



Building the digital state

Digital technologies offer vast opportunities for governments and public sector organizations to transform the way they work, and deliver better outcomes for citizens and communities. How can they turn this potential into reality?

Building the digital state



Governments and public sector organizations are operating in a more complex and unpredictable environment than ever before. They need to do more with less, as demand for services rises and budgets continue to tighten. At the same time, today's citizens, empowered by technology to scrutinize, communicate and organize, have increasing expectations of government.

In this challenging environment, simply pursuing "business as usual" is no longer an option. Governments need to rethink the way they deliver services to the public and find new ways of tackling national, regional and local issues.

New technologies offer tremendous potential for governments to accelerate transformation. When used as a strategic tool, they can provide the missing link to help deliver better outcomes for citizens in a more sustainable way.

But how can governments overcome the "digital disconnect" – the gap between the potential of digital transformation and the poor track record of public sector implementations?

The center of government has a critical role to play in developing the infrastructure and enabling conditions for digital transformation at a national level. And individual departments, agencies and local governments must drive transformation within their own organizations from senior leaders down to frontline employees and through collaboration with other agencies.

But the answer does not lie with government alone. Transformation requires the combined resources and talents of different parts of society – including businesses, technology startups, academia, civil society organizations and citizens themselves – working together to change things. That means government doing more to build and nurture a vibrant, innovative, competitive and diverse ecosystem that can co-create public value. The goal is not simply *government* transformation, but rather a wider *societal* transformation that delivers better outcomes for all.

For those that can manage this transformation effectively, the rewards will be considerable. It will help governments more effectively tackle complex policy challenges, provide better services, and improve public value. It will help to restore people's trust in government and contribute to a stronger society. And it can also help to raise a country's international standing. Siim Sikkut, the Estonian government's chief innovation officer, says digital transformation has helped the country punch above its weight on the global stage. "Digital solutions make our public sector more effective, the work of our companies more productive, and the lives of our citizens more efficient and convenient," he adds.¹

In this paper, we examine the critical role played by each of the different groups: the center of government; individual government departments and agencies; and the wider societal ecosystem. Only by taking steps to ensure that all three are working in harmony can governments truly overcome the digital disconnect.

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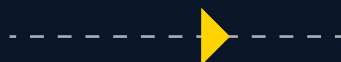
Siim Sikkut,

Estonian government's chief innovation officer

1. Innovations Online. <https://innovationsjournal.net/5-countries-betting-together-on-the-new-digital-economy-2864ff19150e> Accessed 20 April 2018

From government transformation to societal transformation

Center of government



Individual agency



The center of government creates the enabling conditions ...

... for individual agencies to drive transformation ...

Wider ecosystem

Public value



Consult with stakeholders



Participate in innovation networks



Harness GovTech solutions



Innovation and experimentation



Progress monitoring



Create data-exchange platforms



Modernize procurement practices



Engage citizens in co-design

... while harnessing the knowledge and resources of the wider ecosystem

1

» **The role of
the center of
government**

2

» **The role of individual
government departments,
agencies and local
governments**

3

» **The role of the wider
ecosystem**





Part 1

The role of the center of government



The center of government must create the enabling environment for a thriving digital economy - the right policies, regulations, technology platforms and so on - while also supporting individual government departments with their own transformation efforts.

The center of government has four key roles to play:

1. Creating infrastructure and facilitating access to services

Governments must pursue policies that promote the development of a digital economy. To do so, they need to engage and incentivize private businesses to help create the necessary infrastructure and enable secure access to services.

For those nations leading the way, developing a high-speed, reliable and robust digital infrastructure was at the heart of their early work. Advanced telecom networks - including enhanced 4G and forthcoming 5G networks - and data centers are the foundation for the digital economy and require continuous investment. With networks that are 100 times faster, support 100 times more devices and have almost no lag, 5G will connect people and places like never before. But the technology relies upon



Case study

5G powers smart city development in the US

EY teams are working with a US city government and metropolitan transit authority to prepare for the deployment of 5G networks. These networks will serve as the backbone for connected autonomous vehicles, smart-city applications and intelligent transit and transportation systems, as well as enhancing broadband connectivity for residents. EY teams are providing a Public Private Partnership (P3) model, including financial and procurement advisory services, to improve network connectivity across the transport system.

dense, fiber-optic networks that are costly to install. Government agencies are increasingly teaming up with private partners to design, build and maintain this infrastructure.²

Infrastructure improvements must address the often stark urban-rural and economic divides in accessing the digital economy and promote digital inclusion so that all citizens have access to the same opportunities. In Africa, the Chinese telecom firm Huawei and the Kenyan mobile network operator, Safaricom, are partnering to bring 5G services to Nairobi and rural areas around the city. These services will give people access to education, along with literacy and training programs.³

Once the necessary physical infrastructure is in place, governments must develop secure user-authentication systems to help citizens gain easier access to services through multiple digital channels. New Zealand's Real Me, an opt-in digital ID system, gives

2. For more information see "How can leaders put the capital into cities?", EY 2019

3. For more information see "Can more connected devices make cities smarter?", EY 2019

citizens access to a myriad of public and private services, from passport applications, marriage registrations and voting, to opening bank accounts and buying and selling property online.⁴ Meanwhile, India's biometric-based universal ID, Aadhaar, which is helping to promote connectivity and digital inclusion, has been described by the World Bank as the most sophisticated ID program in the world.⁵ Today, Aadhaar's platform is used by multiple public and private agencies and benefit schemes, including banks, telecom companies, and subsidized food and cooking-gas programs.

Deploying technologies to authenticate e-documents saves time, money and effort for citizens and businesses undertaking digital transactions. Denmark's NemID, a national electronic ID and digital signature, is a central element of the nation's digital infrastructure. Developed in close cooperation with the banking sector, it is operated by a private provider for the government and Danish banks, and includes the ability to sign electronic documents to give them full legal weight.

Improving digital literacy is another priority for governments as they seek to ensure no one is left behind. Many are taking steps to help people develop the skills and confidence to interact with digital services. In 2018, the French government launched its new digital inclusion strategy to improve access to digital skills and infrastructure for 6.7 million citizens who still do not use the internet. And in India, making one person in every family digitally literate is a key component of Prime Minister Narendra Modi's vision of "Digital India."

2. Driving transformation and collaboration

Many of today's frontrunners in digital public services embarked on their transformation journeys because politicians linked the changes to an urgent national reform agenda or need for fundamental structural change.

The UAE government has launched the world's first Ministry of Possibilities with a forward-looking approach toward updating the government's entire structure and way of working. The ministry will operate as a virtual department, run by all Cabinet members, and will initially focus on four areas: proactive services, behavioral incentives, skill discovery and procurement.⁶

This kind of vision is needed to ensure cross-departmental and cross-government collaboration, and to avoid over-investment in siloed solutions. To this end, many central governments have developed a national digital and data strategy, with dedicated funding, setting out how they plan to build a world-leading digital economy and more efficient and accessible public services. These strategies help to ensure that individual departments are focused on government-wide outcomes and that funding is in place for cross-agency programs.



Case study

Improving digital inclusion for India's rural population

EY teams have worked with an Indian state government on a project to improve mobile penetration across the state. They provided program management to oversee and manage the implementation. This included getting network providers to extend network coverage, and distributing mobile phones to each of the 4.5 million rural households. The project is expected to drive social, financial and digital inclusion.

4. GovInsider <https://govinsider.asia/innovation/exclusive-new-zealands-plans-for-digital-government/> Accessed 23 April 2018

5. https://uidai.gov.in/images/StateWiseAge_AadhaarSat_24082017.pdf UIDAI. Accessed 23 April 2018

6. Explainer: What the Ministry of Possibilities, the world's first, will do in the UAE, Gulf News April 23 2019

Some countries have created a centralized digital service or transformation office to lead their efforts. For example, the US Digital Service, Australian Digital Transformation Agency, UK Government Digital Service (GDS) and many more coordinate strategy, promote cross-agency collaboration and ensure the principles and practices of digital development are being followed. In some cases, these organizations send teams into different departments to help with the change process and spread innovative ways of working.

New Zealand has taken a different approach. It has adopted a “centrally-led and collaboratively-delivered” model, which means agencies co-own the digital agenda, and co-design strategies and standards. The Digital Government Partnership (DGP) comprises around 60 agency chief executives and senior directors who oversee the development of digital policies, tools and major projects. Projects pursued by DGP sub-groups combine agency staffers with members of the Office of the Government Chief Digital Officer team.⁷

The center of government is crucial in breaking down silos and achieving interoperability of different systems, databases and registers to provide one-stop access to public services. Common IT platforms can be slotted into the services of any agency, offering a range of applications, such as identity management, payments, messaging and notifications. The GDS in the UK, for

example, has built several applications for use across the entire government, including GOV.UK (to offer a single point of access for public services), Verify (to check identity), Pay (to collect payments) and Notify (to enable secure messaging).

Meanwhile, Estonia has pioneered technology solutions to facilitate seamless data exchange and online interactions with the state. X-Road provides a secure data-exchange platform for card-holding residents to do everything from filing taxes to reviewing medical records and selling cars. Currently, 651 government, municipal and private-sector institutions have their own servers and information systems, all connected by X-Road.⁸

3. Setting and enforcing policies, regulations and standards

Countries that excel at digital innovation have uncovered the real reasons for resistance. Enhancing trust in digital systems is critical to achieving a digital society. People need to feel confident that their data is being used appropriately, and stored and shared in a secure manner.

The center of government must set and enforce standards for effective governance of digital information. Many governments have taken steps to afford individuals greater rights and control over their data, while still embracing its potential. The EU led the way in 2018

with General Data Protection Regulation (GDPR), which gives citizens easier access to the data companies hold about them, requires organizations to obtain the consent of people they collect information about, and imposes financial penalties for breaches.

Digital transformation also requires new regulatory, legal and governance frameworks that allow innovation to flourish while managing potential risks. Such frameworks are critical to enabling digital-identity management, simplifying transactions, improving data handling, and facilitating data sharing. They must also accommodate rapidly evolving new technologies. For example, the deployment of artificial intelligence (AI) brings specific challenges - from lack of transparency and accountability, to data quality, ethics, potential bias and security implications - which require new regulations and standards.

At the same time, governments have to deal with the ever-growing threat of cyber-attack. Attackers are becoming more sophisticated and have even started to disrupt democratic processes, through “hacktivism” and political phishing. It is impossible for governments to prevent every attack; rather, the focus should be on prioritizing the risks relating to key assets and taking action accordingly. Governments need to embed

7. Taming the tiger: NZ’s digital chief on harmonious e-government. Global Government Forum, 10 January 2019

8. <https://govinsider.asia/innovation/marten-kaevats-national-digital-advisor-estonia-vision-for-an-invisible-government/> Accessed 29 April 2019

cybersecurity from the beginning and at every stage - strategy, design and operations. They should also collaborate with other stakeholders, including the private sector, to develop a robust cybersecurity policy framework and a secure ecosystem.

4. Securing the right knowledge and talent

Central governments have an important role in promoting knowledge-sharing across government departments, both nationally and internationally. The D9 group of nations - the UK, Estonia, South Korea, Israel, New Zealand, Canada, Uruguay, Mexico and Portugal - meets regularly to disseminate best practice and develop solutions to common stumbling blocks.

Central governments are taking steps to build core technical skills (such as software development and systems architecture), as well as the new skills that support transformation (such as data science, digital marketing and user-experience research). The Singapore government, for example, has unveiled plans for 10,000 public servants to be trained in data science over the next five years. It has also launched the Code@SG movement to teach all students coding and computational thinking.⁹

Meanwhile, the UK government launched the Government Digital Service Academy in 2014 to support the development of digital skills and awareness among non-

data specialists. A data-science campus was set up in 2016, along with a new apprenticeship in data analytics, while a digital technology fast-stream offers specialist learning and development and a clearly defined career path. Together, these measures are nudging the workforce toward a cultural shift in the status of data in government.

Such measures may go some way toward addressing the fact that the public sector must compete with the private sector to recruit, train and retain the best talent. Some governments are responding proactively with dedicated programs to develop in-house digital talent management and leadership programs, while others aim to attract the best talent from abroad. A municipal recruitment effort in Wellington, New Zealand, for example, drew 48,000 entries, including workers at Google, Amazon, Facebook, M.I.T. and NASA.¹⁰

As governments gradually build a more dynamic environment, they will attract younger workers and millennials in search of roles where they can make a difference to society.

While governments themselves must shape their own workforces for the digital age, rapid and deep technological change will have wider implications for the future of work, economies and society in general. Governments must consider the far-reaching implications of automation on society, including employment and social equality.



Case study

Building skills for the future in Singapore

Ensuring that Singaporeans have deep skills for the future and are inspired to learn throughout their lives has emerged as a key nation-building effort in recent times. As digitalization holds the key to unlock much of the productivity and innovation potential of businesses, the local workforce too must evolve to acquire, deepen and accelerate the right digital skillsets and mindsets.

EY teams are helping the Singapore government to drive the national skills agenda. They facilitated the development of a National Skills Framework across ten sectors, including public transport, healthcare and social services. And EY teams are working with SkillsFuture to help different industry sectors define their current and emerging skills requirements, and anticipate changing manpower needs.

9. The Guardian Public Leaders Network
<https://www.theguardian.com/public-leaders-network/2017/may/02/singapore-government-data-strategy-jacqueline-poh>
 Accessed 23 April 2018

10. <https://www.nytimes.com/2017/04/14/technology/new-zealand-tech-industry.html>
 Accessed 23 April 2018

Part 2

The role of individual government departments, agencies and local governments



While central government policymakers create the right enabling environment, it falls to individual government departments, agencies and local governments to drive digital transformation in their own organizations. This may involve changes in several areas, from organizational structure and governance, to work processes, culture, staffing, skill requirements and technology. So, what are the key steps for government and public sector organizations on the digital transformation journey?

1. Align digital plans with overall vision and purpose

Governments can only realize the full potential of digital when they have a clear view on how it can be used to achieve their public policy goals and deliver better experiences and outcomes for citizens. Transformation, therefore, starts with a consideration of the organization's core purpose and vision of desired outcomes. The vision should incorporate a shared sense of what the desirable future looks like, in clear and measurable terms, around which all stakeholders can align.

The organization must then assess the role that digital technologies can play in making the vision a reality. Some governments have started by analyzing their biggest challenges, which enables them to identify and prioritize projects for early digitalization.



Case study

Prioritizing digital initiatives in a Nordic city

As part of the realization of its new strategy, a Nordic city needed to take a more citizen-centric approach to the development of its digital services. The city had a wide range of IT portfolios scattered across 31 departments, and EY teams helped it to identify those digital projects that would have the greatest impact. EY teams developed a tool that helps city officials to map and prioritize all their development initiatives using three dimensions: value to citizen, value to city and total cost. The organization now has a simple yet powerful way to evaluate the relative importance of digital initiatives and focus on those that really add value.

Once project priorities have been decided, a digital strategy and implementation plan is needed. This should define the roles and organizational structure required to develop and scale the use of technology; assess, monitor and facilitate mitigation of any risks relating to technology and data (including issues surrounding data integrity, security and privacy protection, and ethical and legal ramifications of using new technologies); and establish a mechanism to continually evaluate progress and measure benefits.

The strategy must permeate the entire organization to remove organizational siloes and hierarchies, and facilitate cross-departmental - and external - collaboration. Implementation plans should be shared with different stakeholder groups so they understand how the change will affect them and what part they are expected to play.

2. Create appropriate organizational and governance structures

Public-sector bodies' existing organizational structures may not be equipped to drive digital transformation. Individual departments or teams may lack the space, freedom or flexibility to explore different ways of doing things, as well as the latitude to learn by trial and error.

While there is no one-size-fits-all approach, an EY research study conducted with INSEAD business school found that the key to overcoming these limitations is not to be constrained by existing structures. Government organizations should be prepared to create new entities that are specifically designed for the task in hand.¹¹ These entities may be responsible for driving the entire digital transformation process, or they may deliver or facilitate particular elements.

Governance frameworks must seek to break down functional siloes so that the organization is working in harmony throughout the journey. The most effective programs involve senior stakeholders from across the organization - including strategy, operations, IT, finance, HR, procurement and communications - who can provide program direction, oversight and shared accountability.

The strengths of this approach were exemplified in Spain, where a 2007 law change giving citizens the right to access public services online presented a major challenge for small municipalities with modest budgets and little or no expertise in digital technologies. The Biscay provincial government established BiscayTIK as an independent entity to administer a new digital platform that municipalities could adapt to meet their own needs.

This structure was instrumental in breaking through the silo mentality across the municipalities and fostering greater regional cooperation. It employed a relatively flat governance framework with a high-level board of regional political representatives making decisions on strategy and budget, but leaving the day-to-day implementation to supervising executives.

3. Gain support from senior leaders

Digital transformation needs to be led or supported by senior internal sponsors - and sometimes political leaders - who give the digital implementation team a strong mandate for change as well as visible support. These leaders need to be strong and charismatic individuals who understand the transformational benefits and possess the vision and acumen needed to lead the transition. They must have the commitment, credibility, influence, and capacity to mobilize change, as well as the necessary technical, communication and management skills.

Strong leaders make the case for change and empower others to achieve the digital vision. And they involve the whole organization in the transformation to avoid any pitfalls. Harnessing new, disruptive technologies to optimize the entire business flow requires persistent leadership, not just at the highest level, but at all levels of the organization.

In Russia, for example, the Commissioner of the Federal Tax Service was instrumental in driving digital transformation. He set up a core implementation team to create a digital platform for taxpayers. The team comprised individuals from across the organization and operated with the commissioner's full authority. During weekly meetings with him and his deputies, the team could seek decisions and approvals directly, expediting implementation.

In a world where change is constant and the external environment is rapidly evolving, a new set of leadership capabilities are emerging. Leaders, from senior executives down to frontline managers, will need strategic, digital and empathetic competencies to lead in a digital working world. Collaboration, creativity, curiosity and adaptability to lead through continuing change will become critical.

4. Design better citizen experiences

Traditionally, public sector organizations have tended to build services around their own internal structures and procedures, rather than focusing on the needs and convenience of end users. Successful digital transformation projects turn this attitude on its head and adopt the private sector's customer-centric approach to designing and delivering services.

11. Inside the Black Box. Journey Mapping Digital Innovation in Government. INSEAD and EY. October 2018 <https://centres.insead.edu/innovation-policy/documents/InsidetheBlackBox.pdf>

More progressive governments are using design thinking, customer experience labs and data analytics to deepen their understanding of how citizens interact with government, and of their needs, attitudes and behaviors. They use this insight to design services around real user needs, rather than around traditional government structures. By mapping the end-to-end citizen journey, they can develop digital solutions that make each touchpoint better, faster and more efficient. Optimizing the journey requires the identification of every technology, process, capability and transition needed to digitize the entire chain of activities.

In some cases, creating a single end-to-end citizen experience also requires coordination across multiple departments. Departments must work in unison to deliver a seamless experience that cuts across silos. The result: the citizen is served effectively at every point of contact, while duplication and inefficiencies are eliminated. For example, Kazakhstan's public service agency Government to Citizens is the single service provider for all citizen services. The country provides over 700 services online, 80 through mobile applications and more than 500 through one-stop shops. An integrated back-office has been established with interoperable exchange systems to enable sharing of citizen data and integration of work done by different agencies. All requests are routed from one front office across different agencies.¹²



Case study

Putting citizens at the heart of the justice system

A UK government agency responsible for courts and tribunals was originally designed with the judiciary in mind, without full consideration of all the other parties involved in the justice system (such as police officers, victims and witnesses). EY teams helped redesign the processes of justice delivery, placing the citizen at its heart. They created an end-state vision for both the customer experience and the organizational structure, so that all those involved in the justice process are met with compassion and understanding.

5. Adapt culture and working practices

Digital transformation doesn't depend on technology alone. It requires a change to culture, mindsets, behavior, incentives and performance management across the business. Progressive governments are tackling this through various measures, from formal change-management programs to the formation of teams or centers of excellence that help to disseminate digital initiatives.

Change leaders must work hard to gain employee buy-in by communicating the case for change and the anticipated benefits for staff. This engagement needs to start early and continue throughout the implementation process across all stakeholder groups. The change plan should improve awareness of what the vision is and how it will be achieved. It should identify barriers that may hinder change and act to overcome them. For example, there may be some initial skepticism or lack of understanding of the role digital technologies will play, and resistance to any required changes to working practices. But organizations can overcome this, for example, by explaining the rationale for the changes and ensuring that the team leading the change is transparent in its decision-making. They can also encourage employees' active involvement in planning the change, designing solutions and guiding implementation.

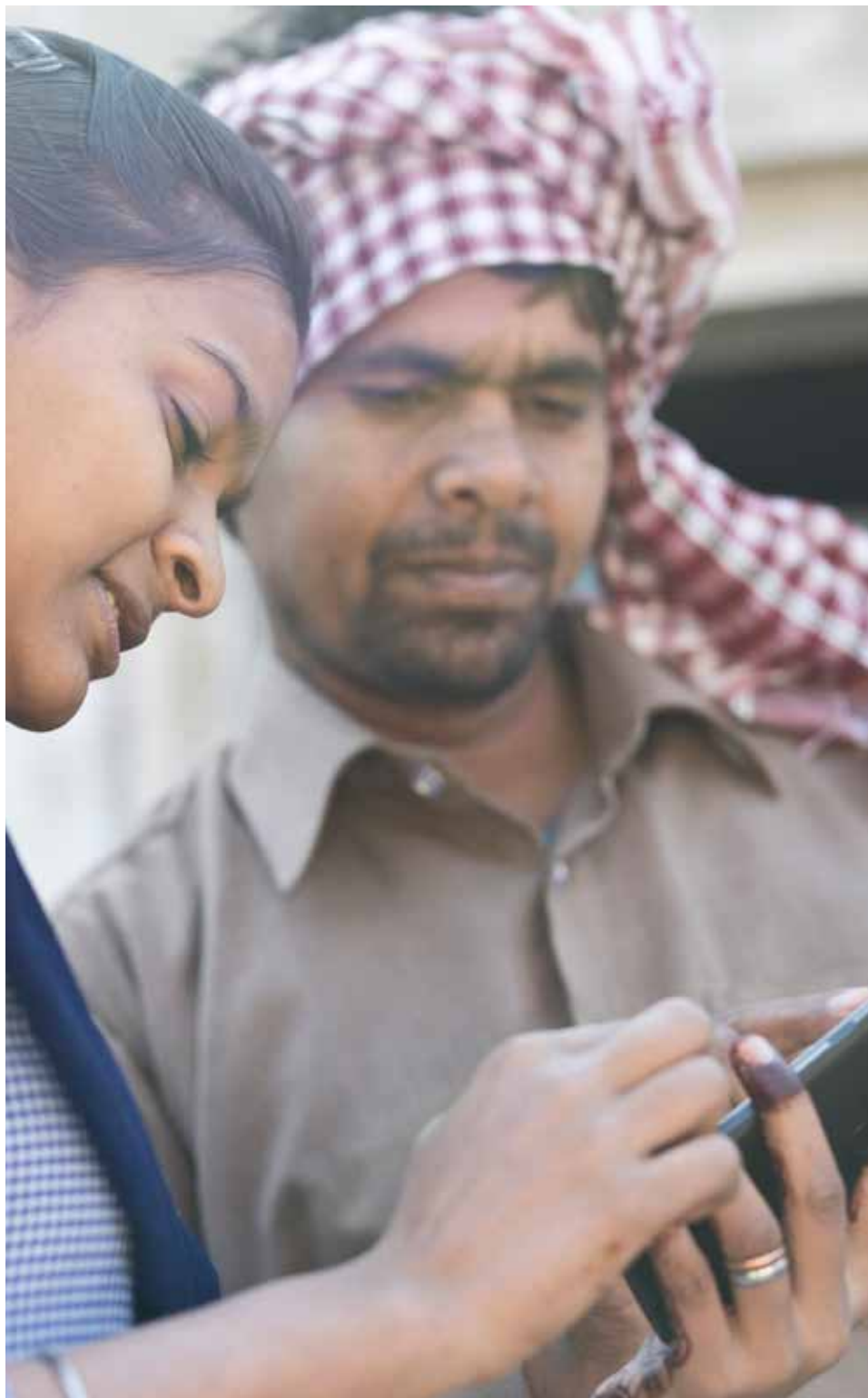
12. <https://govinsider.asia/innovation/exclusive-kazakhstan-built-one-ministry-citizen-services/http://documents.worldbank.org/curated/en/141471507703727123/pdf/120345-REVISED-World-Bank-KPS-Report-01-OSS-V2-3-Full.pdf> Accessed 20 February 2019

Only with the appropriate level of preparation and training, will the organization be equipped to handle new initiatives and processes. Sufficient time and space is needed to allow people to adapt to new digital ways of working - for instance, rethinking workflows and adopting new processes - and this needs to be factored in to the implementation plan. In Ireland, for example, the tax authority has rolled out an "introduction to analytics" course across the organization to help staff understand data analytics and its potential to drive value.

6. Build a flexible IT architecture

Many government agencies are hampered by legacy IT systems and technologies. Over the last decade, they have been trying to modernize their systems, but they often struggle to oversee the work, stay within budget and on schedule, and deliver integrated solutions. According to the US Government Accountability Office, federal agencies spend more than 75% of their IT budgets on quick fixes for legacy systems, leaving little or no room for innovation and only resolving problems temporarily.¹³

A more flexible IT infrastructure is needed, based on a service-oriented architecture, incorporating both traditional and contemporary models of infrastructure delivery to facilitate interoperability and information sharing. This approach is both cheaper and more flexible, allowing systems to be reconfigured to meet evolving requirements.



13. <https://www.gao.gov/assets/680/677454.pdf> Accessed 23 April 2018

Many organizations are attempting to integrate disparate IT infrastructure into a single system, which will be shared between different processes and potentially with other bodies. This will provide a single view of the citizen that, in turn, will help organizations to better meet citizens' needs - particularly when complex problems require the coordinated efforts of multiple agencies.

Automation technologies, such as software robotics, offer a cost-effective and flexible alternative to large system-integration projects, which can be lengthy, disruptive and expensive. They bridge the gap between big IT implementations and manual processes. Process automation can help agencies communicate across disparate legacy systems, acting as a "patch" to integrate processes largely driven by "swivel chair" operations (manually entering data into one system and then re-keying the same data into another system). It is relatively straightforward to deploy, without the need for any changes to an organization's IT infrastructure, and can be integrated with future applications such as cognitive computing. However, governments will first need to assess whether the processes themselves are ready for automation or even if they are needed at all. Processes that are outdated or redundant should be abolished rather than automated.



Case study

Intelligent automation improves government services in Denmark

The Danish city of Odense has been pioneering the use of automation in the city council. With help from EY teams, the council assessed several processes with the potential for robotic process automation, initially selecting two high-volume, low-complexity processes: the processing of bills, invoices and payments; and the handling of digital and analog forms and data flows. The aim was not only to control costs, but to improve the experiences of citizens (by making it easier to access information and services) and employees (by reducing the amount of repetitive manual work and giving them the opportunity to work on more creative, value-added tasks). The project was delivered in just two months.

7. Adopt an agile approach to delivery

One of the biggest challenges governments face with digital transformation is shifting the whole organization to a more agile way of working. In the past, governments have tended to embark on large-scale IT projects by locking down requirements at the start, creating a detailed implementation timetable, and progressing in a linear fashion until the program is delivered - the so-called waterfall approach. But this has often led to overspending and low user satisfaction.

Some government organizations are adopting new approaches to improve project delivery and ultimately realize value faster. The leading edge of this is Agile development. Agile approaches improve a program's ability to meet citizens' needs and provide organizational value efficiently and effectively. They divide a multi-year complex program into shorter iterations, enabling organizations to see their vision evolve into a tangible product and providing the opportunity to make adjustments along the way, if required. Multi-disciplinary teams work together to manage any risk or uncertainty.

Launching new solutions by piloting in one particular area can also help test the concept of a new digital program with a lower level of initial investment.

A successful pilot generates buy-in from executives as well as from the staff who will be required to implement the program. Once a pilot has been completed, the results provide a good idea of return on investment and the benefits of rolling out the solution to the wider organization. And they offer an evidence-based view of what needs to be changed in terms of people, processes and technology.

In Spain, the BiscayTIK project used piloting to good effect. Its platform was initially trialed with five municipal councils in 2010, with lessons learned from these sites used to optimize platform specifications and the process for a subsequent large-scale deployment in 28 municipalities in 2011. The phased approach also allowed time to familiarize and educate end-users.

8. Build specialist digital capabilities

Upgrading the skills of public sector employees has become critical. Individual government departments and agencies must invest in dedicated teams of skilled digital and technology professionals who can help define needs and deliver on the digital transformation strategy.

As discussed earlier, this is one of the most challenging areas for governments, as many of these capabilities are in short supply in the public sector, including

experience in emerging technologies, digital marketing, user-centered design, data analytics and information security. A greater emphasis on workforce planning, training and capability building, and recruitment programs to attract top talent, are essential to help organizations adapt to future requirements.

Design labs and innovation centers are also emerging as a nexus for capability development. The use of design thinking and its components, such as citizen journey mapping and idea prototyping, requires highly focused learning programs. For instance, the Australian Centre for Social Innovation (TACSI) offers learning modules such as introduction to innovation, co-design and implementation; modeling changes and user experience; and paper and experience prototyping.

Government agencies must also appeal to the next generation of workers - individuals who are proficient in the latest technologies and offer IT skills that will bolster government capabilities. But one issue may be more subtle: digital specialists of the type and caliber required may be a totally new breed of talent within a government organization. Culturally, organizations unaccustomed to this unique skill set must strive to help these workers feel a sense of belonging and worth, with a well-defined career path.

9. Encourage innovation and experimentation

Governments need to encourage an innovation-oriented and entrepreneurial culture, which permits experimentation and risk-taking. Staff throughout the organization should be empowered to challenge the status quo and suggest new ideas. In Singapore, every new government employee is allocated to a work-improvement team and helps to address two or three complex operational problems each year. By promoting this kind of innovation program, governments also have a better chance of attracting top talent to fuel further transformation.

Agencies need to instill in employees the motivation to perform better and continue to strive for excellence in delivering better outcomes for citizens. Incentives, such as reward and recognition programs, are useful in creating that nudge. For example, Canada's Public Service Excellence Award covers areas such as employee innovation, citizen-focused service delivery and policy. Two-thirds of Canadian civil servants say they are encouraged to be innovative, according to the 2017 Public Service Employee Survey.

A 2018 EY research study with INSEAD business school showed that successful digital transformation teams tend to borrow practices from disruptors

and startups. Some governments are cultivating an experimental culture through new structures, like incubators and accelerators, and the use of internal hackathons or skunkworks – where small, loosely structured groups work on radical new projects. They often deploy practices such as prototyping, piloting and carrying out phased introductions of new services. They are willing to embrace trial and error, flexible enough to change direction when things go awry, and prepared to tolerate uncertainty rather than nailing down every aspect of the project in advance.

In France, for example, the national employment agency, Pôle emploi, is encouraging “intrapreneurship”, giving staff the freedom and support to work on projects that could yield value for citizens. One such project, La Bonne Boîte, has developed algorithms to predict which companies are likely to recruit, so that job seekers can be more proactive in their search.

Many governments are also providing funding support to operationalize innovative ideas and concepts. For instance, the government of Victoria, Australia, has created a Public Sector Innovation Fund offering financial assistance from AU\$50,000 to AU\$400,000 to support projects that improve service delivery for the state’s residents.

10. Monitor and evaluate progress

It is important for organizations to continually monitor and evaluate the impact of their digital programs. Public service leaders should set realistic milestones and timelines for the transformation program and develop tangible performance measures to demonstrate both short- and long-term results. To increase buy-in, the successful results of early transformation efforts should be widely communicated across the organization to build momentum for the ongoing change journey.

Gathering performance data on a regular basis provides insights that can influence further planning and decision-making, helping organizations to determine whether they are moving in the right direction. For instance, organizations can monitor citizen perceptions and satisfaction, often in real time, by investing in experience-measurement tools. This helps create a continuous loop to drive improvements in response to user feedback.

The research with INSEAD showed that those governments that are most successful at digital transformation don’t assume there is an end point on the horizon. Instead, they view transformation as a continual process during which new ideas and possibilities evolve. In the UAE, for example, a new e-claims health portal proved so effective at supporting the governance efforts of the Health Authority in Abu Dhabi (HAAD) and in managing healthcare data generally, that its remit was expanded to support wider objectives. It is now an integral component in the Abu Dhabi Healthcare Strategic Plan, launched in 2014, as a core data source supporting evidence-based policy-making.



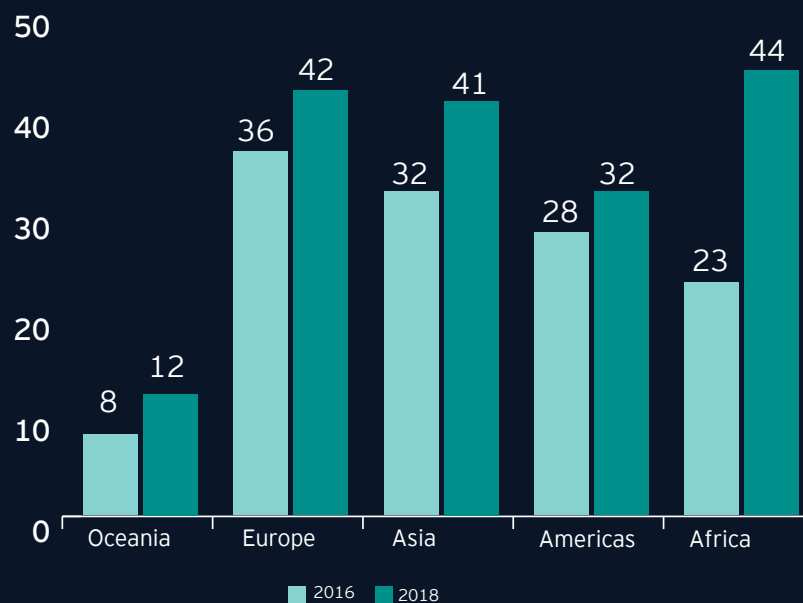
Part 3

The role of the wider ecosystem



In an age of digital disruption and convergence, governments are no longer able to deliver the social and economic outcomes that citizens expect by acting in isolation. Instead, they need to be proactive in harnessing the knowledge and resources of the wider ecosystem - including startups, SMEs, entrepreneurs, universities and research institutions, civil society and citizens themselves - to find and deliver innovative solutions to public policy challenges.

Number of countries providing online services in partnership with civil society or private sector, by region, 2016 and 2018



Source: United Nations E-Government Survey: Gearing E-Government to support transformation towards sustainable and resilient societies¹⁴

14. <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2018> Accessed 6 September 2018

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1. Delivering a new digital service

In some cases, the launch of new government digital products and services relies on the participation or contribution of partners, end users or other external stakeholders.

The research with INSEAD revealed that successful digital transformation teams carry out genuine consultations to get the buy-in of other stakeholders that may be vital to the viability of the digital program. This ability was exemplified in France, where a drive by the public entity Pôle emploi to provide digital services for job-seekers relied for success on the involvement of existing "job boards" (private employment market operators). Some of these job boards were worried that if job-seekers no longer had to come to their site to find vacancies, site traffic and revenues would fall. The project team took the time to allay these concerns and negotiate collaboration agreements.

Eventually 83 partners signed up, and by 2015 more than 5 million job offers were being posted.

In the UAE, a project to introduce an online e-claims platform by the Health Authority in Abu Dhabi (HAAD) also excelled at collaborating with external partners. HAAD invited into its fold external stakeholders such as public hospitals and insurers that shared its interest in fixing the country's health insurance system, so they could contribute to the design of the digital platform. This collective approach facilitated the rapid identification of the systemic issues that had led to a two-year backlog in the processing of paper-based claims. The new platform quickly cleared the backlog and now handles more than 25 million claims annually.

2. Creating or joining innovation networks

Government can foster innovation by building or participating in cross-sector networks that bring together businesses, entrepreneurs, startups, finance companies, academics and civil-society organizations. Through effective collaboration, they can co-develop solutions to strengthen competitiveness, improve economic outcomes and raise living standards. This symbiotic relationship benefits the private and third sectors, through public funding, R&D investment and policies that make it easier to operate, while at the same time giving governments access to new technologies, digital talent and innovative cross-sector solutions.

In Canada¹⁵, for example, the government has been instrumental in the growth of several regional and local innovation hubs. This has occurred alongside support for R&D led through local universities, which has also nurtured the development of essential talent and skills. The Communitech Hub in Ontario brings together 1,400 players, from startups and global brands to government agencies, academic institutions, tech incubators and accelerators. The Ontario Digital Service Lab was launched within the hub in 2017 to work on user research for the government. Its aim is to make it easier for citizens to access services online, including health cards, drivers' licenses and student loans.¹⁶

Other governments are creating their own networks to drive collaboration and innovation. In 2016, the US federal government's General Services Administration created the Emerging Citizen Technology Office (ECTO), which involves a network of partners from more than 300 federal, state and local government entities to help evaluate, test and implement IT modernization initiatives based on emerging technologies. ECTO helps build roadmaps for government adoption, involving more than 2,000 participants across agencies, startups, businesses, civic organizations and research institutions.¹⁷

15. <http://www.theepochtimes.com/n3/2250813-canadian-tech-entrepreneurs-see-progress-in-governments-innovation-push/> Accessed 23 April 2018

16. The Record.com, August 10 2017 <https://www.therecord.com/news-story/7494873-ontario-digital-service-lab-is-all-about-user-experience/> Accessed 23 April 2018

17. <https://www.gsa.gov/technology/government-it-initiatives/emerging-citizen-technology> Accessed 8 May 2019



Case study

New app helps UK health service source medical staff

The UK's National Health Service (NHS) is suffering a workforce crisis with severe shortages of nursing professionals and doctors across the health sector. Many health trusts are resorting to the use of agencies to fill both temporary and long-term gaps in rotas. As more and more nurses and doctors choose to work flexibly, recruitment agencies are benefitting from a £1 billion premium. EY teams worked with Ryalto to develop and market test RightStaff, a technology-enabled business that connects government health service workers directly with trusts, avoiding the need to incur huge agency fees. The technology is based on a mobile app that connects nurses and doctors with available shifts.

3. Adopting new business models and solutions

Governments are increasingly looking to harness emerging and disruptive technology solutions developed by various players - notably entrepreneurial startups and scale-ups, but also medium-sized and large enterprises, nonprofits and others - to improve the efficiency and effectiveness of public services. The fast-growing "GovTech" (or "CivTech") market provides opportunities for creative new digital solutions across the entire public sector value chain, from policymaking through to service delivery.

The Scottish government, for example, has set up an accelerator program, CivTech®, to match technology innovators - entrepreneurs, startups and SMEs - with public sector organizations that are looking to create digital solutions to civic challenges. The aim is to drive innovation in public services and provide economic development opportunities for digital companies. The pilot program saw nine firms deliver a range of solutions in partnership with public sector agencies, including a flood forecasting system, smart road monitoring software that promises to detect potholes before they happen, and a fundraising service for homeless people.¹⁸

Government agencies are also partnering or contracting with third parties to harness new technology-enabled business models. These alternative delivery models open up opportunities for other organizations to assume a role in the public sector value chain, by providing both the innovation required to transform existing services and the cost savings to make it viable.

In some cases, third parties are taking over the running of government services if they can do so more effectively and efficiently. Adzuna, for example, a UK-based job search engine, won the contract to replace the UK government's own job search platform, Universal Jobmatch. The service offers a fast, simple experience and powerful search tool using Adzuna's technology, matching jobseekers to employers' available roles quickly and effectively.¹⁹

Government agencies are also entering into unique public-private partnerships to co-develop solutions to their most pressing challenges and drive long-lasting societal change.

4. Designing new procurement practices

Traditionally, governments have outsourced to large suppliers that may not be as creative and agile as smaller players. The acceleration in the uptake of GovTech solutions will therefore require changes to the established way governments procure technology and services.

18. Scottish Business News Network. <https://sbnn.co.uk/2017/05/09/new-boost-scotlands-digital-tech-sector/> Accessed 23 April 2018

19. <https://marcommnews.com/startup-job-search-engine-adzuna-wins-contract-for-universal-jobmatch-service/> Accessed 18 April 2019



Case study

Incubating solutions to social challenges in London

London Ventures (LV) is a unique collaboration between London Councils, the umbrella body for the UK capital's 33 local authorities, and EY teams. The collaboration helps local authorities to adapt and respond to the climate of tightening budgets and rising demand by sourcing and incubating innovative solutions to deep-rooted social challenges. The projected value created for local authorities is around £40 million over the lifetime of the program, through both cash savings and income generation.

EY teams have also had a significant impact on outcomes for residents through the ventures they have promoted and incubated, predominantly the most vulnerable individuals and families in our society. In one London borough, for example, the practice of sharing data and developing advanced and predictive analytics has identified 1,700 new families that were eligible for additional support before they reached crisis point, to ensure earlier and less costly interventions are made in future.

One response is to create "digital marketplaces" and adopt new procurement practices to help departments find more innovative solutions to support their transformation efforts. These cross-government digital procurement frameworks offer several benefits to governments. They diversify the digital supplier base by reducing reliance on larger contractors and extending access to a wider range of companies. They enable governments to negotiate better contract terms and improve value for money. And they foster more innovative solutions from non-traditional suppliers, including SMEs and startups. For SMEs, e-procurement systems reduce barriers to entry and create attractive new opportunities for companies not previously engaged in government contract work.²⁰ They also play an important role in reducing corruption and improving transparency and accountability.

In the UK, for example, the Government Digital Service has created an online platform allowing public sector bodies to access the skills and services they need, while providing digital innovators with an opportunity to develop their ideas in a way that directly benefits the government. GovTech Catalyst competitions help the public sector identify and work with cutting-edge technology firms. And the government's procurement agency, the Crown Commercial Service, has introduced Spark, a new technology innovation marketplace, which allows buyers to purchase new technologies through a dynamic purchasing system.

The aim is to unlock access to innovative but proven technologies from smaller and more agile organizations that have traditionally struggled to sell to government.



Case study

Creating a digital marketplace

As part of a national government's science and innovation agenda, the Digital Transformation Office (DTO) is working to break down barriers to technology procurement for SMEs. The Digital Marketplace - a new platform where buyers and sellers can exchange IT goods and services - aims to generate more competition, more innovation and more jobs. EY teams helped map out design requirements for the platform, including conducting a review of government procurement legislation, and engaging with more than 200 IT providers to understand user requirements.

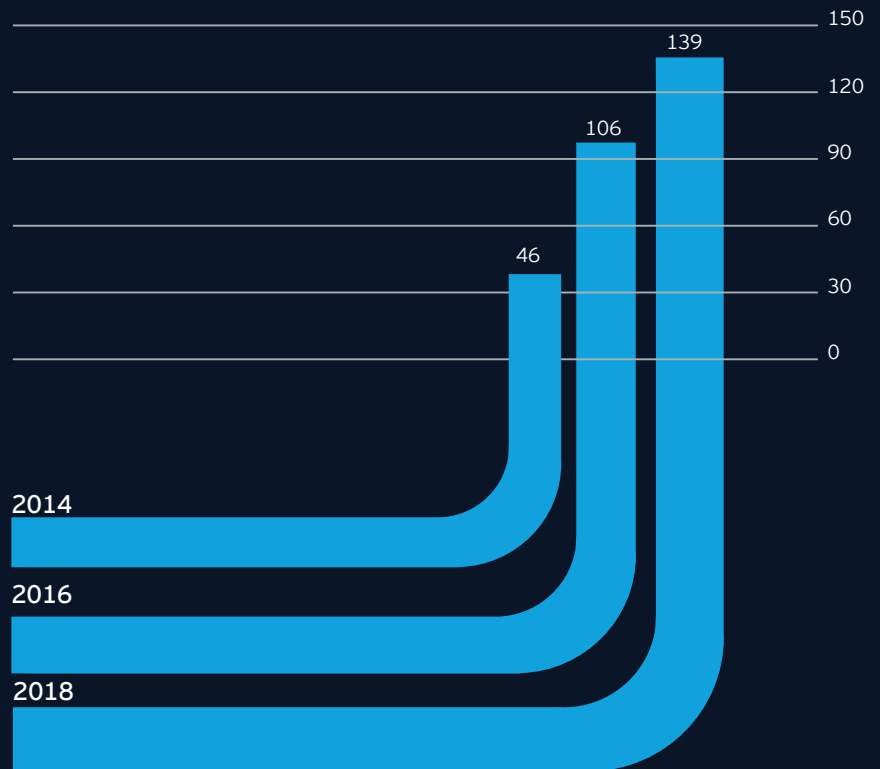
20. <https://innovationsjournal.net/5-countries-betting-together-on-the-new-digital-economy-2864ff19150e> Accessed 23 April 2018

5. Building data-exchange platforms

The use of digital technologies and data could also pave the way for a radically different relationship between government and governed. As Mikhail Pryadilnikov, Deputy Director of the Analytic Center for the Russian Government, put it at a recent summit: “The government is trying to move out of the provision of services. It provides a platform for users to resolve issues - so there’s a lot more private provision in this concept of government, and more citizens participating to solve their problems.”²¹

Most governments and public authorities across the world are launching open-data initiatives and setting up data-exchange platforms. The focus is on making data widely available to third parties, including citizens, to help develop new solutions to complex problems, and to become more transparent and accountable. It is also helping to improve service delivery across a range of areas, such as education, health, environment, social protection and finance. Open data can be considered as such when information is released in a machine-readable format, there are no legal barriers to access, the information is free of charge and is available in widespread type or open-standard files.²²

Countries with open government data portal and/or catalogues in 2014, 2016 and 2018



Source: United Nations E-Government Survey: Gearing E-Government to support transformation towards sustainable and resilient societies

Data platforms bring together vast quantities of information from numerous sources and make it freely available to people and organizations outside of government (including businesses, nonprofits and civil society organizations) to download, analyze, compare, integrate and combine with other information in ways that create public value.

In Austria, for example, the Open Data in Vienna program made the city’s data records available to citizens, businesses and the scientific community. The city then invited programmers and developers to make apps and web services based on the data, which ranged from geographical data on traffic and transport to economic statistics. To date, the initiative has led to more than 60 applications for citizens.

21. Global Government Summit report, part 5. <https://www.globalgovernmentforum.com/global-government-summit-report-part-5/> Accessed 23 April 2018

22. United Nations E-Government Survey: Gearing E-Government to support transformation towards sustainable and resilient societies

6. Engaging citizens in the co-design of policy and services

Citizens have a major role to play as a source of fresh ideas to reinvigorate the public sector. Many governments have created digital platforms for public consultation on government policies and budget priorities, giving citizens more of a say in the day-to-day decisions that affect their lives.

In 2018, for example, Canada's government launched a public consultation to help it understand how best to position the country to lead and succeed in an increasingly digital and data-driven economy and society. The government asked for ideas and recommendations in three key areas - the future of work, unleashing innovation, and privacy and trust. And, in the EU, the first-ever successful Citizens' Initiative, "Right2Water", gathered 1.8 million signatures calling for new legislation to improve the quality of, and access to, drinking water.

The most adventurous governments actively engage citizens in the ongoing co-production of policies and services. This collaborative approach brings citizens and government professionals together to design and deliver new public services. In Asia, for example, the Singapore government has set up the Human Experience Lab to co-create and co-design services, policies and solutions to social challenges. The lab deploys design thinking techniques such as the development of personas,

customer journey mapping and the rapid prototyping and testing of solutions. The country's individual ministries are taking a similar citizen-centric approach: in 2017, the Ministry of Health organized a Citizens' Jury for the War on Diabetes, mobilizing citizens to discuss and make recommendations on how to better manage and prevent the condition.

Other countries are experimenting with various instruments to tap citizens' input and experience to help design both service and policy. Policy labs are springing up everywhere, to capture citizens' contributions to policy-making in areas as diverse as education, health and justice.²³

Open challenges and hackathons are also popular to attract citizens, and the private sector, to develop innovative ideas and solutions. For example, the UAE's Blockchain Virtual GovHack competition aimed to unlock the potential of blockchain technology in the public sector. The hackathon presented five challenges in the areas of reinventing global identity, reducing paper footprint, fighting fraud and proceeds of crime, the future of health and building smart cities.²⁴ Meanwhile, the European Commission runs the European Social Innovation Competition (EUSIC), an annual challenge prize that calls on all Europeans to come up with solutions to society's problems.

In 2019, the competition appealed for ideas to reduce plastic waste and littering, either by reforming existing processes or by introducing brand new products and initiatives.

Citizens are an important source of knowledge for civil servants to develop their own skill-sets and instill smarter working practices in their organizations. The Agents of Open Government program in São Paulo, Brazil, aims to provide a platform for peer-to-peer learning, where private citizens with useful skills are given support to develop courses for government employees, civil society groups and communities across the city. The courses bring new skills and understanding to public employees, resulting in better services.²⁵

23. Sami Mahroum. The rise of citizen-centric governments, The National, UAE Edition, 1 July 2017. Accessed 23 April 2018 <https://www.thenational.ae/opinion/the-rise-of-citizen-centric-governments-1.39235>

24. <http://blockchainvirtualgovhack.com/> Accessed 23 April 2018

25. <https://www.oecd.org/gov/innovative-government/embracing-innovation-in-government-sao-paulo.pdf>



Conclusion

The way forward

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While the challenges
may seem daunting,
the rewards are
tremendous.

Arnaud Bertrand

EY Global Government & Public Sector Advisory Leader

At no point in recent history have we experienced such rapid and systemic technological change - and the pace will surely accelerate. The next wave of disruption will affect our lives in ways we can barely imagine today. To guarantee their future legitimacy, there is growing urgency for governments to rethink their approach to public engagement, policymaking and service delivery.

Tackling the digital disconnect means reimagining what the future could look like and aligning technology, processes, people, delivery models, citizen and supplier relationships around the organization's core purpose.

Governments must act as role models in their own adoption of digital technologies - setting a bold ambition for an open, participatory and innovative public sector that exploits technology to achieve more citizen-centric services and improved outcomes. They must make the required policy and regulatory changes to remove barriers and support digital innovation, while still ensuring data use is secure and ethical. And they must balance the need to provide

protection from cyber threats while supporting economic growth and innovation.

A highly visible, transparent and pragmatic approach is vital to achieving governments' digital vision. This will involve greater centralized guidance; the agile, incremental development of digital solutions and a delivery infrastructure that realizes early benefits; and a vibrant conversation with the public about the progress and benefits that an advanced digital economy brings to the nation as a whole.

Governments must overcome inertia and embrace the opportunities that arise from adapting and diversifying their business model. They should be swifter to team up across a more open and transparent ecosystem, collaborating in a meaningful way to co-develop solutions to problems. In some cases, non-government partners may take over parts of the public sector value chain if the task can be done more effectively and efficiently, with governments retaining responsibility for funding or regulatory oversight.

There is no room to stand still: technology is by nature dynamic, and new capabilities and disruptive business models are constantly emerging. Governments must accept that their transformation journey will be an ongoing one, requiring open minds and evolving perspectives. While the challenges may seem daunting, the rewards are tremendous for government organizations that can effectively plan and manage the journey, and tap into the enormous potential of the ecosystem around them.

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