills)).

At the same time, government use of digital means for communication has increased significantly. Dutch citizens have about 390 million contacts with government every year. More than half of these contacts take place via a digital channel based on 2016 data (Kanne & Löb, 2016). For digital identification purposes, the Dutch government utilizes the so-called 'DigiD', which is an identity management system that enables different government agencies to verify the identity of Dutch residents on the Internet. The number of active DigiD accounts increased from 9.8 million in 2012 to 18.3 million in 2020 (ICTU, 2021). The number of DigiD authentications has further grown from 75.5 million in 2012 to 403 million in 2020 (KB, 2021; Logius, 2014–2021).

In the data, it is difficult to represent non-use of digital government services as well as separate that for different (vulnerable) groups. However, numbers put together by the Royal Library (KB) in 2021, show the number of calls to agencies for assistance as well as the non-use of the digital message service that government uses to communicate with citizens. The Royal Library (2021) states in a report that:

It is difficult to identify which group of citizens is not digitally skilled enough to make use of digital government—completely independently. The problem can—in part—be illustrated based on the number of DigiD authorizations (2.5 million in 2017) and the number of questions to the tax authorities. In 2018, 53 thousand appointments were made for tax return assistance and 769 thousand telephone calls, and 2.8 thousand questions were received via social media (Belastingdienst, 2019). In addition, research by the National Ombudsman shows that a large group of Mijn-Government users are unable to use the Message Box (the National Ombudsman, 2017). Research commissioned by [Mediawijzer.net](https://mediawijzer.net) shows that the proportion of citizens who need help with digital services such as DigiD, the Message Box and online tax returns is almost twice as high as the average among the vulnerable target group, which mainly consists of the elderly and people of lower socioeconomic status. (KB, 2021, pp. 3–4; Plantinga & Kaal, 2018)

Responding to this need to provide appropriate assistance to vulnerable citizens, the Dutch government in 2018 approved a national program of 20.5 million to set up Digital Support Desks (Informatiepunt Digitale Ondersteuning/IDO) throughout the country. These Digital Support Desks aim to give individual assistance to citizens who have difficulties accessing digital government services, for example through weekly walk-in hours. Starting with 15 such “IDOs” in 2019, the number grew rapidly to over 400 in February 2022—spread over 352 municipalities. Building on previous experience with support provided for digital tax returns provided by libraries, this program was implemented by public libraries throughout the country. This collaboration with libraries was motivated by several factors. First, the Dutch Tax Authority already had a partnership with libraries to offer support during tax season. In addition, libraries are spread throughout the Netherlands and provide local, accessible spaces to citizens close to their home. They are also not targeting a specific group within society, as some NGOs do, and have no political affiliation. Libraries further already offer courses around digital skills as well as serve as information points. Finally, this collaboration comes at a time when libraries are re-defining their role in a (digital) society and are looking to take on a new role beyond housing archives and lending books (Interviewee 1; Interviewee 4).

These efforts around the digital support desk are embedded in a larger structure for e-inclusion around digital training, language courses, and a government communication overhaul—both in terms of content as well as channels and reach. However, the IDO program is a concrete program that is specifically citizen-facing and implemented in libraries across the Netherlands. There are limited opportunities to assess this program quantitatively. Citizens that walk in to receive support do not have to register or own a library card. They do not have to provide any personal information during the help process and there is no follow-up or count whether the same people come back for more or the same request. Locally, some libraries keep a ‘log book’, where the library employee or volunteer notes down the question that was asked as well as rough characteristics of the citizen, such as age, gender and language being spoken (Interviewee 3; Interviewee 4; Interviewee 5).

FINDINGS: LIBRARIES AS E-INCLUSION INFRASTRUCTURE

In this setting and based on our research question of how the social infrastructure affects administrative burdens associated with digital government services, we can identify those aspects that reduce or enhance different types of administrative burden. We do so based on observations in combination with information about the offline services through expert interviews. This is structured along the lines of the three administrative burden dimensions of learning, psychological and compliance burden.

Libraries are perceived as accessible facilities, since they are present in all neighborhoods and a lot of them do not require a library card or funds to seek help. This means no personal information is stored about those coming in, keeping help-seeking citizens anonymous as well as not requiring any form of identification. One interviewee described the accessible character of libraries by pointing out that people are welcome to just visit and be present in the library without a purpose, or even to merely use the bathroom: “To make an appointment for municipal government services, one needs to at least make a phone call, but even that may be daunting for people struggling with language abilities. At the library, one can just walk in and do nothing. One, two, three, four times. Perhaps the fifth time this person dares to ask a question. Here people are really seen. There is a human touch to this.” (Interviewee 1).

Walk-in hours, digital skill courses and IDOs

The Leiden library location we observed is situated in the city center and easily accessible via foot or bike (Picture 1). Upon entering, there is a big banner (Picture 2) which alerts citizens to the IDO program. We observed the open office hours for questions regarding digital government services. These were held in a separate room off to the left of the entrance. This provided privacy to those seeking help, but also required asking for/knowing the location of the room. In the room, three volunteers were present with one laptop each. Volunteers would look up or navigate to information on the laptop and citizens were also allowed to use the laptop for entering information or pointing towards unclear aspects. Both volunteers and the program lead made sure that returning citizens were matched with the same volunteer who would be familiar with their case.

We observed four situations of older, Dutch speaking citizens who expressed concern with the request of the digital identifier “DigID” as well as a specific question around rent allowance.



PICTURE 1 Library entrance.



PICTURE 2 Banner for IDO.

For the latter case, the volunteer was able to provide further insights into the case by accessing the online profile of the citizen, by creating a digital identification and a second volunteer called the tax information line to get more specific information on the case.

One of the interactions we observed proceeded from a request for assistance with DigiD to a question about digital bank access. The volunteers we spoke with confirmed that several requests for support are outside the scope of digital governance, sometimes even concerning questions on hardware (such as smartphones).

During the walk-in hours of the library, we saw that if time is available, volunteers would undertake additional steps to help citizens, such as calling a hotline or letting the citizen access their digital profile to check next steps and potential compliance. It should be noted that staff and volunteers are not allowed to give any advice or confirmation that a person is eligible for, for example, financial support by the government. However, based on conversations with library staff, they do feel the pressure to check diligently given the precarious situation that those seeking help are in. In terms of data privacy, staff and volunteers are further not allowed to enter

or ask for personal information by the citizen. This poses a hurdle if a citizen does not have an email address or a smartphone to confirm their identity when requesting a digital identification number. It also poses a hurdle when, in the words of one program manager, “citizens do not know how to type a capital letter on their phone or cannot distinguish username from password”, even though for privacy reasons they have to do this without assistance of the volunteer. Additionally, volunteers have not always received proper training (yet). This means they might be unfamiliar with certain public service processes and need to navigate government websites and digital forms for the first time. This limits their ability to alleviate learning, psychological or compliance burdens (PO 1).

In Leiden, digital skills courses became more popular since general digital skills for everyday activities such as ordering groceries online has suddenly become indispensable to many. In these settings, programs distinguish between NT1 and NT2. The group defined as ‘NT1ers’ includes those that have Dutch as their native language, but struggle with skills around reading and writing, and sometimes digital skills as well. These citizens are often lower educated, and interviewees point out that often a lot of stigma is attached to seeking help given that Dutch is their first language. NT2 includes those that have Dutch as a second language. This group varies in levels of education among non-native speakers and needs are spread across learning Dutch as well as acquiring digital or even cultural knowledge about the Netherlands. Based on informal conversations with staff and volunteers as well as expert interviews, it became clear that the computer courses are focused on teaching digital skills only. This means showing how to turn on a computer, how to use a mouse, how to click, scroll or open different tabs in a browser. This can help with learning hurdles, however, is unable to alleviate psychological or compliance burdens.

The information points (IDOs) are set-up as a local, accessible, and offline gateway to accessing government services online. There are however several hurdles that remain. The employee or volunteer at the counter does not work for the government. This means that they might have had basic training on where to find certain information on government websites but lack a deeper understanding of services being delivered let alone whether someone is eligible. They are also legally not allowed to enter or see any sensitive information, such as a social security number. This means that the support is limited to simple technical help, or the desk needs to refer the person to another desk provided by the municipality or a hotline. That carries the risk that citizens do not have the time or ability to seek out other help desks or are confronted by support channels that they tried to avoid in the first place, such as picking up the phone (Interviewee 2). The compliance burden is therefore only partly addressed.

Additionally, libraries were not per se a conscious choice for setting up this infrastructure. In fact, they were chosen because there was a prior collaboration among the Dutch Tax Agency and libraries to help with tax-related questions in a local manner. This implies that there was limited reflection on the library as an institution and what training employees for example have as well as what image this institution has with citizens—both in a positive way as well as negative. For example, an illiterate person or someone with difficulty reading or reading the Dutch language might not choose a library as a first place of contact for queries around digital government services. In fact, some citizens remain hard to reach. Those often include people with high levels of debt and/or challenges around mental health. This means that the psychological burden is not completely addressed by this system. In the city of Leiden, the library has partnered with the organization ‘BuZz’. BuZz is an NGO that supports people who are (temporarily) unable to participate due to all kinds of circumstances, such as debts, language deficiency, limitation, and social isolation. The organization focuses on teaching basic skills and on discovering and developing talents. Because BuZz seeks out people at their home to assess their needs, they can spread

the word about courses and help being offered at libraries in-person. However, several interviewees expressed that despite the public character of the libraries, their association with books and literacy may pose obstacles for accessing library services by low-literate citizens (Interviewee 4; Interviewee 7; Interviewee 8).

All these services further try to reach citizens that have trouble with digital media as well as reading (long/complicated) texts, therefore main communication channels are TV advertisements, (local) newspapers as well as WhatsApp groups. For the latter, programs or program directors do not have personal phone numbers of citizens but may work with partners that do (Interviewee 1; Interviewee 5). This way of reaching people is identified as especially effective for groups that stay within their own cultural circle and have limited exposure to libraries. One program director, for example, mentioned how one of their partners would help circulate announcements through WhatsApp groups of migrant women that they were working with. She described this as a highly effective way to reach women who might be hesitant to visit the library by themselves, but in this way could easily connect to each other and agree to access the services together (Interviewee 1). Programs also rely on partners to refer citizens to them. For this, a national platform was established '<https://www.hetinformatiepunt.nl/>'. While citizens can use the website directly, it predominantly helps municipalities as well as other organizations to check which courses are offered close to a citizen's home. Based on whether someone wants to attend a course or needs help with completing tasks online, the website gives library addresses based on postal code so that help is offered 'close to home'.

Summary

In Table 3, we summarize the different service points in combination with different types of burdens. This mainly has to do with the type of service, the training of those helping citizens, data privacy and time.

TABLE 3 Support options and the burden they alleviate (based on Herd & Moynihan, 2018)

Service		Learning burden	Psychological burden	Compliance burden
Walk-in hours, Library	Helpdesk for all questions related to digital services	Volunteers and support staff help citizens to access services themselves	No registration is needed and libraries are usually close to home	Direct support in accessing digital government services
Computer course, Library	Course teaching digital skills to citizens in Dutch	Free and open to all courses to increase digital skills		
IDO information desk	Information Desk set-up for questions around accessing government services	Service point that is visible in the library and can be approached without appointment		

Based on our observations in combination with interviews, we find that socio-psychological barriers to seeking help, because of stigma or (cultural) discomfort remain. In addition, when setting up new programs, such as IDOs, citizens that are being targeted are a hard-to-reach group and especially those that struggle with illiteracy are reluctant to seek out a place largely associated with books.

To address these burdens, government further faces financial and legal constraints. Currently, IDOs and walk-in hours for example heavily rely on volunteers. Not only does this make the availability of these services dependent on the willingness of community members to work without remuneration, it also poses limits to the level of professionalism of offline support. Additionally, in line with Dutch law and the EU GDPR (General Data Protection Regulation), volunteers and employees are not allowed to enter passwords for those who seek assistance. In some cases, this results in the inability of volunteers/ employees to help, for example when citizens have no digital skills at all and may not know how to type on their phone or how to shift between capital and lower-key syllables.

CONCLUDING REMARKS

Governments are increasingly digitalizing access to public services. The literature on digitalization shows that digitizing services may negatively affect already vulnerable groups in society, particularly people with low literacy and limited digital skills. Their absence from the available digital data poses challenges for policymakers in identifying the extent of citizens' exclusion (Giest & Samuels, 2020). On the ground, bureaucrats have difficulty identifying those citizens who might need to access government services, but for whom digitalization poses a barrier in doing so. In line with the growing scholarly attention to considering the agency and experiences of citizens as a crucial perspective for policymaking, in this paper we argue for investigating the role of the social infrastructure, specifically libraries, in providing in-person training and support for citizens' online access to welfare systems.

Based on the available literature and a case study in the Netherlands, where libraries are primary sites where offline support is offered, we identify five possible factors that are important to the inclusion of vulnerable citizens in the digitalization of public services:

1. Geographical location and direct, in-person, access. Services need to be close to home so that citizens have easy, in-person, access without appointment. For low-literate citizens making appointments by phone call can already pose a barrier to access.
2. Tailoring of the services to the particular vulnerabilities of the population. In the Dutch example, depending on neighborhood composition and needs, services could be adapted to help those mainly struggling with digital skills or those who need assistance with language and literacy.
3. Coordination and communication between welfare organizations to identify and direct citizens to the available services.
4. Professionalization. Professional training of those providing assistance is needed, especially since the scope of questions asked is wide.
5. Coordination between digital support services and executive government services. If digital support can put citizens directly in touch with government services this may lower the access barrier.

Limitations of public institutions in this process include funding that may be project-based rather than permanent, and dependency on volunteer work. We therefore conclude that in order for governments to guarantee all citizens access to digital welfare services, policymakers need to include sustained and sustainable professional in-person assistance at local levels. Although libraries as primary sites for these services may pose the disadvantage of being more difficult to reach for low-literate citizens, advantages of libraries are their organizational structure at the local level as well as their currently changing role to include a growing range of services, including skills courses. More research is needed, however, to find out which additional venues may be used to reach out to vulnerable citizens who currently fall out of the scope of the social infrastructure for online access to government.

Although the digitalization of public services was well underway when the Covid-19 pandemic started, attention to inclusion of citizens with low-literacy and limited digital skills has rapidly become more urgent in the past years, as digital appointments for Covid-tests and Covid-related apps have become crucial in mediating citizens' access to health and society. These developments further underscore the urgency of better understanding the policy and politics of Artificial Intelligence, as other contributions to this Special Issue similarly attest. With digital technologies being increasingly, and more rapidly, being implemented for economic and social aims, it is crucial that we study their potentials as well as exclusionary mechanisms. As a promising site for ameliorating some of the exclusionary mechanisms inherent in the digitalization of public services, the social infrastructure of neighborhoods deserves more attention from scholars and policymakers alike. Analyzing these developments through the lens of 'administrative burden' further raises more general questions of who should carry the burden of accessing services, in other words, the politics of creating a digital society, and what an effective course of action is, or rather which policies can facilitate an engagement of all groups within society.

CONFLICT OF INTEREST

Both authors declare no conflict of interest with regards to the research conducted in this paper.

ETHICS STATEMENT

All expert interviews, site visit, and observation were done with the consent of all parties present. For the observation, we created a flyer that was handed out to those on-site, which contained a summary of the research in lay terms, the statement that we would not be video or audio recording or taking pictures and our pictures, names and email addresses. During the observation and the site visit we complied with the COVID regulations in place at the time. The expert interviews were recorded within the Microsoft Team environment and saved on the secure university server. The list of experts was anonymized for the paper with a matching record including names in our own files. The pictures used of the library entrance and the poster were taken by the first author, Sarah Giest, who gives permission for them to be used.

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