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Disrupting the Welfare State? Digitalisation and the Retrenchment of Public Sector Capacity

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ABSTRACT

Welfare state bureaucracies the world over have adopted far-reaching digitalisation reforms in recent years. From the deployment of AI in service management, to the ‘opening up’ of administrative datasets, digitalisation initiatives have uprooted established modes of public sector organisation and administration. And, as this paper suggests, they have also fundamentally transformed the political economy of the welfare state. Through a case study of Danish reforms between 2002 and 2019, the analysis finds that public sector digitalisation has entailed the transfer of responsibility for key infrastructure to private actors. Reforms in Denmark have not only been pursued in the name of public sector improvement and efficiency. A principal objective of public sector digitalisation has rather been the growth of Denmark’s nascent digital technology industries as part of the state’s wider export-led growth strategy, adopted in response to functional pressures on the welfare state model. The attempt to deliver fiscal stability in this way has, paradoxically, produced retrenchment of critical assets and capabilities. The paper’s findings hold important implications for states embarking on public sector digitalisation reforms, as well as possibilities for future research on how states can harness technological progress in the interests of citizens – without hollowing out in the process.

KEYWORDS

Digitalisation; public sector; welfare state; retrenchment; political economy; state capacity

Introduction

Welfare state retrenchment has historically been associated with policies pursued by conservative governments seeking to shrink the power of the state in society. Often, such policies have taken the form of austerity programmes or the privatisation of public assets and financing. The Reagan and Thatcher governments, for example, sought to radically cut social spending and transfer ownership of many state-owned companies to the private sector (Pierson 1994, Harvey 2007, Jessop 2015). ‘Third Way’ governments of the 1990s and 2000s introduced new financing structures for public programmes and infrastructure, such as the UK’s private finance initiative (PFI) model, that eventually came to limit public sector control and capacity for governance in areas where PFI was used (Powell 2000, Krieger 2007, Hudson *et al.* 2008). This paper explores a form of welfare state retrenchment that, while not new, remains under-researched in studies of (welfare) state change and the emerging literature on the political economy of digitalisation.

In recent years, a number of important texts have considered the effects of public sector digitalisation on institutional ‘logics’ and state-citizen relations (see, for example, Schou and Hjelholt 2018,

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2019, Schou and Pors 2019, Dencik 2021). Digitalisation strategies have also been the focus of innumerable papers in organisation and management studies. Nonetheless, there remains a dearth of understanding and analytical-empirical research on how the incentives and interests of the digital economy manifest in the welfare state and reconfigure the capacity of its public sector. Thus, while drawing inspiration from the aforementioned approaches, the analysis presented here situates public sector digitalisation – elsewhere termed ‘digital transformation’ – within historical institutionalist theories of welfare state change and recent literature on the importance of evolving adaptive public sector capacity for governing welfare service and production systems in a way that aligns with citizens’ needs and demands (Painter and Pierre 2004, Kattel and Mazzucato 2018). Through a case study of Danish reforms between 2002 and 2019, the analysis finds that the digitalisation of public sector administration and services delivery has entailed the transfer of responsibility for critical infrastructures to private actors. As a result, public sector capacity, and hence the ability to achieve public goals, has been undermined. It finds that public sector digitalisation reforms in Denmark have not only been pursued as a means of improving and making efficient public sector processes and services, reminiscent of earlier e-government reforms that emerged through new public management (NPM) modes of governance (Ejersbo and Greve 2016). A principal objective of public sector digitalisation has rather been the growth of Denmark’s nascent digital technology industries as part of the state’s wider export-led growth strategy, adopted in response to functional pressures on the welfare state. To achieve this end, the state has wielded its capabilities and digital assets, developed on the basis of its earlier public provision of welfare programmes, as resources for exploitation by private sector actors. Thus, rather than harness its data assets and capabilities for state-led innovation, the Danish state has pursued a welfare economics-driven approach to bolster the supply dimension of its welfare state model (Nelson and Winter 1974). The privatisation of assets and capabilities has, paradoxically, resulted in welfare state retrenchment. The paper’s findings hold important implications for states embarking on public sector digitalisation reforms that involve the private sector, as well as possibilities for future research on how welfare states can harness technological progress in the interests of citizens – without hollowing out in the process.

The next section of this paper begins by defining the welfare state as a mode of capitalist government in terms of its functions, capacity, and infrastructure. It outlines the historical institutionalist approach to retrenchment, proposing that the retrenchment of welfare state infrastructure (assets and resource capabilities) constitutes a form of ‘systemic retrenchment’ (Pierson 1994). It provides a brief historical overview of public sector IT as a politically contested arena of reform in the welfare state infrastructure. Then, the paper turns to the reasons for selecting Denmark as a case study. In the following section, using content analysis of public policy documents published between 2002 and 2019, supplemented by interviews with senior public and private sector officials involved in developing and implementing Denmark’s digitalisation strategies, the case study is presented. The paper ends with a discussion of why public sector digitalisation strategies have been pursued so successfully in a country that has historically been resistant to welfare state retrenchment. It concludes with directions for how to mitigate and overcome these dynamics to ensure welfare states are able to govern and steer technological development in the interests of their citizens and societal needs.

Welfare state retrenchment

The term ‘welfare state’ was first used to describe the welfare provisions introduced as part of Bismarck’s conservative reforms. The definition used in this paper departs from this narrow classical understanding of the welfare state as social services, or as the state as merely a provider of those services (Briggs 1961, Titmuss 1975, Weir 2001). Rather, the welfare state is understood as a mode of capitalist government (Esping-Andersen 1989, Garland 2014) that mitigates the social effects of crises stemming from capital accumulation (Offe 1984, Valocchi 1992, O’Connor 2001). It does this through both the provision of welfare programmes, as well as the regulation (or shaping) of markets (Moran 2000, Mazzucato 2018). While public administration scholars have described a

separate function of the public sector to actively achieve 'authorisation' for action (Benington and Moore 2010), in the welfare state model, the realisation of goals in the interests of the public through the two functions described above provide legitimacy via modes of democratic accountability or 'feedback' (Mettler 2015, p. 270, Pierson 1994, 1993). Service delivery and administration in welfare state are constituted by (tangible and intangible) assets, such as data, other resource capabilities, and (human) competences, such as project management and medical care.

Throughout their history, the varieties of capitalist welfare state systems that emerged in post-war Europe and North America, and today can be found in all corners of the globe, have undergone significant transformation (Esping-Andersen 1989, Clayton and Pontusson 1998). The extent of public provision of welfare programmes and market governance has expanded and retrenched, at varying speeds and to varying extents throughout the twentieth century (Streeck and Thelen, 2005). Welfare state change has been described as 'restructuring' (Pierson 2002, Taylor-Gooby 2012, Streeck 2017); 'refunctionalisation' (Jessop 2002); and 'renewal' (Giddens 2013), to name just a few conceptualisations put forward in the literature. Although often not acknowledged in the classical institutionalist and neo-institutionalist welfare state theory literature, these functional changes to welfare state programmes and regulation also transformed and were transformed by shifts in public sector capacities (Painter and Pierre 2004).

It is generally agreed today that the theories developed to explain welfare state expansion during the postwar 'Golden Era' decades until the 1980s are unable to account for the reasons retrenchment has occurred in welfare states since then (Pierson 1994, 2002). Welfare state expansion occurred during a period of decades-long growth and entailed the pursuit of electorally popular policies. Policies that explicitly aim to roll back welfare programmes are in contrast unpopular, and have historically been difficult to implement as a result. The term 'retrenchment' first came to be used in comparative welfare state research to describe such programmatic cuts and privatisation in the late 1980s (Brown 1988, Mishra 1990 in: Starke 2006, p. 104). The withdrawal of the state from both public provision and market regulation has long been of interest to political economists because it also signals the introduction of other actors into functions hitherto (in theory) democratically accountable to citizens. Retrenchment, in this way, constitutes a transformation of the democratic dimension of the welfare state model, because markets under capitalism do not inherently manifest citizens' interests – and have instead been driven by capital accumulation (Marx 1990, Krippner 2017). The replacement of public with market provision thus tilts the playing field on which struggles over programmes are fought.

Because these functions are ultimately constituted by public sector assets, capabilities, and competences, we must also recognise how shifts in responsibility for the infrastructure underpinning the welfare state can constitute a form of retrenchment. In 2004, Painter and Pierre noted that the overarching objective to roll back the state in favour of more dispersed governance had 'chipped away at the old pillars of state capacities' in many countries (p. 1). Today, policies that result in the loss of the assets and capabilities necessary for welfare states to develop competences for adapting and learning, to shape industrial development, and to govern welfare service and production systems in a way that aligns with citizens' interests (Kattel and Mazzucato 2018) can be understood as a form of what Paul Pierson (1994) terms 'systemic retrenchment'. For Pierson, budgetary cuts and direct changes in ownership relations of public assets or programmes constitute 'programmatic retrenchment'. Systemic retrenchment describes the impact of policies that induce infrastructural changes within the welfare state that eventually lead to budgetary cuts and reduced power to govern in citizens' interests; using the schematic welfare state definition above, we can say that systemic retrenchment undermines the capacity of the welfare state to deliver its functions. Such policies could include: '(1) significant increases in the reliance on means testing; (2) major transfers of responsibility to the private sector; (3) dramatic changes in benefit and eligibility rules that signal a qualitative reform of a particular program' (Pierson 1996, p. 157). The effects of policies that systemically induce retrenchment often have time lags, in which the undermining of the ability to realise public goals occurs long after the restructuring policy was introduced (Pierson 1994, p. 14). The

withdrawal of state responsibility can also lead to the removal of competences, or the stunting of their development, where spending on maintaining capacity, such as through training employees, also diminishes.

As noted in the introduction, historically, programmatic retrenchment has been a consequence of policies pursued by conservative regimes and neoliberal governments otherwise seeking to reduce the role of the state vis-à-vis markets in the provision of welfare services. The case presented in this paper explores a group of reform policies – public sector digitalisation – that in Denmark have not been pursued with the primary objective of ‘rolling back the state’ but have nonetheless undermined the public sector’s capabilities and digital public assets. Until recently, Denmark, like many states, maintained an extensive IT infrastructure in-house (Dunleavy 2006). Although there had been some private sector involvement in the development of public sector IT in many countries, such as the US, throughout the 1960s and 1970s, welfare state governments were pioneers in IT technology (Dunleavy 2006; Hicks 2017). The gradual transfer of responsibility for IT infrastructure to the private sector gained pace in the following decades, such that by the dawn of the millennium, ‘the UK, Japan, and Australia ... more or less completely seceded any capacity to run their own IT operations in house’ (Dunleavy 2006, p. 126). More recently, some states have sought to bring capabilities for managing IT processes back ‘in-house’, albeit while broader digital infrastructure remained outsourced. The UK’s Government Digital Services is perhaps the best-known example of such an attempt, though even its success at re-establishing public sector capabilities in digitalisation has been limited, as documented in a recent analysis (Kattel and Takala 2021).

The transfer of responsibility for public sector assets and capabilities in IT has had significant political economic consequences for governance of digital technologies and information, which have assumed an increasingly critical role in the maintenance of the welfare state model. This is scarcely acknowledged in literature on public sector digitalisation. The case study presented here offers a close examination of variables driving digitalisation reforms in a welfare state. Selected as a ‘critical case’ (Flyvbjerg 2006), public sector digitalisation in Denmark holds lessons, and perhaps warnings, for other economies around the world looking to pursue growth through the privatisation of welfare state infrastructure.

Crises of the Danish welfare state?

Of all Scandinavian states, Denmark today most closely resembles the archetypal ‘solidaristic, universalistic, and de-commodifying’ social-democratic welfare state type described by Esping-Andersen (Esping-Andersen 1989, Ejersbo and Greve 2016). It has a small population (~5.8 million) and is export-dependent, with relatively high levels of taxation underpinning one of the most extensive publicly provided welfare systems in the world (Stephens 1996, Andersen *et al.* 2007, p. 2, Lehto *et al.* 2015). Denmark ultimately makes for an interesting case because alongside the relative resilience of its welfare state model, it has also implemented wide-ranging public sector and industrial digitalisation strategies, as seen in its high scores in international rankings that attempt to measure these (Agency for Digitisation 2011, p. 8, Schou 2018). The OECD, for example, highlights Denmark as one of the forerunners in public sector digitalisation (Ejersbo and Greve 2016, p. 268). Since its inception in 2014, Denmark has been among the highest scoring countries in the European Commission’s Digital Economy and Society Index (DESI), ranking particularly highly in the index’s ‘Digital Public Services’ indicator, as shown in Figure 1 (European Commission 2019).

Although Denmark has introduced reforms liberalising some welfare state programmes and market regulations (Kuhnle and Alestalo 2017, Schou 2018), the Scandinavian states in general ‘deconstructed neither their welfare states nor their public sectors nor their tax bases in the heyday of neoliberalism and the “Washington consensus”’ (Kuhnle and Alestalo 2017, p. 22). Approximately 37.5 per cent of the active working population was employed by the public sector as of 2018 (Eurostat 2018). Welfare programmes continue to be popular among Danish citizens. The most recent European Values Study indicates that concern for vulnerable groups protected by the state

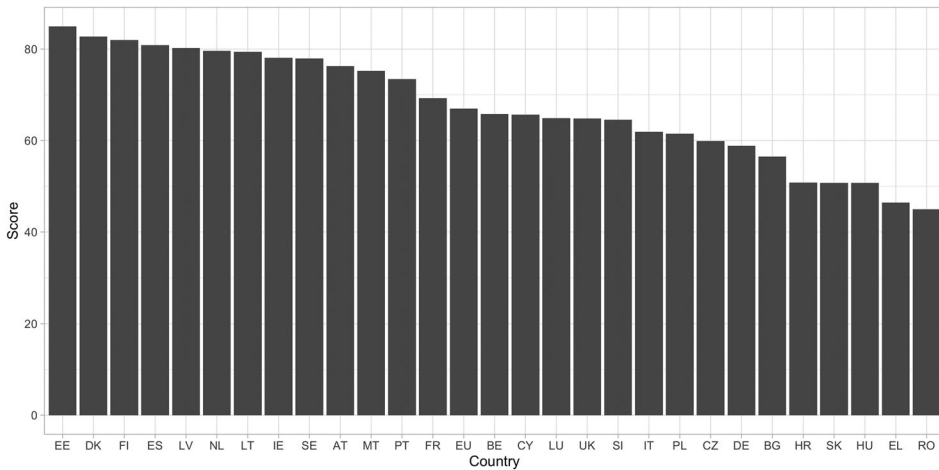


Figure 1. Digital Economy and Society Index (DESI) 2019, Digital Public Services. Source: European Commission (2019), DESI by components. Available from: <https://ec.europa.eu/digital-single-market/en/desi> (Accessed on 9 July 2021). Visualisation created by author in: RStudio Version 1.2.5033.

has endured in the country, particularly concern for the elderly, the unemployed, and sick and disabled people (Gedeshi *et al.* 2019). Preference for state provision of services over individual purchasing is also strong (Gedeshi *et al.* 2019).

In recent years, the Danish model has nonetheless faced existential challenges from functional pressures emerging both endogenously and exogenously, placing pressure on the ability of the state to 'supply' its welfare programmes, or on the 'demand' for those services (van Kersbergen 2003, van Kersbergen and Vis 2014). Chief among these (prior to the COVID-19 pandemic) have been the consequences of the 2007 financial crisis and the country's ageing population, which van Kersbergen and Vis (2014) describe as key drivers of change across welfare states.

The global financial crisis that emerged in 2007 came to a head in Denmark in the summer of 2008, and produced an actual systemic financial crisis in the banking sector that endured until the autumn of 2010 (Danish Business Authority 2013). While soaring government debt came to characterise the aftermath of the financial crisis in many countries (Streeck 2017), not least in the Eurozone, this was not the case in Denmark. The crisis nonetheless brought with it challenges that threatened to undermine the existing financial foundations of the welfare state. Firstly, although Denmark's unemployment rate did not reach the heights of many other European countries, it grew sharply in the wake of the crisis, as shown in Figure 2.

The rising unemployment rate not only reduced the tax revenue available to the Danish welfare state, but also increased demand for unemployment benefits (Greve 2016). Business investments more generally fell significantly in the period 2007–19, particularly in the immediate wake of the crisis (Regeringen 2016, p. 9). Finally, although ultimately Denmark only spent 0.5 per cent of GDP in sums available to its banking sector, it had initially pledged 259 per cent of GDP, which invariably placed pressure on wider public sector spending at the time, even though it did not ultimately come to be spent (Grossman and Woll 2014).

Although Denmark is unlikely to face the same scale of demographic challenges as other European and East Asian nations (Kuhnle and Alestalo 2017, p. 22), the ageing population nonetheless also presents a challenge to the current welfare state model. Almost one fifth of the Danish population currently receives a national old-age pension (Danmarks Statistik 2020). The fertility rate in Denmark has also decreased. As a result, Denmark's old-age dependency ratio (OADR), is set to rise by more than 50 per cent in coming decades, from 33 per cent in 2015–53.4 per cent in 2075 (OECD 2017). While a rise in the OADR does not in itself indicate that a welfare state will be unable to provide for

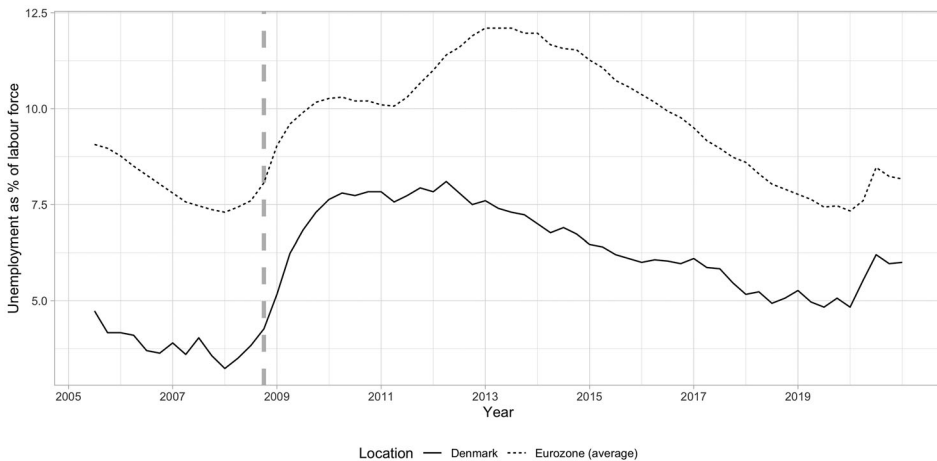


Figure 2. Unemployment as a percentage of total labour force in Denmark and the Eurozone, 2005–20. Grey dashed line indicates the commencement of Denmark’s systemic crisis in the third quarter of 2008. Source: OECD (2017), Unemployment rate (indicator). doi: 10.1787/997c8750-en (Accessed on 9 July 2021). Visualisation created by author in: RStudio Version 1.2.5033.

its ageing population (cf. De Økonomiske Råd 2019), policy decisions for much of the past two decades have been premised on this expectation (Taylor-Gooby *et al.* 2017, p. 4).

In response to functional pressures of the past decade, Denmark has not embarked on the kind of widespread austerity measures implemented in other European states, although there were concerted attempts to replace government with private provision of certain services (see, for example: Toft 2017). Indeed, social spending per capita (as well as in terms of GDP) steadily increased in the decade after the financial crisis. Instead of dramatic public sector cuts, the Danish governments between 2008 and 2019 embarked on a recovery strategy that sought primarily to boost private sector growth and, although with a more limited impact, improve efficiency in public sector administration. It is in the context of these two goals that Denmark’s digitalisation strategies of recent years must be understood.

To do so, the case study below draws on extensive analysis of national and regional public policy documents on digitalisation, welfare programmes, and administrative reform in Denmark published between 2002 and 2019. The main sources of data are the five national *Digitalisation Strategies* published between 2002 and 2016 (Den Digitale Taskforce 2007, 2004, 2002, Agency for Digitisation 2016, 2011). These were formed as joint strategies by the Danish government, the regional government interest body, Danske Regioner, and the local authority interest body, Kommunernes Landsforening. A further 27 public policy documents deemed relevant to the analysis through a systematic search were extracted from public government databases, and then analysed using an abductive coding approach (Fereday and Muir-Cochrane 2006). To supplement the policy document analysis and further unpack themes that emerged in the policy documents, semi-structured interviews were conducted with six ‘experts’ selected on the basis of their particular relationship to digitalisation processes, initiatives, or policies. An indication of their roles is provided at the end of this paper.

Public sector digitalisation and the pursuit of export-led growth in Denmark

Denmark has long pursued e-government strategies, which developed from playing an ‘almost hidden role within the realm of a visionary national Information Society strategy in the early 1990s ... [to] in the 2000s become a policy field of its own’ (Jæger and Löfgren 2010, p. 253). Between 2010 and 2019 the country witnessed an intensification of digitalisation efforts across both the public and private sectors, exemplified through the myriad government strategies published during this period.

From the outset, digitalisation initiatives targeting the private sector were developed with the ambition to foster growth in high tech industries. This is not surprising, and reflects the objectives of wider ‘Knowledge Economy’ strategies developed elsewhere in Europe during the 1990s and early 2000s (Stiglitz 1999, O’Donovan 2020). However, public sector digitalisation strategies emerged initially with different goals, citing the desire to improve services and make processes more efficient. In many ways, they manifested the NPM thinking underpinning wider reforms across the Danish welfare state (Ejersbo and Greve 2016). Public sector efficiency continued to be an important objective of digitalisation throughout the 2000s, though it shifted from being framed as a way of ‘freeing up resources’ (Den Digitale Taskforce 2007) to a means of salvaging the welfare state model in the wake of the financial crisis. The Danish government’s 2011–15 *Digitalisation Strategy* (Agency for Digitisation 2011), published while the country was still in the depths of economic turmoil included, for example, the following paragraph in its introduction, under the heading ‘Future welfare is at stake’:

The global financial crisis has turned well-balanced state budgets into deficits ... According to the government’s plan for growth, ‘Ambitions for More’, the adoption of digital solutions and new technology will provide DKK 3 billion every year by 2020 in gains. The new public sector eGovernment strategy will help realise this potential, ensuring a sustainable economy. (p. 4)

Denmark’s ageing population was also increasingly understood as a pressure necessitating digitalisation as a means of improving efficiencies in the welfare state. A senior digital strategy consultant described the regional government where she worked as being ‘on a burning platform’ because there are ‘more and more elderly people’ (Interviewee 1). Digitalisation, as far as she was concerned, provides a way ‘to have enough capacity to create value for society in the future’. The 2018–22 *Digital Health Strategy* similarly describes the dual challenges of the ageing population and increased multimorbidity in existential terms in the text’s introduction, under the title: ‘There is no real alternative to increased digital cooperation’ (Ministry of Health 2018, p. 8).

But increasingly, and especially in the decade following the financial crisis, the goals of improving processes and services through public sector digitalisation were accompanied by a new motive: private sector growth. During this period, Denmark wielded the public sector assets and capabilities developed on the basis of its expansive public welfare programmes and regulation as resources for exploitation by the private sector in the pursuit of growth. This was true in the digitalisation of both administration and service delivery.

Digitalisation of administration

Public sector bureaucracies are not merely social systems, but socio-technical: ‘Information (technology) underpins organisations’ (Dunleavy *et al.* 2006, p. 10). Systems of public administration rely on infrastructures of and for information. As in the majority of Western industrialised democracies, the ‘informatisation of administration’ (Jæger and Löfgren 2010, p. 254) characterising early e-government policies can be traced back to the 1960s in Denmark. But it was only in the early 2000s that a Digital Task Force was established to develop a comprehensive strategy to digitalise public sector administration, integrating all levels of government (Ejersbo and Greve 2016, p. 272).

It was also during this period that the private sector came to play a central role in public sector digitalisation processes. Before the late 1990s, Denmark had only limited involvement from ‘the international IT majors’. It retained strong internal public sector IT assets and capabilities for a relatively long time, including ‘its own central in-house IT systems management and development company, Datacentralen’, which was not privatised until 1996 (Dunleavy *et al.* 2006, p. 133). It is clear from reading the government’s first Digitalisation Strategy, which ran from 2002 to 2004, that at the time of publication the involvement of the private sector in Denmark’s public sector IT infrastructure was relatively nascent. The strategy called for the public sector to work more closely with the private sector, with the assumption nonetheless that it is the public sector that

will drive and shape digitalisation across society, 'set[ting] standards that create infrastructure for the entire community' (Den Digitale Taskforce 2002, p. 6 [author's own translation]). Today, however, private sector actors are involved in the provision of all aspects of the technical infrastructure underpinning public sector administration in Denmark. Private companies and 'digital' consultants have been procured in the building and servicing of expansive networks of hardware (such as computers, servers, and data storage); network infrastructure (such as firewalls, security, and the internet); operating systems; and a host of software (such as customer relationship management programmes and office suites).

In addition to the potential for efficiency gains described earlier, the digitalisation of administration infrastructure using IT company procurement throughout the 2000s was also motivated by an ambition to support private sector growth by reducing 'administrative burdens' for businesses (Den Digitale Taskforce 2004, p. 4), an objective that endured throughout the next decade (Agency for Digitisation 2016, p. 14, 2011, p. 18). Platform Virk.dk was established in 2008 for this purpose (Den Digitale Taskforce 2007, p. 9). In the 2018 *Strategy for Denmark's Digital Growth*, digital initiatives to reduce 'administrative burdens' were framed explicitly as 'a clear step towards realising the Government's objective of saving DKK 4 billion in administrative burdens for trade and industry by 2020' (Ministry of Industry, Business and Financial Affairs 2018, p. 11). This latter strategy also described how the digitalisation of public sector administration infrastructures can make Denmark a more attractive place for business investment.

The digitalisation of administration, which has entailed the outsourcing of responsibility for critical infrastructures to the private sector, has not been without its consequences for the realisation of democratically accountable goals in the public's interest. In 2017, the Agency for Digitisation published a report that described these implications for government and management of IT systems. It acknowledged that 'the state has slowly entrusted greater and greater parts of responsibility for IT to external consultants and private suppliers', with adverse implications for governance and management of IT systems:

This means that several state authorities are today unable to build the important bridge between IT and core functions, and to enter into good and value-creating collaborations with the private IT market. This also means that several authorities are unable to manage IT systems efficiently and responsibly, and that they do not have the necessary control over IT projects. (Finansministeriet 2017, p. 5 [author's own translation])

When questioned further about these implications during an interview, a senior manager from the Agency described how some earlier IT procurement efforts had produced 'lock-in' effects that challenge the integration of public sector digital infrastructures today. Certain agencies had become 'vendor-dependent', because 'all the knowledge and knowhow and documentation ... they are in the heads of a few employees at certain vendors' (Interview 2). Post-contractual lock-in owing to institutional dependencies such as described here are noted in wider literature on public-private partnerships (see, for example, Lonsdale 2005). But digitalisation can also produce technological stickiness; new technological systems and processes are locked into the bureaucracy as a result of their non-interoperability:

A lot of these systems, they have been developed independently [by individual agencies] during the years and historically there has been actually not so much thought as to how these systems are supposed to be talking to systems from other sources. (Interview 2)

According to the interviewee, in some cases, the privately-owned vendor providing an aspect of the digitalised administrative infrastructure 'owns the system and the data' (Interview 2). Srnicek (2017) suggests that technological 'lock-in' is a unique and central feature of the platform capitalist mode of production; non-platform companies – and public sector organisations – become embedded in digital platform ecosystems. This enables them to grow to an immense size while simultaneously reinforcing this monopolism by using 'enclosure as a key means of competing against ... rivals' (Srnicek 2017, p. 113).

The consequences of this transfer of public responsibility for administrative assets and capabilities are not insignificant. During our interview, the interviewee explained that, owing to agencies' vendor dependencies, before the development of the *Strategy for IT Governance in the State*, 'in some instances, we were actually in a situation that it was the IT systems that mandated how soon the changes the politicians wanted could be implemented, and not the other way around'. Through the digitalisation of public sector administration, the ability of the elected government to govern in the interests of citizens has been transformed, even constrained. This epitomises Pierson's concept of systemic retrenchment: a gradual but significant transfer of responsibility to private actors – in this case, for administrative infrastructures underpinning welfare state functions.

Public sector data can also be considered as critical to the welfare state mode of capitalist government (Dencik 2021). The collection and processing of information has been a core function of the modern state since its inception and has been central to the administration of publicly-provided welfare programmes (Desrosières 2002; Takala 2018, pp. 94–95). Today, public sector data includes registries, databases and information collected, produced and/or held by public sector actors (European Parliament 2003). In practical terms, public sector data includes: traffic data, such as that generated and collected through publicly-owned transport infrastructure; social and healthcare systems data; tax and pensions data; geospatial data; results of surveys produced by national statistical offices; and meteorological data (Munné 2016, p. 195). The digitalisation of public sector datasets and the infrastructures used to collect, maintain, process and analyse them has involved a host of private sector actors, introducing barriers to portability and effective use of them in the shaping of markets.

Furthermore, the 'opening up' of public sector data to private actors for use as a resource in the development of new technologies has been adopted by many states in recent years, including Denmark. Indeed, open government data campaigns and initiatives in Denmark and beyond have long argued that closed public sector data ecosystems are inefficient for innovative market actors (Bates 2012; see, for example, Copenhagen Healthtech Cluster 2019). The extent of open government data is an indicator in the EU's Digital Economy and Society Index (DESI). Denmark holds some of the largest public sector datasets in the world (Schmidt *et al.* 2019). After 2010, improving access to administrative data for businesses came to be viewed in public sector digitalisation and digital industrial strategies as an increasingly important initiative in achieving private sector growth. Open data and wider data sharing initiatives were not introduced in the 2007–10 *Digitalisation Strategy*; where the relationship between public sector data and growth was raised here, the focus was on improving data security, inter-departmental standardisation, and citizens' and businesses' access to their own data. 'Accessible public data' was introduced as an initiative under the Focus Area 'Paving the way for business growth' in the 2011–15 *Digitalisation Strategy*, though the initiative suggested access was intended for customer research and development of specific products.

But while even in the 2011–15 *Digitalisation Strategy*, access to administrative data was not highlighted in the Focus Area's description, unlike the other initiatives within it (Agency for Digitisation 2011, pp. 18–19), the 2016–20 *Digitalisation Strategy*, as well as the 2018–20 *Digital Growth Strategy*, describe public sector data as holding 'a large productivity and growth potential'. The strategy introduced a number of initiatives to 'make public sector data available to businesses and support exploitation of this data by businesses' (Agency for Digitisation 2016, p. 34). One such initiative included in the 2018–20 *Strategy for Denmark's Digital Growth* was the release of Danish Meteorological Institute (DMI) data for free, which, it is suggested, would not only contribute to cost savings of DKK 50–135 million in the electricity, district heating and agricultural sectors, but will also be used by trade and industry 'to develop new, innovative products and services for the benefit of citizens and business' (Ministry of Industry, Business and Financial Affairs 2018, p. 47). Crucially, this unrestricted access to DMI data did not come with conditions attached; rather than limiting access to public sector data – and, in so doing, shaping the ways in which companies could use them – businesses and other actors are free to use open data for ends they see fit, even if these do not align with welfare state goals,

government objectives or citizen interests. Elsewhere, public sector meteorological data has been 'opened up' to grow highly speculative financial markets in Index-based weather risk products, which act as cover for companies against non-extreme weather events, such as unusually warm winters (Bates 2014).

Digitalisation of service delivery

Private sector growth has also been pursued through initiatives that digitalise welfare services. While some policies fostering the development of 'welfare tech' have aimed at improving service efficiencies and outcomes within the Danish education, public health, social care and benefits systems, crucially they came to be viewed during the 2010s as a means of augmenting growth through exports and job creation.

Historically, Denmark's IT sector has not been export-intensive, although there was some growth in exports of data and information services in the second half of the 2000s (Danish Government 2013a). During the 2010s, however, the government sought to 'improve conditions for public-private collaboration on market development so that a wider range of Danish health and care solutions can be exported' (Danish Government 2013a, p. 2). This entailed the opening up of welfare state services (and their users) for the private sector to use as a resource to develop new technologies:

To fully exploit the growth potential of these business areas, companies need to have better opportunities for benefitting from the knowledge and competencies in the public sector in order to develop specific products and services that can be marketed internationally as well as for acting as service operators within more areas relating to, e.g. logistics, assistive technology solutions etc. (Danish Government 2013b)

Public-public collaborations to innovate welfare services have also in the digital age been harnessed for export-led growth. In Denmark there is a long tradition of partnerships between universities and hospitals for medical and healthcare innovation, for example (Bason 2010). One interviewee for this research was the founder of a health technology SME that spun out from one such collaboration. He described how the commercialisation of the (publicly-funded) project was an important criterion in accessing funding from both Innovationsfonden and its predecessor, the Danish Council for Strategic Research (Interview 3). Today, the technology continues to be used and developed at the hospital, albeit now through a public-private collaboration (between the hospital and the SME). Although it currently comes at no cost to the hospital, eventually, when the product is ready for market, the hospital will become a customer, along with – it is hoped – other hospitals and health systems both in Denmark and abroad. It is clear that the technology makes certain digital processes more efficient in the service where it is used, but by integrating it, the hospital has transferred responsibility for the processing of data to a privately-owned technology company, where it was previously done by doctors and nurses. It could be argued that this constitutes a form of service privatisation, and hence programmatic retrenchment. But what is perhaps more interesting in this case, and the many other public-private procurement relationships for welfare technologies that began as public-public collaborations, is how public sector capacity for developing this and future technologies are also transferred to the private sector in the process. The state becomes the customer of not only a technology created through its public research infrastructure, but of the learning embedded within that technology's development.

In addition to its function in administration, public sector data has also historically been used as a resource to deliver, as well as develop and improve, welfare services (Dunleavy *et al.* 2006, Kattel and Mazzucato 2018). Health systems and population health data have long been used in government-funded medical research, for example. Denmark has been referred to by health researchers as 'the epidemiologist's dream', owing to the extent of its population health registries (Frank 2003). Historically, access to this data in Denmark has been limited to specific research purposes. Over many years, veto points were established to protect citizens' interests, such as through the development of the

Danish Patient Safety Authority, which provides permissions to access medical records for specific health research projects (Schmidt *et al.* 2019, p. 567). The development of digital technologies for use in service delivery through public-private collaborations has created new modes of access to public sector data. The hospital partnership described above, for example, has provided the SME with access to patient data, which it is using to both improve the existing product, and develop a new, AI-based one that it hopes will be procured by domestic and foreign markets. The particularities of the digital economy are crucial here for understanding how the transfer of responsibility for data infrastructures can produce welfare state retrenchment. The introduction of a private sector-owned digital service not only induces technological 'lock-in'; the public sector may also become embedded in the incentives for data accumulation that sustain the profits of company(ies) it now relies on to deliver welfare state functions, a dynamic Dencik (2021) has recently described as a form of rentierism. Services become opportunities for further digitalisation and the expansion of digital technology companies in the welfare state: retrenchment begets retrenchment.

Data do not simply exist (Hoeyer 2016, Sadowski 2019, Prainsack 2020a). Public datasets have been developed by the public sectors of welfare states over many decades, with significant public investment in the human and technological capabilities of collection and processing information. In the case of population data and registers, the construction of useful datasets has also directly involved welfare state citizens. They contain vast value – not just in terms of the price they can fetch on a market (Beauvisage and Mellet 2020, Birch *et al.* 2020), but also their potential for delivering and improving public sector programmes, even if this latter 'public' value remains ill-defined in many cases (Prainsack 2020b). In many senses, then, public sector data can be considered a public asset that is embedded in the wider capabilities of public sectors. Understood in this way, we can see the opening up of public sector data for use by private actors in Denmark as a form of retrenchment, insofar as it has entailed the removal of state governance over how datasets are used and the failure to capture returns for the state as a reward for its investment in their development (Lazonick and Mazzucato 2013).

This privatisation does not function in exactly the same way as the privatisation of other public assets, such as the privatisation of hospitals or utilities. Digitalised data are replicable and inexhaustible; in providing access to public sector data, the state does not lose access to it. Rather, the opening up of public sector data without conditionality can be understood as a form of retrenchment because in doing so, an important lever for shaping production systems in a way that aligns with citizens' interests is rolled back. In an economy in which private sector actors vie for welfare programmes as markets vis-à-vis the state, access to public sector data also endows private sector actors with a resource to provide more efficient, and perhaps improved, welfare programmes and capabilities over the state. In time, this could serve to exacerbate public-private capabilities asymmetries, with implications not only for public provision of programmes, but the regulation of ensuing private provision.

Discussion and conclusion

The wielding of the assets and capabilities underpinning welfare state services and administration as resources in the development of digital technology industries has constituted just one aspect of Denmark's extensive export-led growth strategies of the past decade. But the retrenchment that has occurred through the exploitation of these assets and capabilities has nonetheless 'modifie[d] the context for future struggles over programmes' (Pierson 1994, p. 131) in important ways.

Given the historically widespread resistance to policies that result in welfare state retrenchment in Denmark, it is worth reflecting briefly on why digitalisation initiatives have not been met with more political resistance. For Pierson (1994, 1996), writing on the neoliberalising agendas of the 1980s and 1990s, a retrenchment agenda is more likely to be successful when political actors enact 'cost minimisation strategies', such as obfuscating the retrenchment effects of a policy, or compensating important constituencies. However, as described above, while retrenchment has been an

outcome of public sector digitalisation in Denmark – and while there were also political actors committed to rolling back the role and capabilities of the state – this was not an explicit objective of digitalisation reforms. Indeed, except for the *Strategy for IT Governance in the State*, no policy publication so far as hints at the potential for retrenchment of digitalisation initiatives. Public sector officials interviewed for this research similarly did not highlight these risks of public sector digitalisation, even when prompted. Perhaps ‘the visibility of effects’ (Pierson 1994, p. 21) of digitalisation for public constituencies have been diminished, then, not necessarily because political actors sought to obfuscate them, but, rather, because political actors also failed to recognise them.

On one level, the largely systemic nature of retrenchment through public sector digitalisation renders it practically challenging for political actors to identify and assess, as Pierson recognised of systemic retrenchment more generally (Pierson 1996; Starke 2006). But fundamentally, we cannot disembed public sector digitalisation from wider narratives about the merits of digitalisation (O’Donovan 2020) – and the interests that promote them. In policy documents and in the interviews, digitalisation was presented as a solution to not just fiscal, but also wider institutional policy problems – from ill health, to energy consumption (Agency for Digitisation 2016, p. 41), inequality (Den Digitale Taskforce 2007, p. 9), and transparency (Agency for Digitisation 2016, p. 22). This framing and perception of digitalisation in the public sector as a panacean technical ‘fix’ obscures the political, contestable nature of digital interventions, among both political actors and publics (Morozov 2013, Schou 2018). It is also valuable to consider the extent to which this failure to identify the retrenchment consequences of more recent privatised digitalisation strategies is owed to the embeddedness of earlier e-government reforms in NPM modes of governance (Jæger and Löfgren 2010, Veale and Brass 2019). While responsibility for public sector IT and digitalisation has largely shifted from public to private provision during this period, initiatives over the past decade are nonetheless understood in policy documents as a continuation of earlier reforms.

In any case, the depoliticisation of public sector digitalisation should not be understood as a passive process, but rather one that is shaped by actors that stand to benefit from the obfuscation of how the risks and rewards of its pursuit are balanced. As scholarship on policy entrepreneurs has taught us, an initiative only becomes a solution to a problem when an actor makes it so: policy entrepreneurs ‘are willing to invest their resources in pushing [digitalisation initiatives], are responsible for prompting important people to pay attention, but also for coupling [digital] solutions to problems and for coupling both problems and [digital] solutions to politics’ (Kingdon 2010, p. 20). Indeed, it became clear through the research for this paper that a number of important actors both within and outside the Danish public sector have actively worked to both promote public sector digitalisation as a technical fix to various challenges, and obfuscate the ownership relationships of actors involved.

Within the public sector, while some responsibility for the delivery of reforms are devolved to other agencies, the primary *Digitalisation Strategies* and other key digitalisation initiatives implemented since 2011 were developed by the Agency for Digitisation, which sits within the Ministry of Finance (Agency for Digitisation 2020). It is therefore perhaps not surprising that alongside efficiency and cost savings, private sector growth arose as a central objective of digitalisation reforms; the Ministry of Finance is responsible first and foremost for fiscal policy and administration of spending. But perhaps more importantly, as was raised frequently during interviews, numerous private sector and semi-private actors have influenced or been involved in the development of digitalisation policy initiatives. For example, Dansk Industri, the industry body for Danish businesses, contributed to the development of initiatives with Danish regional governments (Interview 5). The prominent public-private campaign organisation Data Saves Lives, which advocates opening up Danish health registries for use by the private sector, counts among its members not only public organisations like regional governments and hospitals, but also pharmaceutical companies like Abbvie, Novartis and Roche (Data Saves Lives 2017).

While the research informing this paper is largely exploratory, the findings at the very least highlight the need for greater attention to be paid to the political economic dynamics and consequences of public sector digitalisation. Many potential avenues for further research emerged through the

analysis, for example on the clash between wage-structures in the public sector, versus remuneration in IT start-ups and consultancy firms; the influence of party politics on digitalisation initiatives; and on the merits of centralised versus decentralised governance of public sector data. There have been attempts to explore questions related to these areas in recent years (see, for example, Collington 2019, Sadowski 2019, Mazzucato 2021), but so far analytic-empirical political economy research has been scarce.

The paper's findings nonetheless signal the need for welfare states to reconsider the governance and ownership relationships in public sector digitalisation to ensure they are able to steer technological development in ways that benefit citizens and society. The risk of 'digital welfare states ... becoming Trojan Horses for neoliberal hostility towards so protection and regulation' was recently highlighted in a scathing report by UN Special Rapporteur Philip Alston (Alston 2019, p. 10). In practical terms, a long-term strategy to transform the broader ownership relationships of the means of digitalisation would look to rein in the economic power and monopolistic tendencies of the digital technology industry. The European Union has moved to introduce measures in this direction, with the European Commission also considering legislation against the ability of US-based platform companies to act as 'gatekeepers to the internet' (Foo Yun 2020). While legislation such as this could be promising, we are nonetheless a long way from its implementation. In the meantime, I want to suggest two concrete policy changes to safeguard digital assets and capabilities.

Firstly, the state could mandate the inclusion of specific clauses in public-private partnerships and procurement contracts that protect public sector control and ownership of data and digital systems, and ensure system interoperability and data portability. Developments underway in Denmark may prove fruitful in this regard. The Danish Agency for Digitisation has plans to release a template 'state IT operations contract paradigm, which will have all the necessary clauses ... that enable you to control your vendor' (Interview 2). Secondly, states could look to (re)build internal public sector IT and digital technology capabilities. In the shorter-term, building the state's capabilities in the technologies and systems it has increasingly come to rely on could improve the ability of the public sector to navigate and negotiate contracts with private sector actors that retain the public interest above all.

It hopefully goes without saying that states do not and have not always used public sector data (and related capabilities) for good. The harmful ideas and technologies of the eugenics movement, led at times by architects of the post-war welfare state, and the growing research on racial bias in technologies used by public police forces today (Wang 2018, Benjamin, 2019), both serve to remind us that state-led technological development is not inherently valuable or benevolent. Reconsidering how democratic control over public sector data and capabilities is asserted is a critical task. But, as this paper suggests, understanding how the state's digital assets and capabilities can be undermined is also necessary to ensure that there remain public institutions over which citizens retain democratic control at all.

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Interviewees

- (1) Digital Strategy Consultant, regional government
- (2) Senior Manager, Agency for Digitisation
- (3) Founder, start-up involved in public-private partnership
- (4) Director, public agency involved in innovation policy
- (5) Health Policy Manager, industry body
- (6) Project Coordinator, public agency involved in innovation policy

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