



Digitalization of government services

We want an “experience” – not just great IT

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Introduction

Governments and constituent entities are embracing digitalization to provide user-friendly government services to citizens and simultaneously reduce their cost to offer such services. There are numerous success stories, interestingly some of them are from very small nations but failures abound as well.

A successful digitalization approach should be viewed from the citizens' experience perspective rather than purely as a large process automation / IT modernization program. A successful digitalization initiative entails:

- **Aligned vision:** Political leadership sets a stretched agenda with continued commitment throughout the implementation phase.
- **Prioritized goals:** As in any such large transformation where monetary and human resources are limited, it is prudent to have an aligned roadmap and prioritized projects to be implemented. This ensures the successful completion of constituent projects in a timely manner and within budget.
- **Pragmatic implementation:** The implementation should be pragmatic with a digital first approach in the redesign of processes. The implementation approach should also evaluate alternate business models, which frees up government resources and allows it to focus on the critical part of the process.
- **Enablers:** Any such large initiative requires strong enablers in terms of committed funding for key projects, effective coordination and governance of initiatives, continued capability building and sourcing to manage the transformation and usage of open platforms for standardization and reuse along provision of open data.
- **Strong foundational elements:** Building strong foundational elements allows subsequent digitalization to easily scale up in a sustainable way. The foundational element should address the legal underpinning the digitalization efforts, availability of quality data, deployment of identity platforms and ensure citizens can easily access and adopt the digital services.

1. Digitalization: Success stories abound, but so do failures

Digital transformation of government institutions at various levels of government, whether national, state or city level, has been accelerated by a confluence of factors. These factors include the widespread adoption of Internet-based services, underpinned by Internet penetration, increasing expectations for convenient access to government services bolstered by digital natives and digital-aware citizens, a rising need to manage service delivery costs (both direct and indirect), and the inability of physical delivery channels to serve stakeholders at scale with efficiency.

In **developing countries**, digitalization of processes makes government services available to people using Internet and mobile technologies. This means bypassing poor physical infrastructure bottlenecks, as well as increasing accountability throughout the system.

India launched a biometric-based national identity system called Aadhaar (which means “foundation” in Hindi) in 2010. Within a few years, almost 95 percent of India’s 1.25 billion people were registered on it. The benefits of the new system were far reaching in that it not only reduced corruption, but also helped organizations in the private sector meet “know your customer” (KYC) regulatory requirements. While the legal underpinnings and wide-ranging application of such a system have been brought into question recently, some sources cite savings of more than 50 percent in terms of costs and time taken for processing documents.¹

The Department of Information and Communications Technology (DICT) in the Philippines has announced that the Philippines government will be adopting of a “cloud-first” approach. The government departments and agencies will have to consider cloud computing solutions as a primary part of their infrastructure planning and procurement. It also covers private entities, which will participate as accredited cloud service providers.

In **developed countries**, the main objective of digitalization of government processes is to reduce costs and the administrative

burden. According to a survey of 28,000 Internet users in the European Union, the top benefits of e-government include saving time (80 percent), gaining flexibility (76 percent) and saving money (62 percent).

Estonia, a country with a population of only 1.3 million, is frequently cited as a leader in digital government. Estonia has a well-functioning digitalized platform that generates more than 30 transactions per citizen per month.² Meanwhile, the UN’s e-government survey in 2016 placed the UK as a world leader in digital governance.³ As a driver towards this recognition, the UK launched its digital strategy in 2012. Since then the country has made rapid progress in deploying new services and adopting new technology options as part of the aim to make the national portal, GOV.UK, accessible to the widest-possible audience. This achievement, among others, delivered efficiency gains that resulted in savings of an estimated GBP 1.7bn in 2014.⁴

However, the journey to offering digitalized government services is different for every government and not always smooth. Failures occur not only because of technological reasons, but also process, people and structural issues within institutions.

In a study published on e-government failure in Thailand, the process-based cause of e-government failure⁵ is detailed. In 2002 Thailand envisaged a smart ID card project to help govern the country efficiently and transparently. The first 10,000 smart cards were issued in April 2004. Later the same year, the government failed to achieve its target of issuing 12 million smart cards. Due to certain administrative challenges, the government notified 1,077 card-issuing stations to stop production (and moved back to old-fashioned magnetic cards) in August 2016. The paper explains that the failure was because an initial set of organizations responsible for the project did not include independent, professional organizations with valuable technological knowledge and practical experience in ICT project

1 <http://pubdocs.worldbank.org/en/655801461250682317/WDR16-BP-Aadhaar-Paper-Banerjee.pdf>

2 <https://www.ria.ee/x-tee/fact/#eng>

3 <https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2016>

4 Foresheew-Cain, 2015

5 https://www.researchgate.net/publication/221229381_Understanding_eGovernment_Failure_An_Actor-Network_Analysis_of_Thailand%27s_Smart_ID_Card_Project

design and implementation. Consequently, an infeasible objective was set, and the focal actor failed to establish a shared topic, purpose, and action plan that could hold the organizations together.

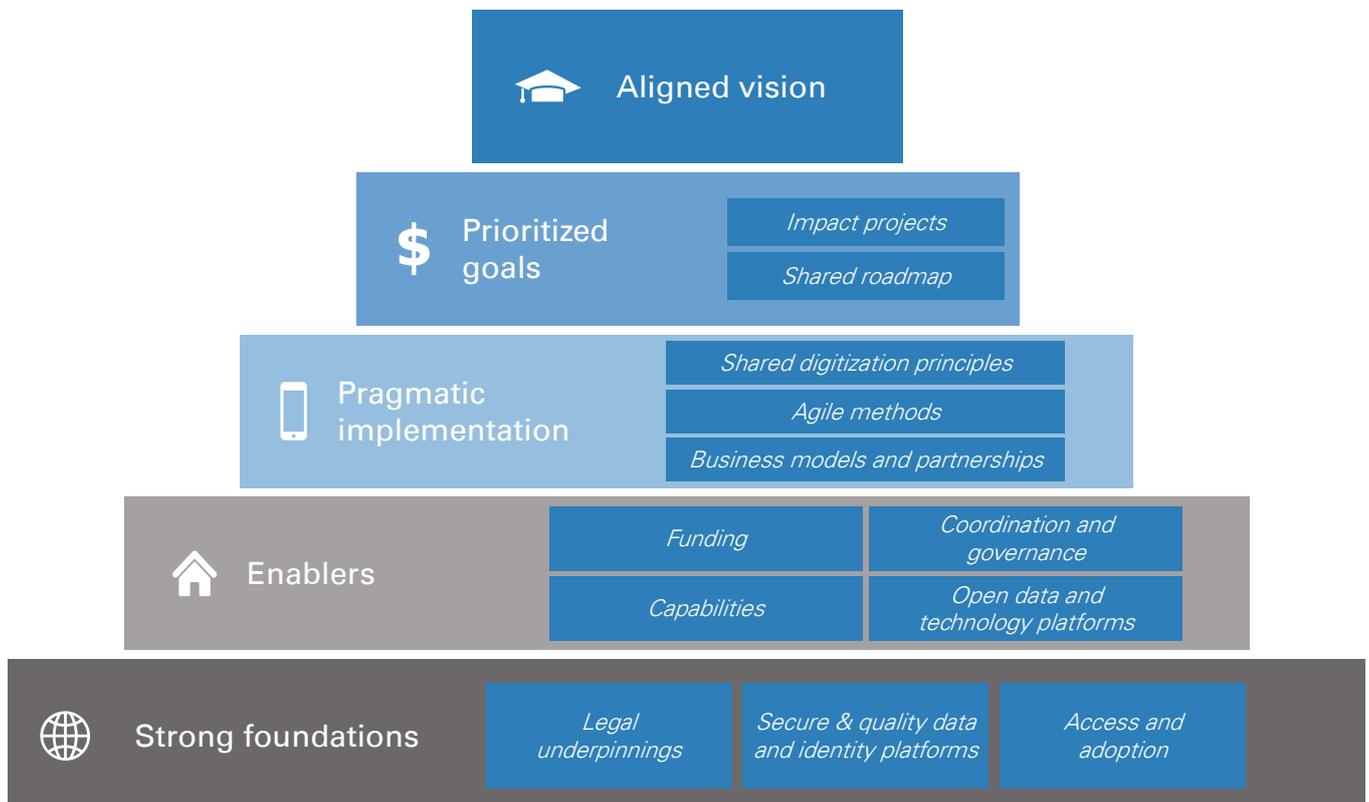
The challenge: Piecemeal approaches yield less-than-optimal results

Government digitalization efforts have traditionally been driven by individual departments within each institution trying to become more efficient by automating existing processes. Over the last few years, the focus has been shifting to provide customer-facing online services, heralding service-oriented thinking. However, the range of services offered by such initiatives are disparate, which has resulted in a less-than-optimal experience for citizens and typically requires physical interactions or different documentation for similar information.

In our practitioner experience, this is a symptom of the following underlying challenges:

- **Lack of leadership vision:** The vision from the senior political/executive leadership for creating a digital-first mentality and a push towards providing a comprehensive range of services is limited.
- **Cast-iron bureaucracy and siloed sources of power:** Data and administrative controls are the source of power for many departments, which results in reluctance to share data.
- **Lack of a citizen-centric view:** Service levels are based on convenience for administration and do not necessarily consider the requirements of, and benefits for, citizens. For this reason, one-stop shops almost never happen.
- **Service delivery channels:** Exclusively government controlled delivery channels can lead to inefficiency and scale-up challenges because of limited budget allocations or bureaucratic inefficiencies.
- **Disparate organizational systems:** Different systems lack a shared/interoperable process, data and technology architecture. In-house technology teams and outsourced service providers follow design, development and deployment methods that do not allow for rapid, modular release cycles in line with evolving stakeholder needs.
- **Limited capabilities:** Technology capabilities are distributed and/or subpar.

Figure 1: Driving digitalization: Key building blocks



Source: Arthur D. Little

Government institutions can collectively improve their service delivery through a holistic, leadership-driven approach covering an aligned vision, prioritized goals, and sustained implementation. This should be supported by key enablers and boosted by strong foundational elements.

The building blocks

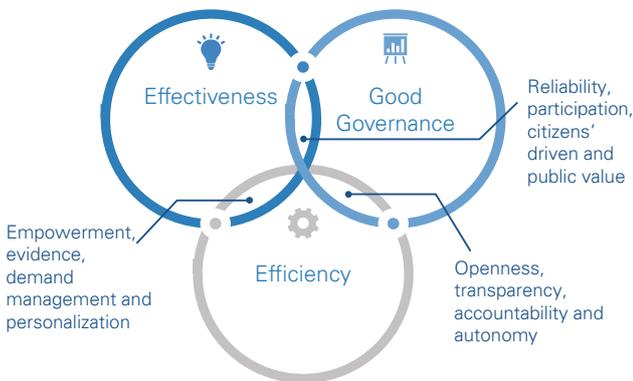
- **Aligned vision:** Having an aligned vision and strong leadership commitment is an often-overlooked but essential starting point for any large-scale initiative, program or project.
- **Prioritized goals:** Institutions at any level have to maximize citizen/business impact rather than going for “me-too” approaches based on examples elsewhere. Prioritization of goals helps to focus resources on high-impact projects and put a shared roadmap in place.
- **Pragmatic implementation:** Pragmatic implementation refers to adoption of methods, tools and approaches that ensure progress over time rather than one-off efforts.
 - Shared digitalization principles that ensure citizen-centricity and digital-first principles lead to redesigning of processes across departments with the citizen in mind.
 - Agile methods across the implementation cycle ensure that the overall vision and prioritized goals have been met, without necessarily being wedded to “master plans” developed years or months earlier.
 - Innovations in business models and partnerships can aid service delivery and digital implementations.
- **Enablers:** Ensuring a supporting environment for sustained implementation requires attention to:
 - Committed funding of prioritized projects.
 - Coordination and governance of initiatives, across agencies if required.
 - Continued capability building or sourcing within institutions to deliver and manage the transformation.
 - Provision of open data and technology platforms for standardization and reuse.
- **Strong foundational elements:** Digitalization efforts also need to be underpinned by foundational elements that ensure the digitalization infrastructure can be scaled and sustained over time. This requires:
 - Legal underpinnings to be in place for drivers and enablers of digitalization, including removal of legacy requirements.
 - Availability of quality data across platforms for all government entities.
 - Deployment of secure data and identity platforms that all stakeholders can trust.
 - Ensuring that citizens can access and adopt services by means of awareness and provision of citizen and business incentives.



2. Aligned vision and prioritized goals: Driven by leadership

Many governments’ visions for digitalization of their services have remained the same over the years. However, in order to provide better services to citizens and improve the productivity of the public sector, governments are increasingly aware of the benefits of digitalization as a means to do so. The drivers for digitalization have been increasing workforce and process efficiency and effectiveness; these have provided better governance in delivering public services. (See Figure 2.)

Figure 2: Objectives of digitalization: Efficiency, effectiveness and good governance



Source: OECD and the European Commission

As the pace of digitalization has gained momentum, government institutions are increasingly forced to create broader visions in order to deliver integrated, seamless services across all government departments. This is driven by a few key factors:

- Citizens want a seamless digital experience, as digitalized services are becoming the preferred choice across all demographics.
- IT resources and data used across government entities show significant commonality.
- Pooling data allows for increased effectiveness in governance.

- The private sector is increasing its demands to leverage data held by the government to meet regulatory requirements with lower costs.

Start with a commitment from leadership to frame the vision and support it

In this context, the role of political leadership in setting the larger vision for such programs cannot be understated. This is crucial to ensure collaboration among various ministries, provide the impetus for radical review of existing processes and systems, and build capabilities.

The vision should be concrete and set ambitious targets backed by senior leadership. This provides the necessary support to cut through complexities that have crept in through the years to cater to various stakeholders due to political and administrative decisions. In many cases, these unnecessary changes are impossible to cut, even when the underlying reasons have changed.

Set priorities

It is important to put in place a shared roadmap based the vision and priorities for impact and devote resources to programs that deliver this. In our experience, institutions at all levels need to maximize citizen/business impact rather than going for “me-too” approaches based on examples that have worked elsewhere or adopting the latest fads without careful evaluation. Therefore, not all digitalization projects that could achieve parts of the vision are equal. In addition, it is usually not possible to fund these programs simultaneously. Prioritization and sequencing help to create a meaningful, aligned implementation roadmap that provides clarity for all constituents. Once again, the role of leadership in committing to these priorities helps to stay “on message” during implementation.



3. Pragmatic implementation: Bridging vision and execution

Share digitalization principles – Start with a citizen’s view rather than the institutional view

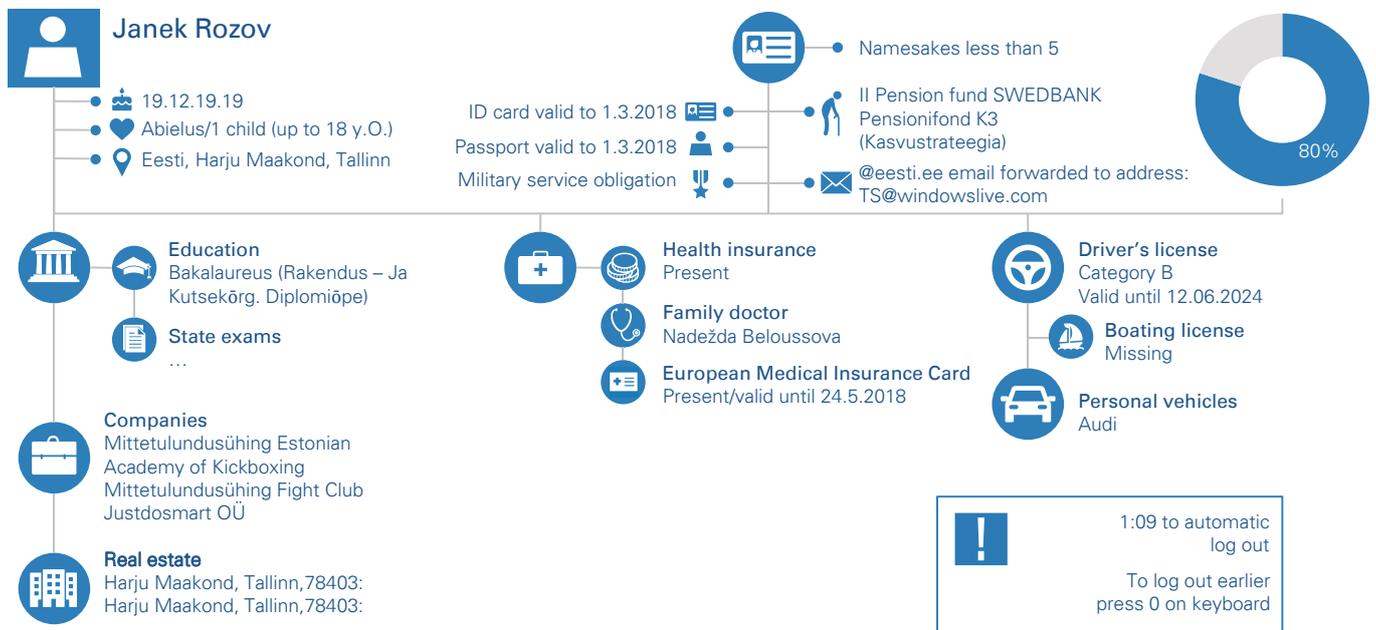
Improving the effectiveness of digitalization requires end-to-end integration of cross-departmental processes. It is important to view the process redesign from citizens’ perspective rather than from that of an individual department. In the past, many such digitalization processes have failed due to requiring numerous handovers either internally or at citizen level.

Different department-specific processes also result in the same information being requested multiple times and in different

formats. One of the objectives of an efficient process should be to “ask once” for basic information.

For example, a newborn baby may require her parents to go to a number of different departments to get childcare benefits, travel documents, and listing with a health care center and national identity register. A cross-department process can easily provide all the required documents on a shared platform. Estonia has been a leader in the digitalization of such processes. The Estonian system provides citizens with a complete view of their data⁶, which has increased both utilization of and confidence in the system.

Figure 3: Estonia’s system provides a complete view of a citizen’s data



Source: Arthur D. Little

6 <https://www.esv.se/contentassets/2d005941c2584b769130265aa925f1e9/171010-janek-rozov.pdf>

Align on scope early and often: What gets digitalized, and by whom?

Under the gamut of citizen centricity, it is necessary to define the key objectives of digitized processes in order to address the most common use cases and avoid addressing every possible scenario. The rule of 80:20 can be a good basis for developing online processes: at least 80 percent of typical transactions can be made online, and difficult use cases may follow other channels.

Since end-to-end processes are typically cross-department or cross-institution, it is important to understand the roles of various departments in the current analogue process and new digital process to avoid turf wars. In many cases, some steps can be reduced through other means, including using “trust first, verify later” approaches. As an example, postponing physical verification steps to a later stage while allowing some non-critical services to be offered on a “temporary/pending verification basis” achieves a balance. Citizens can gain access to services while fines and penalties deter falsification.

Agile approaches and methods: Essential for technology-led delivery

Many of the promises of digitalization end as disappointing failures at the crucial IT stage. One of the root causes is that programs typically start as “IT automation” projects rather than digitalization projects. A comprehensive approach is needed at the central level (breadth of commitment), as well as department level (depth of commitment), even before commencement of the planning and execution of IT delivery. This must be anchored with citizen-centric digitalization objectives, as well as technology-focused design principles.

Another fundamental approach that governments are adopting is to structure the entire program in manageable components and compensate with stronger and more capable program management. Manageability comes in many forms:

- Scope of the program and its component projects.
- Duration of scope delivery.
- Ability to source the best-possible team and accompanying governance around the same.
- Ways of working during project execution that lend themselves to committed delivery.

Government IT programs and projects are traditionally executed as monolithic exercises and budgeted/contracted accordingly. Naturally, this leads to a scope that is large and unwieldy and lends itself to delays and poor execution. It also allows for

limited course corrections and, more importantly, little or no accountability. In addition, scoping is usually done as if each department or agency were a siloed “unit” that could be independently automated with little regard for the state of affairs in other agencies and departments, other than interfaces and hand-offs between them.

A direct consequence of unwieldy scope is failure to deliver on the committed duration, and worse, inability to account for integrations with other constituencies.

A first-principles solution to addressing this issue is to break down the scope into smaller, more manageable projects. This delivers multiple successful progress points and achieves a number of benefits:

- A clear incentive to internal constituents to deliver on projects, as projects do not outlive the government employee’s tenure or role. To the contrary, it provides an opportunity to showcase successes and be rewarded appropriately.
- More accountability from external contractors and partners who are better engaged and committed to proving delivery.
- Easier capability sourcing to pick partners that deliver the best, clearest value on each component, ideally on a fixed-fee or success-fee basis.

This approach is not without complexities. Breakdown into smaller, more agile ways of delivery needs to be supported by a stronger program management function that cuts across established constituencies. This is not to imply a centralized structure, but rather to engender a culture of delivery and execution on commitments that meets overall digitalization objectives among individual departments. To do so, the government needs to develop and enhance in-house capabilities, as well as rely on external partners and vendors.

Changing established IT practices and systems, as either adaptations or replacements, requires a pragmatic approach. It is easy to get caught in waves of innovative platforms and keep moving users and processes to newer platforms, but this places essential experience at risk. A citizen-centric view backed by current realities will guide the technology decision and choices. Once this choice is clear, our experience is to follow both evolutionary and revolutionary approaches. Evolutionary approaches allow for legacy co-existence in which new processes and systems can be gradually decommissioned. Revolutionary approaches focus on simply “switching off” legacy systems, assuming the supported citizen-facing and intra-government processes can be moved as well.

Business models and partnerships: The private sector must be used judiciously

It may be unnatural to use the term “business model” in a government service delivery context. However, we view this from a lens of effective government value delivery approaches in lieu of the resources funded by citizens. In most cases, the fee charged by government agencies, for both physical and digital channels, remains a small fraction of the overall cost a citizen would incur to obtain government services. For citizens, the opportunity costs of physically visiting a government office are extremely high.

While rapid digitalization is starting to eliminate a number of visit requirements to interact with the government, today’s governments still have a significant opportunity to enhance delivery, especially where physical presence is mandatory. It involves setting up and opening their platforms to additional service providers that can deliver core and ancillary services with more convenience to end users.

This starts with looking at the overall process again. In a typical government process, the steps requiring critical decisions and input are few. Most of the process consists of administrative parts, which can be performed easily by third-party entities. Isolating the critical part of the process and retaining it with the government, while outsourcing the rest of the process, can help to combine the best of both worlds.

In practice, most citizens are happy to pay a reasonable amount for convenience (that brings down their net costs), or more for a premium service that is even more convenient and/or faster. Therefore, governments can charge higher prices for convenience and/or privatize parts of the government process that are not critical or core to public service offerings.

A prominent example of such an approach is outsourcing of visa processing to private service providers such as VFS (a wholly owned subsidiary of Zurich-based Kuoni Group) and BLS International Services. These companies charge an additional fee of USD 30–100 per application to cover their costs. A visa process requires considerable efforts in collecting, verifying and returning documents to applicants. These tasks can be outsourced while the critical decision of whether to grant the visa remains with the respective visa-processing officer. These agencies collect documents at various locations, which makes it convenient for applicants to access their many offices rather than having to deal with specific embassy/consulate locations. In addition, there is scope for value-added services to applicants that could be appropriately charged. From the overall perspective of the applicant, the increased convenience and costs saved from traveling outweighs the additional price.

The public-private partnership approach, if well managed, can take away some administrative hassles, convenience roadblocks and even low-level institutional corruption. It also drives efficiencies, as the private sector entity has sufficient incentive to scale up. However, the approach requires development of new capabilities to monitor the performance of the private sector partner, with customer satisfaction built into the contract. Lack of adequate governance mechanisms can lead to a government service simply being replaced by another private sector monopoly. In addition, when involving a private sector player in a process, the interface and data portability requirements need to be clearly defined to avoid lock-in.

4. Enablers: Without them, best intentions can lead to limited results

Funding: Budgetary support must stay the course over time

Government digitalization efforts are usually funded through direct budget allocation, as gains in convenience for citizens and improved public sector productivity over the long term are sufficient justification for funding large-scale digitalization efforts.

Our approach here is to not only advocate for committed funding over time, but to couple this with strong but pragmatic budget management that accommodates two key shifts in line with agile methods: (a) moving from simply “allocated” to “released-on-merit” (b) program charters could change during the implementation lifecycle. In addition, governments are using different business models and involving the private sector from the start. The goal of this is to create efficient technology deployments or improve the quality of services offered to citizens.

Coordination and governance: Underestimated but critical

Worldwide, there has been emergence of transformation offices in various shapes and forms. The crucial success factor for these organizations lies in not only their empowerment, but also their role in playing effective coordination, collaboration and change management.

For example, a digital transformation office was established in Australia as an executive agency under the Australian prime minister’s portfolio to improve the coordination effort among various departments.⁷ Australia’s digital transformation agency managed to digitize processes across a range of services⁸:

1. The National Blood Authority overhauled its Bloodnet platform, which now orders and tracks ~28,000 liters of blood each month.
2. The Department of Veteran Affairs’ MyService project has brought down average rehabilitation claim processing time from 107 to 30 days.

3. The National Library’s transformation has resulted in 1.8 million books and journal pages being digitalized, as of January 2018.

Open data and technology platforms: Avoid reinventing the wheel, while spurring innovation

As governments increasingly digitize services, it is critical to establish comprehensive data and technology guidance from the onset.

Open data platforms: Data-exchange platforms supported by common data standards establish common underpinnings for seamlessly building and delivering services across different departments. This requires government departments to agree on how to aggregate and sanitize the data before publishing for consumption. This further spurs innovation in the public and private sectors, as it enables them to use the data to offer new products and services while benefiting citizens.

Open technology platforms: Similarly, building and enabling common technology infrastructure such as a government clouds/data centers provides institutions with the ability to design, test, pilot and launch services in a scalable, secure approach without going through the hassles of managing traditional private infrastructure. Mandating common approaches, where applicable, results in savings across the spectrum: it benefits stakeholders to build service-oriented technology architectures that enable discovery, publication and consumption of services not only by individual departments, but also across departments and authorized external participants.

Capability pool: People matter

This is a capable pool of human capital that can plan for, set up, drive and deliver on the above building blocks over a prolonged period of transformation. The best digitalization experts are often attracted to the private sector – therefore, governments have to find different means to access talent, including increased usage of the private sector and/or developing dedicated units that allow longer-term growth prospects for talent. Capabilities also have to go beyond the “hard skills” needed for digitalization and offer “soft skills” for driving change and being amenable to change through institutions.

⁷ Government of Australia, 2016

⁸ <https://www.dta.gov.au/news/senate-estimates-opening-statement-february-2018>

5. Foundations: Build for scale and scope

Governments worldwide have started putting in place foundational elements to help serve citizens and businesses better – we cite three key aspects: legal underpinnings for digitalization; building secure and trusted data and identity platforms; and ensuring citizens get on board. In many cases, these foundational elements have delivered completely new ecosystems in addition to delivering at-scale efficiencies. However, rolling these out requires continually ensuring public trust and confidence.

The foundation should allow the services to be cashless, paperless and faceless⁹.

Legal underpinnings: Clarity is essential and critical for building a digital ecosystem

Since legislation is one of the key inputs in the design and delivery of government processes, legal implications in digitalization need to be validated from a holistic perspective. Since many legal instruments are based on the technology existing at the time such legislation is issued, digitalization makes many of the legislative requirements superfluous. They also restrict the benefits of digitalization, which leaves no option but to significantly amend the existing legislation or promulgate new legislation. This could involve either adapting the process to legal requirements or updating/altering legislation to derive the benefits of new technology.

Any significant changes in a process may require a different interpretation of existing laws based on new technological development – and this requires issuance of new guidelines and/or relying on precedent court decisions.

Amendment/enhancement of technology to fit with legal requirements must be explored before drastically changing or redrafting legal instruments, as this may be a more feasible solution. For example, certain processes require notarization of signatures, but secure digital signatures combined with a biometric-enabled national identity system can achieve the same purpose. For the new process to benefit from digitalization, existing legislation would need to be amended to accept digital signatures as a substitute for notarization.

Amendment or promulgation of new legal instruments requires careful consideration and consultations with all stakeholders. While this is the tougher approach, it is sometimes the only option – but it has potential to deliver decadal benefits. For example, while national identity platforms have been rolled out extensively on the basis of existing or new legislation – the validity of this legislation regarding the full mandate has been challenged in courts, leading to uncertainty in the ecosystem.

Secure and quality data / identity platforms

The success of digitalized government services relies on having secure and quality data.

The key challenge for many such digitalization efforts is assimilating data related to a subject in different formats. Decisions have to be made if there is a need to reformat the old data to meet the new requirement or adapt the system to handle different sources of data. In all circumstances, there should be agreement on defining the data-quality standard going forward. Carefully designed population or company registers (e.g., biometric-based population databases) that are built and maintained by central agencies underpin fundamental transformations.

However, at the very heart of these exercises lies the vexing issue of data and information centered around identity. While knowledge of citizens and businesses accurately sets up the new era for digitalization, ensuring trust in these repositories is a continual exercise that must not be taken lightly, as it can upend entire programs (e.g., e-voting, subsidy deliveries, KYC processes) and force a re-start. Government services must be able to establish identity and provide authentication and verification of stakeholders and users seamlessly to facilitate transactions and underpin digital documents.

These platforms must withstand the critical tests of user trust and security standards, with the nodal agencies that administer these operating as transparently as possible.

⁹ http://egovstandards.gov.in/sites/default/files/e-Governance%20Service%20Maturity%20Model_V1.0.pdf

Adoption and awareness: Getting citizens on board requires incentives

A crucial element that complements prioritized projects is the effective support provided by incentivizing adoption and awareness. Very often, well-thought-out services are launched on digital channels with little to no usage, underachieving targets and underwhelming impact. Incentives such as initial discounts are vital to program success. These could span from campaigns to full-blown support programs such as turning off

alternate channels (e.g., digital-only days instead of physical channels), ensuring sufficient marketing and user education, and subsidizing or facilitating broadband access for inclusive digitalization.

Principles in action: Stockholm municipality

Stockholm municipality has developed a smart-city strategy that aims to make life easier and better for everybody who lives, spends time or does business in Stockholm by taking advantage of the opportunities offered by digitalization and new technology. The goal is to make Stockholm an ecologically, socially, democratically and financially sustainable city. Four large programs are currently running under the smart-city umbrella:

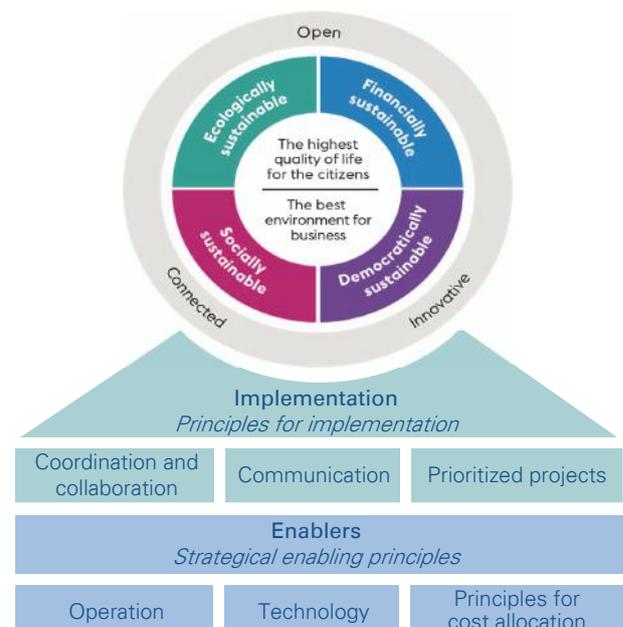
1. **Smart city**, including projects such as open and shared data, smart trash bins, and smart lighting.
2. **The digitalization program**, which aims to increase transparency and ensure efficient governance and monitoring of digitalization.
3. **Modernization of social systems**, upgrading the social systems in the municipality to increase user friendliness and the technological platform.
4. **Program for new IT service and school platform**, renewing the IT infrastructure and creating a new administrative and pedagogical platform for schools.

A key success factor to ensure the successful roll-out of the smart-city strategy is managerial attention. In Stockholm, implementing the smart-city strategy is a top priority for the CIO, who works as an ambassador for the strategy – both externally and internally. As a result of the managerial engagement in the smart-city implementation, the former CIO of the city was appointed European CIO of the year by ICT Spring in 2016.

A second key success factor to realizing this ambition is to establish shared fundamentals and approaches. In Stockholm, the enablement of the strategy is based on operation, technology and cost allocation, whereas its execution is based on collaboration, coordination, communication and prioritization of projects.

For digitalization and new technologies to create value for citizens, visitors and businesses, the strategy needs to be adopted by the wider organization. Stockholm municipality has successfully established the way forward through one set of **strategic enabling principles** and one set of **strategic principles for implementation**.

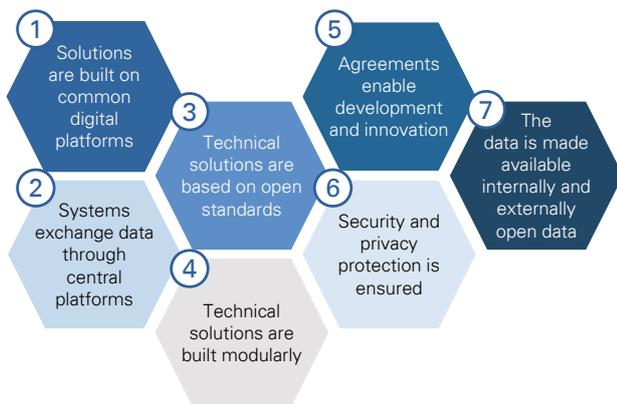
Figure 4: Holistic implementation of smart-city program



Source: Insights from previous work by ADL on smart cities

The seven **strategic enabling principles** have been defined to guide the development of new technologies that will enable the smart city. The principles guide all organizations within the municipality and create a shared approach to technology. The principles include building solutions on joint digital platforms, using open standards, ensuring safety and integrity, and ensuring that data is open and shared.

Figure 5: Strategic enabling principles



Source: Insights from previous work by ADL on smart cities

The eight **strategic principles for implementation** involve building the smart city through collaboration with citizens, businesses, academia and the public sector. They also require assurance that the needs, interests and opportunities of citizens, visitors and businesses are guiding the development of the smart city.

Figure 6: Principles for implementation



Source: Insights from previous work by ADL on smart cities

The project's open and shared data is driven as part of the smart-city initiative and includes cross-municipal activities. By building on the seven enabling principles, the project aims to create:

- Decreased strains on environment and infrastructure
- More efficient use of energy resources
- Common standards to enable continuance
- Increased knowledge sharing across municipalities
- Increased awareness and transparency in municipal operations
- Increased citizen engagement via services for engagement
- Reduced costs through easier access to data
- Societal gains through new innovations

Implementation of the strategy in the different departments within Stockholm municipality is controlled by principles to create a framework for initiatives and streamline prioritization.

Through managerial attention and clear and communicated principles, Stockholm facilitates a way of working that takes advantage of the opportunities brought by digitalization and new technology – in a way that benefits the citizens, visitors and businesses.

6. Key takeaways

Increasingly, governments are implementing complex projects in digitalization, and this requires them to place the citizen's experience at the center of the effort, rather than viewing it as an IT project.

Digitalization involves orchestration across multiple aspects, starting with an ambitious vision from a country's leaders that is shared by departments. Organization should prioritize and define the scope of the projects, which is a step change in citizens' experiences.

The scope of a project should also include looking at alternate channels for delivery, including digital channels, together with new business models and agile implementation methodologies.

Ensuring that the right enablers, such as funding, governance across departments and technology infrastructure, are in place would help considerably in the implementation to prevent avoidable delays.

Establishing a strong foundation in terms of identity platforms, legal underpinnings, open technology platforms and affordable telecom infrastructure would help the country to accelerate the digitalization effort from the onset.

Digitalization of government services is a long and continuous journey, but addressing some of the issues outlined here in a pragmatic manner can help create a pleasant and fruitful experience for all stakeholders.

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