

“Complete the Test First” Prescreening Tests at the Margins of Digital Public Administration

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Abstract

Western welfare states are rushing to digitalise access to public services and citizens’ interactions with public institutions. Finland exemplifies this trend towards digital-first administration. In this article, we discuss digital public administration and the interaction between citizens and the state through the example of digital prescreening tests. Digital prescreening tests are interactive webpages or mobile apps in which a citizen-user is required to answer questions about their situation before they are granted contact with a civil servant, access to a public service, or further advice. We analyse these tests theoretically and empirically, asking what their legal status is, how their developers perceive them, and what impacts they have on citizens’ legal standing and rights. Prescreening tests may be useful tools for citizens, but may also lead to harmful gatekeeping and socially unsustainable digital public administration. We argue that prescreening is an important, yet neglected phenomenon. Regulatory policy and academic research have focused on issues regarding automating decision-making processes, while advice-giving and first points-of-contact have received little attention. Drawing on discussions on street-level bureaucracy and its connections with digital systems, we analyse prescreening through interviews and legal sources. Our analysis shows how this new “screen-level bureaucracy” of prescreening tests influences both service provision and access as well as the rationalities and modalities of digital public administration.

Keywords

automated decision-making; digital administrative burden; digital public services; healthcare; medical devices; prescreening tests; screen-level bureaucracy; self-service; social welfare

1. Introduction

Contemporary western welfare states, particularly the Nordic welfare states, are rapidly digitalising access to public services and citizens' interactions with public institutions (Dencik & Kaun, 2020; Jørgensen, 2023; Lindgren et al., 2024). Finland is a prime example of this trend towards digital-first administration, characterised by the country's relatively non-critical and techno-optimistic culture and established tradition of providing public online resources and digital tools for citizens. In this article, we discuss a specific form of digital-first interaction between citizens and the state—digital prescreening tests (DPTs).

DPTs are interactive user interface tools, such as interactive webpages, mobile apps, or patient portals, deployed by public institutions and administrative bodies to automate advice-giving and people's access to public services, often through private-public partnerships. We examine the objectives of DPTs and how they are envisioned by experts involved in their design and deployment. We elaborate on the role of tests in digital service provision, and their implications for the rights and obligations of citizens and institutions. DPTs shape the form and function of digital public administration and thus relate to socially sustainable digital transformation and whether digital technologies truly improve citizens' lives (Nosratabadi et al., 2023, p. 2).

We provide a situated case study of DPTs in healthcare and social service provision in Finland and ask: What are DPTs, in law and practice, in relation to citizen-state interactions in digital public administration? For whom are they and for what ends? We contextualise our analysis both in terms of legislative policy on digital public administration and in relation to discussions of street-level algorithms (or bureaucracy) and citizens as customers of self-service administration (Bovens & Zouridis, 2002; Lipsky, 2010; Melin et al., 2024). Our analysis demonstrates the diversity and ambivalence at the core of DPTs, which take various forms: They may represent harmful gatekeeping, diverting citizens from public services, but they can also be useful as communication channels, learning devices, and advice-giving resources (for a similar discussion on chatbots see Verne et al., 2022). This ambivalence is at odds with ideologies of digital-first initiatives that portray digitalisation as unavoidable and fundamental for future public administration, especially in the health and social welfare sector (e.g., MFF, 2024; MSH, 2023).

We argue that digital prescreening is an important yet understudied and underregulated phenomenon in digital public administration (see also Adelmant & Raso, 2025). Much regulatory policy and academic research has focused on automated decision-making (ADM) processes. Law produces and aggravates this decision-making focus, for example through the EU's General Data Protection Regulation (GDPR), leading, at the legislative level, to a disregard for the "less-intrusive" digitalisation of advice-giving and first points-of-contact. Prescreening tests, as well as the digitalisation of state–citizen interactions more broadly, remain an "under the radar" phenomenon in digital public administration, neglected by regulatory policy as well. DPTs play a role as gatekeepers in the service chain, but their legal and administrative status remains unclear. This issue is central to citizens' legal rights as well as the service provider's duty to provide care or service.

Hence, we seek to broaden the debate on digital public administration by providing a situated example of digital public administration that goes beyond decision-making. By analysing the various roles that DPTs play, we demonstrate how their ambivalence also creates uncertainties about the need for and feasibility of regulatory intervention, what to regulate, and how.

Our analysis demonstrates that although the explicit justification for prescreening is to provide new information resources and channels for citizens seeking access to social and healthcare services, the tests are also developed to support professionals by reducing their workload and by providing structured preliminary information before actual direct contact. The tests embed a specific notion of a citizen who can navigate the digital landscape effortlessly despite legal uncertainties and informational unclarity. This raises questions about their social sustainability: When the legal status of prescreening is unclear and even the developers struggle, at times, to categorise tests as advice or decision-making, or as something else, what chance does the citizen have of understanding them?

We structure our article as follows. First, in Section 2, we discuss prior research on digital public administration, street-level and screen-level bureaucracies, and the increasing responsabilisation of citizens that digitalisation often entails. In Section 3, we draw attention to the role of law in creating ambivalence about DPTs and in coproducing the decision-making focus. In Section 4, we describe our methods and our case study on Omaolo, the comprehensive national platform for healthcare and social services that incorporates many DPTs. In Section 5, we analyse the multiple purposes of DPTs, the blurry boundaries between advice, decision-making, and customership, the burden of recognising rights, entitlements, and errors, and the dynamic adaptability of DPTs. Finally, we provide concluding remarks, calling for more research on the modalities of prescreening in digital public administration.

2. Digitalisation of Public Services and Self-Servicing Citizens

Digitalisation of welfare services can mean digitalising existing services, completely new modes of offering and delivering services, as well as new ways of making decisions on and assessing the needs of the population (Dencik & Kaun, 2020; Haug et al., 2024). It spans from self-service solutions to ADM systems and the use of data analytics for monitoring, and even fraud detection (Peeters & Widlak, 2023). Recognising that the boundaries between various interface tools, such as chatbots, interactive guides, web resources, and various surveys and tests are often blurry and prone to change, prescreening tests seem to bring particular logics of testing, filtering, and structuring to digital public administration.

Digital prescreening encourages, or even requires, a citizen-user to take the test first, to answer questions about their situation before they are granted contact with a civil servant, access to a public service, or further advice about the workings of administration. The terminology concerning such tests is not yet established. Some refer to tests as “self-assessment tests,” “self-screening tests,” “symptom checker tools,” or “digital self-triage tools” (Wallace et al., 2022; Ziebart et al., 2023), whereas in our empirical material they are also named “service-assessment tests.” Despite terminological differences, all these concepts focus on the increasing reliance on digital, automated, online testing tools that give the appearance of interaction and individual evaluation of a situation, despite being automated. We opt for DPTs to highlight how they precede other interactions and how they are used for initial assessment.

Symptom checkers have been analysed for their medical accuracy and validity (Chambers et al., 2019; Wallace et al., 2022), the variability of different tests (Ziebart et al., 2023), as well as the development of such services (Trifuljesko & Ruckenstein, 2024). Even though chatbots in public administration have been discussed from the viewpoint of state–citizen relationships (Kaun & Männiste, 2025; Verne et al., 2022), discussions on DPTs in public services are still lacking. There is some overlap between chatbots and DPTs, for example in their

focus on providing information and guidance related to frequently asked questions, but nevertheless tests are provided to citizens specifically as tests and not as a form of question-answer interaction.

Digital public administration and welfare constitute the background to digital prescreening. Prior research on digital public administration suggests a long-term trend of increasing responsabilisation of the citizen vis-à-vis the state. This development is characterised by the diminishing role of face-to-face encounters. Lipsky (2010) famously discussed street-level bureaucrats as people who, in practice, implement public policies and use discretion in making judgments. Recently, this concept has been reframed to digitalisation through discussions on street-level algorithms, screen-level bureaucracies, and system—or infrastructure-level bureaucracies, which describe the increasing distance between the citizen and public power facilitated by digitalisation (e.g., Alkhatib & Bernstein, 2019; Bovens & Zouridis, 2002; Melin et al., 2024; Peeters & Widlak, 2023). Impersonalisation, low levels of discretion, and formalisation of service provision are defining characteristics of screen-level or infrastructure-level bureaucracies, concepts that suggest less face-to-face interaction compared to the time of Lipsky's analysis. Digitalisation has been demonstrated to shape interaction, and to change decision-making processes and the roles of public servants (e.g., de Boer & Raaphorst, 2021).

Melin et al. (2024) identify specific bureaucratic roles related to the management and functioning of digital public services. The roles are (a) automated bureaucrat; (b) self-servicing citizen; (c) front-office employee; (d) back-office employee; and (e) specialised bureaucrat. Thus, what Lipsky's street-level bureaucrats once did alone is now distributed among these five roles. The first two roles are especially important for prescreening tests done by citizens themselves. Automated bureaucrat refers to "automated processes which conduct specific, individual activities" such as "data exchange, case-handling, and [guiding of] citizens," which are enabled by "automated data exchange and decision-making systems (algorithms)" as well as "chatbots" (Melin et al., 2024, p. 106). The self-servicing citizen, then, refers to the citizen who "conducts various activities through digital self-service solutions" and thus both identifies services and applies for them, as well as provides "information and documentation" through "web-portals" and "digital self-service solutions" (Melin et al., 2024, p. 106). Based on these roles, we see characteristics of the self-servicing citizen and automated bureaucrat at play in our case.

Citizens' encounters with administration are prone to producing diversion (Määttä, 2012; Soininvaara et al., 2024) by adding administrative burdens on the self-servicing citizen, as described in Herd and Moynihan's (2018) work on the difficulties, exclusions, and bureaucratic work that citizens encounter in their interactions with the state. Digital administrative burdens, in turn, may result from automated or data-assisted decision-making or digital interactions. According to Peeters (2023, p. 9), digital administrative burdens "may merely be costly and tedious but may also prove insurmountable and lead to exclusion from rights, benefits, and services to which citizens are legally entitled." The prescreening tests we observe operate mainly in seeking information on services, symptoms, and personal situations. However, some of these may become parts of administrative processes if a test leads to direct contact with administrators, establishes a customer relationship and duty of care, or provides structured information for later decision-making.

Administrative burdens describe the shifting of workload to citizens themselves, which comes with learning, psychological, and compliance costs regarding interactions with the government (Moynihan et al., 2015), as

well as the need to learn new administrative competencies (Heggertveit et al., 2022; Madsen et al., 2022; Peeters, 2023). Additionally:

The level of administrative burden placed on an individual, as well as the distribution of burden between the state and the individual, will often be a function of deliberate political choice rather than simply a product of historical accident or neglect. (Moynihan et al., 2015, p. 43)

Thus, the burdens are a form of policy-making by other means (Peeters & Widlak, 2023). We are less interested in whether they are deliberately constructed or unintended consequences (Herd & Moynihan, 2018; Madsen et al., 2022), but we acknowledge how institutional factors “shape the incentives and constraints for policy-makers and street-level bureaucrats” (Peeters & Widlak, 2023, p. 865).

Digital administrative burdens are also related to questions of good governance (Peeters, 2023, p. 119). According to Madsen et al. (2022, p. 3), interacting with government influences the citizens’ “understanding and perceptions of the government” and “affect whether people will be able to exercise the fundamental rights of citizenship.” Even though we identify the potential for burdens in the case of prescreening tests, we do also acknowledge that prescreening tests might have positive effects and are not always burdening or diverting. They can, for example, alleviate the learning costs of a benefit or service system as a test may offer targeted information based on the citizen’s specific situation (Madsen et al., 2022).

3. Legal Frameworks and Prescreening Tests

The role of law in shaping and being shaped by digitalisation policy and in overseeing its implementation in administrative practice is often ignored in debates on the digitalisation of the welfare state. Prescreening is often overlooked in research and in regulation that focus on decision-making and its automation. However, it is important to understand how legal frameworks not only produce and amplify this decision-making focus but also contribute to marginalising prescreening in two ways: first, by juxtaposing decision-making that affects citizen’s rights with less-consequential advice-giving that does not; second, through the unclear legal status and practice of DPTs. These explain how prescreening tests as a form of screen-level bureaucracy fall into the margins of regulatory attention. The legal framings co-produce certain centers of attention and silences at their margins, resulting in an interesting tension. However, the relative regulatory invisibility of prescreening tests is at odds with their visibility for citizens, for whom interacting with tests may be inseparable from (digital) public administration.

The form and process of administrative decision-making are densely regulated through both national administrative law and European technology regulation. For example, ADM is prohibited in the EU’s GDPR (art. 22, 679/2016), and, while the general rule includes several exceptions and leeway for national legislation, it significantly limits potential automation—in relation to decision-making (Esko & Koulu, 2023). Unlike ADM, European technology regulation does not provide a definition of DPTs or suggest corresponding legal concepts.

However, as some DPTs are digital products used within healthcare, they fall under the EU’s Medical Device Regulation (745/2017), which imposes product safety rules. From the legal perspective, these multiple frameworks raise questions about potential overlaps and uncertainties, as well as fragmentation. This means

that some DPTs are regulated differently from others, although they are provided for the citizens through the same platform, as described in the next section.

An important question is: Are DPTs legally about decision-making or advice-giving? Although DPTs and their ensuing rationalities largely remain outside legal attention, national administrative law would conceptualise them and automated citizen-state interactions through the service principle as giving advice and service to citizens instead of deciding on their rights and obligations (434/2003, Administrative Procedure Act). In giving advice, DPTs need to comply with the substantive obligations for “service automation” (Act on the Provision of Digital Services 306/2019, § 6a) for example, human users must be informed about the artificiality of a service, the language should be appropriate, and the user should be given the option to contact a human civil servant.

In understanding the legal status of DPTs, the distinction between decision-making and advice is central. Many of the existing legal safeguards, as well as the right to appeal, obligation to give grounds for a decision, and civil servants’ personal liability and discretionary power, are attached to the decision-making process. If there is no decision, there is no recourse to an appeal body, although extrajudicial complaint processes may be available. Although DPTs do not generally produce decisions, they are dynamic and sometimes feed seamlessly into a decision-making process, blurring the boundary. Nevertheless, they may entail major access to justice issues, if for example prescreening tests provide false information or divert citizen-users away from a public service they would be entitled to.

Another crucial element in relation DPTs is the notion of customership, because sectoral legislation on social and healthcare conceptualises citizens with the multifaceted concept of “customer.” The customer has rights and the service provider has a duty to provide care. Legal definitions of “customer” are contextual, and their exact meaning may become vague from the merging of various contexts and functions in digital service provision. For example, sometimes the “customer” is a resident of a wellbeing services county, for whom the county has a statutory obligation to provide services (612/2021, Act on the organisation of social and healthcare), but in other situations the “customer” is a person who applies for or uses social care (Act on the Processing of Customer Data in Social and Healthcare 703/2023) or a patient using or subjected to healthcare services (Act on the Status and Rights of Patients 785/1992). Furthermore, service providers are obligated to inform their customers about their rights and about the information systems related to the processing of their data as well as the general operating principles of such systems (703/2023, 68 §).

The legal unclarity of DPTs is associated with fuzziness that seems endemic to digital public services. Such unclarity has been also the object of legal oversight. The Chancellor of Justice (2022) in Finland condemned the national online platform Omaolo, through which the DPTs are made available to citizens, as the platform had not sufficiently informed its users on whether they were accessing a public or private service.

Finally, binding regulation is often complemented by soft-law instruments and policy documents that are not binding as such but have legal relevance. The digitalisation of public services is driven by an ethos of “digital by default” in many countries (Kaun & Männiste, 2025; Lindgren et al., 2024; Madsen et al., 2022; Schou & Pors, 2019), including Finland (Andreassen et al., 2021). Digitalisation is promoted to save costs and streamline administration and service provision, leading even to mandatory self-service (Andreassen et al., 2021; Schou & Pors, 2019, p. 466). This direction is also clear in Finland, as ongoing legislative reforms push for more comprehensive digitalisation of public administration. For example, the current government intends

to introduce a far-reaching digital-first initiative (MFF, 2024). This change would entail automatic digital service of documents to those deemed capable of digital interaction from 2026 onwards, without requiring consent. Moreover, in the strategies of 21 healthcare regions in Finland, digitalisation of social and healthcare services is portrayed as inevitable (Iisakka & Alastalo, 2024).

4. The Omaolo Case, Data, and Methodology

In this article, we focus on the most prominent service in the health and social sector in Finland, the Omaolo platform (see also Trifuljesko & Ruckenstein, 2024). This is a nationwide digital service operated by DigiFinland, a state-owned private company. Omaolo uniquely includes DPTs from both healthcare and social welfare sectors. It contains 17 prescreening tests for specific health issues and one general contact form for symptoms not covered by the tests. These DPTs are medical devices. Alongside symptom tests, the platform offers a digital health check as well as 12 different coaching programmes, for example, to quit smoking or eat more healthily. Omaolo also offers three tests on eligibility for specific social services. With the help of these tests, the customers should be able to evaluate whether they are eligible for personal assistance, mobility support, or informal care support for a family member. Unlike symptom tests, the service eligibility tests are not medical devices.

The 17 medical DPTs are developed based on the most often read articles in *Terveyskirjasto*, a health information webpage about illnesses, provided by The Finnish Medical Society Duodecim. Duodecim also provides the knowledge base for health-related DPTs on Omaolo. The user first chooses the most suitable test for their situation, such as back pain, diarrhea, or urinary tract infection. The test consists of background questions including sex and age, and specific questions about the symptoms. Based on these answers, the test recommends various actions: self-treatment instructions, or a recommendation to contact a health centre or the emergency services. The Omaolo symptom test does not usually produce a diagnosis but instead assesses the urgency of the user's need for healthcare. Citizen-customers can use Omaolo with or without logging in with strong electronic identification. This means that anyone can take the tests, but only if one logs in can the test be used as an access channel to service—the results of the test can be sent directly to a healthcare unit. Other communication channels, such as phone lines, are also available, but many municipalities encourage citizens to handle their health issues through Omaolo. The original aim was that all public social welfare service and healthcare providers—currently the 21 wellbeing service counties—would adopt the service, but some have not or have resigned from it due to low usage and high costs. This has created a situation where residents of the same regions can only take the tests without logging in but receive general advice based on their results.

This article builds on our previous work exploring the usability of various prescreening tests (Soininvaara et al., 2024), where we examined a series of DPTs in practice. We scrutinised four tests from the social and healthcare sector that represented varying designs and uses, two of which were on Omaolo. Some tests came very close to digital service by, e.g., simulating calculations for subsidies, while others assessed the applicant's chances of being eligible for a highly discretionary support. We found that tests can both guide individuals to services or turn them away through inadequate instructions, and they may also enable “gaming” the tests. As with automatic decision-making, pre-tests may overlook life situations that do not fit well with the system's logic. Another observation was that it was not always clear whether the tests could be understood as decisions for customers or advice to citizens.

We used an iterative and reflexive method (see Montgomerie, 2017; Srivastava & Hopwood, 2009), where we placed these initial, empirical findings in dialogue with the legal analysis. As described in Section 3, numerous regulations are associated with digital tests and their application areas: European data and technology regulation and national laws, both general administrative law and sector-specific laws on healthcare provision. The legal analysis was formed through systematic identification and examination of relevant laws. We aimed to identify the appropriate areas where legislation contributes to the DPTs and the challenges raised in our analysis and potential connections between legislation and the interviews.

After identifying gaps and challenges both empirically in the tests and the legal analysis, we refined our approach and questions iteratively (Srivastava & Hopwood, 2009). We conducted expert interviews among people currently or previously working with DPTs in the social and health sector, mainly in relation to Omaolo. The aim was to reflect our findings of the socio-legal analysis as well as to give the experts an opportunity to express their views on DPTs. To deepen our understanding, 9 people were interviewed in 2024 and early 2025 by one or two of the authors. Semi-structured interviews were conducted either online or in person. Two of the interviews included two informants. We interviewed people with the following expertise: national digital strategies and their implementation (2); public administration and service providers (5); planning prescreening tests (6); content creation (4); and technical development (4). One person might be included in several categories. Because of the small number of interviewees, we refer to them only by general descriptions.

Our aim was to understand the legal position and role of DPTs. Through the dynamic and iterative socio-legal analysis, we identified key challenges that the tests pose for public services, the rights of citizens, and the social sustainability of digital public service provision. Our data collection and analysis were also entwined, as initial findings based on experimenting with tests helped to identify gaps in legislation, which again fed into what we wanted to discuss in the interviews and needed to know more about. Based on this dynamic work, our refined focus on our topic guided how we organised our data. At least two of the authors read the interview data and sorted it according to the analytical sections we had formed based on our initial findings on previous practical experiments, legal analysis, and interviews. We then worked with these analytically sorted materials to further refine our argument through repeated focus on data, analysis, and writing (e.g., Kapiszewski et al., 2022).

5. Prescreening Tests in Public Administration

5.1. Multiple Purposes of Omaolo

Our interviewees reflected on the role of DPTs in many ways: as digital solutions providing gateways to services, as a vital part of healthcare and social services, and as part of a broader digital transformation of public services. An expert from the public sector explains the integral role of medical prescreening tests in optimising the care chain:

We think of it always as comprehensive service, that the tests are part of the care chain. Tests are a good word, but we talk about preliminary information and surveys, and they are linked strongly to care pathways. With them, we can make the patient's access to care more agile, and at the same time get test results or preliminary information.

While DPTs can replace or complement phone calls, for example, many experts stressed that the goal is to use digital technology through its own affordances, not just as a parallel to human service. An expert on public sector digitalisation stated that fully digital services “have to be based on different symptom checkers or evaluations of the situation, be it symptoms or economic situation or anything.” The logics of these automated bureaucrats (Melin et al., 2024) require ways to describe the customer or citizen in a manner that then produces relevant results without a human in the loop. Currently, most of the tests are access points to services performed by humans.

In the interviews, Omaolo symptom assessment tests were often framed as a means of alleviating the strain on the healthcare system and its communication channels. With their help, some cases could be treated automatically or initial steps such as recording patient information or symptoms could be automated. This, according to our interviews, may “save 5–10 minutes of nurses’ time” if the patient is steered to an appointment. Tests were also seen to replace the assessments made by nurses regarding the urgency of treatment needs, thus supporting the human work and feeding into it. An expert stated that these systems have to be established, because “a chat with a doctor does not save any time” but a scalable digital service without a human could. It was also acknowledged that if the goal is to save money instead of providing better service, it does not often result in great digital services. Thus, the goals of savings and good service need to be balanced.

In the interviews, the goal of alleviating the strain on the healthcare system was complemented with delivering advice to citizen-customers. Providing “good advice” was seen by one interviewee as a way to keep “unnecessary people” out of the (physical) services, while simultaneously helping the person to take care of themselves if their condition could be treated at home. Another expert said that 20–30% of the people using tests receive advice and do not have further contact with healthcare professionals. This alleviates the burden on public services but can potentially divert people from services. However, a test can also be an easier channel for gaining access. An expert involved in the development described how the threshold to contact a service may be lower for people who are not comfortable with making phone calls. Also, certain symptom checkers such as the one for sexually transmitted diseases may be an easier venue for first contact. In some cases, the entire treatment pipeline is largely automated, and people can receive a test kit at home. Thus a test may allow seeking for help easily regardless of what the problem is. Additionally, for safety reasons, and as Omaolo symptom tests are medical devices, the threshold for a doctor’s appointment is set relatively low for certain symptoms. The threshold may be lower in DPTs than in personal contact with a nurse who is able to spot important nuances related to, e.g., breathing.

In addition to health-related tests, Omaolo includes three service assessment tests that belong to the social welfare services. While health and social service prescreening tests—assessing symptoms and support needs—are of similar status in the platform design, they are inherently different. Whereas the health tests are medical devices and the results are subject to strict requirements, the service assessment tests reflect the highly discretionary process involved in support decisions. In the end, service assessment tests can only provide answers that the user “probably” is or is not entitled to the service. One expert described the difference between tests in social service and healthcare by stating that in healthcare the symptom assessment is a gateway to service: “You just send it, then the service starts, the matter is taken care of.” In social services, there is a threshold that the prescreening tests cannot help users cross. The official decision must be made by a person doing a more extensive, individual assessment, with the ensuing rights and obligations.

The interviewees recognised this stark difference between Omaolo symptom assessments and social service assessments in practice and legally. They admitted that the social service tests provide “limited added value” and are rarely used. Having both healthcare and social welfare prescreening tests on the same platform reflected the goal of reforming and integrating the two spheres. In developing the Omaolo platform and its tests, however, the social service assessments were neglected, according to expert interviewees. An example follows:

It must be partly confusing for the customer too that they are so different in the end. The symptom checkers in practice can lead to your matter being resolved. But then, as far as social welfare is concerned, it's a bit like a test to see whether you are a bird or a fish, slightly exaggerated....The service assessments have remained a bit underdeveloped and left out in the cold. But the reason why they are perhaps still kept there is, to some extent, in this state of hope or ambition that there would be some kind of integration between social welfare and healthcare.

The professionals interviewed agree that the social service DPTs are vague compared to the medical DPTs. Especially for discretionary social services such as support for informal care, the DPT cannot realistically give meaningful or truly tailored results. The tests are therefore of limited use. An expert from wellbeing services counties pointed out that, “according to the Social Welfare Act, actual social services cannot be provided through digital services.” Thus, social services can provide digital solutions for automated bureaucracy (Melin et al., 2024) only for things that precede social welfare or service, which differs significantly from healthcare.

Social service pre-tests tend to emphasise how the test result is an assessment of one's own eligibility, producing results that a user “might” or “might not” be qualified for social service. The social services tests may be more misleading than symptom checkers. First, despite the careful wording, the interface visually corresponds with the health-related DPTs, giving the impression of similarity and interconnectedness. Second, healthcare-related tests result in instructions and potential contact with healthcare providers if the user is logged in. Social service tests, with their uncertain results, might end up diverting people from applying for the service altogether, if a negative assessment is interpreted as a response and evaluation from an authority. One of the interviewees said that it was discussed very early on that the test had to be formulated carefully so that no one could claim it had promised or denied eligibility. However, the vagueness requires the self-servicing citizen to understand the public service system, creating administrative burdens for them. The ethos of social care is to support people in their individual life situations, which fits poorly with prescreening. This problem was acknowledged in the interviews. It was stated that it might be wiser to think of a variety of options to help a person than to focus on “very individual things” as the tests do.

5.2. Advice, Decision-Making, and Customership

The outcome of an Omaolo DPT is usually either an assessment of the situation and guidance, or sometimes even a diagnosis. The test can be seen as a sort of “transmission mechanism” for the service providers. Sometimes a customer relationship begins, and the citizen is guided to actual services. However, how customership, decision-making, and guidance unfold or become entangled in practice, and how an individual's situation shifts from category to category, is unclear. An expert from a wellbeing services county reflected on how a person becomes a customer through strong online identification:

I think that the treatment path cannot officially begin if the client has not been identified. We can provide general advice, but we cannot record anything in the patient information system without identification. In that case, it will just remain at general level.

Considering the legal distinction between advice and decision-making, identification becomes a decisive boundary from which rights and obligations follow. The interviewees regarded test results without identification as advice or guidance, not as an official decision associated with the legal safeguards of administrative decision-making. The users are considered customers only after identification or after the information has been sent to the service provider, again requiring identification. Even though the experts stated unanimously that information on an identified individual has to be sent over to the officials, the line between test users and customers and the status of the prescreening tests as either administrative advice or administrative decision-making remains complicated.

The purpose of the medical DPT is to assess the need for urgent care, not make diagnostic decisions as such. Despite this, there are also prescreening tests that perform diagnostics in practice, for example concerning urinary tract infection in fertile women. It can also be questioned whether instructions for self-care can be considered as decisions when, according to the test, no visit to a healthcare facility is needed. Some of the professionals noted that a prescreening test must more readily guide a person to contact the healthcare providers because a test does not have the same expertise in assessing conditions as, for example, experienced nurses.

The importance of customership and its legal underpinnings for the provider's duties was acknowledged and critically reflected by interviewees, but not elaborated to the citizen-user in the layout and design of Omaolo. An expert involved in developing Omaolo said that it required a lot of consideration to determine when responsibility for the treatment begins in these DPTs. In Omaolo, a customer relationship and therefore responsibility for care starts "at the point when the client sends the symptom assessment to the professional." Another expert said that at least when results of a prescreening test are sent to a professional, it creates an obligation for a wellbeing services county to respond, and "there is then a certain time, within which the case has to be taken care of, and the issue steered forward."

However, another informant stated that "being a customer is a difficult term here" since people living in a certain municipality are in principle always customers in relation to a certain wellbeing services county. There are also situations when this relationship is enacted and put practically in force, for example, when a person needs healthcare services or guidance and actively seeks help. An expert involved in development elaborated:

There is also a customer relationship in situations where the Omaolo symptom assessment, unlike many other devices, is so safe to use that it can issue a self-care recommendation. This also indicates that you do not need to seek treatment. And this, compared to a few other instruments, is different. It has resolved the client's issue. There are, however, still two options. Was the client identified, or is there even an actual possibility of knowing who has been there, or whether the test was used without being identified? In the latter case, the customer relationship is basically to the service provider.

The service provider in this latter case would be DigiFinland, which owns Omaolo, not the wellbeing service county and the local healthcare provider. This can also happen if a specific region does not use Omaolo.

In these regions, there is no integration with local healthcare services, but Omaolo is openly available on the internet. An expert concluded that, even though “the concept of customer relationship has been discussed a lot,” it is still not “entirely clear.”

The Chancellor of Justice (2022)—the highest instance of legality control in Finland, who oversees digital public administration—also spotted inconsistencies in the legal status of Omaolo. The Chancellor made a decision in 2022 concerning the terms of use disclosed to users. According to the condemnatory decision, the Omaolo service entity falls somewhere between public and private social and health services, but despite its unregulated status should nevertheless follow the principles of good governance when using public power. This distinction between private and public services, and the users’ legal rights and obligations, were not sufficiently disclosed to the user. Even though the terms of service now provide this information, the underlying problem remains.

There are multiple layers of uncertainty related to DPTs, including the public/private divide and how it affects becoming a customer or receiving guidance. Despite the same current care guidelines being used to guide medical treatments throughout the country, it is still a challenge to offer tests through a nationally united interface with integrated regional service provisions. How services are locally organised in terms of “how to get the customer to the right place at the right time and to the right address, either physically or by calling or sending electronically or something like that” were diverse and even described as “wild and free” by an expert we interviewed. To direct patients in healthcare services similarly throughout the country would have required a large-scale systemic renewal, which was not possible. Thus, according to an expert involved in development, “the shockingly confusing service production field” was turned into a digital service that, for example, in its early years directed people quite differently depending on “where the customer was, what their home municipality was, what day of the week it was, what time it was, whether it was a weekend or a public holiday.” There are thus multiple layers in an Omaolo prescreening test. One is national and based on guidelines, and the second, local version, which is not used in all wellbeing services counties, supplements the national service by adding local instructions. In addition, there is an open third layer. In the wellbeing service counties that no longer employ Omaolo officially, residents can still take the tests. The webpages are open for anyone to use. But in such cases, even basic contact details of the particular region might be missing or out of date.

5.3. Burden of Recognising Rights, Entitlements, and Errors

The difference between advice and decisions is important in a regulatory sense and defines responsibilities and rights. For example, advice-giving does not involve instructions for appeal, which a user receives if a decision has been made. However, if the user does not seek access to services or benefits in the first place, because the test advised against it even though they would be eligible, the outcome cannot be appealed. An expert from another institution providing an eligibility test reflected that the option would then be to complain. However, extrajudicial complaints may be an even higher threshold than appeal for most citizens.

In addition, it seems that appeals are more significant for social services than healthcare. In healthcare, the treatment decisions of doctors, if officially complained or questioned, are handled at Valvira, the National Supervisory Authority for Health and Welfare. But “treatment decisions” might be closer to “incorrect administrative decisions” that one could “appeal to the provincial government or the court,” a public sector

expert explained: for example, a “referral” that contains a “decision that you will now receive this specific service.”

Because the law focuses so clearly on decision-making, the role of DPTs as advice is under-discussed and its ambivalent consequences remain largely hidden. The legal unclarity was critically reflected by an expert who specialises in public service digitalisation. The expert stated that in their operations authorities focus on whether administrative decisions have been made or not. Tests are in this sense often unclear because, as previously described, an administrative decision requires identification in a similar manner as is required for a customer relationship. The focus of legislation on decision-making thus complicates guidance, because the responsibility for advice and instructions is less clearly defined. One expert pondered whether guidance involves the same official responsibility that all public servants have when they give “advice by the authority,” or if it is merely general advice that does not imply a customer relationship followed by official responsibility. The expert continued:

The question is where the customer relationship begins, whether it starts when you get some answers to questions or even when you just read instructions on a website. Or whether it is already such a customer relationship, and someone is responsible that the instructions are correct....So this is a big problem, which is connected to all these electronic services in exactly the same way.

The fuzzy boundaries related to advice, decisions, and customership contribute to how self-servicing citizens may or may not recognise their rights. In digital public services, how law currently corresponds to the issues raised by DPTs seems to be partial and require a high level of understanding and knowledge of the welfare system from the citizen to recognise possible problems.

Moreover, even the authorities may not be aware of problems regarding these technologies, as they may not be visible. DPTs may produce what Adelmant and Raso (2025) have called “bureaucratic disempowerment,” a situation where all actors struggle to recognise and address errors, sometimes because the involvement in decision-making is so unclear in the first place. In our case, this can be expanded to blurry relations between decision-making, general guidance, and advice by authority.

5.4. Adapting Tests, Adapting Users: Dynamics of Digital Public Administration

The landscape of prescreening tests is dynamic and evolving, not just as a whole but also within a single test. This can be exemplified with the test used during the Covid-19 pandemic. Starting from 2020, Omaolo offered a symptom checker for Covid-19, which was also used as a gatekeeper for Covid testing. To get tested, one had to take the DPT first. Throughout the lifespan of the test, the thresholds for services provided according to test results altered constantly with changes in national recommendations and knowledge base. Eventually, in 2023 the test was taken down and a more general “respiratory tract” symptom assessment was offered instead.

Nevertheless, during the pandemic, the test was in practice used to sort out access to laboratory tests and help relieve the pressure on healthcare services. According to Trifuljesko and Ruckenstein (2024, p. 11):

The service engine materialised as a diagnostic tool to query the possibility of an infection, while the treatment facilitator opened a communicative channel with care professionals. This dual task—in

decision-making and in enabling interaction—made the symptom checker an effective public health support at the heart of the pandemic.

This suggests that diversity of tests is not good or bad as such. Tests can also be “gamed” by the users. Users were able to take the test repeatedly and modify the symptoms reported according to the threshold needed to be directed to the official Covid test. Thus citizens also learned the logic of public service provision and how to gain access to services, which could also be considered empowering (see also Buffat, 2015). The practice of gaming the tests was not familiar to all the experts we interviewed, but some said that it was obvious that this would happen, because people might experience a need to contact the healthcare providers and would work for the access even if it meant having to “exaggerate [their] symptoms.” Another expert reflected:

At the end of the day, you can't directly prevent that scam. Sure, we can instruct that you should be answering truthfully, and by filling out the form you accept these terms of use,...but if a person wants to give different answers, you can't really prevent that.

It was also recognised that as the system is not currently fully digital, and the digital interface is only one route for contacting healthcare services, the customer might use multiple routes. Thus, they might game both the tests and the system as a whole, which actually increases the burden on the healthcare system. An expert described a potential case:

If they are not getting the result they want this way [Omaolo], they will try to contact another way. So they don't believe the reply advising self-care....And they do not want to wait for the contact from the professional, as it is not in real time, but can take a couple of days....So, we might end up with three to four different contacts from the same person on the same issue.

But even when both tests and citizens adapt to the changes, there are also limits that have not yet been crossed. One concerns the languages in which tests are provided. Finland has two official languages, Finnish and Swedish, so public service is available in at least these two languages. In addition, Omaolo offers medical prescreening tests in English, but when it comes to social support needs there is an “other contact” form to be filled. But why are tests not available in other widely spoken languages such as Somali, Russian, or Arabic? An expert involved in the development work described the principle: “This is not just about filling the symptom assessment, but also about service in that language for the rest of the contact.” That is, if an actual service contact followed, it would have to be provided in the same language as the test was taken.

Another problem for adaptation in terms of tests regards the specificity of problems that testing is suitable for. The prescreening tests are focused on one issue at a time, but people often have other symptoms or difficulties at the same time, as discussed in relation to social service assessments. The tests may fail to see the person in the relevant context, placing the burden on them concerning the realisation of their rights and entitlements (Herd & Moynihan, 2018). Prescreening tests may then distribute administrative burdens unevenly among the population, depending on the complexity of their situation, knowledge of the service system, and language skills.

6. Conclusion

From analysing DPTs and especially the Omaolo service, we draw three main conclusions. First, prescreening tests allow us to examine the digital welfare state in practice. Tests may shift the administrative burden from public institutions to individuals, leading to increasing responsabilisation of the citizen. These tests seem to align with the notion of the self-servicing citizen suggested in previous research and can contribute to creating digital administrative burdens—barriers and costs that citizens face when in need of public services (Madsen et al., 2022; Peeters, 2023). Identifying these burdens is complicated by the characteristics of different tests and contexts of use, a complexity further amplified by their unclear legal status and multiplicity of relevant legal frameworks. Some tests provide comprehensive assessments with clear outcomes and paths of action, whereas others result in an estimation of individuals' situations with no clear path forward. Some of these tests are highly regulated medical devices, whereas others are primarily classified as service automation with limited legal requirements, yet the citizen must navigate these. While the experts recognise many of the challenges—e.g., a blurry boundary between advice and decision, potential confusion of citizen-users, unclarity about rights and provider obligations—there are no easy solutions to these issues, and individual critique does not afford systemic reflection.

The operational logic of prescreening tests reflects and shapes both the appearance as well as the content of digital public administration and the drive towards automated bureaucracy. These tests risk turning users away, leading to scalable losses of rights, particularly affecting those users and user groups whose circumstances fall outside the typical cases coded into the tests. The tests also embody the logic of self-service administration, where citizen-users are made responsible for recognising and asserting their own rights and even challenging the outcomes (see also Adelmant & Raso, 2025).

Second, the demarcation between decision-making and advice-giving is not straightforward, even for the developers and deployers of prescreening tests. This appears particularly in the discussions on whether the completion of a test marks the beginning of a customer relationship between the citizen and the service provider, with ensuing legal obligations for the latter to provide further services. In our interview data, the complexities of establishing a customer relationship were left somewhat open, despite its significance for the legal status and rights of the citizen and the associated legal obligations for the welfare provider. Strong electronic identification was usually considered the prerequisite for customership but, at the same time, everyone is by default a customer of their own wellbeing services county through their residence. The vagueness of customership in practice corresponds with the vagueness and multiplicity of legal definitions of the customer.

As we have observed, the law contributes to marginalising prescreening tests and similar digital interaction tools. From the doctrinal-legal perspective, advice-giving and service to citizens are “softer” obligations—they are not as heavily regulated or sanctioned as rendering legally binding decisions with legal effects, giving public institutions more leeway to develop digital solutions. Yet DPTs are not separate phenomena, and they may also contribute to blurring boundaries between different administrative functions, changing the modalities of digital public administration. As the interface tools merge with one another, a test may become structured input data for a decision-making pipeline. Furthermore, the rationalities of prescreening tests are related not only to digital interaction but may also end up framing other forms of interaction, as human-led practices such as phone conversations can emulate digital-first practices with their logic of structured data and decision trees.

Third, the focus of current scholarship on the (semi-)automation of decision-making may lead to disregard for other aspects of the digital welfare state, such as prescreening tests, that may have significant implications for citizens' legal standing and fulfilment of their rights. Further research, both theoretical and empirical, is needed to broaden the existing debate on the social and legal implications of digital technologies as well as to fully grasp the rationalities associated with DPTs and other automation techniques beyond the decision-making focus. Ultimately, DPTs need to be assessed in terms of the social sustainability of the digital welfare state, since as an empirical case they encapsulate key dimensions of digital public services. Our analysis of DPTs contributes to an understanding of the effectiveness of existing laws in tackling digital public administration. The developers and deployers are aware of legal conceptualisations and these inform the DPT design, but the logic of digital prescreening materialises its own interpretation of legal rules.

In the future, it will be necessary to include the experiences and views of citizens in the study of prescreening tests and digital public services (also Peeters, 2023). This would help to capture how people experience prescreening tests as a part of service provision, advice-giving, and decision-making, and how tests contribute to diversion and administrative burdens. Problems of digitalisation are often framed in terms of special groups—how digitalisation impacts vulnerable groups or results in digital divides. However, prescreening tests show that the design of digital public services is a key question for everyone in terms of how entitlements and rights as citizens are realised. For some, tests might offer an easy and uncomplicated way to improve their situation, since they can offer information and guidance at a suitable moment for the citizen, even outside office hours.

It could also be asked what policies prescreening tests promote as a specific form of administration. This goes beyond “digital first” policies. Prescreening tests currently appear to be a grey area, both as public service and legally. Tests with quite different outcomes and further pathways offered side by side make the context of the phenomenon unclear—a medical device differs significantly from a simple, form-based decision tree meant to advise. It is generally not clearly defined when a person using a test is receiving service instead of general guidance, and at which point a person becomes a customer of public services. Thus, it is not easy to understand, legally and in terms of public service provision, what the tests are as a mode of governance nor in legal terms, and what the true benefits and costs are for both citizens and the state.

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Conflict of Interests

The authors declare no conflict of interests.

Data Availability

The interview data is not stored in open data archives.

References

- Adelmant, V., & Raso, J. (2025). Data entry and decision chains: Distributed responsibility and bureaucratic disempowerment in the UK's universal credit programme. *Oxford Journal of Legal Studies*. Advance online publication. <https://doi.org/10.1093/ojls/gqaf006>
- Alkhatib, A., & Bernstein, M. (2019). Street-level algorithms: A theory at the gaps between policy and decisions. In *Proceedings of the 2019 CHI conference on human factors in computing systems* (pp. 1–13). Association for Computing Machinery.
- Andreassen, R., Kaun, A., & Nikunen, K. (2021). Fostering the data welfare state: A Nordic perspective on datafication. *Nordicom Review*, 42(2), 207–223.
- Bovens, M., & Zouridis, S. (2002). From street-level to system-level bureaucracies: How information and communication technology is transforming administrative discretion and constitutional control. *Public Administration Review*, 62(2), 174–184.
- Buffat, A. (2015). Street-level bureaucracy and e-government. *Public Management Review*, 17(1), 149–161.
- Chambers, D., Cantrell, A. J., Johnson, M., Preston, L., Baxter, S. K., Booth, A., & Turner, J. (2019). Digital and online symptom checkers and health assessment/triage services for urgent health problems: Systematic review. *BMJ Open*, 9(8), Article 027743.
- Chancellor of Justice. (2022). *Service terms of use and other information provided on a service* (Decision OKV/2674/10/2020-OKV-7). https://oikeuskansleri.fi/documents/1428954/164296211/published_decision_OKV_2674_10_2020.pdf/232410a2-2f4a-99b0-9753-8291f2e0cd90/published_decision_OKV_2674_10_2020.pdf?t=1686142689169
- de Boer, N., & Raaphorst, N. (2021). Automation and discretion: Explaining the effect of automation on how street-level bureaucrats enforce. *Public Management Review*, 25(1), 42–62.
- Dencik, L., & Kaun, A. (2020). Datafication and the welfare state. *Global Perspectives*, 1(1), Article 12912.
- Esko, T., & Koulu, R. (2023). Imaginaries of better administration: Renegotiating the relationship between citizens and digital public power. *Big Data & Society*, 10(1), <https://doi.org/10.1177/20539517231164113>
- Haug, N., Dan, S., & Mergel, I. (2024). Digitally-induced change in the public sector: A systematic review and research agenda. *Public Management Review*, 26(7), 1963–1987.
- Heggertveit, I., Lindgren, I., Madsen, C. Ø., & Hofmann, S. (2022). Administrative burden in digital self-service: An empirical study about citizens in need of financial assistance. In R. Krimmer, M. R. Johannessen, T. Lampholtshammer, I. Lindgren, P. Parycek, G. Schwabe, & J. Ubacht (Eds.), *Electronic participation* (pp. 173–187). Springer.
- Herd, P., & Moynihan, D. P. (2018). *Administrative burden: Policymaking by other means*. Russell Sage Foundation.
- Iisakka, E., & Alastalo, M. (2024). Digitaalisen sosiaali-ja terveydenhuollon lupaukset: Kriittinen luenta hyvinvointialue-strategioiden sosioteknisestä mielikuvastosta. *Sociologia*, 61(3), 211–227.
- Jørgensen, R. F. (2023). Data and rights in the digital welfare state: the case of Denmark. *Information, Communication & Society*, 26(1), 123–138. <https://doi.org/10.1080/1369118X.2021.1934069>
- Kapiszewski, D., MacLean, L. M., & Read, B. L. (2022). Dynamic research design: Iteration in field-based inquiry. *Comparative Politics*, 54(4), 645–670.
- Kaun, A., & Männiste, M. (2025). Public sector chatbots: AI frictions and data infrastructures at the interface of the digital welfare state. *New Media & Society*, 27(4), 1962–1985. <https://doi.org/10.1177/14614448251314394>

- Lindgren, I., Madsen, C. Ø., Rydén, H. H., Heggertveit, I., Hofmann, S., & Sæbø, Ø. (2024). What public services are suitable for digitalization? A classification of public service characteristics. In M. Janssen, J. Cromptvoets, J. Ramon Gil-Garcia, H. Lee, I. Lindgren, A. Nikiforova, & G. Viale Pereira (Eds.), *Electronic government: EGOV 2024* (pp. 201–217). Springer.
- Lipsky, M. (2010). *Street-level bureaucracy: Dilemmas of the individual in public service* (30th ed.). Russel Sage Foundation.
- Määttä, A. (2012). *Perusturva ja poiskäännyttäminen*. Diakonia-ammattikorkeakoulu.
- Madsen, C. Ø., Lindgren, I., & Melin, U. (2022). The accidental caseworker—How digital self-service influences citizens' administrative burden. *Government Information Quarterly*, 39(1), Article 101653.
- Melin, U., Madsen, C. Ø., & Larsson, K. K. (2024). Five bureaucratic roles in the age of digital transformation—Insights from Scandinavian public organizations. In M. Janssen, J. Cromptvoets, J. Ramon Gil-Garcia, H. Lee, I. Lindgren, A. Nikiforova, & G. Viale Pereira (Eds.), *Electronic government: EGOV 2024* (pp. 99–115). Springer.
- MFF. (2024). *Digi ensin—Ohjelma*. <https://vm.fi/hanke?tunnus=VM006:00/2024>
- Montgomerie, J. (2017). Iterative reflexive research strategy. In J. Montgomerie (Ed.), *Critical methods in political and cultural economy* (pp. 100–114). Routledge.
- 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.
- MSH. (2023). *Digitaalisuus sosiaali- ja terveydenhuollon kivijalaksi: Sosiaali- ja terveydenhuollon digitalisaation ja tiedonhallinnan strategia 2023–2035*. <https://julkaisut.valtioneuvosto.fi/handle/10024/165288>
- Nosratabadi, S., Atobishi, T., & Szilárd Heged, S. (2023). Social sustainability of digital transformation: Empirical evidence from EU-27 countries. *Administrative Sciences*, 13, Article 126.
- Peeters, R. (2023). Digital administrative burdens: An agenda for analyzing the citizen experience of digital bureaucratic encounters. *Perspectives on Public Management and Governance*, 6(1), 7–13.
- Peeters, R., & Widlak, A. C. (2023). Administrative exclusion in the infrastructure-level bureaucracy: The case of the Dutch daycare benefit scandal. *Public Administration Review*, 83, 863–877.
- Schou, J., & Pors, A. S. (2019). Digital by default? A qualitative study of exclusion in digitalised welfare. *Social Policy & Administration*, 53(3), 464–477.
- Soininvaara, H., Koulu, R., Snell, K., & Tarkkala, H. (2024). “Tee ensin testi”: Digitaaliset esitestit julkishallinnon ilmiönä. *Yhteiskuntapolitiikka*, 89(3), 307–313.
- Srivastava, P., & Hopwood, N. (2009). A practical iterative framework for qualitative data analysis. *International Journal of Qualitative Methods*, 8(1), 76–84.
- Trifuljesko, S., & Ruckenstein, M. (2024). Algorithmic configurations in caring arrangements. *Big Data & Society*. Advance online publication. <https://doi.org/10.1177/20539517241299726>
- Verne, G. B., Steinstø, T., Simonsen, L., & Bratteteig, T. (2022). How can i help you? A chatbot's answers to citizens' information needs. *Scandinavian Journal of Information Systems*, 34(2), Article 7.
- Wallace, W., Chan, C., Chidambaram, S., Hanna, L., Iqbal, F. M., Acharya, A., Normahani, P., Ashrafian, H., Markar, S. R., Sounderajah, V., & Darzi, A. (2022). The diagnostic and triage accuracy of digital and online symptom checker tools: A systematic review. *NPJ Digital Medicine*, 5(1), Article 118.
- Ziebart, C., Kfrerer, M. L., Stanley, M., & Austin, L. C. A. (2023). Digital-first health care approach to managing pandemics: Scoping review of pandemic self-triage tools. *Journal of Medical Internet Research*, 25, Article 40983.

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