Measuring Digital Government: How to Assess and Compare Digitalisation in Public Sector Organisations

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1 Digitalisation and Government: Beyond the Buzz

Digitalisation is currently among the contenders for the top spot on any list of key drivers of societal, economic, and political change. In many ways, the world has changed dramatically due to the digital revolution: traditional business models are questioned, consumer behaviours change dramatically, and societies find themselves in need of new rules to govern the digital age. Due to ever-expanding digital infrastructures, increasingly affordable means of access and rapidly improving digital literacy, this applies to countries at all levels of development and to nearly every economic sector.

The term 'digitalisation', however, as shown by a Google Ngram search, is not new. It had its first heyday in the 1960s and 1970s, when the silicon microchip triggered the computer revolution. Back then, digitalisation referred to the transition from analogue methods of recording and processing information to the digital standard of the computer age. In this regard, claiming to 'be digital' is easy. Businesses and governments alike tend to fall prey to the basic misunderstanding that the use of digital technologies and the digitalisation of previously analogue data make them 'digital'.

As a matter of fact, nearly every government claims to be a digital government nowadays. Due to the successes of E-Government programmes, much has been achieved and the public sector is even ahead of a number of private industries in electronic service provision. But when we compare our citizen experience in

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dealing with government agencies with our customer experience with truly digital companies, we realise that there is still much to be achieved. This is particularly true when we compare the states of internal, enterprise-level digitalisation—relating to workflow and production processes, data analysis, and resource management—between the leading digital companies and government agencies.

Nevertheless, we also (and with increasing frequency) learn of shining examples of public sector digitalisation that we believe to be worthy of emulation, such as in Norway or Singapore. In fact, many governments recognise that they drive, regulate and are affected by the digital revolution we are currently witnessing. They work on digital strategies and roadmaps, establish the roles of government CIOs, CDOs or equivalent and look for the best ways to support their economy to prevail and thrive in the digital age. Digital maturity has evolved into an important indicator of competitiveness among countries, measured, for example, in various global benchmarks and indices such as the WEF ICT Readiness Index or the Accenture Digital Density Index.

Considering the high levels of attention on 'digital' among governments today, it is all the more surprising that still only 40 % of citizens in key developed countries state that they are satisfied with the current level of digitalisation of public services. This shows that governments are not only facilitators and regulators of private-sector digitalisation, but also active players on the digital field: they need to transform themselves and the public services they offers to citizens who experience and are growing to expect a high degree of digitalisation in their every-day life. For public services, the potential of digital is particularly promising: instant interaction with citizens is facilitated, new ways of inclusion and accountability can increase citizens' trust and new technologies enable a transition from government-centric to citizen-centric services. This means a democratisation of knowledge and a new way of ensuring transparency, since digital data can be measured, published and read by anyone at any time.

However, the task of releasing this positive potential can only be accomplished when two key requirements are met: governments (a) need to develop an understanding of what 'digital' means in a public sector context—to define their strategic direction—and (b) require comparable information on their current states of digitalisation—to be able to learn from each other and share good practice. This contribution seeks to focus on these two aspects by outlining a new and innovative approach to assess and compare public sector digitalisation. Firstly, we explain the importance of narrowing the focus to look at individual agencies in addition to existing whole-of-government perspectives (2). The following chapter (3) focuses on the development of the **Public Services Digitalisation Index**, designed by a team at Accenture, a leading global management consulting, technology, and outsourcing services firm. Thereafter, we present and discuss key findings from its application to public pensions and employment agencies across 11 countries (4).

¹Average of citizens saying they are satisfied with public services of government in seven surveyed countries, Accenture Citizen Survey 2015.

In a short conclusion (5), we explain how our approach to measuring digital government and its outcomes can help public sector decision-makers in charting the course for their organisations to become truly digital.

2 Focusing on Where Digitalisation Is Implemented: Individual Agencies

In order to understand how well governments are actually performing in transforming public services and delivering on those new digital pledges, we need to go beyond the whole-of-government view (at national/federal and state-levels alike) and look at individual public agencies. Until now, research has tended to avoid this granular look on the digitalisation of public services at the agency-level and rather benchmarked on the whole-of-government level. These whole-of-government analyses and benchmarks certainly create valuable insights on how countries perform overall, have evolved and ensure their competitiveness, leading to highly relevant policy-recommendations for governments.

Nevertheless, individual agencies are the key to successful public service digitalisation, for three reasons:

- While digitalisation requires strong overall strategic guidance and corresponding investment of political, administrative, social, and financial capital, these factors need to be translated into agency-specific strategies, initiatives and plans to gain real traction. Even under optimal conditions—such as in unitary, centralised states—governments cannot simply command digitalisation. This becomes even more evident if we look at decentralised, federal states or countries with strong local governments. The only common denominator across all cases are individual public agencies with their distinct levels of digitalisation at the organisational level.
- Digitalisation has an external dimension, in the provision of digitally enabled and enhanced services to citizens and businesses. This service dimension can, of course, be studied at an aggregate, whole-of-government level. However, it is very difficult to translate such aggregated data into concrete policy measures that address the specific challenges faced by an agency in a specific policy field (and perhaps even in a specific region). Thus, it is necessary to see how individual agencies are performing in order to gain a detailed view of public sector digital service provision.
- Most important, however, is the fact that digitalisation is at least as much a question of internal reform than of pure service transformation. New and innovative services need to be based on enterprise-level digital infrastructures and platforms, need to be integrated into the internal workings and processes of an agency, and need to be designed to inform management and policy decisions through data-driven analytic insights. In view of the fragmented organisational,

technological, and procedural landscape in the public sector, this can only be done in a meaningful way at the individual agency level.

Given that individual agencies are responsible for taking care of most citizen interactions and are looking for ways to digitally transform to keep up with citizens' expectations and budget limitations, they need to be focal points of any digitalisation measurement. In the reality of those public agencies, digitalisation of their service delivery model is not a distinct task—it is closely connected with their efforts to digitalize internally. And in order to achieve this complex holistic transformation, more and more agencies realize they need to improve their strategic planning.

For the individual public agency however, it would be of great additional value to have an analytical tool to define what digital actually means for them, what their current status of digitalisation is and how it can improve. Finding a way to measure digitalisation on the agency-level across countries, different government models and the various policy fields, would provide further insights on what drives successful digitalisation of public services.

3 The Accenture Public Services Digitalisation Index

In summer 2014, a team at Accenture started to investigate what such an evaluation of digital maturity could look like for public agencies. We evaluated the analytical tool Accenture had successfully developed for and applied to the private sector: The Digitalisation Index, assessing the progress companies have made in implementing digital technologies. Subsequently, we fine-tuned and adapted this methodology to the public sector and proposed a study in key policy areas in several key countries. The following sections outline the methodology and its development.

3.1 Starting Point: The Accenture Digitalisation Index Framework

The Accenture Digitalisation Index Framework was first designed and implemented in 2013 to measure the digitalisation levels of private sector companies in Germany (as part of Accenture's annual Top 500 study). It was created for three main reasons: (1) to define "digitalisation" in a complete yet sufficiently simple way that enables meaningful conversations about the necessary next steps; (2) to design a tool that can be applied to a broad range of contexts to measure and compare levels of digitalisation; and (3) to understand how digitalisation corresponds to other indicators, such as business performance. The index methodology has since been applied by Accenture across the globe and in a broad range of industries.

The Index framework assesses a company's digital maturity against three indicators: (1) Digital strategy—referring not only to the extent to which a company's strategy acknowledges digitalisation as a decisive trend within their industry, but also the extent to which strategic objectives are based on digitalisation; (2) Digital services—assessing the company's products, solutions and services as well as the function companies use to interact with their customers; and (3) Digital enablement—considering the use of digital technologies and applications to support internal processes.

Accenture's framework divides these three indicators into sub-categories and assigns a grade for each sub-category. The grade of the indicator is the average value of its sub-category grades. Finally, the average of these three indicator grades forms the Digitalisation Index value.

The Digitalisation Index provides an indication of which companies could become Growth Champions in the coming years—and which ones could lose their position. Accenture correlated the value of the Digitalisation Index to three key indicators of business success: return on equity; return on sales; and revenue growth. This enables us to predict which of today's Growth Champions have the best prospects of continuing their above-average performance in the future.

Overall, the Top500 companies in Germany increased their index value by 9.8% in 2014 compared to the previous year. The most considerable progress was made in the field of digital enablement; the value in this dimension increased by 14.3%. For the digital strategy and digital services indicators, the improvements were 6.5% and 9.7%, respectively (Fig. 1).

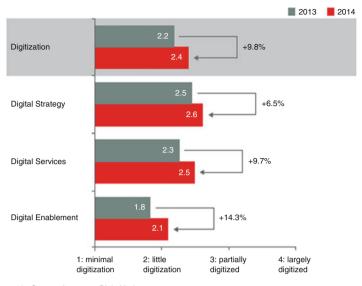
Interestingly, an industry comparison revealed significant differences. Companies in the IT, media/entertainment and telecommunications industries had a higher Digitalisation Index value. They were more likely to have digital business models and were among the first to react to the disruptive potential of the Internet. Energy, resources and construction companies were much less mature when it came to digitalisation.

3.2 Development of the Accenture Public Service Digitalisation Index

Thinking about how to adapt the framework for public agencies, we realized that the overall three indicators of Digital Strategy, Digital Services and Digital Enablement also apply to the holistic understanding needed for digital in government.

In the early stages of E-Government, public agencies concentrated a lot on moving their high-volume services to the online channel, looking for cost-savings

²Accenture/Die Welt, Courage to think differently. Digitization strategies of Germany's TOP 500, 2015.



n-187:Source: Accenture Digital Index

Fig. 1 Digitization of Top500 companies in Germany in 2013 and 2014. *Source*: Accenture/Die Welt, Courage to think differently. Digitization strategies of Germany's TOP 500, 2015

and increase of efficiency. In contrast, leading public agencies nowadays are working on capturing the benefits of being digital "in-depth": Digital is now seen as an amazing opportunity to use new technology to not only increase efficiency but also be seamlessly connected with citizens, companies, other public agencies and non-governmental organizations. Those public agencies consider themselves part of an eco-system and open up for collaboration with private and public partners in order to achieve more. Innovative services for and developed with citizens and other stakeholders actually move beyond the original service portfolio of the public agency, supporting it to achieve mission-critical outcomes. Furthermore, digitalisation extends deeply into the organisation itself, where entire process landscapes need to be redesigned in order to make an organisation digital.

To give an example of transformational digital change, a young family with a newborn child might in the near future be offered a broad range of digital services, similar to the way Amazon.com offers additional products that often go hand-in-hand with a current purchase. After registering the birth and the name of the child online, for example, the parents could agree to a one-time transfer of the relevant data to a broad range of other (digital) services, such as waiting lists for day-care, tax return forms, or passport applications. In each case, the information about the newborn would automatically alter the outcome of all these other processes, while parents could remain in control of permission to conduct one-time data transfers. To achieve this goal, however, it is not sufficient to simply design individual services. It also requires a broad digital strategy and implementation of truly digital enterprise-level processes that allow for a seamless integration of the external dimension into the internal workings of an agency.

Index Dimension	Rationale for Public Service Digitalisation
Digital Strategy	The organization's strategy needs to reflect digitalization as a transformative trend and set ambitious strategic objectives for how to reform. In order to achieve measurable outcomes, the agency needs to establish and follow a digital roadmap for transformation that has a clear governance structure, detailed implementation plans and key performance indicators (KPIs) measuring progress and success.
Digital Services	Public agencies should use digital as a means to transform and innovate their service delivery model, making it smarter and outcome-driven instead of process-focused. The user's needs should be at the centre of this new service model, allowing disruptive effects to unfold in public services as seen elsewhere in the private sector.
Digital Enterprise	In the digital age, public agencies have to become digital in themselves – a digital enterprise. This means transforming the workforce and organization, establishing end-to-end digital internal processes in a highly secure IT architecture and employing analytics to revolutionize operations through a new thinking based on data.

Fig. 2 Three dimensions of the Accenture Public Service Digitalisation Index. *Source*: Author's own illustration

Taking such a holistic transformation of the public service delivery model seriously requires public agencies to apply strategic planning instead of ad-hoc projects. It also requires changes in the internal processes of the agency, which needs to adopt a citizen-centric mindset, increase the digital skills of the workforce and build capabilities and infrastructures for seamless and automated processing of the new service delivery model.

Public agencies share the challenge of companies to transform their strategic planning, their services and their internal processes. We therefore kept those three dimensions of the Digitalisation Index for our adaptation applied to public services. A number of own characteristics were however needed to evaluate the public agencies' performance for each of the three indicators and to better reflect their differences to companies; for example, their focus on public goods and services instead of selling of products and their aim to achieve public goals instead of increasing revenue.

We have applied this reasoning to the three Index dimensions, leading to the following overall structure (Fig. 2).

The Public Sector Digitalisation Index thus encompasses three dimensions (Strategy, Services and Enterprise), further defined by four sub-dimensions each, leading to an overall structure of twelve sub-dimensions. Each of these is clearly defined, as shown in Fig. 3.

In order to be able to define how far a public agency has progressed in its digitalisation journey, we further needed to have criteria allowing us to grade each of the sub-categories using publicly available information. Whilst we experienced that the 12 sub-categories remained valid across policy-fields, the criteria on how to assess them needed to be adapted to pay credit to the different challenges and tasks across the policy-fields.

As a result, the assessments of the public agencies were built on a wide-range of 80–90 criteria that our researchers evaluated—an average of seven criteria per sub-category. Grades were given for each sub-category ranging from 1 (not



Fig. 3 Digitalisation index—structure for public sector organisations. Source: Author's own illustration

Assessment Criteria for Organization & Workforce Transformation Digital department/ Digital expert groups/innovation taskforce Internal Social Media (e.g. yammer, intranet) Internal Collaboration Tools (e.g. Lync, video conferencing) Digital knowledge management Self-service administrative tasks for employees Telework capabilities Shared Services Smart devices for field teams

Bring your own devices offerings

- State of the art software/hardware
- Training for use of software/hardware

Fig. 4 Example for assessment criteria. Source: Author's own illustration

digitized) to 5 (digitally transformed). As with the Digitalisation Index for companies, the grade for each of the three indicators is the average value of its sub-category grades. Finally, the average of these three indicator grades forms the PS Digitalisation Index value (Fig. 4).

4 **Exemplary Findings for Pensions Administration** and Public Employment Services

The framework has so far been applied to public agencies in three policy fields: Pensions administrations, Public Employment Services and Policing (in progress). For each policy-field we looked at the relevant public agency in 11 countries, defining how far the public agency has progressed in its digitalisation journey and comparing it to international peers.

Our assessments delivered the following key findings across the two policy fields of pensions and public employment services.

4.1 Overall Findings

The results show varying degrees of maturity across the 3 Index indicators—Strategy, Services and Enterprise.

In both Pensions and Public Employment Services, public agencies perform significantly better in Digital Services than in Strategy and Enterprise. This validates the hypothesis that digital services have been a priority area at most agencies and that the widespread e-government strategies of the last decade have had effects. At the same time, it also displays that most agencies have not yet extended their focus from e-government to digital government with a holistic digital transformation plan.

4.2 Digital Strategy

Our Research reveals that digital strategies with clear, outcome-focused implementation plans are very often missing at the agency-level.

Digital strategies on the whole-of-government level are widespread among the countries, yet often limited to high-level goals that the governments would like to achieve within the next 5–10 years. At the same time, detailed implementation plans and metrics for how to measure success of operationalization are frequently missing in those strategies.

Thus, there is a need for public agencies to create their own digital strategies and roadmaps which translate the high-level goals of the government into concrete projects and initiatives with measurable outcomes and a clear governance structure. Despite this, our evaluation reveals that a range of assessed public agencies do not have published strategies at all, and that strategic plans are more wide-spread amongst the public employment services agencies than amongst the pensions agencies. Even amongst those agencies that have their own digital strategies, these are often lacking a detailed roadmap for implementation, assigned governance, milestones and metrics to track progress and success.

Example: Digital Strategy

In November 2012 **the UK government** published its ambitious Government Digital Strategy based upon one fundamental and overarching principle: 'digital by default'.³ The UK government ambition is that by providing

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³UK Government, Government Digital Strategy, Nov 2012, https://www.gov.uk/government/publications/government-digital-strategy

convenient and user-friendly digital channels to users able to access them, that digital will become the preferred channel for accessing services for the citizen. For those who cannot access digital services for whatever reason, the government has explicitly stated that these citizens will not be excluded. **The Department for Work and Pensions (DWP) in UK**, one of seven large government departments obliged to undertake an end-to-end service redesign of all its large transactional services, has taken the principles and objectives of the Government Digital Strategy and applied these to the department context in its whole departmental Digital Strategy, published in December 2012.⁴

The strategy takes a holistic approach to digital transformation, with an emphasis on digital service transformation but including measures for workforce and internal process transformation also. Focusing on delivering 'services of the future', DWP has outlined clear principles upon which both the design and creation of digital services as well as whole business transformation are based. Whilst the DWP tracks a range of KPIs and publishes performance level outcomes in its corporate reports, much insight on the department's performance can be drawn from the UK government's performance tracker (a beta version product) available at gov.uk/performance. Annual transaction numbers, cost per transaction and even digital take-up can be accessed at the individual DWP service level.

4.3 Digital Service Delivery

The e-government strategies of the past have led to a transfer of the traditional services portfolio to online, yet a lack of innovative service delivery powered by digital is observed

Grades for Digital Services are in average higher than those of the other indicators, a positive outcome of the e-government strategies of the past years. However, the performance is still not convincing: Taking a closer look, one realizes that agencies perform the lowest in transformative solutions and experience the highest grades in Digital Service Fulfilment. This indicates that whilst agencies have successfully transferred their traditional services portfolio to online, they have taken only minimal next steps to exploit the potential of digital to innovate and offer smarter services. Data-mining and analytic techniques facilitate the development of such smarter services, as do open innovation platforms that can consolidate the best ideas both from internal and external stakeholders.

⁴Department for Work and Pensions, Digital Strategy, Dec 2012, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/193901/dwp-digital-strategy.pdf

Example: Innovation

In France, Pôle emploi is taking an innovative approach to delivering higher-value public employment services acting alongside a close network of actors in the wider employment ecosystem. In early July 2015, "L'Emploi Store" was launched, an open portal where both applications developed by Pôle emploi and big data will be available for download. The portal also serves as a collaboration platform for startups and other private partners to develop new applications with input from the agency. Additional innovative tools are being launched by Pôle emploi to deliver greater benefits to jobseekers, like online virtual interview simulators, serious games and MOOCs which allow users to simulate employment-related situations, develop some knowledge on some professional sectors, etc.

The establishment of "L'Emploi Store" complements the agency's current Open Innovation platform, InnovAction, which is intended to consolidate ideas and best practices received from a sample of internal staff and collaboration partners. The agency's Innovation Department selects the most promising initiatives sourced from this internal forum: several pilot initiatives of new digital services have already been launched and are being tested, including the "100% Web", a remote yet personalized online interaction with Pôle emploi's counsellors which is gradually being rolled out.

Finally, Pôle emploi launched "Le Lab", an internal Innovation Center aiming at quickly designing new digital services through sessions and hackathons gathering job seekers, employers, counsellors and start-ups. It also serves as an incubator for new digital services proposed by Pôle emploi agents and/or start-ups (several projects currently incubated). Since his opening, "Le Lab" has already inspired several others French agencies who aim at replicating this approach.

4.3.1 Degree of User-Centricity Is Very Much Mixed

Interestingly, the grades for user-centricity display a polarization among the agencies: High grades of 4 and above, versus a group of agencies with a very limited user-centricity focus. The leading agencies in user-centricity offer a wide range of digital self-service tools, a personalized MyAccount with high functionality, conduct user-experience research (UX Research) to design services and focus on intuitive website navigation, an omni-channel approach and collaboration with other public/private institutions to increase customer service and compliance. Even more importantly, leading agencies recognize that user-centricity is a continuous effort that requires regular research and customer involvement. Most of the evaluated public agencies however still have to radically change their mind-set

from service-centric to user-centric and evaluate the right mix of online and offline channels for specific user segments.

Example: User-Centricity

The German agency responsible for public employment services, Bundesagentur für Arbeit (BA), has developed a BA Online 2020 Program—a program outlining how the agency aims to improve user-centricity of its services whilst realizing digital transformation of its enterprise.

BA takes a user-centric approach to its digital service delivery, tailoring its services to the digital capabilities of the individual customer in a multichannel delivery model. For those digitally-literate customers who are closer to the labor market, BA seeks to promote self-service by providing professional e-services, thus releasing resources for personal interactions with those customer groups who require more support in accessing digital services.

BA has already started to deliver on its promises and has developed the client-focused 'BEN' online navigator tool which integrates all BA online services which support professional development (e.g. its Jobbörse, Kursnet, Berufenet, Berufety services, amongst others) into a single access point. BEN provides information on jobs, training, further education and labor market prospects. The service also supports professionals in the decision-making process regarding potential job or career changes or embarking on further education. BA is now exploring the potential of open innovation and envisages an open innovation platform to be supplied as a web application. Various topics should be defined on the platform and discussed in separate campaigns hosted by a moderator. Communities would then take the feedback and deliver ideas and implementation suggestions.

4.4 Digital Enterprise

Most digitalisation efforts have focused more on the customer access channel than on improving organisational efficiency.

The average grades for Digital Enterprise are lower than those for Digital Services for both Pensions and Public Employment Services. Agencies are active in facilitating (automated) data-sharing with other public authorities and organizations such as employers. However, many have not taken the next step of setting up capabilities to exploit data in a more systematic rather than ad-hoc way. IT-security and effective data privacy are pre-requisites for using data effectively and being trusted by the citizens.

Concerning their workforce, agencies overall struggle with building the digital skills among their employees and raising awareness of the positive impact of digital

transformation on the working environment. End-to-end digital internal processes would have a huge impact on effectiveness and efficiency of the agencies, yet they still tend to refrain from a complete overhaul of their IT infrastructure and internal processes and instead opt for incremental changes.

Example: Digital Enterprise

The Department of Work and Pensions (DWP) in UK has established a strong digital organisation with distinct 'digital' teams such as the Transformation Hub and Digital Academy Team, working to realise the department's business and digital transformation agenda. The Business Design Team transforms the department's operations, whilst the User Research Team draws insights on user-experience and the designing of services around the user. DWP is also making significant investments in growing its internal digital expertise through its DWP Digital Academy. Further, DWP has established a transformation hub in Leeds, bringing together digital specialists to collaborate on transformation projects.

The automation of processes is a key enabler of the department's business design, enabling employees to spend a higher proportion of their time assisting customers. The analytics department at DWP is exploring social media analytics as a means of improving customer service and has established a joint analytics program hub with HMRC to identify fraud and errors in welfare payments. DWP has further published an Open Data Strategy in 2012 outlining the department's collection and use of big data.

The PS Digitalisation index facilitates the identification of key trends among public agencies overall or in a particular policy field as outlined above. It is of particular interest for the individual public agency to be able to compare itself with peers both inside the country and internationally. It enables analysis of strength and weaknesses in digital maturity so far and supports identification of future areas of focus.

5 Looking Forward

The methodology outlined in this contribution has enabled Accenture to develop a framework with which to discuss the potential of 'digital' for public sector organisations—and possible ways to unlock this potential. As a purely outside-in methodology that analyses digital performance based on publicly available data, the results gathered can also serve as a helpful reality check for organisations that may already fulfil many prerequisites of a digital public agency—without using or communicating them adequately.

We are currently exploring additional and innovative ways to apply this analytical tool to other policy-fields and further countries, enabling deeper insights to compare agencies both within-country and internationally. So far, the framework assesses the supply side of digital government—what the public agencies currently offer to citizens and other stakeholders in their particular ecosystem. We see the rationale behind opening up the framework for the demand side of digital government, evaluating how the digital capabilities of public agencies are valued and taken up by citizens. This could be evaluated by measuring citizens' take-up of digital offerings and their satisfaction levels.

The objective of our work on a Public Sector Digitalisation Index is to contribute to the debate on the state and progress of digitalisation outside the private sector, to highlight new opportunities for delivering excellence in public service, and to help build state-of-the-art government organizations in the digital world. The disruptive power of digital has already changed the perception of security, with IT-security and data privacy being of highest importance for the public sector also. In the health sector, wearables and new ways of using data have started to revolutionize our understanding of wellbeing and have brought new players into the sector. Embracing digital technologies such as Cloud and applying new techniques of data-mining and analytics could unleash the disruptive power of digital for public service delivery. The public sector needs to keep up with the digital world to continue serving individuals, families and businesses, and to be an attractive employer for future generations.