

## ARTICLE

# Digitalization and the Danish Welfare State: Policies, Institutional Changes and Strategic Dilemmas

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## Abstract

*Digitalization of the public sector have attracted growing political attention as a strategy for bringing the welfare state into the 21<sup>st</sup> Century. This has not the least been the case in Denmark recently by the UN labelled as the most digitalized public sector in the world. In this paper, we describe Danish policies and strategies for digitalization of the public sector and discuss some of the dilemmas and challenges related to increased digitalization of the public sector in Denmark.*

## 1. Introduction

Digitalization of the public sector have attracted growing political attention over the last decades. It is considered a strategy for bringing the welfare state into the 21<sup>st</sup> Century and to make public policies and institutions more efficient. This has not the least been the case in Denmark. Danish policy makers have issued a number of reports, strategies and specific inventions to strengthen digitalization of the public sector such as the government's 2018 white paper on 'World Class Digital Services' (Regeringen 2018)

In this article, we discuss some of the dilemmas and challenges related to increased digitalization of the public sector in Denmark.<sup>1</sup> How has Denmark approached digitalization of the public sector? Is there something to learn from Danish experiences?

International scholarship portray the Danish welfare state as a comprehensive and generous welfare state offering a vast range of social transfers and social services to all citizens from

cradle to grave (Esping-Andersen 1990). Denmark, as other Nordic welfare states, typically score very high on international rankings with respect to a high number of indicators such as poverty reduction, gender equality, social investment, subjective welfare, social trust, welfare generosity (and of course high taxes). High levels of trust and legitimacy, transparency, and low levels of corruption characterize the Danish public sector.

Still, the Danish welfare model has future challenges related to globalization, demographic changes, migration etc. The political debates have been predominantly focusing on financial sustainability asking how we can afford the comprehensive welfare model in the future. This has triggered intense debates about developing more cost-efficient and productive public sector. Digitalization has been one important aspect of such discussion. Furthermore, a growing emphasis on prioritization and budget cuts in the public sector also raises very important discussion on the social sustainability of the Danish welfare model. Will the high level of trust in the public (and the willingness to pay high taxes) erode if citizens witness changes in the access to, quality of, and distribution of public sector services? Also in this debate, digitalization has been part of the discussion even though more complex than the economic aspects of the discussion.

This calls for a more detailed discussion on the relationship between digitalization and the Danish welfare state and public sector. Digitalization is a multi-purpose instrument. Even though digitalization sometimes is presented as a miracle cure paving the way to a better future, we need to more carefully consider the links between digitalization and the welfare state.

Broadly speaking, there are three types of links between digitalization and the welfare state. First, there is a link between digitalization and social citizenship emphasizing how the use of digital tools and self-servicing can empower citizens with respect to knowledge-sharing, information about the public sector, access to public employees etc. Related to this is also the question about distribution of welfare rights pointing out how the use of IT-tools (for instance telemedicine) can make social and health service geographically more accessible. Second, there is a strong believe that enhanced use of IT-tools can make the public sector more lean and cost-efficient. Self-servicing and large-scale IT-systems are believed to improve efficiency and productivity of the public sector, the use of new technology can take over human tasks (for instance in the care sector) etc. Third, digitalization has triggered an intense debate about the future demand for labor, what is often labelled Industry 4.0, arguing that in the

future robots will take over certain types of jobs, and that our societies need to adopt to a situation where human labor is abundant.

In this paper, we focus on the two first-mentioned links, and investigate the policies, challenges and dilemmas related to digitalization in the Danish public sector. In the background is lurking the big question: is digitalization a way to save the comprehensive welfare state by improving quality and making it more financially sustainable? Does it provide new challenges or dilemmas? In short, we answer yes to both questions.

The paper starts out with a very brief presentation of the Danish welfare model (section 2), followed by a more detailed survey on the discussions on digitalization of the Danish public sector (section 3). This serves as background for the more critical discussions in the following sections. Section 3 discusses the actual implementation of digital tools in public policy in Denmark in the forms of digital platforms and welfare technology. Section 4 is more problem-oriented, discussing the challenges and dilemmas of ambitious digitalization strategies such as possible exclusion, lack of skills, alienation, loneliness, and enhanced social control of citizens. In the conclusion we sum up our argument, that digitalization holds an enormous potential supporting the key ambitions of the Danish welfare state model and its future financial sustainability, but that we also need to acknowledge potential risks enforcing such new policies.

## **2. Brief outline of the Danish welfare model**

For the purpose of this paper, it is worthwhile summing up the main characteristics of the Danish welfare model. Any discussion of radical public sector reform – including discussions on widespread digitalization – should take its point of departure in the existing policies, institutions and values. If we want to reform and to improve, we need to know what we want to reform and improve.

Danish social policy has developed incrementally over more than 100 years (Christiansen & Petersen 2001) and consequently represent a complex set of values and numerous historical layers. We still have the same tax-based old age pension scheme as was introduced in 1891, but within this organizational structure, we find multiple changes over time with respect to benefit formula, access criteria, age of retirement etc. Generally, the major expansion of the Danish public sector took place only from the 1960s reflection both political ambitions and a period of very high economic growth rates. It was in these decades, the Danish welfare state development into one of the most comprehensive and generous social

security systems in the world. Here we cannot outline the detailed historical development of the Danish welfare state and the Danish public sector, but will only highlights some of the key values and institutional traits. We want to point out especially three traits:

First, it is important to realize the importance of the public sector in Denmark. The public sector is responsible for providing a vast number of public services from general infrastructure to welfare benefits. Some of these services are provided through private producers or NGO's but under public control and regulation. In 2016, Danish public spending was close to 50 pct. of GNP (Finansministeriet 2018). The major part of public spending is welfare related: 44 pct. of public expenditure used for social security, 16 pct. for health, and 13 pct. for education.<sup>2</sup> The public sector is financed through comparatively high taxes and consequently Danish citizens expect high quality public services as well as comprehensive social security.

Second, even though the public sector is founded on national legislation and coordination by national agencies, it is mostly organized by municipalities and regions. This allows for some spatial variation within the national framework. Some municipalities might prioritize elderly care over basic education, and some municipalities have a stronger tax-base then others. This means that not all citizens have equal access to public services. However, in recent years debates on the public sector have to a large degree focused on effectiveness in order to maximize quality and productivity in the public sector.

Third, the public sector (as well as social security in general), is historically based on some core values including redistribution both with respect to the progressive tax system and the distribution of services, and inclusion of citizens (reflected for example in the universal character of many public services such as basic schooling, daycare, hospitals, or care for elderly).

As we will discuss in more detail below, digitalization is important in all three aspects. The size and costs of the public sector makes digitalization important for instance as a cost-saving measure (offering cheaper solutions), with respect to effectiveness and productivity, citizens access to public services etc.

### **3. Denmark as a digital society**

Denmark is often labelled as an international frontrunner in terms of digitalizing its public

sector and society. Within international rankings, such as the European Union's (EU's) *Digital Economy and Society Index* (DESI), Denmark has been named the number one country since 2014 (Schou & Hjelholt, 2018c). The DESI is, according to the EU's homepage, a "composite index that summarizes relevant indicators on Europe's digital performance and tracks the evolution of EU member states in digital competitiveness." In this context, Denmark has continuously been promoted as a leading digital nation. This has both been due to a high uptake of digital technologies in society *in general* and the widespread adoption of technologies in the Danish public sector *in particular*. Internet use and penetration continues to be high in Denmark. The latest measurement from 2018 (DST 2018) states that 98% of all citizens have used online services that year. In 2008, ten years ago, 88% had done the same. In 2018, this amounted to 93% of all households having access to the internet. At the same time, social networking sites, such as Facebook and Twitter, are widely used, with 75% of the population (between 16-89) using at least one social media platform.

The adoption of information and communication technologies (ICTs) in the Danish public sector is the outcome of more than three decades of policymaking. Since the early 1990s, Danish policymakers have seen the use of new technologies as completely vital to modernizing the welfare state and public sector. Even so, the specific ways in which digitalization has been governed – and the political discourses connected to this area – have changed quite considerably over time. Broadly construed, policymaking has developed in two distinct phases: one spearheaded by the Ministry of Research from the early 1990s to early 2000s, and one led by the Ministry of Finance from 2001 until today (see Jæger & Löfgren, 2010; Jæger & Pors, 2017; Schou & Hjelholt, 2017, 2018c).

The first phase was kicked off in 1994 when the European Union published their now famous report on the information society (often referred to as the "Bangemann report"). This report put the idea of the "information society" high on top of policy agenda across Europe. It did so not least by foretelling how the adoption of information technologies would cause widespread changes to European societies. New technology would – it was claimed at the time – fundamentally revolutionize the ways in which labor, welfare and social relations were organized. In the wake of this political push, a number of European countries formulated their own national strategies on the information society (Hall, 2008). This also happened in Denmark where the government put the Danish Ministry of Research in charge of devising a vision for Denmark's entrance into the information society in 1994 (Schou & Hjelholt, 2018c). With this political mandate, a new field of policymaking was being developed: this was one that focused specifically on the use of ICTs in a way that had not been attempted before in a Danish context.

Throughout the 1990s, digitalization policies were based on a series of core ideas about

what the use of ICTs would and should mean for the welfare state. At the time, it was often argued that the basic structures of the welfare state were being put under pressure by the (almost inevitable) information society. Policymakers worried that globalization and the spread of information would lead to a weakening of national solidarity and cohesion. As a consequence, they continuously emphasized the need to create a set of policies that build on and further developed the core principles of the universalistic welfare state: ideas of solidarity, equality, democracy, participation and freedom to information – all central to the post-war welfare state – thus became central to policymaking at the time. It was continuously argued that new technologies should lessen existing inequalities and pave the way for a more open, informed and participatory society. At the same time, policymakers emphasized that ICTs should not be forced on anyone. Whether citizens wanted to use such technology should be a choice, not an obligation (Schou & Hjelholt, 2018a). Citizens unable or unwilling to adopt new platforms should have better access to information than before. Much of this political discourse, often reminiscent of early research on the so-called digital divide (Schou & Pors, 2018), relied on the idea of an “A” and “B” team. Information technology should not, it was stated, divide citizens into A and B teams. New technological inequalities should instead be kept at bay through education and collective solidarity. At the time, the use of ICTs within the public sector and administration did not feature all that prominently within the policy discourse. Whenever the public sector was mentioned within digitalization policies in the 1990s, the core ideas often aligned with wider reforms taking place at the time. Indeed, not unlike the modernization programs launched in the early 1980s, policymakers stated that ICTs should be a ways of cutting public expenditure, increasing efficiency, and creating a more lean and competition-oriented state (Olsen, 2018; Petersen et al., 2013; Petersen, Petersen, & Christiansen, 2014).

By the end of the 1990s, national policy efforts ran into a series of issues and governance failures. It turned out that many of the initiatives proposed by policymakers were never actually realized. This was not least due to a highly decentralized approach, which meant that individual municipalities often developed separate solutions with very little internal coordination (Jæger & Pors, 2017). Adding to this, a number of flagship initiatives turned into large-scale controversies and scandals in the late 1990s. Public “mega projects” intended to introduce new technologies within the public sector failed to meet their outcomes and deadlines. Not only did they end up costing much more than expected, in some cases productivity was cut in half when they were actually implemented (Schou & Hjelholt, 2018c).

As a response to these policy failures, a new governance model was adopted in the early 2000s. The Ministry of Finance was now *de facto* put in charge of a centralized taskforce, focused on coordinating policy efforts in a much more rigorous way than before. At the same

time, there was a prominent shift in policy focus. Rather than concentrating on the transition to an information society, the Danish public sector and administration now became the main target of policies. The ambition was to create a *digital administration*, capable of reaping the financial and organizational benefits of digital technology to ensure heightened flexibility, innovation, and efficiency. Thus, from the early 2000s, ideas of democracy, equality and free information – which had all been central to the policy agenda in the 1990s – were phased out. Instead, many of the ideas found in reform programs launched at the time, connected to the rise of New Public Management (NPM), became central to digitalization policies, too. Digital technologies had to systematically optimize work processes, break down walls between otherwise distinct administrative domains and lay the groundwork for a more flexible, agile and innovative public sector.

Many of these ideas have remained central to policymaking since then. However, while digitalization policies in the 2000s mainly focused on introducing new technologies within the back-office of the public sector, they have since the early 2010 become more oriented towards citizens (Schou & Hjelholt, 2017). Digital technologies, it has been argued, should be used to change the relation between citizens and the welfare system, as citizens should be able to take on tasks previously handled by public sector institutions. As we will explained below, a central premise for this change has been the introduction of mandatory self-service platform across the public sector and welfare system. More recently, notions of (big) data and data-driven governance have also started to flourish among policymakers in Denmark. While there is a long tradition of collecting data on citizens in Denmark, particularly within health care, it is only within the last five years that policymakers have started to see the use of data as integral to welfare institutions and the public sector. Many of the ideas previously attached to digitalization are, it seems, once again present: data, too, is seen as allowing for a more flexible handling of tasks, enhancing the efficiency of welfare work and breaking down organizational barriers. At the same time, policymakers on both a national, regional and municipal level view data as an opportunity to generate new insights on citizens and their behavior. By combining existing data sources, it will become possible to generate knowledge on certain groups or geographical areas in new ways. This can pave the way for much more targeted forms of political interventions and initiatives. These ideas have particularly been discussed in the context of traditionally disadvantaged or vulnerable groups of citizens. Adding to this, it is hoped that the use of data will provide public managers with real time data on the performance and effect of political initiatives. Whether these dreams will materialize into actual changes remain to be seen. For now, it seems that “data” has started to generate the same kind of political dreams as digitalization once did.

## 4. Digitalizing the public sector

We have now described some of the main policy developments characterizing digitalization within the Danish welfare state. Based on this overview, this section turns to some of the changes prompted by these policies, focusing on how the public sector has developed in a number of important ways.

One of the perhaps most significant developments caused by digitalization has been the wide-spread introduction of “self-service platforms” across a variety of welfare domains. As is made clear in the latest national digitalization strategy (spanning the period 2016 to 2020), online communication has become an integral part of most public services:

The internet is today the primary gateway to public administration for the majority of Danes. Individuals and businesses have their own digital mailbox. Online self-service has been made mandatory for more than 100 administrative procedures. When the Central Customs and Tax Administration (SKAT) opens up for online access to tax assessments, digital Danes flood onto the website. Furthermore, digital solutions are an integral part of many public services. Care workers use tablet computers to monitor and register any changes in the health status of their elderly clients. Teachers use digital learning tools and materials to differentiate their teaching to the individual student, and health technologies make it possible for patients to monitor their condition in their own homes. (The Danish Government, Danish Regions, & Local Government Denmark, 2016, p. 6)

Digital technologies have thus been implemented across a variety of different domains: from elderly care and the educational system to taxation and citizen services. The introduction of these many platforms and technologies have taken place together with new legal measurements. From November 2014, the so-called “Digital Post Act” came into effect. This law meant that all Danish citizens above 15 years must conduct all their communication with the Danish public sector using a digital mail called *Digital Post*. “Physical persons”, the law states, “that are 15 years or more, and who live in Denmark or have a permanent residence in Denmark, must use Digital Post.” The premise for this law was that all citizens should be able to solve their own administrative problems using self-service platforms. Through governmental homepages and mail clients, citizens have increasingly been expected to manage and administer their own cases, check information online and be able to apply for welfare benefits. Indeed, today, almost all administrative procedures have been moved online. This change has taken place together with the introduction of *NemID* (EasyID). This is a “federated user management” system (The Danish Government et al., 2016, p. 13), serving as



a common infrastructure for all official governmental homepages. Providing each citizen with a physical code card that includes a number of unique one-time passwords, the system allows citizens to securely access government webpages, as well as online banking services and websites of a growing number of private companies.

These changes have often been portrayed as being merely technical or administrative in character (Schou, 2018). Yet, they have had profound political consequences for citizenship and existing welfare institutions (Schou & Hjelholt, 2018b, 2018a). For citizens, the changes outlined above have meant that all communication with the public sector has become digital by default. Citizens are not just urged to become digital; instead, it has become increasingly mandatory for citizens to use digital communication whenever they need to communicate with the public sector. All citizens are – as the default option – expected to have access to and use the digital solutions offered by the state (Schou & Pors, 2018). In this regard, Denmark stands out compared to (in many ways) similar welfare states such as Sweden and Norway. Neither of these have pursued a strategy premised on citizens being “digital by default.” These changes have been linked to ideas of citizens as inherently individualized and self-sufficient. They have been premised on the idea that citizens – rather than welfare state professionals – should take on the responsibilities and risks for managing their own casework. This also means that if something goes wrong, it is the citizen rather than the welfare system that is to blame (Schou, 2018). In this sense, digitalization has served to further entrench already pervasive tropes about “active citizenship” as the universal norm all citizens should aspire to (on active citizenship, see Clarke, 2006; Johansson & Hvinden, 2007; Newman, 2010; Pfau-Effinger, 2005).

In welfare institutions that used to have direct contact with citizens, the implementation of self-service platforms has meant profound institutional and professional changes. The Danish Tax agency (SKAT) has, for example, implemented online self-service platforms for all annual tax assessments and returns. Citizens are no longer expected to fill out and hand-in paper schemes, as all information should now be online. As a consequence of this change, welfare professionals who used to be able to help citizens in each municipality have been replaced by regional call-centers. If citizens cannot use the online self-service solutions, they have to phone in and receive guidance through the telephone. Something similar has taken place within *citizen service centers* (Pors, 2015; Schou, 2018; Schou & Hjelholt, 2018a). Developing as a municipal institution in the mid 1990s, citizen service centers were originally envisioned to constitute “one-stop shops” for all interaction between citizens and the public sector. At that point in time, the public sector had not yet become digital, and so, most (if not all) citizens had to physically show up in these centers if they needed to interact with the public sector. However, as almost all interaction has now moved online, citizens no longer

have to show up in these institutions. This has, however, not meant that citizen service centers have closed down. Far from it. These centers have instead been repurposed to fit a new political goal: namely help make citizens able to help themselves. Thus, whereas frontline workers in citizen service centers used to constitute specialized administrative personnel, these have increasingly been required to become digital teachers, capable of making citizens become digital. This signals the development of a new professional ethos in which welfare professionals do not seek to solve specific problems, but make citizens able to solve their own problems.

Welfare technology is also being used to augment existing practices in a number of other fields. Within health care, for example, tele-medicine and monitoring systems are allowing patients to be treated outside of hospitals. In elderly care, robots are supposed to support otherwise work-intensive labor in a variety of ways. Robot vacuum cleaners, lifting robots and eating robots are but some of the technologies currently deployed within the care sector. In the educational systems, too, digital learning platforms are being implemented. And within the public administration itself, digital databases and infrastructures have become the backbone for most administrative practices. It would thus seem that digitalization has had a number of distinct implications across the welfare system. Whether by replacing previous modes of communication, adding new care technologies or allowing for information to be processed in new ways, digitalization seems to be quietly changing how the welfare state functions from within.

## 5. Dilemmas and challenges

What we have shown thus far is how the digitalization of the Danish welfare state has taken place over more than three decades. We have shown how the policy agenda has shifted significantly over time, and how digitalization has had a series of profound institutional as well as political consequences. These have in particular been linked to the changing obligations and expectations tied to citizenship. These processes are far from being set in stone, and digitalization continues to develop and expand as an area of welfare reform. Yet, as the welfare state becomes increasingly more digital, new dilemmas and challenges also start to surface. In this section, we want to briefly sketch out five areas that have historically constituted – and, for all intents and purposes, will continue to constitute – important “strategic dilemmas” for the welfare state (Jessop, 2002).

### 5.1. *Mandatory digitalization versus exclusion*

As shown above, digitalization policies have become increasingly reliant on coercion and

control. In order to push the national digitalization agenda, it has been deemed necessary to make online communication and self-service platforms mandatory for *all* citizens. The consequence of this has, on the one hand, been that a very high percentage of citizens in Denmark are using official governmental platforms. As the monthly statistics produced by the Agency for Digitization showcase, more than 90% of the Danish population are currently signed-up for *Digital Post* (the main communication channel between public institutions and citizens). This push has made it possible to reap *some* financial gains, although many of the self-service platforms have “underperformed” in terms of their projected rationalization effects (Schou & Hjelholt, 2018c, pp. 90–91). On the other hand, these increasingly coercive forms of digitalization have also meant that certain groups of citizens start to face new barriers to inclusion and participation (Schou & Pors, 2018). As access to technology becomes a premise for acquiring or even maintaining social benefits and welfare, particularly groups already at the fringes of the welfare state seem to be further excluded. While it has been possible to “opt-out” from mandatory self-service platforms, empirical studies showcase that all too often, vulnerable and disadvantaged citizens do not do so in practice. Digitalization instead seems to reproduce already existing inequalities, something that is consistent with international research on the uptake of digital technologies in general (Helsper & Reisdorf, 2017). There is thus a strategic dilemma between mandatory digitalization and exclusion: while mandatory digitalization means that new platforms can be rolled out across the entire country, the effect of this seems to be exclusion for those already in vulnerable situations. The dilemma is whether to continue developing digital platforms for the majority, while excluded “the few”, or to take exclusion seriously as an important issue within an increasingly more digital welfare system.

## **5.2. Empowerment versus alienation**

A second strategic dilemma brought about by the digitalization of the welfare state revolves around what we might call *empowerment* versus *alienation*: that is, a tension around the capability of new technology to foster inclusion and generate new anxieties and isolation. One of the major potentials of digitalization, it has often been argued, is its capacity to help groups of citizens that have traditionally been disadvantaged or underprivileged. It might become easier to include citizens with (dis)abilities, as text can for example be read aloud and speech recognition can help support citizens with physical disabilities. At the same time, a both more efficient and empowering form of elderly care might begin to develop as communication through “tablets” can replace the need for otherwise intrusive home visits. Adding to this, citizens might be empowered by new technology insofar as these provides new ways of communication, easier access to information, and the means to participate more

actively in democratic processes. However, the reverse side of this (supposedly) empowering development might be further alienation – both in relation to the welfare system and society in general. As already suggested above, digitalization seems to reinforce or even intensify already existing forms of exclusion, causing already excluded citizens to be further pushed out. Additionally, while the replacement of human interaction with self-service solutions might enhance the efficiency of public services, it does not necessarily translate into better quality or experiences for citizens. For many citizens, the ability to communicate with human beings is hugely important, and so, the replacement of such contact with interfaces can contribute to furthering the distance between citizens and “the system.” The strategic dilemma, then, lies between the empowering and the alienating capacities of digitalization.

### ***5.3. Welfare professions under pressure (cold versus warm hands)***

As digital technologies become increasingly pervasive within both internal work processes and in the interaction with citizens, traditional forms of welfare work change significantly. Indeed, while digitalization has often been claimed to provide more efficient forms of welfare work, it also seems to add increased control, bureaucracy and a de-skilling of welfare professionals. Within health care and education, for example, digitalization has together with NPM paved the way for extensive, new control regimes. Time is not spent interacting with citizens, students or patients but filling out extensive documentation and notes. Adding to this, municipal workers previously employed to do specialized casework have, in some cases, been deskilled due to the uptake of digital solutions. Returning to citizen service centers, as touched upon earlier, frontline workers have moved from being specialized administrative caseworkers, with in-depth knowledge and expertise within particular branches of the welfare system, to being digital guides. Instead of helping citizens directly, they instead have to make citizens use the standardized self-service platforms. A strategic dilemma thus seems to be developing around the core expertise of welfare professions and the demands imposed by technologies. While such technology is often seen as supporting welfare professions, it also seems to generate extensive control regimes and require different competences.

### ***5.4. Data versus privacy***

One of the promises of digitalization and artificial intelligence is the systematic use of big data. Making better use of individual level data across various set of registers can allow for more efficient and better policy interventions. Some studies have shown that AI outperforms trained doctors with respect to medical diagnoses (Knight 2017). Furthermore, specialized algorithms can facilitate early social policy interventions with respect to problematics such as alcoholism or child welfare.<sup>3</sup> This also include enhances control of recipients of social benefits

and services. Cross-fertilization of register data will much more efficiently prevent abuse and fraud among recipients.

However, such interventions also challenge basic ideas of individual privacy. For which purposes is the systematic use of micro-level data acceptable? Who can have access to these data (and under which rules)? Some cases are maybe uncontroversial, such as the provision of better health diagnoses or dealing with criminal acts of fraud within the social security system. Others are clearly more difficult. Big data have become big business. Can public institutions turn data into a profit? In 1998, Iceland famously have exclusive rights to national health data to the private company Decode Genetics (Greely 2000). The underlying logic was that Iceland unique gene pool (and the detailed knowledge of the population) allowed for pioneering medical research and consequently was of great commercial value. Other types of health and behavioral data also holds potential market value for insurance companies and a high number of other branches (Regeringen 2018). Furthermore, there is the challenge of simple data protection. We have a number of examples of data leaks from the public sector accidentally making highly sensible personal data (such as health data) available for outsiders. This creates basis for distrust in public agencies ability to protect data. Even worse, we have scandals related to private companies' protection of data – most notoriously Facebook leaking data or providing data for private companies.

The answer to such questions are, at the end of the day, political decisions. Most recently, at the EU-level there has been growing emphasis on the protection of individual citizens. The so-called General Data Protection Regulative (GDPR) implemented in 2018, have enforced a new regulative framework for individual data within the EU member states.<sup>4</sup> All public institutions – as well as private firms and NGO's – are by law to offer a much stronger protection of individual personal data. Procedures on access and use of data has to be transparent, individual citizens have the right to know exactly what data is collected (and to correct these data if they are not accurate or misleading), rules of consent and to have data deleted have been strengthened etc. This also put restrictions on the use of big data in the public sector. The Danish Government (Regeringen 2018) also plans to establish an independent 'Data Ethical Council' (Dataetisk Råd) to monitor developments.

### **5.5. Ambitions versus competences**

The success and failure of digitalization of the public sector is of course also depended on successful implementation of policies. A core challenge in this respect is the function of large scale IT-systems (National Research Council 2000, Ch. 3). However, this quite often turns out to be much more difficult and expensive than expected. In other words, there seems to be a mismatch between ambitions (and goals), and competences to realize the ambitions. The

Danish case displays several such examples of large scale IT-systems closed down after an unsuccessful implementation<sup>5</sup>: A system (AMANDA) for the Danish Agency for Labour Market and Recruitment should improve labour exchange and employment policies but was closed 2008, a system for Danish courts (closed 2008), a new IT-system for the Danish police (closed after unsuccessful pilot-tests in 2012), and a system for the Danish Defense (closed 2008). Other systems only came into work with long delays and costly budget overruns: A system for digital registration of housing ownership (running from 2009 with big problems) and a new system for collecting tax debts (EFFI) that after 6 years delay came into work in 2013 (but still causing big problems). Other problematic cases include the introduction of electronic patient's journals where the different Danish regions have not been able to agree on one uniform system. This kind of digitalization failure can be caused by a number of factors including lack of coordination across agencies, political decision-making processes, projects insufficiently anchored in the practical experiences and needs of the agency, optimistic budgeting, unclear goals, misleading cost-benefit analyses, experiences not being shared across agencies, lack of staff -training, too short test-runs etc. (see Teknologirådet 2000). However, these cases have attracted a lot of negative media attention and lead to skepticism towards overly optimistic digitalization strategies.

## 6. Conclusion

In many ways, digitalization of the public sector is a Danish success story. Denmark have gone a long way with respect to digitalization of the public sector, as described in the first sections of this paper. In 2018, Denmark ranked no. 1 in a global ranking on digital public services by the UN Department of Economic and Social Affairs (UNDESA).<sup>6</sup> Same year, the Danish government launched an ambitious strategy for even more and faster digitalization of the public sector (Regeringen 2018). So far so good.

As we have discussed in this paper, digitalization opens new possibility for providing better services, improving productivity in the public sector, and for cost-saving. In many ways, this is a 'technological fix' making the welfare state more sustainable in the future and at the same time offering access to more individualized services. However, the process of large-scale digitalization also includes a number of dilemmas and challenges that needs to be addressed by policy makers. In the paper, we discuss five challenges: 1) digitalization can lead to both inclusion and exclusion, 2) digital solutions has the potential of empowering as well alienating citizens, 3) digitalization have consequences for the management of the public sector and the people working in the sector, 4) growing use of big data can lead to more

efficient policies but also challenges to individual privacy, and 5) finally the implementation of large digitalization projects are not always successful.

The long-term potential of digitalization is still unknown. Science-Fiction literature is rich on scary visions of the future, whereas politicians tends to more optimistic. For instance pointing out that a future digital public sector will be organized more according to citizen's real problems than the formal organizational structure of government (Regeringen 2018). Digitalization could allow not only for each department, government office or agency to offer its online service but also for bringing these together so citizens in the case of most typical social events such as birth, divorce, death of a relative, moving from one place to another, or reporting taxes, do not have to jump between platforms. Still, the five types of challenges mentioned above underlines that digitalization needs to be carefully considered vis-à-vis the general values of society as well as the general ambition of providing better public services. Digitalization is a long-term process rather than a quick fix. Thinking more in the long-term allows for an incremental process and for learning from successful as well as unsuccessful cases. This also calls for a more differentiated approach to digitalization that not only realize different needs of different citizen groups but also differentiate between core tasks of the public sector and more innovative elements. Some things such as basic health care and basic social security simply needs to work, whereas other policies allows for a more experimental approach.

## Notes

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<sup>1</sup> An earlier version of this paper has been published in Chinese in *Chinese Social Security Review* (2019(3)).

<sup>2</sup> <https://www.dst.dk/da/statistik/nyt/NytHtml?cid=20049> (accessed 16 January 2019)

<sup>3</sup> <https://www.syddansksundhedsinnovation.dk/service-menu/nyheder/tidligere-aar/2017/juli-dec2017/big-data-n%C3%A5r-algoritmerne-hj%C3%A6lper-til-at-forebygge-sygdom/> (accessed 20 January 2019)

<sup>4</sup> <https://eugdpr.org/> (accessed 19 January 2019)

<sup>5</sup> <https://www.dr.dk/nyheder/penge/her-er-8-store-offentlige-it-skandaler-til-milliarder> (accessed 19 January 2019)

<sup>6</sup> <https://govinsider.asia/innovation/denmark-online-services-digital-government-australia-korea/> (accessed 20 January 2019)

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