OECD COMPARATIVE STUDY

DIGITAL GOVERNMENT STRATEGIES FOR TRANSFORMING PUBLIC SERVICES IN THE WELFARE AREAS



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Digital Government Strategies for Transforming Public Services in the Welfare Areas



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Acknowledgements

This study was prepared by the Public Governance and Territorial Development (GOV) Directorate of the OECD. The mission of the Public Governance and Territorial Development Directorate is to help governments at all levels design and implement strategic, evidence-based and innovative policies to strengthen public governance, respond effectively to diverse and disruptive economic, social and environmental challenges and deliver on government's commitments to citizens.

This study on *Digital Government Strategies for Transforming Public Services in the Welfare Areas* was written by Adam Mollerup, previously Policy Analyst at the OECD, with significant contributions from Susan Hitchiner, consultant; Edwin Lau, head of the Public Sector Reform division in GOV; and Barbara-Chiara Ubaldi, Senior Project Manager heading GOV's work on Digital Government, Open Government Data and Data-Driven Public Sector. Strategic directions were provided by Edwin Lau and Barbara-Chiara Ubaldi. Charlotte van Ooijen finalised and edited the manuscript. Marie-Claude Gohier prepared it for printing.

In exploring the innovative policy area of welfare in the context of two digitally advanced countries, Denmark and Sweden, this report constitutes an important building block to move forward the OECD's work on Digital Government and Data-Driven Public Sector with specific focus on public sector efficiency and innovative service delivery, conducted under the leadership of the OECD Working Party of Senior Digital Government Officials. The digital government team wishes to acknowledge the fundamental role played by the governments of Denmark and Sweden in proving the opportunity to conduct this ground-laying study.

In particular, this study would not have been possible without the great commitment and support of the Agency for Digitisation in the Ministry of Finance, the former Ministry of Education, the former Ministry of Health, and the former Ministry of Social Affairs in Denmark, and of the Swedish Governmental Agency for Innovation Systems (VINNOVA). We are especially thankful to Mr. Yih-Jeou Wang, Head of the Director-General's Secretariat, and Ms. Susanne Duus, who is leading the digital welfare work, from the Agency for Digitisation (DIGST), Cecilia Sjöberg Head of Services and ICT Division at VINNOVA, and Madeleine Siösteen Thiel, Programme Manager Services and ICT Division at VINNOVA, and to their respective teams working on digital welfare services in Denmark and Sweden.

Table of contents

Executive Summary 6
Part One: Introduction – Setting the Context for Digital Transformation of Public Services ... 9
Imperatives for transforming public services 12
A framework for analysing progress towards "Digital Government" 16
Part Two: Digital Welfare Services 17
Objectives of digital public welfare services 17
Digital transformation of public welfare services 20
Education 23
Healthcare 25
Social care and protection 28
Part Three: Lessons from Digital Welfare Services on Two Nordic Countries 31
Engage citizens and open up government to maintain public trust 31
Improve governance for better collaboration and results 33
Strengthen capabilities to achieve return on ICT investments 34
Part Four: Trends and challenges arising from the cases 36
Digitisation strategies: responding to "data deluge" and ethical dilemmas 36
Governance frameworks: coordination, collaboration and partnerships; and business cases40
Financing arrangements: fiscal policies and funding arrangements 49
Part Five: Frameworks to assist in shaping the way forward 52
The Public Value Chain 52
OECD Recommendation on Digital Government Strategies 53
The OECD as a partner in the way forward 55

REFERENCES 58

Tables

Table 1. Overview of selected examples of digital welfare in Denmark and Sweden 22
Table 2. Digital education – emerging trends and examples 24
Table 3. Digital health - emerging trends and examples 26
Table 4. Digital social care and protection – emerging trends and examples 29

Figures

Figure 1. The elements of digital transformation 10
Figure 2. The share of the population aged over 80 will increase 13
Figure 3. Objectives of Digital Welfare Policies: Efficiency, Effectiveness and Good Governance 17
Figure 4. Changing boundaries in the public sector 19
Figure 5. Computers in schools: Average ratio of computers to students in schools (2000 and 2009) 25
Figure 6. Uptake of social media by senior age groups, 2013 38
Figure 7. A whole-of-government approach to digitisation 44
Figure 8. Estimated level of direct financial benefits centrally realised - self-assessment. 46
Figure 9. Existence and use of business cases at the central government level 48
Figure 10. National Audit Office: The impact of Government;s ICT savings initiative .. 50

Figure 11. Focus on the value added - unbundling the costs of inputs and processes 53
Figure 12. The elements of digital transformation – current predominant focus..... 57

Boxes

Box 1. Massive Online Open Courses: A global revolution through online teaching and learning 23
Box 2. Sundhed.dk – personalisation on the Danish health portal 27
Box 3. Testing boundaries and user's reactions on Facebook..... 40
Box 4. Introducing ICT in the Danish primary schools..... 42
Box 5. Integrating ICT across welfare policy areas in Denmark: The Common Public Strategy for Digital Welfare 2013-2020: Empowerment, Flexibility and Efficiency..... 45
Box 6. Business cases in the United Kingdom: the Five Case Model 47
Box 7. OECD Recommendation of the Council on Digital Government Strategies 54
Box 8. A checklist for decision makers 55

Executive Summary

In July 2014, OECD member countries, through the OECD Council, formally adopted a Recommendation "that governments develop and implement digital government strategies" to assist and guide them to achieve that digital transformation. The Recommendation emphasises the crucial contribution of digital technologies as a strategic driver to create open, participatory and trustworthy public sectors, to improve social inclusiveness and government accountability, and to bring together government and non-government actors and develop innovative approaches to contribute to national development and long-term sustainable growth. The Recommendation also sets out a number of principles to guide the process of setting and implementing digital government strategies relating to engaging citizens and open government to maintain public trust; improving governance for better collaboration and results; and strengthening capabilities to achieve returns on investments in digital technologies.

The context for adopting this important Recommendation is that governments across the OECD are looking for ways to respond to new and greater expectations of them, address complex issues they face and, in that context, use digital technologies to modernise their public services. Thus, there are a number of imperatives for governments to embark on or strengthen the digitisation of their public services consistent with the Recommendation; and the Recommendation offers guidance on responding to these imperatives.

This paper outlines the political imperative for improving the efficiency, effectiveness and governance of public services design and delivery through digitisation, as the three primary categories of political objectives, alongside the equally compelling imperative for innovative public service design and delivery, in framing the direction of transformation processes. The demographic composition in OECD countries is changing, modifying significantly the demand for services, and in many cases, the capacity to provide those services. Governments are facing increasing expectations from users to deliver more innovative and responsive services, while dealing with strong pressures to consolidate public finances to remain globally competitive and to spur growth. In other words, a systematic and consistent approach to achieving sustained public sector productivity improvements and more user-driven public services is required, particularly in the cost-intensive welfare service delivery areas.

The focus on digitisation of education, healthcare, and social care and protection services, including smarter use of well-proven assistive technologies, in this paper is referred to as "digital welfare". This definition reflects the current cases available from Nordic countries where 'welfare services' has a broader scope than in many other countries, which focus primarily on education and healthcare services. Little information is currently available, at this stage, on digitisation in the social care and protection area, or on integration between these broad sectors, although the paper draws on one case that may be classified in this category.

Analysis of the innovative examples of digitisation from Denmark and Sweden, in particular, supported by reference to activities in other member countries where information is available, has enabled us to identify a small number of important and complex new ethical dilemmas for policy makers, and design and implementation issues for decision makers that represent prerequisites for the success of digital transformation projects – all of which must be addressed in the course of developing digital government strategies, and implementing specific digitisation projects and programmes.

The new digital environment offers opportunities for more collaborative and participatory relationships across stakeholders to actively shape political priorities, collaborate in the design of public services and participate in their delivery, with the public value chain highlighting changes to

public sector boundaries. New approaches are needed to support a shift from government-centred services, through a focus on citizen-centred approaches, and on to environments in which citizens and businesses determine their own needs and address them in partnership with governments (people-driven approaches), which are supported by new governance frameworks and funding arrangements specific to digital innovation projects considered in a number of the cases. The challenge is not to introduce digital technologies into public administrations (digitisation); it is more transformative: to integrate the use of digital technologies into public sector modernisation efforts (Digital Government). The focus of the cases considered to date, has largely been at the earlier stages of this progression. In order to address the challenges of digital transformation, such as new ethical dilemmas (professional ethics as well as issues relating to security, control and protection of personal data), and be well positioned to realise the significant benefits available from digital transformation, digital government strategies need to become firmly embedded in mainstream modernisation policies.

Digitisation will therefore play a key role to leverage this transformation of the public sector at large, given its potential to increase productivity and inclusiveness of service production and delivery in public welfare areas. In the short term, this digitisation will be a precondition for establishing and maintaining sound fiscal policies; in the longer run, it will be equally important to maintain public sector's credibility in terms of efficient and effective delivery of high quality services that are shaped by and responsive to users' needs, thus nurturing public trust in governments' capacity to boost more inclusive processes and growth.

The paper discusses approaches to achieving value for money in the public sector: sector level efficiency estimates, budgetary frameworks, funding arrangements, business case frameworks, productivity measures and the concept of a value chain for public service delivery. It discusses how current challenges of realising benefits from digitisation can be complemented with existing approaches to pursuing effective and efficient public services, in particular public welfare services.

Building on the *OECD Recommendation on Digital Government Strategies*, and based on a small number of cases from Nordic countries that tend to focus on achieving important gains in efficiency and productivity, the paper outlines a number of key questions on the implementation of digital government strategies in the complex area of public welfare services. The paper also outlines some of the emerging changes – in relation to the role and implications of new technological opportunities, changing role and relationships with the services' users, the role of data, new ethical challenges – that will be an integral part of policy making in the welfare sector in the years to come. The emerging changes include the importance of actors' engagement in the development and implementation of "digital welfare" innovation projects, local commitment and ownership, and the requirement for digital welfare initiatives to not leave potential actors behind or advantage those with easier access. In addition, the importance of measurements and the use of existing public data are underlined as tools to create better dialogue among stakeholders, addressing asymmetrical information challenges. The paper indicates the value of the transformative role of digital technologies; the need for and likely direction of new funding models for transformative digitisation projects; and the need for and development direction for new models of collaborative and co-ordinated governance; and implies a clear role for and the importance of innovation in achieving the transformation to "Digital Government". Finally, the paper discusses the potential for transformation of both central and local service delivery, putting the role, responsibilities and governance of local government at the very forefront of the modernisation of public sector service delivery.

The ambitious agenda for change heralded in the Council Recommendation is not yet cemented in cases where countries are drawing on digital technologies to improve public welfare services. The analysis and resulting guidance set out in the paper outline the main components of a framework that could be applied and elaborated through future analysis of a larger set of cases, covering a broader

range of public services (both within and beyond public welfare services), across the full spectrum from digitisation to digital government, and from a wider number and range of countries. Through a series of questions at the end of each of the major sections, the paper provides a structure for the collection and analysis of additional country experiences and practices with digitisation, and seeks a high level indication of additional projects or programmes where digitisation is being used to improve public services and achieve digital transformation.

Part One: Introduction – Setting the Context for Digital Transformation of Public Services

The imperatives for governments across the OECD and beyond to transform public service design and delivery provide a compelling context for greater use of digital technologies and assistive technological labour-saving solutions in the public sector. Achieving that transformation is undoubtedly going to draw heavily on the use to digital technologies in order to optimise the benefits for all citizens (through services that are more tailored to specific needs and perspectives, more responsive, higher quality and lower cost, including in terms of user time), and realise benefits for public sectors generally (through increasingly shared infrastructures, administrative services and ICT platforms that supports a reallocation of funding to frontline services as well as a reduction of overall costs), Governments are facing increasing expectations and greater demands from citizens about the range and quality of public services. And governments have set for themselves political objectives to achieve greater trust in government, including through responsiveness and transparency, and by providing opportunities for greater engagement by service users and citizens in general. At the same time, governments also face pressure for fiscal consolidation in the ongoing recovery from the global financial and economic crisis. And as demographics change in most OECD countries, general demand for services is on the rise, while the capacity to provide those services is declining in some, particularly rural, areas. Overall, governments are increasingly required to have greater capacity to understand and respond to complex and frequently competing issues, and to provide services that are both tailored to individuals' needs and aligned with national priorities.

These new expectations on governments are today driving public sector modernisation, which continues to require systematic and consistent efficiency and productivity increases, especially in the larger service delivery areas of the public sector; They also call for a more transformative set of changes to renew public sector service delivery, particularly in high impact areas, such as education, healthcare and social care and protection. Digital transformation will play a key role in modernising public services, increasing service productivity and reducing labour intensity, increasing the level of satisfaction with and effectiveness of services, and increasing the openness of, trust in and engagement with governments. The initial focus on information and communications technology (ICT) was aimed at improving efficiency and productivity, as a precondition for sound fiscal policies. In the longer-term, the use of digital technologies will need to be considered in the broader context in which governments are operating, with users' perspectives increasingly to the fore. In the meantime, most countries have made some investments in digitisation, generally with a focus on improving efficiency in administrative services that support frontline service delivery, and some have made positive moves towards e-government by developing more user-focused services that rely on greater use of digital technologies. A smaller number of countries have moved towards full digital government with investments in some areas of service delivery, in particular in welfare service areas, focused on reflecting user demands and perspectives and looking to innovative changes in service design and delivery. Overall the use of digital technologies is moving beyond the back-office and administrative processes and being increasingly applied to direct service delivery and citizen engagement. This progression from digitisation, through e-government to digital government is illustrated in Figure 1 (below).

A digital government environment is as characterised in the highlighted part of the diagram – it is one that is largely user-driven, with users voicing their demands and needs and thereby contributing to shaping the government policy agenda and the nature of and means for receiving integrated direct personal services. Achieving Digital Government will, in some areas, require progression through a period of e-government, the middle stage in digital transformation. Under e-government, governments make greater use of digital technologies, particularly the Internet, to achieve better government,

focusing on delivering services tailored to individuals needs in a user or citizen-driven setting, while also achieving improved efficiency and productivity.

Figure 1. The elements of digital transformation

	Information and Communication Technologies		
	Digitisation Greater use of digital technologies to improve cross government activities and data/ information management	*E-Government* Use by governments of digital technologies, particularly the internet, to achieve better government	*Digital Government* Digital technologies and user preferences integrated in the design and receipt of services and broad public sector reform – integral part of governments' modernisation strategies to create public value
Change path	From a focus on: efficiency and productivity	Through a focus on: efficiency and productivity in delivering tailored services to individuals	To a focus on: governance, openness, transparency, engagement with and trust in government, as well as efficiency and productivity
	From Government-centred – users are passive recipients of services	Through User / Citizen-centred – users participate in service delivery processes	To People-driven – users voice their demands and needs, contribute to shaping the agenda and services' content and delivery
	Public Services		
Administrative services Internal core functions of government and internal activities in agencies that directly support service delivery	• Improve internal processes of government • Improve internal processes supporting delivery of direct personal services, to improve services	• Innovative changes in internal processes • Innovations in service delivery, at the margin	• Transforming internal processes • Transforming service design and delivery
Direct personal services Government services provided to address the personal wellbeing of citizens and support public policy outcomes	• Individual databases and information systems • Standardised service delivery • Standardised services	• Integration of IT systems and databases • Collaboration • 24/7 online services	• Data sharing: data/information crowdsourcing/data analytics • Joined-up administrations – ICT platforms for sharing information, services and enhancing collaboration • Innovative services tailored to individual needs / ubiquitous services (m-government)
			Digital Transformation

Source: OECD

Figure 1 highlights two important elements to digitisation. Firstly, the nature of the Information and Communication Technologies involved; and secondly the services and activities of government in which digitisation may have a role – Public Services. In relation to the first, digitisation involves greater use by governments of digital technologies (generally ICT) to improve across government activities and data/information management, with a focus on improving efficiency and productivity in service delivery. Digitisation reflects a government-centred approach, where governments are focused on changing delivery methods to reduce costs, primarily in relation to administrative services, or direct personal services with standardised processes. The second element is public services, which cover both "administrative services" and "direct personal services". Administrative services are those

functions of governments that are critical to the public sector's existence, such as the identification of individuals as citizens, public security and safety, and procedural matters relating to the operation of executive government, and those functions of all governments organisations (as also in private sector organisations) that indirectly support the delivery of all public services, such as management of financial and human resources. Direct personal services are services delivered to collective or individual users that respond to and address personal needs of individuals, relating to well-being and social and economic development.

The final objective or stage in the digital transformation path is "Digital Government", enabling governments to create increased public value and broad public sector modernisation (with greater openness, transparency, engagement with and trust in government) through the integration of digital technologies and user preferences in service design and delivery of direct personal services and in shaping public policy outcomes, while also achieving efficiency and productivity gains.

The complex challenges that governments face in providing high quality services to all users are inter-related, requiring connected and integrated responses. It will be increasingly important for governments to understand the interconnectedness of various issues (from users' perspectives) and to re-think approaches and foster ways of addressing inequalities across society. To achieve success in responding to these complex challenges, governments will need to recognise the strength and opportunities available through digital technologies, and to use them both as a strategic driver and a strategic tool. Governments' responses will need to integrate digital technologies and user preferences in the shaping of public policy outcomes and the design and implementation of services, to build and sustain citizens' trust in the public sector and its capacity to consistently deliver appropriate and high quality services. Seeking greater innovation in service design to reflect users' needs requires a focus on digital transformation and not simply digitisation.

The OECD's 2014 Recommendation on Digital Government Strategies is also important for setting the context for this paper. The principles set out in the Recommendation shows that governance of ICT investment can improve results through: cross-cutting, outcome-focused approaches that allow synergies across common areas of the population, such as through digital welfare; strengthened basics such as improved project management methodologies can support: improved decision making, stakeholder engagement and reduced duplication; and engaging citizens and users can deliver for better outcomes through ICT platforms that support social innovation rather than direct service delivery). Drawing on the framework provided by the Recommendation, the paper discusses a number of cases where digital technologies are delivering improvements in efficiency and productivity, service quality and user satisfaction, though at this stage with limited focus on integration of services across sectors. By presenting and discussing these innovations, as well as their enablers (governance arrangements, funding models etc.), the paper aims to support policy makers and public servants in advancing integrated approaches to exploit digital technologies in public services, and to develop a more systematic approach to planning ICT investments in the welfare services area – and encourage more countries to contribute to the evolving discussion. The paper also aims to encourage discussion amongst OECD countries and others, within the context provided by the Recommendation, about how digitisation, digital transformation and effective governance mechanisms can enable successful public sector modernisation and innovation of frontline public services.

The paper draws on the objectives of digital welfare policies, which focus on efficiency, effectiveness and good governance, as well as general public management concepts – all in combination with specific cases that illustrate the various observations and findings set out. The cases are drawn from two Nordic countries, which have a particular approach to "public welfare" that is broader than that in a number of other countries. Establishing clear definitions for the terms used in this paper is therefore critical to understanding "digital welfare", which will enable all countries to

draw insights from the cases to their specific situations, and encourage more countries to provide new cases to support the development of this paper into a general guide. Although this context (and specific terminology) is particular, in some aspects, compared to other OECD countries, the paper suggests that the lessons, trends and developments encountered in the cases provide inspiration for a larger range of countries facing similar challenges.

It is important to recognise that there are also a number of complex challenges to successful digital transformation of public services, both ethical dilemma for policy makers and implementation issues for decision makers, which cannot be overlooked. Most of these challenges relate to the human dimension – the readiness for change amongst citizen's and service users to an increasingly digital environment, and concerns about the privacy and security of personal data. Challenges for decision makers relate to important practical issues in the various stages of the funding, design, development, testing, implementation and review stages of digitisation projects, along with the practical reality that the speed of advancement in technologies undoubtedly exceeds the speed with which the potential benefits can be realised in the delivery of public services.

This paper considers the interaction between the policy and fiscal context, digitisation and digital transformation, as the means to improve public sector performance and realise the benefits of digitisation, and proposes a new, more integrated approach to create public value. By exploring and discussing an integrated approach to the analysis of digital transformation across public welfare areas, this paper outlines a preliminary checklist for the design of digital welfare policies as well as the main components of an analytical framework to inform a deepening shared understanding of the characteristics and prerequisites for successful digital transformation more generally.

Imperatives for transforming public services

New expectations of governments

The political imperatives for improving the efficiency, effectiveness and governance of public services are clear, and the specific imperatives for governments to focus on digitisation as a strategic driver and tool to achieve those improvements are strong. Digitisation of some of the most labour cost-intensive public welfare service areas, primarily within education, healthcare, social care and protection, and integration between these broad sectors, holds significant potential that has yet to be realised. While quality improvements are being observed, gains in efficiency and public sector productivity are not as readily apparent, and high level governance gains (in transparency, trust etc.) are even less visible. The potential of engaging and empowering remote citizens and improving the reach of public service delivery is, however, not only promising – it is already delivering results across countries.

In the aftermath of the global financial crisis, and the subsequent European sovereign debt crisis, most OECD countries adopted fiscal consolidation packages and have been implementing substantial reforms and consolidation initiatives to deal with the economic consequences in the public and the private sector (OECD, 2012c). While the impact of the crises has been varying, in some countries they have led to record unemployment, economic stagnation, vulnerable banks and political instability. Furthermore, while countries have been consolidating structural balances and debt, they have also dealt with increasing social protection expenditures to cover the costs of rising unemployment levels, among others.

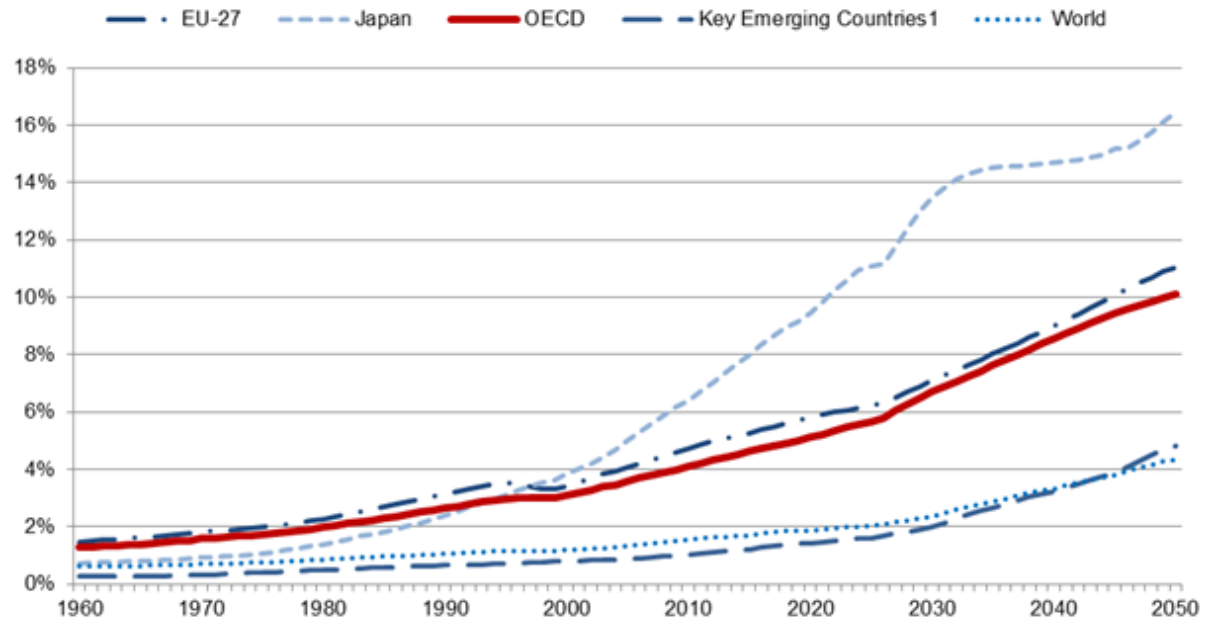
While the economic crises have contributed to a narrowing of fiscal space, governments are also under more general political pressure. In parallel with the structural deficits of the national accounts, trust in government has been declining in more than two-thirds of OECD countries, with less than half

of the citizens indicating confidence in their government (OECD, 2013a). On the other hand, according to 2012 data, satisfaction with public services has remained stable since the crisis, and OECD analysis shows that satisfaction with public service delivery is currently visibly higher than trust in government. Although trust levels differ considerably across countries, trust tends to be highest at local levels where the link to local government performance is clearer; professions in police, healthcare and education also benefit from relatively high levels of trust (ibid). While investing in future sustainable growth, continuing to focus on value for money in public spending, and pursuing structural reforms, countries will also need to address the issue of trust, including maintaining users' satisfaction with public services. This challenge is expected to intensify as citizens' demands increase in line with general economic growth.

Demographic Changes

One particular aspect of the difficult structural reforms required is the changing demographic composition of OECD member countries. This factor has significant implications for both the demand for and delivery of public services. Changes in the demography require flexibility and scalability in the provision of education, healthcare and elder care services, for example, by adjusting for the needed number of schools and care facilities for the elderly. As the share of elderly in a large number of OECD countries is increasing, the size of the working age population and the labour market is diminishing, posing a key challenge that governments must address. This challenge relates not only to changes in the levels of pensions and transfers required, but also to an increasing pressure on the sustainability of services that in many countries are primarily produced by the public sector or financed by governments, such as elder care and healthcare.

Figure 2. The share of the population aged over 80 will increase



Source: OECD (2013b), OECD Historical Population Data and Projections Database, http://dx.doi.org/10.1787/health_glance-2013-en.
Note: Key emerging economies are Brazil, China, India, Indonesia, Russia and South Africa.

As illustrated in Figure 2 (above), the share of the population over the age of 80 will continue to increase considerably in the years to come. This projected change in age profile is particularly the case in Japan, Germany, Korea, and Slovenia. Some Nordic countries, such as Denmark and Finland, will also experience increases. This development indicates, on the one side, an increasing need for care, particularly among the chronically ill, and on the other side, an expected decrease in the disability of the elderly (also referred to as the "healthy ageing thesis"), although trends vary across OECD countries. This uncertainty about the size of these effects makes it more difficult to predict the levels of the cost drivers. All other things being equal, however, elderly citizens are more costly in terms of health expenditures than their young co-citizens (OECD, 2012b). Regardless of the developments in demand for healthcare generally and elder care more specifically, along with related cost implications, the changing demography implies a need to adapt to older user groups, as they will compose a larger share of the population.

Spending Growth for Public Services

The share of general spending on public welfare areas has wide variations across OECD countries. For instance, across OECD countries, general spending on health tends to account for about 14.5% of general spending, on education about 12.5%, and on social spending about 35.6% (2011 numbers) (OECD, 2013a). An effective and productive public sector is thus an important part of a productive economy. Labour intensive service industries, involving services for which personal contact and interaction have to date been seen as integral to service design and delivery, have traditionally been perceived to suffer from a "cost disease", with increasing wages and low productivity growth relative to the rest of the economy. While this situation no longer seems to be the case across the economy in general (Woelfl, 2003), productivity in the public production of labour intensive services continues to constitute an important challenge. The public share of this spending varies greatly across countries, as do its funding mechanisms. And, while the private sector is generally assumed to benefit from productivity increases as a consequence of private market mechanisms (prices and competition etc.), publicly produced and financed services tend to require specific attention on governance mechanisms that support and are focused on continuous innovation for higher productivity. This focus is particularly critical for labour intensive services, such as education, healthcare, social care services and others, which currently employ large shares of the public sector workforce.

As an example, the general level of spending on healthcare as a percentage of GDP has increased considerably across OECD countries over the last decades, although some countries have succeeded in breaking the curve of increasing expenditures since 2008. Overall spending on healthcare specifically is financed by different sources across countries. In OECD member countries, on average 35% of healthcare spending is financed by general government, 37% by social security and 20% by citizens, out-of-the-pocket (2011 numbers) (OECD, 2013a). The Scandinavian countries are characterised by a very high share of general government financing of this spending. For example in Denmark, the government's share of overall spending accounts for as much as 85% of all spending on healthcare. This very high proportion places Scandinavian governments under a particular kind of pressure for continuing to increase efficiency in their healthcare provision.

While ageing is an important future cost driver (as discussed above), it is not the single most important one. According to a recent study, between 1995 and 2009, the main driver of growth in healthcare spending was increasing national income, estimated to account for around 42% of the increased costs, with age accounting for only around 12%. Other residuals accounted for the remaining cost increases, including policies, new technologies, and relative prices (OECD, 2013a). In addition to emphasising these general productivity challenges in public service production, these data also indicate that the use of digital technologies most often appears to be a cost inducer rather than a cost

cutter, although it is also likely to contribute to increased service quality, satisfaction levels and potentially effectiveness.

The enabling potential and opportunities of digital technologies have helped modernise public administration for the last decade and more, and is increasingly pervading the public sector more widely, including high impact, labour intensive areas (OECD, 2014a). The tools to achieve and maintain efficiency and increase productivity in the delivery of public services rely on a number of different approaches – for example, better performance management, contracting, strategic sourcing, innovation policies, simplification, better regulation, professional management and staff development. The composition of public expenditure and underlying policy priorities remain important, as illustrated by the discussion of healthcare. Recent OECD analysis indicates that, when general government spending is kept stable, increasing spending in areas such as education, healthcare and transportation increases long-term growth, whereas increasing spending in social care and protection, such as housing, weakens long-term GDP growth (Barbiero and Cournède, 2013).

Consistency with the emerging direction in public management

There is no doubt that digital technologies today underpin almost all parts of public bureaucracies. And the thinking on public management is evolving. While some people have argued rhetorically that the last decades' trend of "New Public Management is dead", no clear consensus seems to be emerging around an alternative governance regime. However, the driving forces for a new governance regime appear to emphasise, in particular, the openness and participatory character of governance mechanisms, rather than, for example, technocratic design of economic incentives at micro levels – although incentivising at different organisational levels remains an important tool. This orientation towards increasing openness in public governance is reflected in OECD member country policies, as well as in more general commitments, such as through the DG CONNECT's "Vision for Public services" and, more recently, in the formal commitment to the "Recommendation of the OECD Council on Digital Government Strategies".

NPM-based thinking and policies have generally emphasised market-based competition, often through a fragmentation of units focused on tight objectives, and incentives in operations. While critics have rightly emphasised, for example, the need for more holistic approaches, avoiding uncoordinated sub-optimisation of units within the public sector, for purposes of this paper it is important to emphasises] two different points. Firstly, the implementation of NPM practices across OECD member countries has varied greatly, leading to effective as well as flawed governance frameworks. This situation mainly directs attention towards achieving wiser and more carefully considered implementation of NPM practices, in line with the emphasis on evidence-based policy making, systematic learning across countries, sectors and levels of government, rather than fundamentally breaking with the underlying management thinking. Secondly, the emerging digital transformation of public welfare services seems to complement, leverage and extend implementation opportunities in line with fundamental NPM ideas, rather than breaking with them. While it is fair to say that joined-up digital government trends are different from previously siloed approaches, the NPM line seems continued in other instances. For example, the redesign and rethinking of processes of service production and delivery due to re-fragmentation opportunities; reframing of the principal-agent information asymmetries through big data, extending both central control and local learning; and the increasing user-centrism and customer focus in the public sector, which can reach new heights with increasing opportunities for social media and data-based personalisation. Regardless of the preferred labels in the transition between management regimes, it remains clear that the enabling potentials of connected digital technologies are helping drive the modernisation of public services.

A framework for analysing progress towards "Digital Government"

The steady integration of new technologies (such as cloud computing, social media, mobile technology) into the everyday lives of people, businesses and governments, is helping to open up governments and give rise to new forms of public engagement and relationships that transcend public, private and social spheres. This new digital environment offers opportunities for more collaborative and participatory relationships that allow relevant stakeholders (citizens, business and non-governmental organisations), to actively shape political priorities, collaborate in the design of public services and participate in their delivery, to provide more coherent and integrated solutions to complex challenges. Digitally enabled participation and production of services is changing people's expectations about their relationships with governments. As a result, new public governance approaches are needed to support a shift from government-centred services, through governments anticipating citizens' and business needs (user or citizen-centred approaches), to environments in which citizens and businesses determine their own needs and address them in partnership with governments (people or citizen-driven approaches).

The diffusion and adoption of technologies is also changing expectations on governments' ability to deliver public value (discussed earlier). Governments can no longer afford to separate efficiency from other societal policy outcome objectives in the governing and managing of digital technologies. The economic and financial crisis is showing that improved service delivery and internal public sector efficiency go hand-in-hand with economic growth, societal equality and good governance objectives, such as greater openness and transparency, integrity and trustworthiness, and citizen participation and engagement, alongside greater innovation.

The challenge is not to introduce digital technologies into public administrations (digitisation); it is more transformative. The challenge is to integrate the use of digital technologies into public sector modernisation efforts (digital government) (See Figure 1). Achieving that transformation will, in some areas, require a more progressive path, through greater use of digital technologies to achieve better government (e-government), providing a stronger platform for later transformation. Public sector capacities, workflows, business processes, operations, methodologies and frameworks need to be adapted to the rapidly evolving dynamics and relationships between the stakeholders that are already enabled – and in many instances empowered – by the digital environment. Setting up more open approaches to policy-making and public service delivery requires governments to re-organise themselves around user expectations, needs and associated requirements, rather than their own internal logic and needs. In order to address the challenges and be well positioned to realise the significant benefits available from digital transformation, digital government strategies need to become firmly embedded in mainstream modernisation policies and service design so that the relevant stakeholders outside government are included and feel ownership for the final outcomes of major policy reforms.

Analysis of the cases available to date has supported and enabled the development of an initial checklist for decision makers of factors relating to implementing digital technologies for public services – covering: project management and governance; the involvement of users, public servants and sector professionals; the importance of communications throughout the project; and review and evaluation. Further, the combination of: a strong, clear commitment to digital transformation of public services in the OECD Council Recommendation; a clear articulation of three distinct stages and areas of focus in digital transformation; and the evolving checklist of factors to consider in digitisation projects (discussed in more detail in Part 4, below), provide important components of a framework that can be applied now – and be elaborated with the benefit of analysis of further cases from a wider range of countries and sectors.

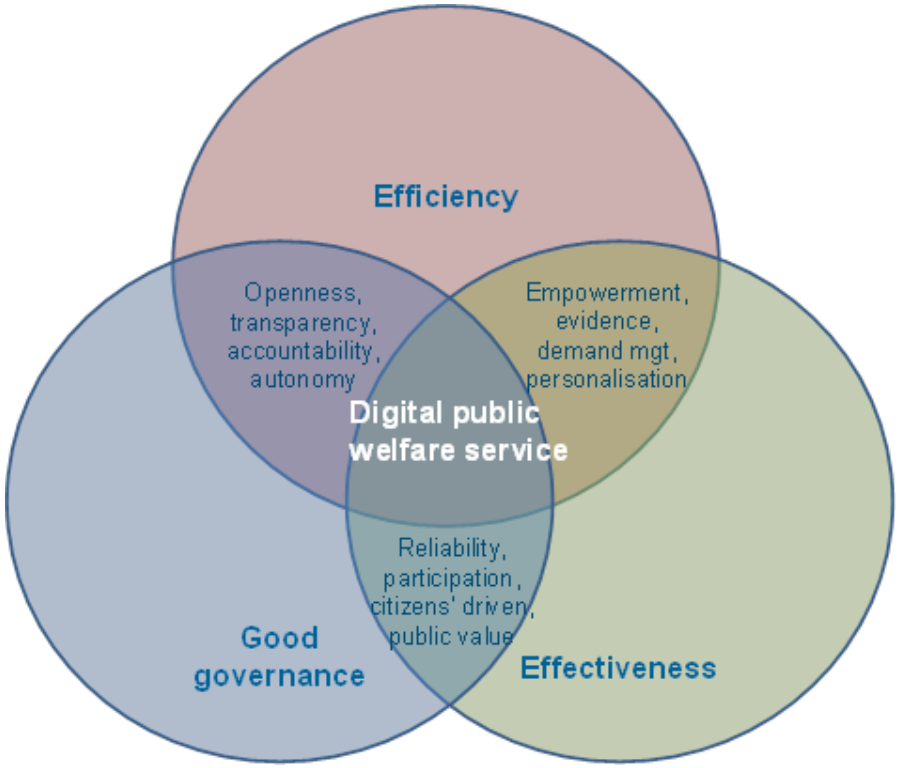
Part Two: Digital Welfare Services

Objectives of digital public welfare services

Governments are increasingly aware of the benefits of and imperatives to apply digital technologies as a means, and not as an end. Three broad categories of political objectives frame the different directions of the digital transformation processes: *efficiency*, including particularly administrative mechanisms in administrative services and in the 'back-office' supporting direct personal services, to achieve and maintain efficiency and productivity in the public sector; *effectiveness* and policy making processes and decisions that integrate the use of digital technologies to leverage policy outcomes and ambitions; and *good governance*, under which citizen engagement, and transparency, accountability and trust in government are important policy objectives.

These three main strands – efficiency, effectiveness and good governance – are illustrated in Figure 3, constituting complementary areas of focus for the digitisation of public services. The figure emphasises public welfare services, consistent with the focus of the cases considered in this paper. The figure is inspired from and in line with the European Commission's non-binding draft paper the importance of an open government setting to encourage and nurture public service transformation (European Commission, 2013). It illustrates key trends that help maintain the value proposition and drive for the digital transformation of welfare services and public services generally. While the emphasis differs across countries and public service sectors, increasing openness and connectedness are main characteristics of this development.

Figure 3. Objectives of Digital Welfare Policies: Efficiency, Effectiveness and Good Governance



Source: OECD, inspired by European Commission (2013).

Efficiency (and productivity) has been a key driver of the public sector use of digital technologies for some time with the use of digital technologies spurring growth in productivity in leading countries since the mid-1990s, beginning in the United States and then taken up in other economies. Digitisation is helping to reduce the costs of administrative procedures by freeing up labour for other purposes, and is an important component in digital e-government strategies in most OECD member countries. This approach includes unbundling public sector responsibilities and organisations, in order to rethink the individual components, for example through increased use of shared services, and to consider options for improving the experience of citizens' using those services.

Digitisation is clearly related to increases in productivity across the economy as a whole, and it is more difficult to draw a clear picture of developments within the public sector specifically (OECD, 2002). This practical limitation is largely due to factors related to the challenges of measuring public sector productivity (particularly the basic question of how to measure outputs without a market price to determine value added). A natural interest follows in linking productivity measures to the introduction of digital technologies in service delivery, and there have been some recent attempts made to do this. The rise in the number of productivity commissions with broad mandates across the OECD member countries testifies to an increasing interest in measuring public sector productivity. In Australia, a frontrunner in this area, an annual review of public services has been conducted since 1993. In Denmark, a national productivity commission recently launched a conclusive report, covering the public and the private sector, which included a focus on ways to measure and increase public sector productivity.

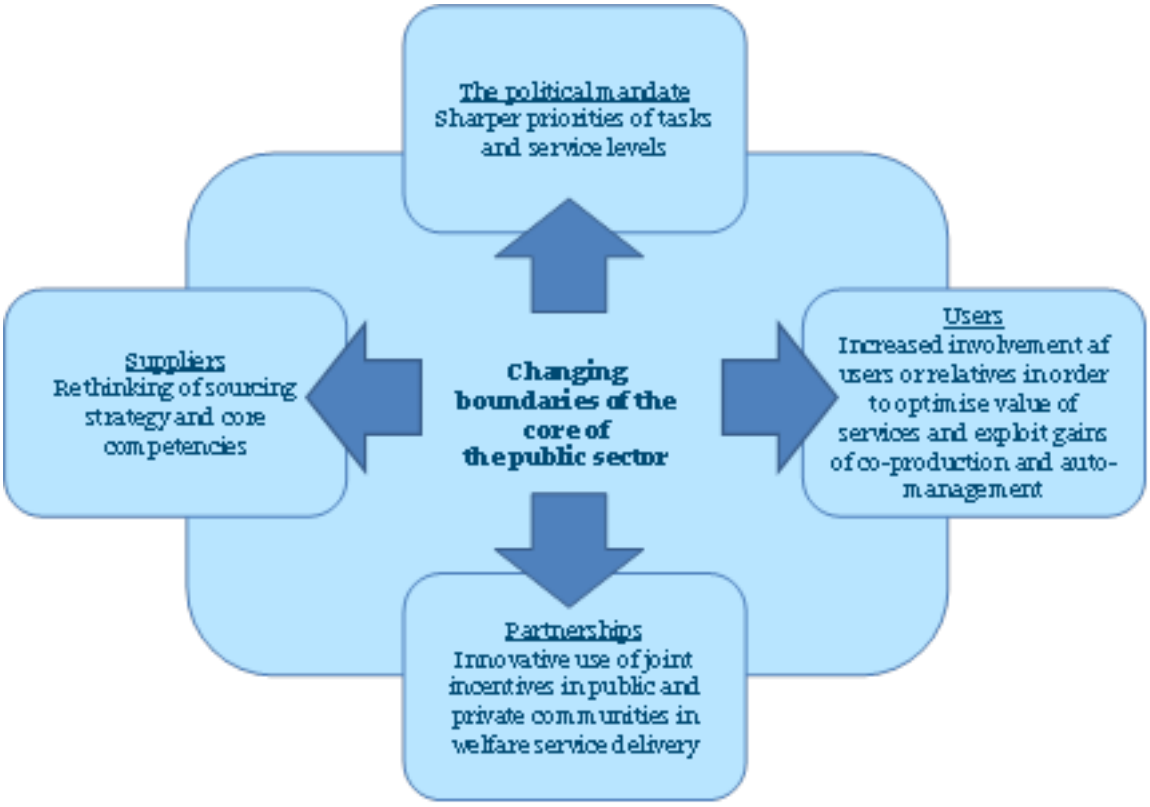
Today, public sector productivity is increasingly being measured through, for example, simple index based techniques demonstrating developments across time, or through parametric techniques, such as labour productivity. More detailed analysis involves specifying independent variables such as labour, ICT capital, other capital, intermediate spending, etc. Multi-factor productivity approaches, such as the latter, allow for a clear understanding of productivity in areas where input and output are clearly distinguishable, including a large number of services in education, healthcare and social care and protection – and also the role played by digital transformation projects. With the increasing amount of data openly available in governments, efforts to establish, test and systematise productivity measures in public service production is key to encouraging and maintaining efficiency.

In Denmark, productivity measures have been an integrated part of the management of the health sector since the structural reform in 2007, comparing productivity across regions and hospitals. The data demonstrate considerable differences that are worth analysing further in order to determine how external conditions and internal focus areas can help explain parts of the differences. Where productivity measures might be good across institutions and over time, more specific insights into the operations are often helpful for achieving effective digital transformation of public services.

The digitisation of public services also calls for new measures to address the production and delivery of welfare services. For example, rather than treating individual actors and processes as discrete elements that can be optimised outside any context, thinking of them in terms of a value chain to deliver public services provides a model for considering strategic alignment, citizens' experiences and efficiency and productivity issues. Further, the value chain allows policy makers to visualise possible gaps, alignment failures and potential process improvements, as well as the common elements that can support all of the related processes – all of which may imply changes in stakeholder and user interactions, and I the role played by different professions. In order to understand the extent to which digital technologies are enabling changing boundaries, new measures are needed on changes in value added, upstream as well as downstream throughout the value chain of public service delivery.

The changing boundaries in the public sector focus on four primary policy stakeholders (see Figure 4) First of all, the *political constituents* who are held accountable for their capacity to recognise and achieve the right priorities across service areas, defining the mandate and the legitimacy of the public sector. The post-crisis trend has seen attempts to reduce the size of the public sector, diminishing or privatising some responsibilities, particularly around welfare service areas. These changes have affected how governments are engaging with *private suppliers*, including how new markets are nurtured, by outlining the current and future roles in the eco-systems of welfare service delivery. Boundary changes here include framing and maturing current and future markets, maintaining competitiveness and competition. The sharpened policy priorities also shed light on roles that non-governmental actors in general can play to support policy objectives. By building *partnerships*, including with private business, the public sector can increase its capacity to promote desired policy outcomes, functioning as an orientating platform. Finally, the increasing engagement and inclusion of users is changing the boundaries of front-line service delivery, creating better targeted personal value added through co-production, and also changing how political constituencies and alliances are being shaped.

Figure 4. Changing boundaries in the public sector



Source: OECD

As illustrated in education and healthcare, digitisation today goes beyond the administrative support areas and is beginning to explore the greater potential across a broader range of public welfare service areas. This point is demonstrated, for example, by the Australian Department of Human Services, which initially used digital technologies to integrate payments (in the early 2000s), and since

2011, has encompassed a broader range of related services through an integrated social service platform.[1] However, countries still seem to struggle with focusing and implementing their digitisation efforts in practice, in ways that result in more sustained improvements in the efficiency of administrative activities, measured by decreases in the number of administrative public servants and budget reductions (see, for example, OECD, 2009.)

Digital transformation of public welfare services

Digital transformation of public welfare services reflects a broad range of trends and developments. This paper does not aim to cover and analyse these emerging trends extensively or in depth; it does, however, aim to provide an overview of selected trends relevant to digitisation of welfare services, by analysing a small number of education, healthcare, and social care and protection cases that focus on "digital welfare".

The term "public welfare", in a public policy context is used differently across OECD countries. In Anglo-Saxon countries "public welfare" is generally used to describe financial transfers or support provided for the unemployed, those of working age who are unable to work through sickness or disability and the elderly. In most instances eligibility criteria include some form of means testing, or some level of co-payment that is required from service users. In a Northern European – and particularly a Nordic – context, "welfare" refers to an economic model that exemplifies the welfare state in those countries. Nordic countries remain, overall, characterised by well-integrated societies with high standards of living and economies in which the public sector (central government and local governments or municipalities) plays a key role in redistribution of income as well as in the production and delivery of a number of services. The Nordic model is also characterised by politically defined "service rights", among which basic education, healthcare, and social care and protection are typically considered the most important, with high levels of universal access (that is, equal access to services with no direct user fees). The role of governments also extends beyond purely publicly produced and provided services, encompassing general service regulation, for example through tax incentives (also referred to as "tax expenditures"), insurance arrangements that are provided by private suppliers and community and market service obligations.

The paper uses the term "welfare services" in the broader sense, to cover education, healthcare and social care and protection services, consistent with the approach in these Nordic countries – and the term "digital welfare" to refer to the digital transformation of those services. Welfare services are the single largest area of public expenditure in OECD countries largely because they are characterised by high labour intensity as well as high levels of demand. Digitising aspects of those services therefore creates opportunities for a radical digital transformation. While digitisation today is an increasingly recognised tool for efficiency, few countries have yet turned to national co-ordination of the digitisation of welfare services across and between different sectors. The relative absence of digital welfare services means that huge potential savings and benefits for citizens are not yet being realised. And it means that significant improvements to welfare policies, in terms of service quality and user satisfaction, as well as efficiency, are not being launched.

The dominant focus of the different "public services", what constitutes "welfare services" and how they are financed and delivered varies across countries. The Nordic welfare state model with large public sectors, on which most of the examples in this paper draw, gives public financing and delivery of services a key role. Governments apply different models and patterns of public welfare service delivery, adapted to the political context and specific service delivery areas. For example, in addition to the role of being a direct service producer and provider, governments are also likely to be a "purchaser" or funder (through grants) of privately produced services, subsidising users' or their consumption of specific services.

The general scope of the welfare areas covered by the cases is large in principle, because of their relative importance: as noted above, education, healthcare and social care and protection compose a significant share of public spending across OECD countries, covering the larger share of the public workforce. These areas of public services also face increasing costs and levels of delivery, particularly as a consequence of a changing demography with an ageing society.

Although the paper draws from examples and good practices from a number of countries, it is grounded in specific examples (cases) of recent digital welfare innovations provided by Denmark and Sweden. The cases have been selected with regard to public governance challenges in their development and implementation. The cases provide important insights into the cross-government challenges behind the current digitisation of public welfare services. Table 1 summarises most of the cases and provides an overview of the variety in terms of quality and scope of the different welfare service innovations and trends taking place across the countries.

Table 1. Overview of selected examples of digital welfare in Denmark and Sweden

	My Pension Service (SWE)	My Healthcare flows (SWE)	Digital home care services (SWE)	My Pages App (SWE)	Advanced Care in the Home (SWE)	Urban and Rural in Balance (SWE)	Ulcer care via tele-medicine (DK)	Assistive welfare solutions (DK)
Description	Provides an integrated view of all personal pension related information.	Provides an open platform to manage healthcare flows at an individual level.	Digitally assisted care services in the home of citizens.	Mobile app to address to access social care and protection info, and e.g. apply for parental leave if your child is sick.	IT support for Advanced Care in the Home, enables digital learning tools for nurses and care staff at the patients.	A new e-service platform for community building and participation for urban-rural balance	Nurses treat ulcers in patients' home via direct communication with mobile web journal and doctors, reducing care visits.	The roll-out of assistive technology, e.g. to help in social and elderly care with daily toilet visits, eating robots, lifts.
Key words	PPP; ease of use; safety and privacy; independent; Pension benefit views	Open, shareable, secure, scalable and innovation of care flows	Social elderly care; ageing-in-place; video phones; home care	Mobile; User-friendly; Customer focused; Simplification	Home care support; mobile nurses; on-line equipment; online-planning.	ePower to the people; cultural change; co-creation; self-confidence; action learning	Telemedicine; foot ulcers; diabetics; change of work processes; cross-sector collaboration; home care	Change of work processes; efficient social services; sharing good practices; self-reliance
Scope	General government services (national)	Health (regional)	Social protection (local)	Social care and protection (national)	Health (national)	Local service delivery and engagement (local)	Health (regional and municipal)	Social protection (local)
Beneficiaries	Citizens with pensions, over 2.1 million have signed up (+30% of working population.)	Staff, patients, tax payers.	Elderly citizens of Vasteras municipality, currently 30 elderly.	Rolled out nationally, more than 1.2 million unique annual users of MyPage, 43% via the App.	Clinical staff, including particularly nurses	Around 20,000 local citizens, but also other municipalities and regions can use the platform.	Patients, local and regional healthcare staff, such as doctors, nurses. National roll-out is ongoing.	Elderly and disabled citizens are main users, social and care workers are also affected
Results	Increased user satisfaction and awareness on pensions. See: www.minpension.se	Better patient care and cost reductions, cf. pilots. See www.minavardfloden.se	Autonomy, empowerment, time reductions, better care. See www.vigtigvasteras.se/ehemtjanst	Mobile access means higher logon-frequency, 24% usage of leave function, users satisfied, no "paper typos".	Paper, fax and voice instructions have been replaced with digital, mobile instructions. See Itacih.cs.lth.se	Use of the platform has strengthened citizenship; better connectivity also reduces vulnerability to natural hazards.	Financial benefits in both regions and municipalities; also reduced transportation time for citizens. Quality via faster healing.	Reduced attrition among social workers, citizens feel more capable and autonomous, municipal savings are budgeted.
Governance	Co-funding by government and private pensions. A digital service fix of complex pension rules.	Broad advisory group, including all key stakeholders. Bottom-up implementation via healthcare professionals.	Locally driven project, ethical, practical and technical challenges were also dealt with locally.	Governance of user-experience goes beyond public organisations. National scale makes services opt for digital/apps.	Locally driven project, despite large investment and national scope.	An enabling platform for community interaction and participation. Eco-system encouraged through private spin-offs. Trust was built through dialogue.	Budget negotiation based on a dynamic business case to be revised according to validation of figures; local commitment and national monitoring important.	Clear business case but local funding, roll out after pilot testing overseen by, national sector board, re-scoped to fit market maturity.

Source: OECD, based on contributions from the Danish Digitisation Agency and the Swedish VINNOVA, received May-July 2014.

The welfare areas as elaborated in more detail below, build on the insights from the Nordic cases, as well as literature and analysis on more general trends and cases. In education, new teaching and learning methods are being tested, and global learning communities are emerging. In healthcare, new service models are also emerging with patients experiencing increasing access to information, increased independence and empowerment in care, and a rapidly increasing uptake of telemedicine. In addition to digitisation of transfer payments, tele-medicine (where citizens are at the centre, benefiting from services in their homes) provides insights into changes in social care and protection, where cross-sector boundaries are also being challenged.

Education

Traditional delivery of education is based on a premise of relatively little change – that the surrounding world does not change much after the formative years and that people are not very mobile. As a consequence, today's educational traditions and systems were mainly developed in a time before collective accelerated learning methods were understood (McGinnis, 2013). Accelerated learning, which recognises preferred learning styles of students, in combination with digitisation, speeds up and enhances both the design and learning processes, increasing cost-effectiveness. On average, innovation intensity is greatest in higher education, which is where the highest proportions of private financing of education are found, with secondary and primary education approximately equal regarding their level of innovation (OECD, 2014a) (Box 1). Method innovation in education is above average, compared to other sectors, and product and service innovation below average, while technology innovation is at the average sectoral level (Ibid.).

Box 1. Massive Online Open Courses: A global revolution through online teaching and learning

Online education is in the beginning of a radical transformation. New Massive Online Open Courses (also referred to as MOOCs) are appearing, changing the fundamental cost structures of traditional universities: Moving from labour intensive teaching with high marginal costs, to scalable, collaborative online teaching with very limited marginal costs. However, MOOCs still have considerable fixed entry costs, in particular in preparing courses. And online educational tools, for example, to revise exercises, papers, tests and material still appear in the early phases of their development.

John Cochrane, professor at the University of Chicago, highlights the importance of social interaction and commitment, how to do things wrong and learn from it, and real application of knowledge, and concludes: *"On these dimensions, online is about halfway. The forums, google chats, and growing community between students are not as good as a high quality classroom experience. They are much better than a mediocre class at a university in the middle of nowhere."*

The global collaborative communities emerging around online courses, physically as well as virtually, are of acceptable quality though still fragmented and of varying quality. Although, the potential for specialised global learning communities seems to be real, no clear business models among the providers have yet emerged. Still, the development is ground breaking.

An online educational platform, Coursera, has experienced a massive increase in its usage since its launch. Today, Coursera has more than 22 million course enrolments across 190 countries, with the most popular courses having more than 240,000 students enrolled. While this massive global scale of enrolments is impressive, the real added value test lies in the number of students who have completed the courses, and how they apply that learning. The considerably lower numbers here, indicate that the format of online teaching still requires adaption. The development of online courses, however, is rapid and will have consequences for the organisation of tertiary education in OECD member countries, perhaps in the relatively near future.

Source: http://www.economist.com/news/finance-and-economics/21595901-rise-online-instruction-will-upend-economics-higher-education-massive and http://johnhcochrane.blogspot.co.uk/2014/02/mooconomics.html

One way to consider the efforts to digitise and develop the education system is according to the functions the developments are addressing, as shown in table 2. The table illustrates that the focus of digitisation so far has been on administrative services (support processes), and that changes in the educational and professional core of teaching are following at a slower pace.

Table 2. Digital education – emerging trends and examples

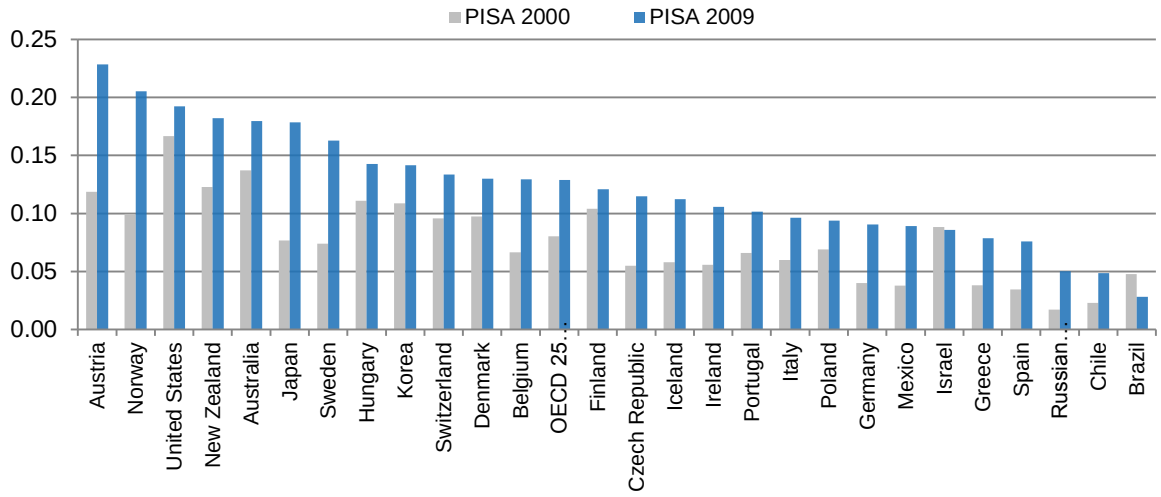
Educational service categories	Examples of emerging digital trends
School administration	Administrative processes of the school – for example, applying to the school, applying for grants and subsidies, registering for exams, and getting exam certificates – are increasingly being digitised as a part of e-government programmes. In Denmark, some of the processes (applying for university and student grants) are mandatory online.
Communication between schools and their constituents	Communication across teachers, parents, students and others is also an area with a high level of digitisation. With easily accessible collaborative platforms, schools can save time and provide easier and more flexible communication online – provided that the constituents are ready and have the sufficient skills and access.
Teaching and learning preparation	In line with the above, a steadily increasing digitisation is happening, both by complementing traditional books and prints with online learning resources, and also by organising preparation and sharing knowledge and practices.
Teaching and learning	The direct interaction between teacher and pupils/students, traditionally taking place in the class room, is evolving more slowly. While insights from distance, blended and collaborative learning are emerging, these insights have yet to crystallise at a larger scale.
Revisions and exams	Revision of papers, tests and exams is also a time consuming part of teaching. This area is currently being digitised, although the markets appear rudimentary, linked to the digitisation of teaching materials and teaching in general.

The European Union has recognised the importance of accelerating and enhancing digitisation of education to promote better skills and growth, which is reflected in the European Commission's strategy for a digital single market (European Commission, 2016) as well as targeted research programmes with reference to the Digital Agenda and collaboration frameworks, such as Open Education Europe. Further, research conducted in Denmark to establish a business case to support the digitisation of the public schools showed a substantial unexploited potential for the use of digital technologies and digital learning resources in education. Digital learning resources, for example, can help free up teachers' time, contribute to more differentiated teaching and increase students' motivation. However, the idea of digital education in schools is still emerging across OECD countries. For instance, although Italy launched the National Plan for Digital Schools in 2007, progress is difficult to track, particularly due to the high initial investments (Awisati et al., 2013).

Digitisation and greater use of digital technologies in the delivery of public services, including education, focuses on the design of services and associated delivery processes to better meet user needs, and continues to rely on the skills of those involved in supporting delivery of the services. In education, this means, for instance, that although the availability of ICT equipment and infrastructure is important, teachers' general teaching skills and specific new skills and strategies supporting the

integration of new ways of learning and use of new digital technologies into their students' curriculum remain critical. Nevertheless, it is interesting to observe the general rather low presence of computers in public schools, as illustrated in Figure 5. To some extent, this situation also reflects a general challenge to furthering digitised welfare services in some countries where the basic telecommunication infrastructure is still not adequate to support more data heavy transactions. Several of the cases indicated above, made reference to a high general level of internet connectivity, which still for some purposes appeared insufficient, for example in the Swedish local community building.

Figure 5. Computers in schools: Average ratio of computers to students in schools (2000 and 2009)



Source: OECD (2013c), Trends Shaping Education, OECD Publishing, http://dx.doi.org/10.1787/888932758644.

The Danish project that was aimed at increasing the use of digital technologies in public schools implied the engagement of a number of stakeholders, including end-users (teachers). Similarly, the engagement of the various stakeholders in the Danish Project "Diffusive technological welfare solutions" supported the Welfare Technology Foundation's selection of the best projects to be implemented nationally.

Countries are starting to engage in thinking about how to transform their educational policies, including through better collaboration between the school, parents, teachers and pupils. For example, in Sweden, transformation includes digital tools to save teachers' time when revising tasks and exams, and in Denmark it includes building new markets to provide digital learning materials, to be shared across countries, jurisdictions or schools. In Finland and Estonia, work on the development of an online "education cloud", joining up educational platforms and materials, is another way of using digital opportunities to foster collaboration, in this instance at a cross-country level. As advances in and the supply of new technologies grows much faster than evidence of and understanding about their impacts, countries continue to work on developing the basis for making decisions about how to leverage digital technologies to improve their future education system.

Healthcare

Policies to secure well-functioning health systems have become an increasingly important issue across OECD countries. Healthcare is of vital interest to all citizens, and all countries face alarming

increases in already significant costs because of the demographic changes ahead and a rise in the number and incidence of chronic diseases. These factors underline the need to improve efficiency and effectiveness of national health systems. Technology, and particularly digital technologies, is increasingly playing a key role to leverage future health policies.

Most countries' health systems are complex, relying on a wide range of different actors with separate responsibilities, interests and values, which provides a specific imperative for developing an integrated vision that can be supported through digitisation. Creating digital transformation in healthcare is thus – as is the case with all larger public welfare areas – a challenge of inspiring and leading social and cultural change. The health service categories in Table 3, below, do not provide an exhaustive picture of the services provided within national health systems. Rather, the table provides a view of selected trends and examples within relevant parts of health systems.

Table 3. Digital health – emerging trends and examples

Health service categories	Examples of emerging digital trends
Administration of health units	Back-office administration is one of the early areas where digitisation has occurred, including digital reimbursements of health expenses, typical in countries with a large share of insurance based health service. The use of e-procurement for medicine and clinical equipment is also a prominent example in some countries.
Health information and data	Electronic health records with patient data have been at the core of digitisation for the last decades. Still, countries have struggled to create adequate systems and to maintain their full implementation and usage to exploit and fully realise the benefits, both within and across hospitals and clinics. For example, in Korea, 2013 data indicated around only 15% uptake of electronic records in hospitals.
Communication with patients and relatives	Communication with patients (and relatives) is strongly supported by digital platforms, for example enabling better access to personal health data. In addition to empowering citizens, allowing them to manage their own health data autonomously and securely also helps increase trust in the public sector's capacity to protect privacy.
Bookings	Bookings of, for example, hospital or doctors' appointments have been increasingly digitised. In the United Kingdom, online hospital bookings were part of the *National Programme for IT* in health in 2002.
Prescriptions	Digital prescriptions are increasingly standard, including in Denmark and Sweden. While implemented with different pace across OECD countries, digital prescriptions can help reduce errors and transaction costs between hospitals, practitioners and pharmacies, on the one side, and the patient, on the other. Digital prescriptions also provide data to improve doses, identify harmful drug interactions and prevent abuse and trafficking.
Clinical decisions	While doctors still play the key role in patient clinical analysis, different elements of diagnosis are increasingly being segmented. Scans can take place in one location to be analysed further in another, with access to specialists. Access to digital data helps reduce the number of errors in treatments, while electronic transmission can smooth over shortages of specialised skills in certain areas.

Health service categories	Examples of emerging digital trends
Patient care and monitoring	Patient care and monitoring is increasingly being digitised, and online treatments are being introduced. Services are categorised according to the remoteness-readiness. Processes are redesigned and the value chain is reconstructed. Patients are increasingly monitored either by themselves or through connected devices.
Prevention	Prevention is a very important aspect of health systems. For example, digital health records in combination with digital medication recommendations help take medical intolerances into consideration. Big data analysis on high risk groups is taking off to inform general health policies.

Source: OECD, inspired from OECD (2012a), Rethinking Elderly Care: Realising the Potential of New Welfare Technologies and User-Driven Innovation. Based on data from OECD ICT Benchmarking Project, *http://www.oecd.org/els/health-systems/Pilot-Countries-Measuring-ICTs-in-the-Health-Sector.pdf*

The Danish public health portal Sundhed.dk (see Box 2, below) is an example of digital technologies being used to assist communities between health service providers and patients and their relatives.

Box 2. Sundhed.dk – personalisation on the Danish health portal

Sundhed.dk is the public health portal owned jointly by the Ministry of Health, the Danish Regions and Local Government Denmark. The portal was established in 2003 with the purpose of gathering existing and future information in the health area in one place. Today the portal is integrated with the joint-public identity and authentication infrastructure, including electronic digital signatures that citizens can use to log on to the portal.

Once logged on, the portal gathers data from all the main health actors across levels of government, including general practitioners, which gives citizens access to:

- All latest information and activities in a current health view;
- Journals from hospitals, including personal information registered;
- Journals from general practitioners, including personal information from general practitioners and specialised doctors, such as test results or diagnoses;
- A medicine card, providing an overview of all prescribed medication from hospitals and doctors;
- Overview of consultations by practitioners and specialised doctors;
- And finally, a personal data log, to see when, why and by whom your personal data have been accessed.

This personalised information is in addition to detailed general information (for example, on patient rights and quality standards) and advice about health, care and prevention in general, which is also accessible through the portal, targeting both healthcare professionals and citizens.

The portal appears a good example on how citizens can be empowered to better gain control of their personal health, while creating a joint, standardised platform for collaboration between the different parties in the health system.

Source : www.sundhed.dk (accessed 3 November 2014)

The Swedish project My Healthcare Flows also aims to deliver better healthcare through higher levels of participation by patients and their families. The idea is to provide holistic solutions based on the individual patient's needs, including innovative e-services and open data platforms, enabling new business models. By deploying the Patient Journey e-service and the related technical infrastructure in a number of healthcare units in at least seven county councils in Sweden – and in at least one care unit

in two other Nordic countries – expectations are high, not only in terms of increased quality of life, security, safety and communication with patients, but also for developers to be able to access an open toolkit that will create new opportunities for innovation in the healthcare sector.

In most countries, rural areas are typically not served at the same levels as urban areas and populations – including in healthcare (OECD, 2012d). Online communications and services provide a way to address this; cases analysed for this paper, such as My Healthcare Flows, Digital Home Care Services, and the Ulcer Care via tele-medicine project are already showing the way for smart use of digital technologies for the benefit of citizens and patients, healthcare staff and the general public. In Japan, social assistive robots are offering companionship to the elderly for therapeutic purposes (Broadbent, *et al.*, 2009; Wada and Shibata, 2007).

The Swedish "My Pages App" initiative was developed based on customer demand for user friendly services offered through a mobile channel for easy interaction with the administration and tracking of payments. The demand came in particular from the segment of customers who are parents and who have frequent interactions with healthcare administration over a number of years (about 1.2 million unique users use My Pages on the web, of which 76% use it in their parental role; and about 700,000 downloads of the app are for smart phones). The use of service design methods enabled customers to verify their "mobile" needs. Results are important not only in terms of user satisfaction, but also in terms of higher perceived transparency of healthcare administration as well as reduced internal administration costs. These results were attained since digital applications are completed more accurately than paper forms and can potentially be scaled up. Additionally, the project rests on a concept of voluntary co-operation based on the principle of "least common denominator", which provides the conditions for authorities to own their development while adapting the IT tools, and not being dependent on other agencies.

Overall, we can say that many institutions, both in the private and public healthcare sectors, have moved to the "third wave of IT adoption", comparable to the "e-government" stage of the digital transformation path, with some areas moving into "Digital Government". Digitisation of the entire enterprise and value chain is beginning, including through digital products, channels and processes, as well as advanced analytics that enable entirely new operating models (Biesdorf and Niederman, 2013). Players in the healthcare sector were relatively successful and benefitted from the "second wave" of IT adoption, straddling "digitisation" and "e-government", which helped link different parts of core processes (such as, manufacturing and HR), create powerful infrastructures and bring about services like the electronic health card in Germany. In navigating across the digitisation waves to date, the main challenges that key actors have had to address have related to managing an increasingly high number of stakeholders, changes in regulations, and privacy and security concerns – all of which are needed to build a more integrated healthcare sector.

The main challenges for the key actors in health systems now are to be able to jointly develop and be part of the implementation of a digital government strategy: starting with understanding the users' preferences in terms of service and channel; building products and services based on these needs; scaling them up and expanding the platform to customise the delivery; and integrating with related services from other sectors. And understanding users' preferences and needs implies a good knowledge of the users and realities.

Social care and protection

Social care and protection, which is the third area of public services covered by the term "welfare services', covers both personal support services and financial support. Social care services cover a range of home support services provided for the young, especially to support labour market

participation, and the elderly and people with disabilities, to assist people to remain in their own homes and communities. Social protection services focus on financial support for the elderly through state pensions and various supplementary payments, and for working age people who are unemployed or otherwise unable to work through sickness or disability. Some countries have been making progress in the digitisation of service delivery in this area, in particular digitising payment of financial transfers, such as under the My Pension Service. This initiative also demonstrates integration through voluntary cooperation between the Swedish state and the private pension industry, including sharing associated costs.

As for education and healthcare, creating digital transformation in social care and protection services reflects a challenge of inspiring and leading social and cultural change. The service categories in Table 4, below, provide an indication of the services provided within this broad area of welfare services and a view of selected trends and examples of digitisation. The table illustrates that the focus of digitisation to date has occurred alongside greater integration across welfare services than apparent to date in education and healthcare.

Table 4. Digital social care and protection - emerging trends and examples

Social care and protection service categories	Examples of emerging digital trends
Social care administration	Digitisation is supporting improved case management, with a broader overview to inform individualised planning at the service provider's base, including cross-sector co-ordination. Digital case management enables more integrated assessment of users' needs; determining and verifying eligibility for services and financial support; and choosing among different care options, including home-based and institutional care.
In home care and support	Logistical aspects are being supported through the combination of digital records and web-based access for support service workers, including mobile nurses, enabling services to be provided for people in their homes, with the support of more specialist advice available through video links as required.
Social protection – financial support	Increasing digitisation of the payment of financial transfers, including determining and verifying eligibility, and calculating and making benefits payments. Digitisation of transfers is also including co-operation between government and private pension providers.

The breadth of service areas covered suggests that service integration supported and strengthened through the use of digital technologies might occur more naturally within social care and protection services than in education and healthcare. There are numerous situations in which, from the perspective of users who have limited ability to leave their homes to access services, it is not useful to distinguish a particular service need as relating, for instance, to social care or healthcare. Further, the public welfare system in Nordic countries is recognised as having a close link between income redistribution, including health insurance, and social care services, especially for the elderly.

The Danish tele-medicine case on Ulcer Care in the homes of citizens provides an example in this regard. A great number of elderly patients get ulcers that cannot easily be treated, that require a lot of repetitive care with a high level of attention to detail. Previously, patients often had to transport themselves to the hospitals (regionally funded), where doctors visited them and then instructed a nurse on how to treat the ulcer. Today, the nurses (municipally funded) go to the homes of the patients and through web-care records and video-links, communicate with the doctors only if necessary, bringing

the expert to the home of the citizens as needed. This approach saves considerable transportation time for the citizens, it reduces the time spent by the doctors on unnecessary visits, and the reduced transportation helps the ulcers to heal faster.

The active participation of sector professionals involved in the implementation of the new practice or process is also essential to the success. The Swedish case "itACiH" (IT support for Advanced Care in the Home) leverages digital technologies to improve support for home care, including touch-pads for mobile nurses, on-line equipment in the home and overview and planning at the clinic, could count on the active participation of professional users (doctors and nurses).

The Swedish case "Urban and Rural in Balance" provides opportunities for co-creational development of digital public services based on individual needs and perspectives. Users' engagement is a key aspect in areas like health and social care, engaging with users at their convenience, and including users in key decisions on services that relate to their lives and well-being. It is fundamental to creating new levels of autonomy and empowerment, to attain accountability and sustain trust in service delivery. Workshops to discuss and co-create were organised with citizens and SMEs particularly in rural areas, which clearly established the need to increase visibility and communication. Some of the other cases also provide good examples in this sense. The My Pages App uses digitisation to improve service delivery in the area of social protection – and was developed by consulting customers (based on service design methods to get customer insight, define the customer journey and identify the customer needs and expectations). Bringing the customer view in the process is key, particularly for customer processes that include several different welfare parties that need to work together to provide the best customer experience at the end (this is the case of My Pages App as people who are sick and who require different welfare organisations to come together into the whole customer journey end-to-end).

Developments in the digitisation of social care and protection services support the general themes of digital government, relating to how to establish and maintain greater engagement by people in the decision making that directly affects them, how to maintain a strong focus on users' needs generally so that users collectively are contributing to shaping the policy agenda and changing the design of service, and achieving greater cross-sector co-ordination, drawing on joined-up ICT platforms and greater data sharing to support improved service delivery.

At a policy level, digitisation of social care and protection services, in particular, is also supporting a general re-thinking of how the provision of services is organised, as well as the nature of some services, consistent with major life events for people (service users), rather than the traditional approach of welfare services that reflect provider specialisations or target populations or needs. This re-thinking is not only occurring within social care services, but also education and healthcare sectors as well as other sectors, such as justice and policing.

Part Three: Lessons from Digital Welfare Services on Two Nordic Countries

This paper summarises the first insights from the analysed trends and cases of welfare innovation, emphasising points of awareness in the digital transformation of public welfare, drawing primarily from cases based in Nordic countries with an associated focus on "digital welfare". The paper indicates the value of the transformative role of digital technologies; the need for and likely direction of new funding models for transformative digitisation projects; and the need for and development direction for new models of collaborative and co-ordinated governance. The paper also implies a clear role for and the importance of innovation in achieving the transformation to "Digital Government".

The analysed trends and the selected examples of digital welfare innovations from Denmark and Sweden, as well as other countries drawing from previous OCED work, suggest some emerging insights. The cases demonstrate the increasing recognition that public policies require a high level of co-ordination across sector areas as well as levels of government in order to meet complex policy objectives, particularly when they cut across specific areas of responsibility and mandates. In order to better realise the desired policy impact and expected benefits, outcome based approaches are being put in place to better deliver public sector performance. While countries have different arrangements and strategy scopes, including also different public-private splits for the funding of welfare services, retaining national performance across sectors as a political priority is essential in order to assure good lives for citizens. The OECD Better Life Index provides an illustrative example of the complexity of delivering on a number of related policy outcomes in a coherent and continued manner.[2]

While the cases hold clear similarities, as elaborated above, they also reveal key differences in areas such as the institutional structures and approaches to digital government. The Swedish examples tend to reflect factors such as a high level of agency autonomy, and demonstrate bottom-up innovation focused on quality increases and user satisfaction. This approach has helped achieve a quick uptake of several solutions in Sweden. Scalability is an issue that is mainly addressed through local good practice and knowledge exchanges between interested units and organisations, although cross-governmental efforts, for example by the E-Delegation and VINNOVA, also contribute to this work.

Denmark on the other hand, tends to have a more centralised model of digital welfare innovation, despite the high level of decentralisation in the country, which reflects a clear centrally promoted strategic framework highlighting key challenges. Although the programmatic efforts remain fragmented and centred around front-runner projects, there is an emerging idea and consensus for a coherent and aligned public sector transformation through greater use of digital technologies. However, the Danish approach is met with the challenge of achieving local commitment to the transformation projects, accentuated by the emphasis on financial savings driving the Ministry of Finance's lead in the digital transformation of public services.

Complementing and exemplifying the OECD Council's 2014 Recommendation on Digital Government Strategies, the following summarises the first general insights from the analysed trends and cases of innovation in the digital transformation of public welfare. The paper concludes with preliminary guidance for decision makers involved in digitisation projects.

Engage citizens and open up government to maintain public trust

The first group of principles in the OECD Council's Recommendation on Digital Government Strategies focus on public trust, building it and maintaining it. The Recommendation emphasises the importance of: greater transparency, openness and inclusiveness of government processes and operations, including adopting open and inclusive processes and taking steps to avoid new forms of "digital exclusion"; and encouraging engagement and participation of public, private and civil society

stakeholders in policy making and public service design and delivery, addressing users rights and encouraging the creation of a "digital government ecosystem". This paper addresses these two areas well and is less comprehensive in relation to the third element of this group of principles: creating a data-driven culture in the public sector; and the need to reflect a risk management approach to addressing those digital security and privacy issues. While recognising the existence of the "data deluge", the increasing presence of "big data" and the concerns of citizens, it will be important to balance the need for timely data in increasingly open formats, with concerns about the security, control and use of personal data in order to optimise the public and economic value of those data – and to do so in ways that increase (and do not put at risk) confidence and trust in public services.

When transcending the organisation, professional and cultural boundaries of digitising public welfare service, the willingness to develop and capacity to maintain open transformation processes become even more important. The expansion of the digital strategies requires the inclusion of new public servants with traditionally well-defined professional ethics, clearly visible trade unions and high levels of independence. In order to be able to successfully apply new technologies, professional boundaries will eventually be revised, tasks and functions will be moved up- and downstream in the value chain, and the remuneration as well as the technology-labour ratio will develop. Governments need to be transparent about their policy as well as their fiscal objectives, and include all constituents, bringing together the stakeholders around the different policy agendas. Being successful in having labour unions (as in the Danish agreement on joint good public governance principles) and public servants as collaboration partners in the agenda for an effective public sector, where productivity increases is a joint goal, will be difficult in some countries.

Relying on the direct participation of public servants as well as end-users can help achieve and retain commitment to the implementation of digital welfare. The value added for the end-users, and the perception of changed work processes for staff, are both key elements in the realisation of financial and political business cases. Governments need to balance their different concerns – prudent and sustainable public spending and improvements in the quality of welfare services – and continue to demonstrate their commitment to the vision through clear and reliable communications and decisions. Capacity to exploit new tools will be vital to support this process – for example, by establishing community platforms in local areas, or platforms for parents-pupils-school-interaction in schools.

The systematic engagement and empowerment of users will also be important to leverage better user interfaces and service design. As the public sector transforms from orienting itself in the direction of the citizens (citizen-centred – supported by e-government) towards service development and service delivery driven by citizens themselves (people-driven – through Digital Government), the use of data becomes even more important. Systematic experimentation can help governments build knowledge of what works and what does not work. In this sense, the digital service delivery will enable a quantum leap of increased, personalised public value creation, targeting not only services, but also communication to users and their personal communities. While not all countries have developed national identification solutions, such as those in Denmark and Sweden, all countries will increasingly be expected to find ways to integrate and link existing public data to create better and seamless services. Within the EU, several initiatives have been developed to enable and enforce cross-country linkages of public services. The European Commission's Digital Single Market Strategy and the 2014 EU regulation on Electronic identification (eID) and electronic Trust Services (eTS) are two important milestones in this respect.

A number of the cases of digital welfare projects from Denmark and Sweden exemplify a strategy towards the digitisation of welfare services, which recognises the importance of digitisation being driven by the users' needs in order to capture the value of investments. The examples are, however, relatively rudimentary fragments only that focus on specific parts of the education or welfare system

and do not (yet) consider an integrated approach for responding to citizens' needs and expectations. What is clear, however, is that, in addition to process redesigns aiming to increase efficiency, increased autonomy and empowerment of patients and citizens at large is an important trend in the digital transformation of healthcare. This trend also includes better access for immobile and remotely placed citizens, who will more readily be able to access health information, consultations, care and monitoring, as well as others services.

The imperative of rebuilding trust in government, public institutions and public sector staff will also be a factor in framing public sector modernisation. Fumbling digital service programmes and heightening information security and privacy issues make this an important issue to address directly. While inclusion, engagement and empowerment are considered ways to strengthen trust, the potential of digital outreach will need to be further developed and exploited in order to impact the levels of general trust. Not only efficiency, but also policy effectiveness and good governance design are important preconditions for success and therefore imperatives to undertake public sector modernisation, and develop and implement digital transformation strategies.

Improve governance for better collaboration and results

The second group of principles in the Recommendation on Digital Government Strategies largely focuses on policy makers and relate to various approaches for improving governance arrangements for pursuing a digital government agenda, including: securing leadership and political commitment to the strategy through multiple efforts aimed at promoting inter-ministerial co-ordination and collaboration, and engagement and co-ordination across levels of government; maintaining coherence in the use of digital technologies that are integrated across policy areas and levels of government; establishing strong organisational and governance frameworks to co-ordinate implementation of the digital strategy, with appropriate 'checks and balances'; and strengthening international co-operation to better serve citizens and businesses across borders, and maximise the benefits that can emerge from international digital strategies. A number of these principles are drawn out in the paper, including as trends emerging from the cases and other examples of digitisation.

Today, only a modest number of OECD member countries have digital government strategies that cover the large welfare areas, education, healthcare, and social care and protection. There will be many factors influencing this relatively low number of digital government strategies to date, including the limited role of the public sector in the actual delivery of services in some countries, and the divisions in responsibilities horizontally, across sectors, or vertically, across levels of government in all countries. However, as seen in those Nordic countries in which the state has a strong co-ordinating role, it is important for countries to establish adequate co-ordination across the policy sector areas in order to align digital transformation of public welfare services. This alignment implies increasing use of public and private collaborations, and an increased focus on the fostering of ecosystems to extend the public value chain beyond the limits of the public sector. Encouraged, for example by actors such as the European Union, some countries with open economies are seeing that cross-border services can help them reduce labour market rigidities, and they are analysing and prioritising the cross-border services that add the most value. This development also includes directly improving public welfare services, for example, by sharing services across countries and re-using existing public sector developed digital solutions such as the joint "education cloud" applied in a cross-border collaboration between Finland and Estonia.

Closely related to the challenge of achieving alignment across the whole-of-government is the issue of pooling supply and demand, also reflected in the cases analysed. Where Nordic societies remain very well-connected by international standards, reliable high speed connectivity can still be a barrier for some real-time data consuming digital welfare, even though most services can be developed

and implemented within existing broadband limits. Maintaining strong links between supply and demand across the whole-of-government can help enable the development of more fair business cases related to infrastructure investments, for example in high speed broadband. Infrastructure investments require particular attention in the development of the underlying business cases. As more services can and are being shared as digital offerings across the public sector, such joint solutions help reduce costs and redundancy across the government. Achieving these benefits, however, requires clear national leadership to, for instance, clarify the organisational parts of business cases, such as how joint services are developed, operated, financed, etc. This cross-governmental institutional need is emerging clearly, partly as a centralisation of existing tasks, and partly as a joint development of new emerging services, transforming public administration, service production and service delivery.

The distinction between central and local responsibilities traditionally relies on where value is added, by central government or through local responsibility and decision making. A considerable challenge across countries, across government silos, and across different levels of government is to share, disperse and take up knowledge of good digital welfare innovation practices that are developed in a specific context. This requires organisational incentives to create critical mass with adequate incentives to avoid re-inventing the wheel locally, while maintaining a high level of local commitment to the project (also known as the "not invented here" problem). In parallel, the analysed cases and preliminary evidence point to the importance of starting small, solving tangible problems for users that add value (and thereby build trust), rather than launching big scale projects – or in other words, "letting the perfect be the enemy of the good". At the same time the design of apps should not overshadow the redesign of government – the rethinking of public service production and delivery, exploiting, for example, the increasing opportunities of automation.

Strengthen capabilities to achieve return on ICT investments

The third group of principles in the Recommendation largely focuses on decision makers and addresses more practical matters that are nonetheless as important as the first two groups of principles: developing clear business cases to sustain the funding and focused implementation of digital technologies projects; reinforcing (and building) institutional capacities to manage and monitor project implementation, with a significant emphasis on procurement and contracting practices, to support inter-agency agreements to increase efficiency, support innovation, and best sustain the overall public sector modernisation agenda; and establishing general and sector-specific legal and regulatory frameworks allow digital opportunities to be seized without impeding the momentum of digitisation.

Building capacity to deal with the new challenges emerging through the digital transformation of public welfare is essential to succeeding. While digital governance mechanisms have been developed and tested over the last decade, applying these mechanisms to new contexts of welfare areas will require adaptation. In particular, capabilities to exploit the increasing amounts of data available are still at the early stages of development in most countries. Governments must systematically build up the capability to better use data, in order to realise these potential benefits.

Better data usage also includes measuring public sector productivity and efficiency in all parts of the value chain of public service delivery. In some projects, the understanding of the individual cost drivers and value adding elements in the digital service transformation is very clear. While this is a challenge, in terms of capabilities, culture and operational tools, there is a clear understanding among leading practitioners that such comprehensive value analysis will create better service and more value for citizens. In order for positive results to occur, clearly defining the desired policy outcomes is typically a precondition for realising these outcomes.

While the use of business cases is considered a good practice in general, their systematic implementation can be difficult to achieve consistently. The cases analysed are characterised by sparse evidence on the policy outcomes sought, including on the financial side. While user satisfaction and quality improvements are typically measured, the budgetary cycles and negotiations point to the need for follow-up and evaluation over several years. To counter this, but more particularly to better scope digital projects, there is an increasing awareness of reducing the so-called break-even time in projects – or in other words, to achieve measurable results as quickly as possible. Still some projects require a certain amount of time to deliver results. On another level, the cases analysed also demonstrated the importance of governance mechanisms to stop or re-scope projects to maintain compatibility with private sector providers.

While the need to invest in the digital transformation of the public sector is clear to policy makers, countries experience problems building up sufficiently well-consolidated project pipelines. Pipelines of adequately documented projects – or project banks – can strengthen the prioritisation of projects, facilitating national project portfolios and provide the needed flexibility and scalability in investment levels. While welfare innovation should be supported by governance frameworks that support decision making and knowledge sharing, not all countries are keen to invest in being front runners. Rather some countries, such as Denmark, are more comfortable being "fast followers", estimating that "the second mouse gets the cheese". This sets out an important role for international collaboration, involving not only the sharing of good policies and practices, but also joining-up priorities for investments in the digital transformation of public welfare services.

Part Four: Trends and challenges arising from the cases

The sections below are intended to highlight common trends and challenges that are emerging across countries in relation to key dimensions of the design and implementation of digital welfare initiatives. The trends discussed here relate to: the "data deluge" and the opportunities it provides for improving efficiency and user experience, alongside complex new ethical dilemmas involved in managing data; the importance of governance frameworks to support coordination, collaboration and partnerships in the digitisation of public services, including the role and importance of business cases to assist in establishing priorities and committing funding to support full implementation; the practical context that is set for digitisation by countries' fiscal policies and budgetary arrangements, including some specific arrangements for funding digital welfare innovation.

Digitisation strategies: responding to "data deluge" and ethical dilemmas

Pervasive data production, available in particular through digital welfare, is helping to tailor and target public services, adding new and valuable information, and also encouraging the engagement of users and different stakeholders. A major challenge in relation to data, however, arises in the transition towards full digital service delivery, with countries increasingly creating public service data repositories and making efforts to maintain strong cross-government channel management, raising concerns about data storage, ownership, use and security. These challenges highlight the complexity of the general issue of "data deluge" and ethical concerns about privacy and data. For all of these matters, strategic responses are required.

Data deluge

Yet, although the rise in digital technology is producing increasing amounts of data, some analyses point to the general challenge of ineffective feedback loops between supply and demand forces, noted particularly in relation to healthcare systems where there is typically a focus on supply issues, due to a lack of accessible data and mechanisms to assess the value of public services provided, together with the incentives for providing them (World Economic Forum, 2013). The integration of demand aspects with data on supply has long been subject to ongoing deliberation, and has the potential to further increase data.

Improved targeting and scaling to create more customised and personalised production and delivery of public services not only reduces input needs, but also helps to more effectively address the right user segments, and from that, consistently achieve better policy outcomes. This approach enables not only better supply side policies, but also a more systematic way of addressing demand side policies. The French SNIIRAM-PMSI, which collects data anonymously on every patient, linking trends in order to provide better evidence, is an example of the increasing use of health data. Further, in Australia, the creation of the National Health Performance Authority has established a clear focus on better monitoring and the creation of incentives for better performance in the sector. Increased availability of public sector data is a precondition supporting these developments, and is increasingly showing through as a source of public welfare service innovation (Ubaldi, 2013). The better evidence emerging through data on digital welfare, and through the use of private data to complement public data (better known as Big Data), is improving the evidence base for better welfare policies, while also adding to the data deluge. In this area, the identification of "killer APIs" (Application Programming Interfaces) is a challenging step to facilitate inclusion of private data and services.

In countries, or public welfare areas, with a large private production and financing of services, issues of interoperability and private data ownership will be equally or even more important than public ownership. And, in relation to system-level data, an important step towards realising the

promises of increased efficiency in public welfare services is to improve service delivery measurement through the increased creation and availability of performance related data. While the definition of relevant and valid performance indicators is challenging, this task is also increasingly being taken up within the core welfare areas, combining professional ethics with learning and organisational performance – and where available, data are creating local incentives to do better or at least as well as comparable peers. The Danish agreement on joint good public governance principles across national and local levels of government, together with labour unions, is a good example in this regard. Better data are also showing to be a key driver for high quality spending of public money – where it adds the most value – and important first experiences are being consolidated, for example using big data to respond to Alzheimer's disease (see OECD, 2013e).

Data are flooding in relating to public welfare services at a rapidly increasing rate and are sure to surge further in coming years. In healthcare, in particular, digital data and information have myriad sources, including individual health monitors and apps on patients' smartphones, body scanners, drug safety surveillance and DNA tests. For instance, personal health apps may feed sensor data or personal notes into public registries, or the co-production of public address data, as with the French example of the Open National Address Data Base. How to avoid drowning in the data deluge and, rather, harnessing it to benefit patients', is one of the biggest challenges facing health systems, especially when there is increased integration with other sectors. The National Information Board, recently established by the National Health Service (NHS) in England, gave a succinct summary of the benefits if things go well, in the "Framework for Action" released in November 2014. The Framework highlights how better use of data and digital technologies has the power to improve healthcare, transforming the quality and reducing the cost of healthcare services. The NHS also argues that it can give patients and citizens more control over their health and wellbeing, empower carers, reduce the administrative burden for care professionals and support the development of new medicines and treatments.

These trends pose a number of issues in terms of interoperability and standardisation, which must be addressed to avoid chaos and permit the exchange of data. Additionally, the big step forward is not just being able, for the first time, to digitise and aggregate data from different sources, but also being able to translate it into information users can act on. The most widely distributed new source of data is the proliferation of health apps (noted above) that people run on their smartphones and personal computers. Although the vast majority of today's consumer health products are essentially freestanding, some are beginning to link into the world of interconnected data. An example is Pow Health, launched in 2014, which is essentially a social media site focused on health. The site enables individuals and families to manage and share as much or as little information as they like about their health and sickness, with other patients and health professionals. There is a dashboard that is shared with General Practitioners' practices, which enables healthcare workers to capture a lot of clinical information and share data with researchers. The use of "cognitive computing" technology — a form of artificial intelligence designed to extract useful conclusions from vast amounts of data – is also emerging as one of the most potentially useful technology developments for diagnosing rare diseases.

As also elaborated in the report "M-Government: Mobile Technologies for Responsive Governments and Connected Societies" (OECD and ITU, 2011), increased connectedness allows for joining the use of digital technology (in particular smartphones and tablets) and the increasing wealth of data to improve mobility and enrich interactions with context specific and relevant data (enabling, for example, auto monitoring and remote medical consultations in the case of healthcare services). This development in turn enables, for example, patients to be discharged from hospitals earlier, promoting faster recovery and thus a higher quality and effectiveness of services. Increasingly connected services also allow for a higher degree of autonomy for individual patients and equally enable better governance and increased user satisfaction. These examples show how social media has

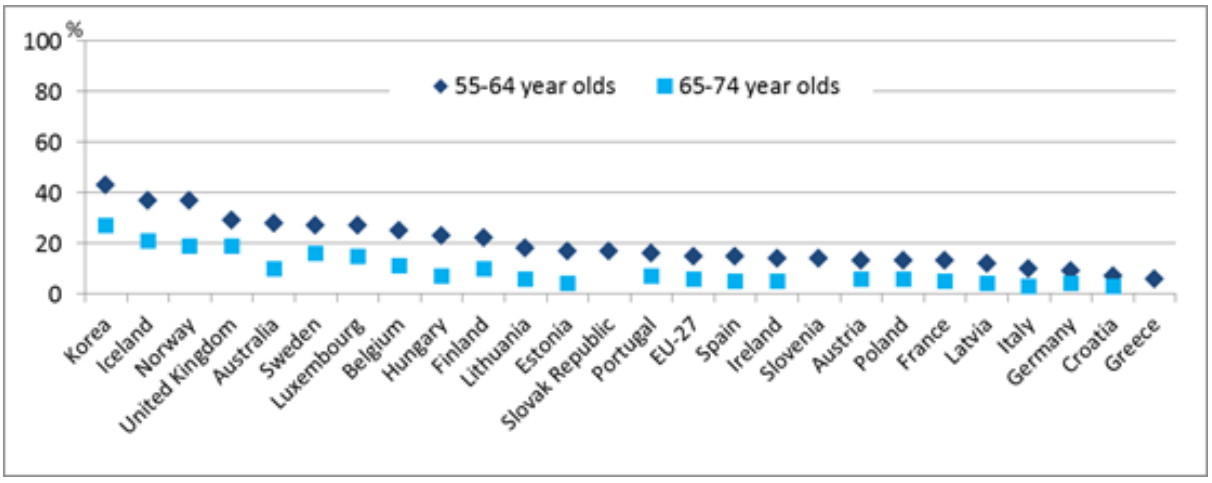
also entered the area of healthcare, although primarily as a channel for exchange between practitioners, experts and corporations to date (for more information see Mickoleit, 2014).

New ethical dilemmas

The backdrop of an emerging new direction for public management (discussed earlier) also puts forward new ethical dimensions of public governance and the digital transformation of public welfare services. While traditional bureaucracies have been criticised for their tendency to allow dehumanisation, NPM has similarly been slated for its emphasis on financial incentives rather than norms and ethics. As new digital technologies take over administrative services, including back-offices supporting the delivery of core public services, as well as aspects of front-office service delivery, and enter into the every-day lives of citizens, the emerging ethical dilemmas will also require a strategic response.

The genesis of new ethical dilemmas mainly arises from the hesitation and even resistance by some, despite the potential benefits to them, to actively engage with digital technologies. Elderly people are, for example, a relatively overlooked target group for social media use. At least one in five seniors uses social media in Korea, Iceland, Norway and the United Kingdom (see Figure 6, below). From the perspective of medical practitioners, reservations arise from uncertainties about ethical issues and legal consequences that social media interactions with patients can have. From the patients' perspective, access and use limitations aside, reservations mainly relate to concerns about protection of their privacy and the control over and security of their personal data. Initiatives to mine individuals' healthcare data – even in aggregated and anonymised forms – are often met with strong opposition, as recently experienced by the caredata project in the United Kingdom.

Figure 6. Uptake of social media by senior age groups, 2013



Source: Mickoleit (2014), "Social media use by governments", based on data from: Eurostat (2013), "Internet use: posting messages to social media sites or instant messaging", except for Australia: AIMIA (2013), "Yellow social media report"; and Korea: KISA (2013), Survey of Internet usage.

Note: Age brackets are different for Australia (50-64 year olds, over 65 year olds) and Korea (50 to 59 year olds, over 60 year olds).

Analysis of the innovative examples of digitisation from Denmark and Sweden, in particular, alongside examples such as reservations about the use of mobile data (noted above), has enabled the identification (or confirmation and reinforcement) of a small number of new important and complex

ethical dilemmas for policy makers, and design and implementation issues for decision makers that represent prerequisites for the success of digital transformation projects.

As the American sociologist Simon put it more than forty years ago (in 1973), one clear piece of evidence of the level of fundamental novelty of computer capabilities: "…is the resistance it evokes from those who refuse to see in it anything more than an enlarged desk calculator. Not since the Darwinian controversy of the past century have we seen such a passionate defence of the uniqueness of man [sic] against claims of kinship by systems that don't belong to his species" (after Dunleavy, 2006). In 2015, few would argue that digital, connected technologies are and will continue to radically change the world, including the delivery of public services. However, these changes depend to a large extent on the policy choices governments make, the eco-systems governments create, and the ways in which governments, the private sector and individuals use the technologies.

Policy makers considering greater use of digital technologies, with potential benefits from efficiency and productivity gains, increased service quality (timeliness, responsiveness and personalisation), improved satisfaction with service delivery and cost-effectiveness, will also face a number of complex dilemmas. Policy makers need to prepare to provide strategic responses to resolve the complex ethical dilemmas that are arising, while appropriately balancing the interests of different stakeholders. While the following list of questions is in no way exhaustive, it provides an indication of some of the new discussions ahead for policy makers:

- **Striking a balance between privacy and openness:** A critical implication of public service innovation policies for policy makers is the need to decide how to ensure adequate information security and privacy protection in the light of a call for increased user control of personal data while integrating more openness, interoperability and data-sharing across sectors and national borders. How can seamless exploitation of public as well as private data on citizens' education and healthcare allow them to own and control their personal data? If citizens are forced to make trade-offs between service levels and the right to privacy, how will this affect the public sector obligations to provide welfare service? To the extent that rights to privacy remain, what level of investment is appropriate in maintaining the security of those data? (See also Box 3).
- **Public engagement and interaction with service users:** Is there an intrinsic human dimension of public welfare services? Is human interaction indivisibly integrated in professional care – such as in the work of doctors and nurses? What limits do citizens place on digital service delivery – can citizens also expect (and continue to receive) personal human care from the public sector? Are some citizens inherently or culturally unable to engage with digital technologies (to the degree considered in this paper)? Governments could be faced with citizen resistance if this dilemma is insufficiently taken into account in the design and implementation of digital welfare services, thereby posing a risk to both citizens' well-being and the effectiveness of the new approach.
- **The pace of digitisation:** How fast can citizens be asked to take up new technologies? Is some level of technological anxiety acceptable in order for policies to be better organised, and services more effectively delivered? Is digital a choice, a right or an emerging precondition? Can citizens be forced to accept services they consider intimidating? How can these issues be communicated to all citizens? Governments need to find the balance between the required pace of digitalisation to accomplish policy goals and an acceptable pace of change for citizens.
- **Empowering citizens and civil servants:** Are public servants fundamentally ready to empower citizens to make their own decisions? Are public servants capable of re-thinking services and collaboration forms to allow for automation and user-control as the "default"? And are all citizens ready for handling this new paradigm and the responsibility that it

implies? Does the personalisation of data management imply personalisation of responsibility and risks? Are citizens asking for government as a platform or as a service provider? Can they have both? The resolution of this dilemma requires multi-stakeholder involvement in the design of innovative public services.

Box 3. Testing boundaries and user's reactions on Facebook

The social media firm Facebook has, in several instances, been heavily criticised for its policies and practices related to the protection and use of personal data of its users. Today most internet based firms conduct online tests on an ongoing basis to continuously improve the user experience and the value added for the company. This testing can be through the placement of a button, a different introductory text, or different sales functionalities. The basic thinking behind the approach is that systematic experimentation will help improve the service level and the profitability of the services offered. The approach is much less the case in public organisations. One main concern typically voiced is the need to guarantee the right information – in other words, maintain one official version only.

While such experimentation is often carried out to test willingness to buy products, improve processes etc., Facebook took it a step further, manipulating and measuring how the emotions of its users are affected by their reactions to other users' updates and online posts.

As for the test itself, the results were interesting in the sense that they "…indicate that emotions expressed by others on Facebook influence our own emotions, constituting experimental evidence for massive-scale contagion via social networks. This work also suggests that, in contrast to prevailing assumptions, in-person interaction and nonverbal cues are not strictly necessary for emotional contagion, and that the observation of others' positive experiences constitutes a positive experience for people."

Several topics are worth mentioning: First of all the level of transparency in the way personal data is being used, for experimentation as in general. Second, it points to the level of trust in the service delivery as a key factor for using services. Finally, it set out a new range of opportunities as well as obligations when considering the development as well as the governance of social media services, in the private as well as in the public sector.

Source:
http://www.pnas.org/content/111/24/8788.full and https://www.facebook.com/akramer/posts/10152987150867796
(both accessed 31 July 2014)

Governance frameworks: coordination, collaboration and partnerships; and business cases

The governance of digitisation covers not only the introduction of digital technologies, but also allocation of tasks, use of new skills and arrangements to realise efficiency savings. Policy makers focus on the strategic responses to the direct issues relating to digital transformation – strategic direction and priorities, involvement across levels of government, collaboration and partnerships with the private sector, priorities and funding – and also the ethical dilemmas raised above. Decision makers, at different stages of the design, funding, development, testing, implementation and review stages of digitisation projects need to be: clear about the project approach, including project governance, having a clear long-term vision, the right team, appropriate mechanisms for project testing and bringing together a strong business case; involve the right groups of people from the outset – users, public servants; sector professionals and people at all levels of government; maintain strong communication practices, through communication networks specific to the project and sharing information through general networks to support wider collaboration; and review and evaluation stages, articulated from the outset for identifying relevant evidence to support the project, through solid documentation and a clear evaluation framework and practices.

Coordination, collaboration and partnerships

In most instances, realising the benefits of digital welfare initiatives requires the support of political leadership at national and sub-national (local) levels, as well as coordination within and across multiple levels of government. This connectedness is essential to jointly developing digitisation strategies that cut across agencies and levels of government, envisaging and putting in place joint financing mechanisms, and creating the common ownership and shared commitment needed for sustainable results. Achieving shared political leadership at national and sub-national levels can also be expressed in different ways to reflect the particular cultural or political settings. For instance, although Nordic countries tend to share a broader view on what constitutes 'welfare' than, for instance, Westminster countries, there are different political and administrative structures in place which lead to and support different approaches to coordination, collaboration and partnerships. Broadly, in one setting, Sweden, policy consensus is required at Cabinet level with implementation the responsibility of autonomous agencies at national and local levels of government; Denmark provides a different setting in which responsibility for government decision making rests with individual ministers, and there is significant central co-ordination, in particular through annual budget processes. In the first setting, the move towards greater digitisation of welfare services has greater reliance on establishing permissive climates and expectations of change, including through guidelines and funding support, and in the other, there is more direct influence through annual negotiation of government budgets and establishing mandatory requirements for digital delivery of services. Both settings provide a basis for wider application across the particular environments of most member countries, making the lessons and trends in digitisation efforts of broad value.

In Denmark, the Ministry of Finance oversaw a Public Welfare Technology Fund from 2008 for investing in digitisation projects (which was closed for new applications in 2012), and more recently coordinated the joint adoption by government parties at the central, regional and local levels of government of the Common Public Strategy for Digital Welfare 2013-2020, which is an important pillar for promoting and supporting joint public investment and a coherent whole-of-government approach to the digital transformation. The Danish initiative "Increased use of IT in the public sector" is an example of a project that, from the beginning, involved many different actors who were active in the education area in order to achieve efficient and effective implementation and anchoring of the project. The actors involved included different levels of government, sector professionals, sector organisations and private suppliers. Given that the Ministry of Education sets the overall framework for Danish schools, while the local governments are responsible for schools operations, involving both central and local levels of governments in the design and implementation of the overall strategy, aiming to further digitise education services was a necessary condition. The result has also seen strong political support from both levels of government to explore and enhance the digitisation of schools.

In Sweden, national government agencies and local governments have high levels of autonomy and the digitisation of welfare services relies on the persuasive efforts and guidance provided by agencies such as the E-Delegation, an inter-agency unit responsible for co-ordination of digitisation policies and implementation of a small part of digitisation projects, and VINNOVA, the innovation agency that supports investment in digitisation of welfare services, though with a smaller investment budget than counterpart agencies such as in Finland (TEKE) and Austria (FFG) (OECD, 2013d). In Sweden, educational renewal is part of the national development portfolio of the E-Delegation, which co-ordinates a central-local project with relevance to digitisation of schools, using digital technologies to help unemployed youngsters who are not in the education system. Systematically including this marginal group is a critical issue in a number of OECD countries. From an adult learning perspective, community building through digital platforms, as exemplified in Table 2 (above), also presents an important way to achieve continuous learning and maintain local democratic practices.

As an example, Box 4 shows how, given the overall responsibility of the Danish Ministry of Education to set the general framework for Danish schools, while local governments are responsible for the schools' operation, collaboration and co-operation between the two is critical, starting from the development of a common strategy.

Box 4. Introducing ICT in the Danish primary schools

In 2012, the Danish Government, driven particularly by the Ministry of Education, agreed with the municipal representatives, Local Government Denmark, on a joint strategy for increased use of ICT in the primary school. The strategy covers all 98 municipalities, approximately 1,700 schools, around 49,000 teachers and 580,000 pupils. The strategy is conceived under the umbrella of the national Danish joint-public e-government strategy.

Based on a situation with relatively few advanced schools, little exchange of knowledge, immature markets for online/IT-based learning materials, and little research done on the direction and impact of digitisation in education, the Danes decided to develop their strategy around four key elements:

- Develop the market for digital learning resources to increase the supply of high quality products;
- Ensure efficient IT infrastructure in schools;
- Gain more knowledge on IT-based learning;
- Support the use of IT and digital learning resources through networking and sharing knowledge.

By 2014, all municipalities had established the necessary infrastructure, investments in ICT now enables teaching has increased significantly, and research is targeting and evaluating digital learning; in other words, the ecosystem is emerging. The activities covered in the strategy are funded jointly by the government and the municipalities, 500 million DKK each (67 million euros).

Key insights from the first systematic pilots and the preliminary research indicate significant potential for freeing up teachers time for direct student-interaction and teaching through better use of ICT, particularly through more effective preparation of the teaching.

Source: Based on information from the Danish Ministry of Education, received June 2014. See also www.uvm.dk/itifolkeskolen (in Danish)

In the digital welfare domain, collaboration and partnerships with non-institutional actors, who may be potential key partners for the design and delivery of services, are also necessary. The Swedish case "Urban and Rural in Balance" was carried out through public and private partnerships with national, local and foreign companies, leading politicians and senior officials, municipal associations and local committees. Similarly, the Danish case "Ulcer care via tele-medicine" included partnerships with academic institutions and research bodies, as well as with the private sector, that provided valuable contributions in fostering the required changes and assisting in the development of the business case. These public-private partnerships complemented the innovative collaborations across different levels of government as well as the involvement of groups of medical professionals to adjust the responsibilities in service delivery. The use of dynamic business cases is being applied as one way to deal with rapidly changing contexts, as also exemplified in the Danish tele-medicine case. The dynamic element consists of defining frameworks with faster feedback loops, dealing with implementation progress and deviations in an agile manner. This helps build trust among the key stakeholders who know that sound data will guide joint decision making, while maintaining their commitments to the overall objectives, such as financial efficiency or service effectiveness. This

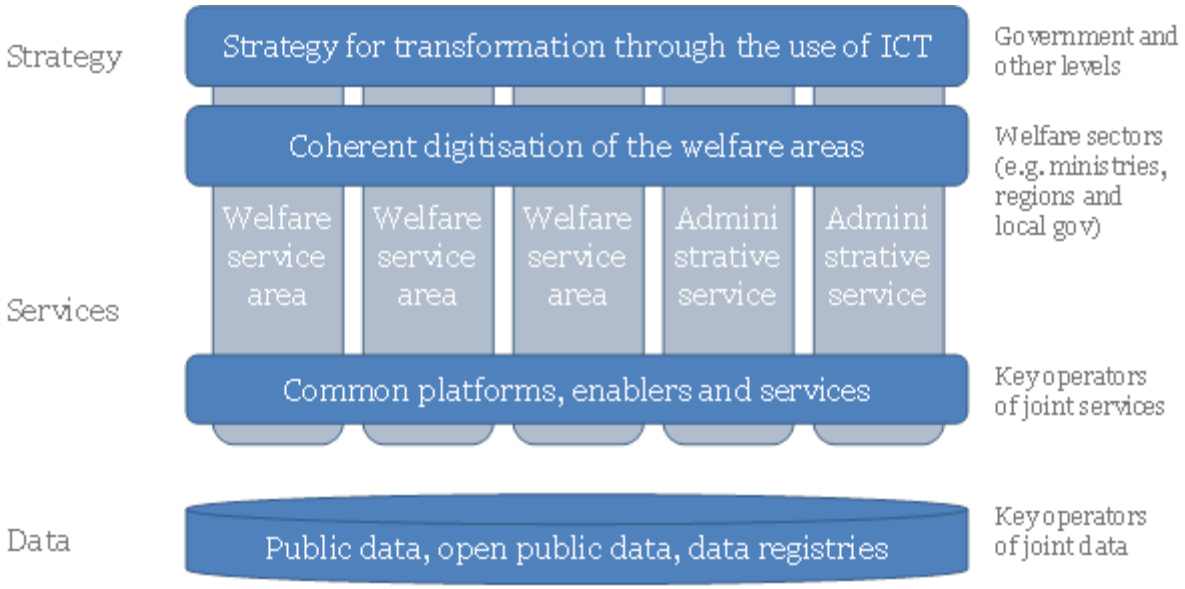
seems to be particularly important when dealing with strong professions, when there is considerable information asymmetry and where there is a high reliance on local commitment to implementation.

In the case of universal policy enablers, such as digitisation, there is great potential for developing synergies beyond ICT systems, including in delivery approaches and ways of working. Hence, the issue of co-ordinating the use of ICT across the levels of government and sector policy areas is increasingly a key theme in the transformation of the public sector. Figure 7 illustrates the challenge of co-ordinating policies: transformation strategies, common enablers (such as coherent digitisation approaches and common platforms), and public data (the horizontal bars). When there is strong alignment between these factors, they can provide common support for sector policies, including cross public welfare areas that are developed according to their specific premises (the vertical columns). National governance arrangements will include definitions of the scope of whole of government modernisation, what should be handled through sector arrangements, and most interestingly, how to address what falls in between.

While the specifics of different welfare areas are taken into consideration, digitisation of welfare services depends on the general digital governance setup in each country. Denmark and Sweden provide two different examples of such governance arrangements. The comparison of these two countries is useful for identifying policy recommendations since, despite pronounced cultural and political similarities, their specific national setups grow out of their different general approaches to digital government.

In Sweden, all members of cabinet must support government decisions; the responsibility and accountability is collective. At the same time, government agencies work largely at arms-length and hold considerable autonomy (Decree 1515 from 1996). Thus, while government decision-making is collective, the co-ordination of policies and policy execution remains a challenge across autonomous agencies. The Swedish Government met this challenge by establishing the inter-agency coordination unit, the E-Government Delegation (e-delegationen) in 2009. The Delegation co-ordinates activities, monitors progress at a national level, issues guidelines and conducts analytical work of strategic interest, for example in the area of healthcare.

Figure 7. A whole-of-government approach to digitisation



Source: OECD

On the other hand, Denmark has separate political accountability systems for each individual policy area. The Law on Ministers' Accountability (Law 117 from 1964) requires formally that there is individual ministerial responsibility for the administration within their ministry. This requirement in turn calls for more formalised government co-ordination committees, in addition to a culture of collaboration across the administrations, in order to increase joint impact and synergies, and avoid non-constructive silos. Further, the Danish Ministry of Finance holds a significant co-ordinating position with regard to public sector digitisation, particularly through the preparation of the annual national budget and the related annual budget negotiations with the representatives of the regions and the municipalities. Local Government Denmark and Danish Regions as the organisations representing the local and regional levels of government joined the Danish central government in making the political commitment to the "Common Public Strategy for Digital Welfare 2013-2020", thereby complementing the existing e-government strategy. This shared national strategy has provided political leverage as well as a joint framework for the important transformation of policies and practices in the welfare sector areas (Box 5).

Box 5. Integrating ICT across welfare policy areas in Denmark: The Common Public Strategy for Digital Welfare 2013-2020: Empowerment, Flexibility and Efficiency

"The Common Public Strategy for Digital Welfare 2013-2020" is an important pillar in the Danish Government's medium-term planning framework "Growth Plan Denmark". In this plan, modernisation of the public sector is expected to free up resources corresponding to 12,000 million DKR (1,600 million Euros) in 2020. This aim means that while a number of themes are handling public service transformation, increasing and developing qualities, the perspective of and focus on realising efficiency gains remains an underlying precondition for the projects of the strategy.

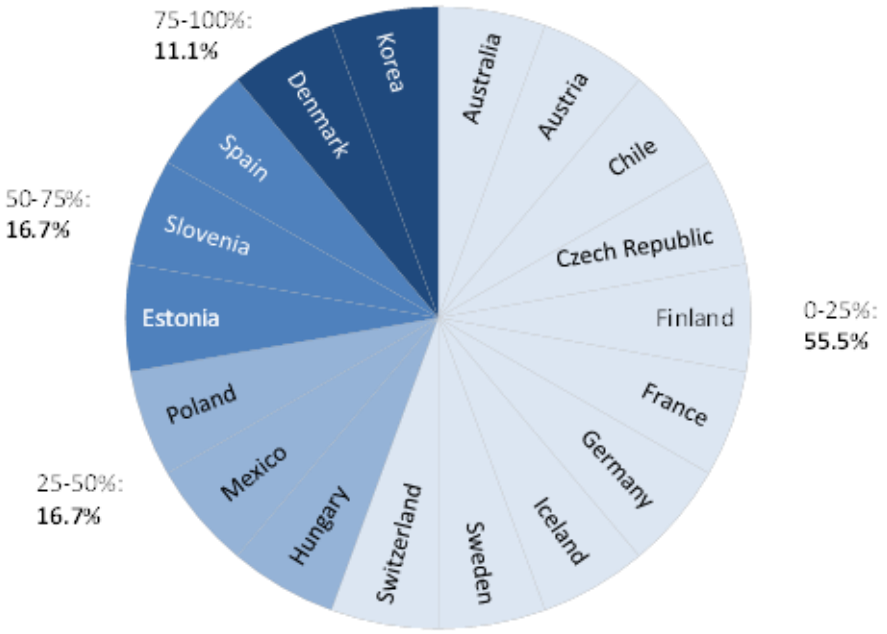
The Strategy is joined-up across all levels of government, complementing the existing e-government strategy with a focus on further digitisation of public welfare services. The strategy addresses seven focus areas:

- *National roll-out of tele-medication*, including identifying relevant areas, testing new patient groups, and providing the necessary infrastructure;
- *Effective collaboration in the healthcare area*, including digital booking at hospitals, better user of patients' own information, implementation of a joint national medication card, fully digital communication in the healthcare sector, increased use of video conferencing, for example for interpretation;
- *Welfare technology and care*, including the roll-out of devices to help lift patients, washing toilets, use of eating robots in senior housing facilities, digitally supported recovery and testing of smart homes;
- *New digital approaches in case handling,* including freeing up resources through speech recognition, better evidence in social policies and programmes, and increasing quality through better data sharing;
- *Digital learning and education,* including using digital teaching aids and educational materials in schools, digital exams, digital tools for day care;
- *Digital cooperation in education,* including a joint user portal for primary schools, a digital folder to store all educational certificates, better sharing of digital learning tools;
- *Preconditions for digital welfare,* including sufficient broad band coverage, establishment of a joint-public solution for mobile security, joint security standards and digital competencies.

Some of the programmes in the strategy appear exploratory, which is explicitly recognised. The strategy outlines the key challenge of achieving a joint and coherent direction across the different public welfare policy areas, while at the same time establishing and maintaining a committed, de-centralised implementation capacity.

Source: The Common Public Strategy for Digital Welfare 2013-2020: Empowerment, Flexibility and Efficiency, see www.digst.dk.

Figure 8. Estimated level of direct financial benefits centrally realised - self-assessment



Source: OECD E-Government Performance Survey 2014

Note: Data are preliminary and await country validation.

As outlined earlier, governments face the challenge of achieving public sector efficiency in general, productivity in the delivery of public services, and effective policies and good governance practices. While digitisation enables new opportunities and reinforces a drive for policy and service transformation in a number of areas, public sector use of digital technologies should remain driven by clear purposes and value propositions. The value proposition in some OECD countries is around higher quality or more services; in other countries, the pressure for better governance is driving digitisation, for example through transparency, inclusion measures and better accountability; and in a third cluster of countries, public sector efficiency is the key driving factor, and mechanisms to realise the potential financial benefits of digitisation are being put in place. However, realising the direct financial gains from investment in digitisation remains challenging, as indicated in preliminary OECD Performance Survey data (see Figure 8, above). The figure also highlights a potential effect of the differences between the Danish and the Swedish approaches, with a higher emphasis on central follow-up on the financial benefits in Denmark than, for example, in Sweden (although the length of time since each country began to invest systematically in a digital transformation strategy and other factors may also influence these differences).

Business cases

Overall, it is a pronounced challenge for countries to realise the benefits of their investments in digitisation. This point was also clearly illustrated through most of the Danish and Swedish cases, which indicated difficulties to establish objective and reliable measures to define the benefits of digitisation, while retaining full commitment to implementation. This is not only a matter of the quality of assessments, but also of a general lack of solid measurement frameworks and different levels of interest among policy and decision makers across the countries. This analysis raises questions about how to go about the digitisation of public services more broadly, and the approaches and governance tools to apply to promote more efficient service production and service delivery.

The value perspectives applied above outline key governance approaches to guide the digital transformation of public services. Policy makers need to embrace the political imperatives of determining better policies to achieve the desired societal and other outcomes, and empowering their citizens through autonomous services in which citizens are self-directed, and personalised delivery of welfare services based on standardised digital services, to achieve cost-effective service delivery. Underpinning those changes, policy makers also need to establish mechanisms that are themselves efficient, focused on continuously increasing productivity throughout all parts of the value chain of public service delivery.

Box 6. Business cases in the United Kingdom: the Five Case Model

The United Kingdom has been pioneering the development of governance frameworks and business case models in the public sector throughout the last decade and more. The general government guidelines are described in detail in the Green Book on "Public Sector Business Cases: Using the Five Cases Model" from 2013, which outlines the five main components of the suggested business case:

- **Strategic Case**, establishing the strategic context and making the case for change;
- **Economic Case**, examining the critical success factors, considering different options, and appraising the economic costs and benefits, including analysis of risk, sensitivities and optimism bias;
- **Commercial Case**, accounting for the procurement required, including the contractual arrangements envisaged;
- **Financial Case**, setting out the capital and revenue requirements for the spending proposal over the expected life span of the service, together with the impact on balances, income and expenditure accounts;
- **Management Case**, demonstrating that the "preferred option" can be delivered successfully in accordance with recognised best practice, for example on project management, use of advisors and monitoring.

The Five Case Model is part of an overall programme from thinking about and outlining a process template to, on one side, assuring that the right decisions are being taken, to providing assurance that these decisions are well executed by "doing things rights" through a programme and project framework on the other side.

Furthermore, in a collaboration, HM Treasury and the Digital Government Service complemented these general guidelines in 2014 with more recent guidance on "Agile digital and IT projects: Clarification of business case guidance", enabling better scoping of projects and supporting the right level of flexibility in the framework.

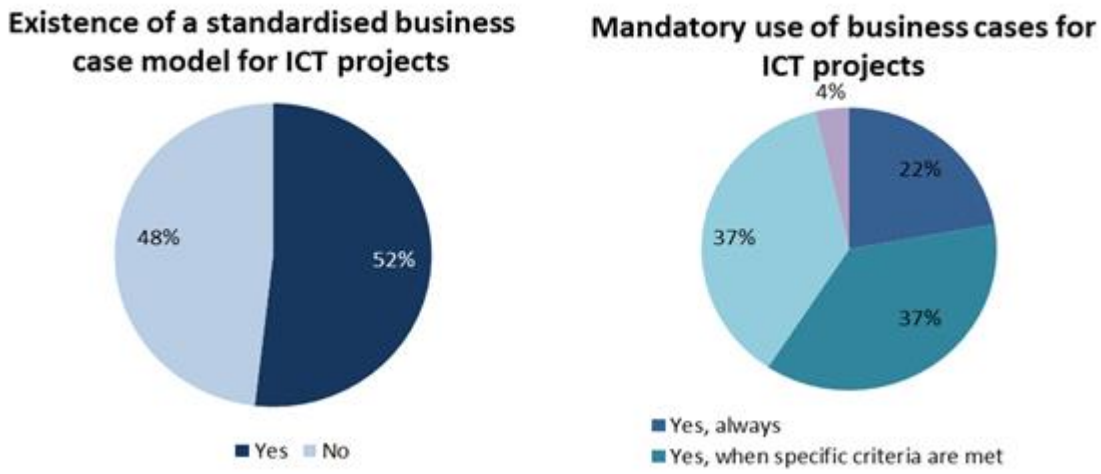
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https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/277345/green_book_guidance_on_public_sector_business_cases_using_the_five_case_model_2013_update.pdf

Business cases are a well-tested and recognised approach to help governments guarantee the value proposition of investments in ICT at the project level – and their use is gaining momentum, including at a more strategic level. This development is particularly relevant as countries move from e-government towards digital government, covering a broader range of services and stakeholders, where the need to have a shared basis for dialogue and commitment is important (OECD, 2014a). Governance structures are being improved across OECD countries as the digital challenges are emerging more clearly, but less than a quarter of OECD countries are regularly using business cases –

and the application and consistency vary. Similarly, less than a third of OECD countries follow up centrally on the financial benefits of ICT projects – so from this perspective it is not surprising that countries are unclear about their total public sector ICT expenditures and the financial and efficiency related benefits realised through their digitisation projects. Business cases can also be strong strategic tools for policy makers – supporting the allocation of funds to investments that create the most value – and for public servants, to realise the benefits (value add) from each project, benefiting citizens and releasing resources in public expenditure budgets. Typically, such models also include risk assessments, as well as clarification of evidence and assumptions supporting the business case (see Box 6).

Some countries have taken the use of business cases further, linking their use with national government gateway processes for the funding or/and approval of key projects. In Estonia, the national Chief Information Officer approves projects within their mandate. In New Zealand, the use of business cases is mandatory for all large government ICT projects, which is also the case in Denmark, where the State IT Council assesses the different risks of all large IT projects and is kept informed throughout each project in order to support better risk management. Overall, around half of OECD countries have a standardised business model for ICT projects in place across government (Figure 9, below, left hand figure), and it is mandatory in the majority of those countries, although often under certain conditions, such as the estimated budget of a project.

Figure 9. Existence and use of business cases at the central government level



Source: Adapted from OECD (2014c), *OECD Dataset on Digital Government Performance Responses*, http://qdd.oecd.org/subject.aspx?Subject=6C3F11AF-875E-4469-9C9E-AF93EE384796.

The increasing use of business cases can most certainly help support a more effective transformation of public service delivery, including in digital welfare. A strong business case can be an important portfolio management tool to support and direct decisions on projects towards governments' priorities for modernisation and to monitor results. More sector or general programme approaches based on productivity measures can also be considered. A particular advantage of business cases in the digital welfare area is the clarification of objectives and the joint definition of a transparent basis for decisions. When applied well, this enables an open dialogue with all the relevant stakeholders about the implementation and realisation of the business case. The Danish project

"Diffusion of four assistive technological welfare solutions in social services", which aims to support better use of public resources and improve citizens' quality of life, the availability of a positive business case is considered a key precondition and full documentation of the experiences from the pilots implemented at the local level of government is required. Similarly in the case of the "Ulcer care via tele-medicine" project, working with a dynamic business case has helped the progress and preparation of stakeholders to fully commit to the change/innovation (e.g. one sector focused strongly on committing to the full change, including closing down any alternative previously existing delivery modes).

Financing arrangements: fiscal policies and funding arrangements

At a higher level, fiscal and budgetary policies set the context for effective digitisation. While a number of countries have particular investment funds for digital policies, OECD country studies indicate that the general framework of fiscal relationships is a defining factor in creating incentives and securing commitment, and in encouraging and realising the benefits of investment in digital technology projects (see for example, OECD (2005), E-Government for Better Government). Such frameworks provide assurance about and drive the reliability and predictability in budgetary frames, clear relationships between budgeting and performance, and adequate discretion and incentives for delivering value for money in the budget execution.[3]

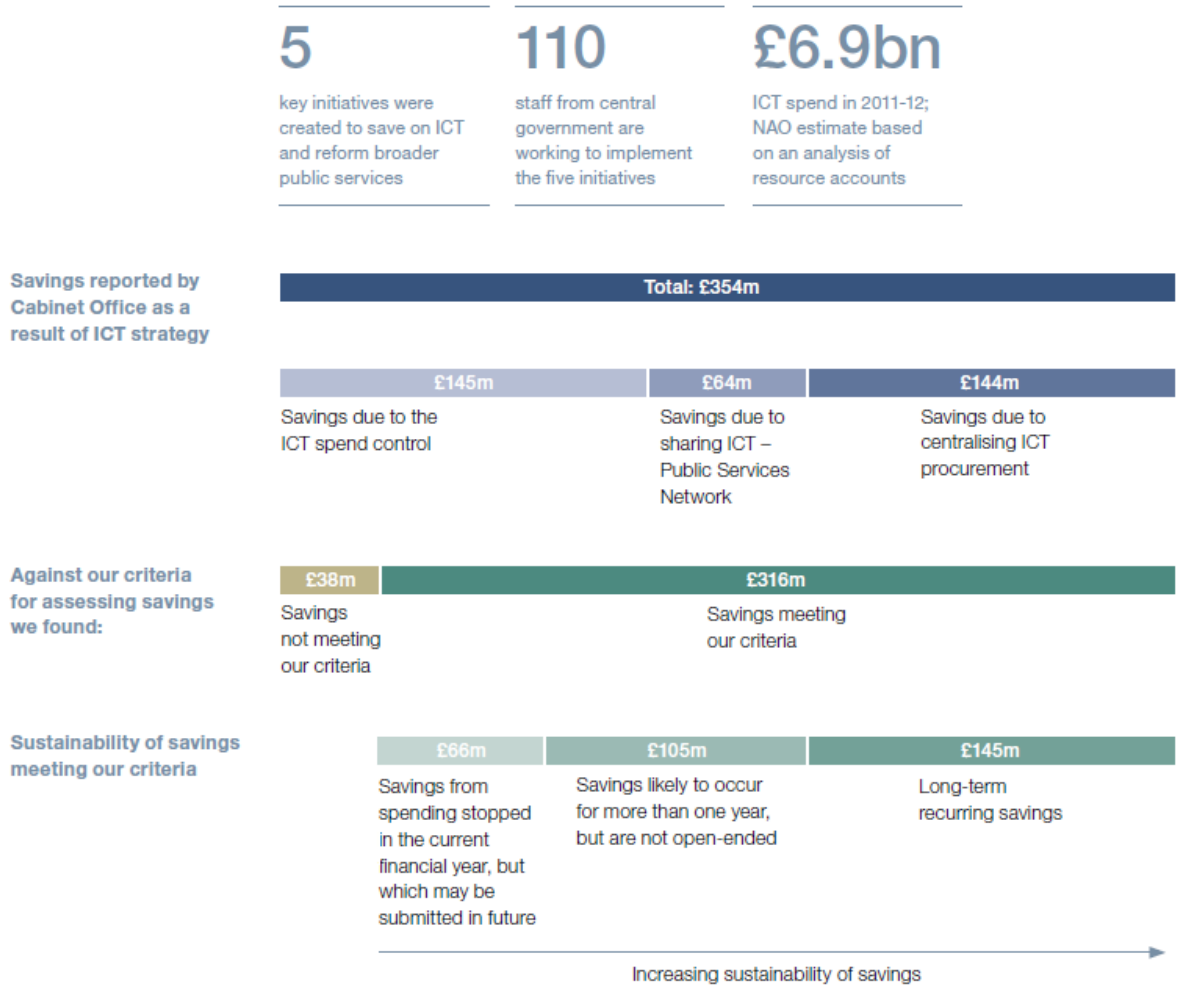
Productivity gains are in general difficult to measure in the public sector. Still, as part of general budget management frameworks, a number of countries use annual budget reductions to encourage (or force) continued innovation and public sector productivity increases. Such "efficiency dividends" usually involve across-the-board reductions of operational expenditures in the range of 1-2%. Denmark, Sweden and Finland apply such budget cuts, as well as Australia and New Zealand (OECD, 2010a). However, as there are no guarantees that these arbitrary cuts will not result in quality or output decreases, they remain somewhat controversial. However, it seems that a continued focus on reducing operational spending, within a foreseeable mid-term budgetary framework, could help encourage cost-effective investments in digitisation, inducing ministries and agencies to prepare for future cost-reductions.

In-depth assessments can be achieved through targeted spending reviews in selected areas. Such reviews typically feed into the budget processes, labelled "strategic policy reviews" (Australia), "strategic programme reviews" (Canada) or simply "spending reviews" (United Kingdom) (OECD, 2010b). Spending reviews are regarded as a useful tool to support priority setting, looking both at programme effectiveness as well as efficiency, and also at consequences for outputs (delivery of public service) and achievement of policy outcomes through alternative funding levels. As digitisation increasingly enters the modernisation and public welfare reform agenda, becoming increasingly relevant within the larger cost-driving public welfare areas, building institutional capacities to adequately review spending on digital technologies could be an important contributor in the ongoing pursuit of effective public services.

Countries with advanced digital government agendas have conducted systematic digitisation reviews and national audits across larger strategic ICT projects in government (see for example the Gershon review in Australia, the Martha Lane Fox report in the United Kingdom and the Danish State's IT Project report, among others). Although such general project reviews and audits do not always have immediate programme and budget consequences, they remain crucial for learning and for directing future understanding of advancements in the digital transformation of public services. One key finding across these reviews has been that an increased recognition that a focus on realising and measuring benefits is needed, for example by strengthening ICT procurement and project management, including through the recommended use of business cases, as discussed above (see also

Figure 10). As these reports have, to a large extent – and rightly so – focused on existing programmes and projects, relatively limited attention has so far been given to the more recent nationally coordinated digitisation of public welfare services.

Figure 10. National Audit Office: The impact of Government's ICT savings initiative



Source: www.nao.co.uk

In Nordic countries, such as Denmark, Sweden and Finland, local governments collects a high share of the general government revenues, compared to other OECD countries, which is also reflected in the distribution of general government spending. This high level of decentralisation also implies that a high share of capital investments is made at the local level. While local governments, such as municipalities, are typically characterised by a high level of autonomy, they are also to a large extent comparable with their municipal peers across the country, which underlines the importance of establishing incentives and budget arrangements that guarantee not only adequate prioritisation mechanisms, but also nurture learning and the sharing of good practices and innovations across units – at central and local government levels. Such mechanisms are particularly relevant with regard to

innovations using digital technologies, which often have limited marginal costs for reuse. Guiding local innovation through national mechanisms, or rather implementation of well-tested good practices and digital tools, can provide important leverage for efficiency and policy effectiveness.

In addition to their general budgetary management frameworks, countries such as Denmark and Sweden have established dedicated innovation funds to support public sector welfare service innovation. While such funds are in no way exhaustively covering the investments made in the countries, they provide funding for an additional layer of projects of strategic interest, enabling a deeper project pipeline in selected areas. A key challenge with such funds is to maintain local responsibilities for adequate investment budgets and, at the same time, consistently achieve a high return on investments in projects that would not have been taken up without national innovation funding. At the same time, the competitive element of the funding is an important mechanism for attaining project quality.

In Denmark, the Public Welfare Technology Fund, located under the Ministry of Finance, was initially conceived in 2008 with a focus on the use of technologies to fully or partly automate labour intensive work. After an increasing focus on encouraging and testing welfare innovations with potential for national spending reductions, the fund was closed for new applications in 2012. Remaining funds were channelled through the digital welfare strategy in order to include and align the push for digital public welfare innovation. The basic consideration seemed to be that increasing the *implementation* of innovative good practices is better than *developing* even more innovative practices. Of the 71 funded projects, 63 are now evaluated and closed, and have contributed to the current work on digital welfare reflected in the Danish strategies. Several of the funded projects are now key components of the Danish national strategy for digital welfare, such as the Ulcer care project and the Primary school e-learning programme. While the funding has appeared a useful mechanism to create awareness of the importance of investing in the transformation of public welfare services, the closure of the fund also shows the importance of coherence in public welfare innovation projects, and of clarifying local and central responsibilities for investments in welfare services that are mainly provided by local levels of government.

In Sweden, the Swedish innovation agency, VINNOVA, was established in 2001 to support innovation and sustainable growth in both the Swedish private industry and the public sector using challenges in the design of city infrastructure solutions, competitive production of goods and services, information technology solutions and services generally, in addition to a strong focus on healthcare services. A number of public welfare innovations with strong digital components, are funded by the agency, although it manages a budget considerably smaller than, for example, counterparts in Finland (TEKE) and Austria (FFG) (OECD, 2013d). While VINNOVA has a specific service innovation programme, its approach to allocating funds appears broader, relative to the Danish funding arrangements, which generally required specific spending reductions in order to fund projects. In its funding decisions, VINNOVA aims for systemic innovation emphasising collaborative approaches and public private partnerships, and has funded a number of the cases that have informed this paper, including the projects on digital assistance for the provision of care to citizens in their homes.

Part Five: Frameworks to assist in shaping the way forward

The Public Value Chain

The emphasis of the Danish Welfare Strategy to engage in private partnerships to build up new markets and communities around private investments illustrates changes in the boundaries between stakeholders in the public sector. Denmark has also developed guidelines on public private partnerships, and has used them successfully, among others, in addressing healthcare demand side through policies for eating better food.[4]

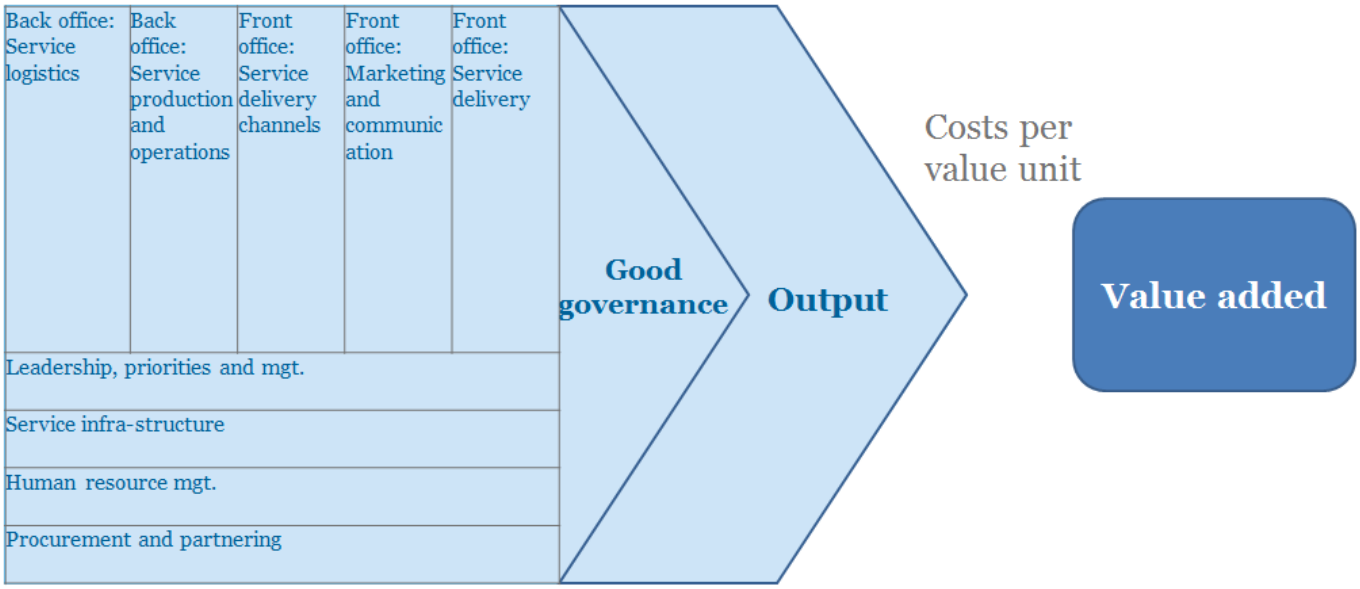
All parts of the value chain of public service delivery need to be assessed in order to rethink and redesign welfare services connecting resources with the right outputs and policy outcomes. The OECD report "Together for Better Public Services" (OECD, 2011c) recognises that users' engagement is a key component of service quality, and increased inclusiveness, in its own right; users' engagement is also a changed framework for improving services, service delivery and the direction of the welfare service policies. Exploiting these opportunities will require organisational and professional adaptation to the new context in a continued dialogue around front level staff, users and citizens at large. Here the digital defragmentation of public services can facilitate new collaborations and partnerships, enabling a broader inclusion of civil society and stakeholders, such as parents of school children and relatives of medical patients. Although digitisation may not be one of the direct drivers or causes behind all of these changes, it is accelerating and deepening the changes being made, providing new opportunities for effective public sector welfare transformation. The challenge is to attain effective transformation through measures and mechanisms that enhance productivity, efficiency and effectiveness, taking these changing boundaries into consideration.

The emerging development of more participatory and open policy making and decision making alignment processes is closely aligned with the increasing focus on inclusive growth, trust, performance and productivity. This alignment underlines the need to complement the traditional input oriented public management, most manifest through budgetary management systems, with more output and outcome oriented management frameworks. An output-driven value chain offers such perspective, taking as a point of departure the final value envisaged.

An output-oriented value chain perspective means that actual service delivery is at the centre of the management process and frames the costs of delivering a particular public welfare service, measuring the value added per additional step in the chain. Clarifying the added value as well as the added costs for each step of the process is also a key component of LEAN programmes being implemented in the public sector to improve efficiency and effectiveness of public service delivery. A great number of countries have already engaged in establishing weighted output prices and measures, particularly through the increasing use of shared services across government (see for example Belgium, Denmark and Germany amongst others). However, so far this approach appears more hesitantly taken up in the core of public service delivery.

In order to determine the business case for a complex service transformation project, precise insights are needed into the different parts of the public value chain of service delivery. This means unbundling the costs of the inputs and each process step (see Figure 11). Satisfaction shown by testimonials from end users engaged in the pilots of the Danish telemedicine example on ulcer-care in citizens' homes was instrumental for the decision to expand implementation on a larger scale. Although a value chain perspective on output can help increase productivity for a large range of well-defined public services, such as in the healthcare area, it is not necessarily helpful with regard to all public services, particularly those where the output-outcome relationships are not clear.

Figure 11. Focus on the value added - unbundling the costs of inputs and processes



Source: OECD

OECD Recommendation on Digital Government Strategies

The OECD Council adopted its Recommendation on Digital Government Strategies ("the Recommendation") in mid-2014. The Recommendation, which is the first international legal instrument on digital government, offers a whole-of-government approach that addresses the potential cross-cutting role of digital technologies in the design and implementation of public policies, and in achieving policy outcomes. The objective of the Recommendation is to achieve a progression from "digitisation", through "e-government" to "Digital Government". Achieving this shift will generally be progressive, though it is also likely that it will need to involve some step changes from innovation. The Recommendation emphasises the crucial contribution of digital technologies as a strategic driver and tool to create open, innovative, participatory and trustworthy public sectors, to improve social inclusiveness and government accountability, and to bring together government and non-government actors to contribute to national development and long-term sustainable growth.

The Recommendation outlines the overall direction for the digital transformation of public services, including a shift from the use of ICT to support better public sector operations, to integrating strategic decisions on digital technologies in the shaping of overarching strategies and agendas for public sector modernisation, and the governance of digital government strategies. The Recommendation also sets out a number of principles to support this shift in culture within the public sector. The principles support three pillars: engaging citizens and open government to maintain public trust, improve governance for better collaboration and results, and strengthen capabilities to achieve return on ICT investments. Each of the principles is summarised in Box 7.

Box 7. OECD Recommendation of the Council on Digital Government Strategies

Engage citizens and open government to maintain public trust

1. Ensure greater transparency, openness and inclusiveness of government processes and operations;

2. Encourage engagement and participation of public, private and civil society stakeholders in policy making and public service design and delivery;

3. Create a data-driven culture in the public sector;

Improve governance for better collaboration and results

4. Reflect a risk management approach to addressing digital security and privacy issues, and include the adoption of effective and appropriate security measures, so as to increase confidence on government services;

5. Secure leadership and political commitment to the strategy, through a combination of efforts aimed to promote inter-ministerial co-ordination and collaboration, set priorities and facilitate engagement and co-ordination of relevant agencies across levels of government in pursuing the digital government agenda.

6. Ensure coherent use of digital technologies across policy areas and levels of government;

7. Establish effective organisational and governance frameworks to co-ordinate the implementation of the digital strategy within and across levels of government;

8. Strengthen international co-operation with other governments to better serve citizens and businesses across borders, and maximise the benefits that can emerge from early knowledge sharing and co-ordination of digital strategies internationally;

Strengthen capabilities to achieve return on ICT investments

9. Develop clear business cases to sustain the funding and focused implementation of digital technologies projects;

10. Reinforce institutional capacities to manage and monitor projects' implementation;

11. Procure digital technologies based on assessment of existing assets including digital skills, job profiles, technologies, contracts, inter-agency agreements to increase efficiency, support innovation, and best sustain objectives stated in the overall public sector modernisation agenda;

12. Ensure that general and sector-specific legal and regulatory frameworks allow digital opportunities to be seized.

Source: OECD (2014d), *Recommendation of the Council on Digital Government Strategies*.

The Recommendation provides the imperative for integrating digital policies across silos (policies, organisations and sectors), and using digital technologies to leverage policy potentials as well as financial gains in the functioning of the public sector at large. The Recommendation also offers guidance for achieving a shared understanding of how to prepare for, and get the most out of, technological change and digital opportunities to create public value and mitigate risks related to:

quality of public service delivery, public sector efficiency, social inclusion and participation, public trust, and multi-level and multi-actor governance.

The OECD as a partner in the way forward

The analysis of the innovative examples from Denmark and Sweden, in particular, have supported the identification of a number of lessons that are instrumental in better understanding potential challenges to, and prerequisites for, the success of digital welfare projects. Box 8 provides a preliminary checklist that is intended to provide guidance to decision makers involved in various aspects of digitisation projects, from design, development, funding and implementation and review as appropriate to the focus of their particular role and interests.

Box 8. A checklist for decision makers

Project approach

Clarify the governance framework: Identifying the framework that can best support and enable the co-ordination and partnering of the various stakeholders is key for establishing evidence that enables good decisions and for co-ordinating and linking the actions of all key actors of the ecosystem. This can support open and inclusive processes; and more specifically, the definition and optimisation of the public value chains within the specific welfare service areas to guide the digitisation project.

Have a clear long-term vision: Having a shared digital welfare agenda supporting a long-term vision with key strategic objectives - which all parties can agree on - is critical to bring on board key actors from all levels of government, in order create a common sense of ownership and secure everyone's contribution. This can also support a holistic approach for many different initiatives implemented in different phases.

Lead implementation with the right team: Having a small and agile team of motivated and skilled staff supporting the implementation, and facilitating the co-ordination of the various actors throughout the process, is essential.

Experiment through pilots or 'beta-tests': Investment decisions based on a number of local pilot projects at early stages of development allows a "start small and act fast" approach, which sustains trialling, testing and prototyping. This can allow for iterative testing and adaptation when necessary, and help to show solid and convincing results to build a clear Business Case. When development is further progressed, a beta-test approach would support a focus on small and relatively well-defined target groups to monitor impact and satisfaction, and contain initial investment and risk. A progressive approach like this can assist in obtaining the support of policy and decision makers at all levels of government, and limit the risk of expensive failures associated with large scale initiatives.

Develop a solid Business Case: Working with dynamic Business Cases can help understand the feasibility and the implications for success; support the preparation of the different stakeholders to fully commit to the required changes and innovation; monitor implementation and take corrective actions if necessary; and achieve the expected benefits realisation.

Involvement of users, public servants and sector professionals

Identify and engage with key testimonials from users' groups: Users should be engaged right from the start and all along the design, development, implementation and review phases. This is critical to understand their needs and preferences, to pre-assess satisfaction and make sure that the demand becomes the driver of change. Basing service design, development and improvement on users' insights is key to: estimate the real demand and presence of a critical mass of potential users; support demand-driven choices and decisions on broad implementation; rapidly expand the service/solution when needed and desirable; co-create the new service with users. Involving users allows having creative and iterative discussions on how to design, test and implement the proposed services which is an optimal way to try to respond to users' demands and to create trust.

Involve public servants right from the start: Public servants will be instrumental agents of change in the digitisation process of welfare services. This is why it is critical to involve them from the idea's inception. Working together can help informed and inclusive decision making (e.g. to take into account users' preferences and

diversity issues, to articulate and calculate the Business Case).

Actively engage sector professionals from the field: Sector professionals can play an important role by bringing their concrete experience and expertise to the table which can support the decision to venture – or not – into broad implementation (e.g. in the healthcare sector nurses and doctors would be key players).

Engage all levels of government: Central-local steering and bottom-up approaches are a success factor as all actors at all levels of government need to be engaged in the project in order for it to succeed.

Communication

Establish communication networks: Communication through all channels (online, through workshops, etc.) is essential to bring actors on board in the implementation of the digital agenda to avoid low acceptance and use, overcome resistance, and diffuse experiences and results.

Share experience and knowledge: Disseminating and sharing information on existing digital welfare innovations (e.g. on implementation, evaluation, governance frameworks, multi-actor engagement mechanisms) can support also inter-regional and international collaboration.

Review and evaluation

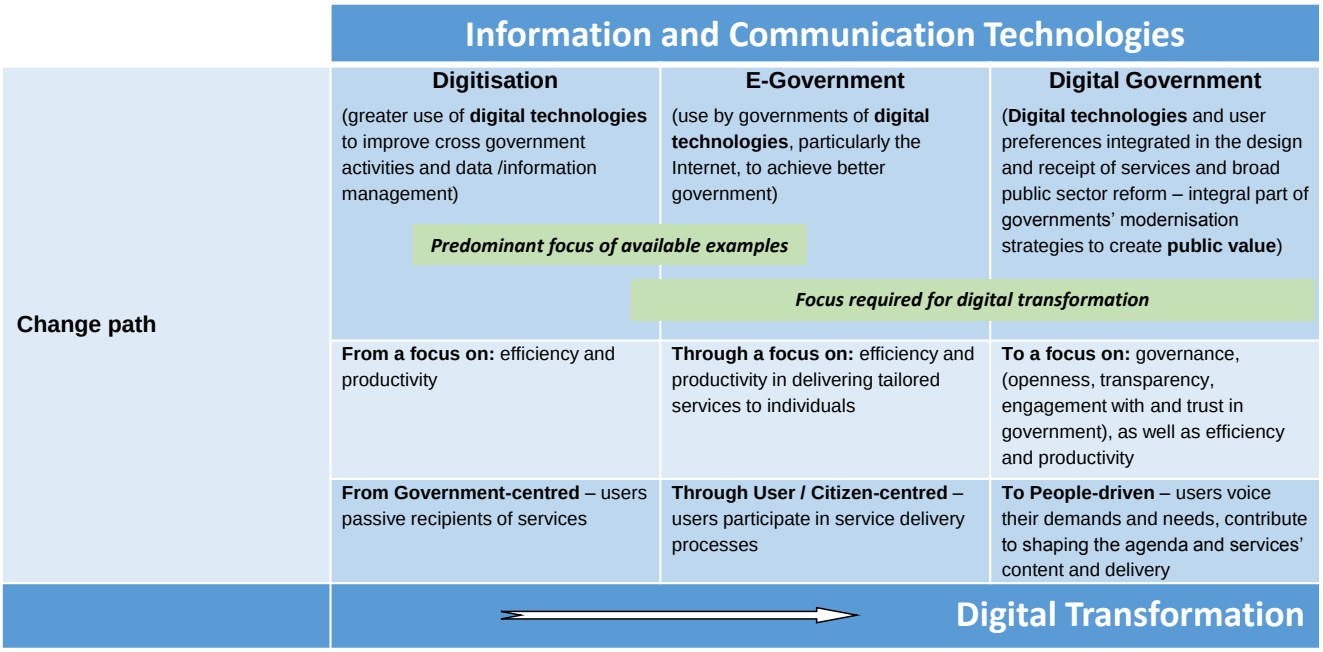
Use available data to identify evidence in support of better welfare policies: The use of private data to complement public data provides new opportunities for inclusive engagement processes of the users and multitude of actors in the design and delivery of services. These trends pose a number of issues in terms of interoperability and standardisation, for instance, which are prerequisites to avoid chaos and permit the exchange of data, as well as in terms of translating data into information the patient can act on.

Document project implementation: Documented experiences from initial implementation (beta-tests or pilots) help identify projects that can be scaled up, generalised or replicated in other fields following post-implementation reviews.

Adopt a clear evaluation framework including impact indicators: The evaluation of projects in the course of the whole implementation cycle is essential to measure results and manage risks of failure.

There are, necessarily, some weakness in the preliminary checklist, not least since more of the cases relate to the earlier stages of transformation envisaged by the OECD Council Recommendation, focusing on digitisation and e-government, rather than digital government (see Figure 12, below); most of the cases draw from two Nordic countries with particular and different public sector arrangements from other countries; and the cases were specific to public welfare services, a sub-set of public services generally.

Figure 12. The elements of digital transformation – current predominant focus



Source: OECD

The OECD can assist its member countries in paving the way forward through better evidence and platforms for sharing good practices in the transformation of the public sector's welfare service production and delivery. The preliminary checklist can be reviewed, revised and extended to address the gaps noted above, and corroborated through its application to additional innovative digital welfare projects covering a wider range of public services, and a wider range of countries.

In a future issue of the paper, when a larger number of cases on successful digital transformation programmes is available, the paper will provide a fuller analysis of social care and protection services than the commentary included here, as well as separate analyses across all areas of public welfare reflecting a wider range of member countries with different arrangements for the delivery of public services.

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[1] See www.humanservices.gov.au for more information about the Australian Department of Human Services.

[2] See www.oecdbetterlifeindex.org for more information.

[3] See for example OECD (2014) draft Principles of Budgetary Governance, available for public consultation at http://www.oecd.org/governance/budgeting/Draft-Principles-Budgetary-Governance.pdf

[4] For a more elaborate description of the Danish examples and the guide to building public-private partnerships, see Oekonomi- og Indenrigsministeriet, 2014.



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