POLICY BRIEFS SERIES

2020 State of Digital Transformation

EDITORS
David Eaves
Lauren Lombardo

FEBRUARY 2021

HARVARD Kennedy School
ASH CENTER
for Democratic Governance
and Innovation

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About the Editors

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In addition to working with government officials, Eaves served as the first director of education for Code for America—training each cohort of fellows for their work with cities. Eaves has also worked with 18F and the Presidential Innovation Fellows at the White House providing training and support.

Lauren Lombardo is an MPP 2021 candidate at Harvard Kennedy School where she is studying digital government and technology policy. While at Harvard, Lombardo has worked with the US Air Force's Kessel Run; the City of Lincoln, Nebraska; the City of New Haven, Connecticut; and the State of New Jersey to enact digital government solutions. Previously, Lombardo was a senior data scientist for digital products at Nielsen. A California native, Lombardo has a bachelor's in economics from California State University, Sacramento, and has experience working in the California State Assembly on congressional campaigns, as well as in various other statewide and local government roles.

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Executive Summary

In June 2020, the John F. Kennedy School of Government at Harvard University and the digital transformation consultancy Public Digital hosted digital service groups from around the world for their annual Digital Services Convening. The goal of the convening is to accelerate effective and equitable digital transformation in government by creating a space for digital service groups to share best practices and lessons. Now in its third year, the convening has become a place for honest reflection about the challenges facing digital service groups regarding what is and is not working in the field.

Normally, teams gather in person on Harvard's campus. This year, because of the COVID-19 pandemic, we gathered virtually. This online forum allowed us to convene over 100 attendees from more than 40 different digital service groups for three days of discussion. Each day had a theme. Day one focused on the "now," examining digital teams' responses to the pandemic. Day two focused on "later," and highlighted long-term opportunities for digital teams. The final day was about what's "next," focusing on priorities and opportunities for the next six to 12 months.

Teams that participated in the summit use different approaches and methodologies in vastly different contexts. Some of those—such as Estonia and Bangladesh—are building on a decade or more of experience and are refining established, advanced practices; others—such as the state of Colorado—formally launched just recently.

Some groups are embedded in the executive branch, while others are tightly focused within a single agency. A novel addition this year was digital teams that operate alongside, but outside of, governments—such as the Nordic Institute for Interoperable Solutions (NIIS) and the Bangalore-based Modular Open Source Identity Platform (MOSIP).

As always, this diversity led to great learnings about the opportunities and challenges of digital services today. This report, prepared in consultation with some of the presenters, documents a few of these learnings in an effort to share some of the big picture insights raised at the convening with a broader audience. We hope you find these reflections useful and welcome continued conversation on the ideas presented here.

Introduction: The 2020 Digital Services Convening

Authors: David Eaves, Lecturer in Public Policy, Harvard Kennedy School; Lauren Lombardo, Master in Public Policy 2021, Harvard Kennedy School

Every year, the State of Digital Transformation report documents the main lessons from the Digital Services Convening. In the report from the 2018 convening, we found that digital service groups agreed on the north stars of "building platform services and putting users at the center." We also concluded that teams were looking to assess maturity and effectiveness, which led to the creation of the Maturity Model for Digital Services.

In the report from the 2019 convening, we found that teams were still experimenting with different theories of change and had not converged on an agreed way to enact digital transformation. We also reported that a number of successful digital service groups had pursued a platform and shared services approach to scale change, which prompted a conversation on the ethics and governance of government platforms.

Most importantly, the 2018 and 2019 convenings showed that governments needed to do more to support public-sector digital transformation. The COVID-19 pandemic has validated this finding. In April and May of 2020, Harvard Kennedy School and Public Digital hosted a series of discussions on the coronavirus digital response. These gatherings, which included a wide range of digital service groups, highlighted success stories, lessons learned, and tools that digital teams could leverage or repurpose. We found that governments that seriously invested in the digitization and modernization of public-sector services before the pandemic were better positioned to respond to the crisis than those that hadn't.

The key lesson learned from these coronavirus digital response conversations was that given stay-at-home orders and social distancing practices, any government response to COVID-19 must be digital-centric. In other words, crisis response is digital response. Because many governments hadn't invested in digital services, their crisis response was insufficient.

Even governments that had made progress in digitizing public services struggled to respond as the pandemic laid bare every pain point in their service delivery process. In the United States, researchers found that only one in four laid-off workers received unemployment benefits, due in part to long wait times and "technical glitches on state websites" that were an issue even before the pandemic. And in October 2020, poor data governance practices by Public Health England in the United Kingdom led to close to 16,000 unreported COVID-19 cases.

Improving data governance practices on the fly, in a crisis, is exceedingly difficult. For this reason, we revisited this topic at the 2020 Digital Services Convening. The stories of successful responses to COVID-19 shared at the June convening highlighted that there was no time to build new capabilities, hire and train new staff, or ask for new levers. Governments had to fight the crisis with the tools they already had.

Togo's cash transfer tool, NOVISSI, is a great example of using the tools you already have. NOVISSI provides aid to the country's most vulnerable workers and was designed and launched within just 10 days. And in three months, NOVISSI delivered cash transfers to 15 percent of the Togolese population. We can trace Togo's success to three of its existing capabilities: a reliable biometric population registry, a staff of skilled digital experts, and widespread familiarity with mobile payments.

Ontario's self-assessment tool is another useful example of building on existing capabilities. Built using open-source code in just five days, it has now been visited seven million times. Ontario succeeded so quickly because its argument for using and producing open-source code was fought and won throughout a decade-long policy debate well before COVID-19. The team had even solidified this norm in the Simpler, Faster, Better Services Act of 2019.

Other teams leveraged digital-first crisis response policies that were already documented and ready for deployment. As the example of the California Digital Crisis Standard shows, these policies allowed digital approaches—whose adaptive nature made them well-suited for a dynamic environment—to become the cornerstone of the crisis response.

Now a year into the pandemic, we have the data and experience to start thinking about how the world has changed and what those changes mean for the future of digital service groups. Our new normal will be a world in which digital government is a necessity, not a nice-to-have. We'll have a workforce that is comfortable working with digital collaboration tools. We'll have the lingering expectations of digital-first and contactless service delivery. And, we'll have months—potentially years—of momentum from working to rapidly build digital services in response to the COVID-19 crisis.

The pandemic will impact digital service groups in a host of direct ways, too. For some, it might be the right time to grab a new lever or change the way the government hires. For others, it might be time to invest in shared code bases or agile procurement. For most, this crisis justifies the need to prioritize and fund digital government work. Yes, digital service groups must navigate new budget constraints brought about by an economic crisis and the need to fund public health programs, but the case for investing in digital transformation is stronger than ever. Some digital service groups, as we have already noted, will work within existing structures to accomplish these goals. Others, as we discuss later in this report, may capitalize on nongovernment support and funding.

The following report highlights some of the new possibilities discussed at the convening and provides further reflections on crisis response. We hope you find these stories, lessons, and frameworks helpful as you navigate the COVID-19 crisis and think about what it means for the future of your digital service group.

Part I: Current State of Affairs

Navigating Digital Response in a Time of Crisis

Authors: David Eaves, Lecturer in Public Policy, Harvard Kennedy School; Westerly Gorayeb, Master in Public Policy, Harvard Kennedy School 2022

Emergency Declarations Lack Guidance on Digital

Crises necessitate change. And at the highest level, emergency declarations and crisis standards—thresholds at which barriers to acting are removed or resources are reallocated to where there is the most need—help make that change happen. Emergency declarations and crisis standards have impacts that trickle down to all levels of government and guide how agencies and departments adapt to crises. But despite the growing role of digital technologies in government, it is not always clear how these tools affect digital response.

In the United States, the Centers for Disease Control and Prevention follows a playbook for emergency and crisis communication that touches on digital capabilities only as a way to push information out quickly, while almost no attention is given to the power of a coordinated digital response. In the Department of Homeland Security's Emergency Support Function #15, the key policy that mobilizes a coordinated communications response during a crisis, the use of a website is mentioned just once.

Even in countries with renowned government digital services, pre-pandemic plans for digital crisis response proved sorely lacking. Take Singapore, where the emergency health declaration exercised during the COVID-19 pandemic provides for broad, "extraordinary" powers, but fails to describe how those powers affect the way digital technologies might be developed or deployed by government departments to address the spread of infectious disease.

As a result of these gaps in crisis preparation, leaders of digital crisis response are often left to improvise, working out what is and is not productive in real time, as a crisis unfolds. Without guidelines, the pressure that emergencies create—to roll out a response or add features quickly-—may result in services that do not meet the public's needs and might even betray their trust.

Lessons Are Emerging

In the midst of the COVID-19 pandemic, digital service groups and digital government experts around the world have started to codify what a good digital crisis response could look like. These efforts have resulted in documents like the California Digital Crisis Standard, developed by the state of California's COVID-19 response team. Another example comes from Singapore, where the national digital service group had to decide its obligations regarding data protection for a brand-new digital contact tracing app. Looking at these two experiences in more detail reveals several important tenets of crisis response trends that other digital service groups might be able to learn from.

California

The California Digital Crisis Standard is a publicly available list of best practices that the California COVID-19 response team is using to maintain the quality of the state's official COVID-19 response website. The standard's objective is to ensure that user needs remain top of mind during the chaos and pressure of a crisis. To that end, the standard emphasizes the importance of maintaining clear content, providing an experience that is integrated with existing resources, and iterating rapidly in response to user needs.

A testament to the value of cross-sector and multinational collaboration, the development of the standard was supported by Public Digital and built on 10 design-in-a-crisis principles codified by British service design expert Lou Downe.

Singapore

As the COVID-19 crisis unfolded, Singapore's national digital service group, GovTech, led an effort to develop the country's first contact tracing app, TraceTogether. To function, the app would need to collect at least some data from a user's smartphone and share it among government agencies, which raised concerns about data security and privacy. Even though Singapore's government agencies are exempt from the country's comprehensive privacy law, Personal Data Protection Act (PDPA), the team at GovTech nonetheless wrestled with whether to hold itself to strict data privacy standards.

GovTech had conducted several surveys and found that privacy considerations were a major concern for potential TraceTogether users. Following those surveys, despite the PDPA exemption, the GovTech team made a decision to bring TraceTogether largely in compliance with the law's obligations. This required consultation with data privacy and security experts elsewhere in government, who helped the GovTech team put in place processes and technical measures to make sure app users' data was protected. These operating procedures, which have since been shared publicly, continue to guide how TraceTogether collects and shares user data.

Key Observations

Even as the COVID-19 crisis continues to unfold and the efficacy of certain digital responses become clearer, we can begin to draw out a few key themes from these two cases. The broad takeaway from California and Singapore is that in crisis, tried-and-true digital practices become even more critical to executing digital service delivery. The experiences of California and Singapore tell us that:

1. Working in the open enables learning

In a national emergency, working in the open allows multiple service providers—within the same governing system or outside of it—to learn from one another, accelerating development timelines and surfacing creative solutions. The California Digital Crisis Standard was made possible by work that had been shared in the open, while the TraceTogether team brought their concerns about privacy and security to government professionals who helped design a way forward.

2. There is always time for user testing

While some may view user testing as a time-consuming luxury that does not have a place in rapid crisis response, the experiences of California and Singapore highlight the importance of prioritizing user needs. If anything, user testing is more important in a crisis because the consequences are more serious if services do not work for users.

3. Clear communication is essential

Both examples underscore the importance of communicating simply and clearly with users of digital services. Doing so can reduce panic and confusion, as well as create trust between users of the service and the government agency managing it.

Looking Ahead

The experiences of these two agencies do not hold all the answers to an effective digital crisis response. No crisis is the same and some degree of improvisation will always be necessary. But in any crisis, taking time to develop a framework for response—to understand how normal working processes might change or stay the same—helps to mitigate the pressure teams face while handling the crisis. In other words, it is important to plan or at least try to anticipate in advance what California and Singapore did on the fly.

In designing that plan, one key element to consider is how aggressively a team should deviate from the pre-crisis norm when developing their crisis response product. During a crisis, teams may—inadvertently or by choice—build a digital response that forgoes many of the security, privacy, or service standards that would have otherwise been implemented. Depending on how much processes change from the non-crisis status quo, teams may find that they have to spend time and resources later to align the product or service with the non-crisis standard. The teams in California and Singapore had to factor this into their response and decide how much technical and policy debt they were willing to incur to get their services to the public quickly.

At a minimum, digital service groups need to be thinking proactively about how crises change the development and deployment of digital technologies in the public realm. From there, they can build a basic crisis standard that draws on elements of impactful crisis responses, like those of California and Singapore. Other examples of successful responses will surely emerge as digital service groups around the world continue to help the public navigate the COVID-19 crisis.

Togo's Digital Response to COVID-19

Authors: Cina Lawson, Minister of Posts, Digital Economy and Technological Innovation, Government of Togo; Shegun Adjadi Bakari, Senior Advisor to the President of Togo; Beatriz Vasconcellos, Master in Public Administration and International Development 2021, Harvard Kennedy School

Editors' Note: On October 1, 2020, the Ministry of Posts, Digital Economy and Technological Innovation (MPENIT) was renamed to the Ministry of Digital Economy and Digital Transformation (MENTD).

Background

Faced with the COVID-19 crisis, countries had to act fast to provide social security payments to workers. In developing countries such as Togo, which figures among the top 10 percent of poorest countries in the world and where over 50 percent of the population lives under US$1.25 per day, acting fast while maintaining physical distancing was crucial to prevent a rise in the national poverty rate.

The highlight of Togo's digital response has been NOVISSI, a mobile cash transfer program that distributed nearly US$20 million to 15 percent of the Togolese population in three months. It was designed entirely in-house and launched within 10 days. This experience provides important insights into how to leverage existing databases and capabilities for a simple, transparent, and inclusive solution to bolster social protection.

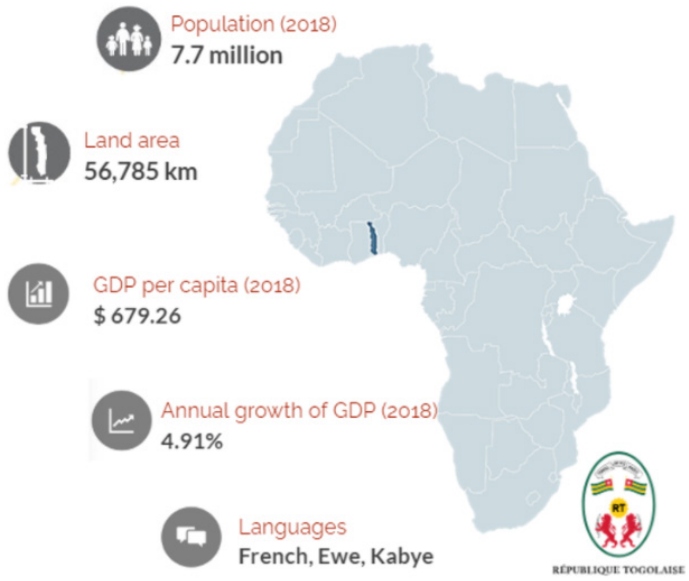
Togo's success may be attributed to five key enablers: 1) the existence of a reliable biometric database of voters, 2) the ability to leverage an existing set of technologies and skills, 3) the inclusive design of the program and the popularity of mobile payments, 4) close collaboration with telecom operators, and 5) transparent and accountable governance. In particular, Togo's example demonstrates the benefits of in-

stituting a digital identity for better targeting and service delivery, and suggests that Togo will enjoy even more success in the digital government space with its forthcoming launch of a new universal digital ID. This article examines how these enablers allowed a country with a GDP of US$679 per capita to quickly and successfully deploy a robust program.

A Brief Introduction to Togo

Togo is a West African nation located along the Gulf of Guinea with a population of 7.8 million people. Despite its small size, Togo is a highly diverse country, boasting over 40 ethnic groups, at least four widely spoken languages, and three main religious groups. This diversity poses additional challenges for the Ministry of Digital Economy and Digital Transformation (MENTD), which is obligated to ensure that all its initiatives equally serve people across the various socio-cultural groups that make up the nation.

Figure 1.1: Map of Togo



Source: Ministry of Digital Economy and Digital Transformation, Republic of Togo

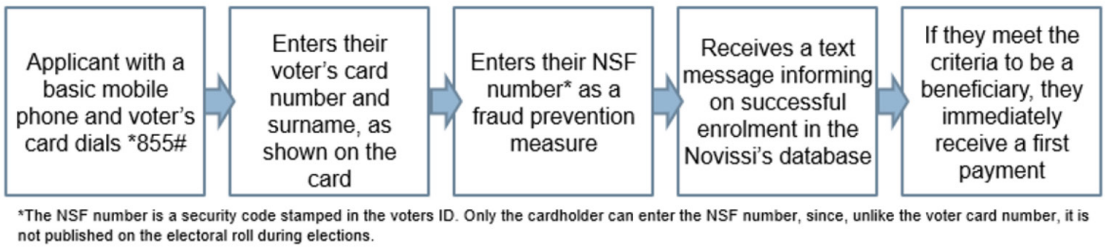
Since the turn of the 20th century, the country has seen a revolution in digitization. In 2013, when the current MENTD leadership took office, most of the initiatives were constrained by inadequate electricity coverage, since only 39 percent of the population had access to it. While electricity expansion is still a main focus for Togo, the progress made over the past seven years has allowed the ministry to aim at more ambitious goals (for more detail, see the 2018–2022 National Digital Planning Strategy).

Togo's Success Story

What Is NOVISSI?

NOVISSI is a cash transfer program designed as a response to COVID-19. It targets the most vulnerable informal workers whose revenues have been disrupted or lost due to the restrictive government measures implemented to curb the spread of the pandemic. From registration to the money transfer, enrolling in NOVISSI can be completed in a few minutes:

Figure 1.2: NOVISSI Enrollment Process



Source: Data from NOVISSI Program Site, Ministry of Digital Economy and Digital Transformation, Republic of Togo

NOVISSI's Main Features

1. Developed completely in-house
2. Entirely digital onboarding via Unstructured Supplementary Service Data (USSD) menu
3. Fortnightly government-to-person (G2P) direct transfer via mobile money to a beneficiary (monthly total equates to 35 percent of minimum wage)
4. Use of the voter's ID card for verification of identity (covers ~93 percent of the adult population)
5. Individual and voluntary enrollment
6. Simplified USSD registration form requiring only three pieces of information (voter card number, NSF number, surname)
7. Target by occupation, location, and gender
8. Women receive a higher payout than men (US$20/month vs. US$18/month)
9. Support funds are paid every fortnight to ensure that families are guaranteed some basic income throughout the month

When the COVID-19 crisis hit Togo in April 2020, President Faure Gnassingbé announced drastic measures including a daily curfew in the capital city of Lomé and surrounding areas, restricted access to Togo's urban centers, border closures, and physical distancing policies. These public health measures adversely affected livelihoods, especially those of informal workers, who account for more than 90 percent of the Togolese population. The highest concern was the threat of an increase in the poverty rate, an area in which the country had made considerable progress in recent decades. Therefore, there was a need for large-scale cash transfers in urban, peri-urban, and border areas to workers in the informal sector. Using digital tools was imperative to act quickly and safely while maintaining physical distancing.

Taking advantage of high mobile penetration and the recently updated voter registry, MENTD, in cooperation with other ministries, launched the cash-transfer program in just 10 days. In addition to securing a minimum income for those most affected by the crisis, the main objective was to build a transparent, 100-percent traceable, and 100-percent digital process that would be accessible to the most vulnerable in the population.

From April to June, NOVISSI distributed approximately US$20 million to 15 percent of the Togolese population (35 percent of the population registered for the program), with 71 percent of the funds disbursed to women. The government leveraged existing internal capabilities to make significant gains in this endeavor. What were the main enablers of this achievement and why did it take a crisis for these changes to be implemented?

Key Enablers of Togo's Success

Togo's successful implementation of the NOVISSI cash transfer program can be attributed to five key enablers. Together, they allowed for a speedy and robust rollout of the program in response to the COVID-19 crisis.

1. NOVISSI's success was facilitated by the existence of a reliable biometric population registry

Had elections not taken place in February 2020, it would not have been possible to design and execute such an impactful program. This is because, in Togo, voting in elections is mandatory and voters had been required to update their voter ID information as recently as December 2019, coinciding with when the emergence of the pandemic, the administration found itself with a valuable tool: a reliable and updated database covering 93 percent of the adult population.

This biometric database carried the most important attributes: name; address; and, for the vast majority of voters, their profession. Occupation was an important identifier that would allow for filtering and targeting informal workers. In contrast, the national ID database proved surprisingly inferior since only 14 percent of the population had one. Moreover, it did not carry reliable information about the holder's occupation or physical address. In the end, Togolese officials were able to capitalize on the up-to-date voter registration data to distribute payments through NOVISSI.

2. The platform was developed in-house by leveraging existing technical capabilities and skills, through trust and a common vision

When Togo's president challenged the ministers to design a cash transfer program as quickly as possible, it was evident that there was no time to rely on external solutions—there was no time to explain the Togolese context to outsiders or to integrate new developers into the team.

Developing the program in-house presented a risk as it was the first time a large-scale cash transfer program like NOVISSI was being implemented. MENTD's only previous experience with targeting a population group in this way was in 2017 when it designed a USSD platform to provide subsidies to crop farmers. However, that program was substantially different from NOVISSI, which required targeting specific groups of unknown people who then voluntarily enrolled to receive immediate financial support. MENTD had also never built a platform so quickly, and could only dedicate a team of three developers to work on NOVISSI. However, everyone was driven by a strong sense of purpose and able to keep motivation high by sharing a common vision: to help millions of people who urgently needed it. MENTD also wanted to set a new standard for the future—that all of Togo's public policies and associated money disbursements would be transparent. Success with NOVISSI would set a precedent that future public expenditures also had to be traceable.

3. The process and design aimed to be inclusive and usable

In a country where 50 percent of the population lives below the poverty line and access to the internet is still inadequate, reaching the most vulnerable residents required deliberate planning. For this reason, the team decided that the means of payment should leverage mobile phones and mobile payments, which are used by 82 percent and 62 percent of the population, respectively.

The second part of the design was the enrollment process. Since 40 percent of the population does not have access to the internet, MENTD needed to design an offline process. The choice to go with USSD technology was unanimous—it is easy to use and only requires dialing a sequence of numbers on any basic mobile phone. It does not require an internet connection and works with just a 2G signal. The USSD form also needed to be brief to allow for a smooth user experience. Initially, the registration form asked the applicant six questions, but in the end, a shorter form that collected only three pieces of information (name, voter ID, and NSF number) was determined to be more secure and provide a better user experience.

Another challenge was making sure that people who did not own a mobile phone or who needed assistance to sign on would be able to register or cash out without having to gather in large numbers in person. For this reason, NOVISSI leveraged the Post Office's network of agents, who would wear reflective vests with both the NOVISSI and Post Office logos. The Post Office agents supplemented the existing network of mobile money distributors in the country, who assist people looking to convert mobile money into cash. This was the least digital feature of the NOVISSI program, but it went a long way to bring people closer to mobile money services in general.

Lastly, to make people aware of the digital process and its benefits, there was an outreach campaign over radio, the most popular means of communication in Togo. Most Togolese have at least one radio, and informal workers are normally within earshot of one throughout their day. Tutorials delivered through radio advertisements were targeted to 35 broadcasters nationwide in five languages, and acted as an effective channel of mass communication, especially with the targeted group of vulnerable informal workers. Using radio was also a strategic way to map users' satisfaction, as the collaboration with the broadcasters informed the NOVISSI team of the technical issues and users' perceptions of the program. This enabled prompt feedback and agile adaptations.

4. The popularity of mobile money and the collaboration with its operators allowed for speedy scalability

Mobile payments have become popular in Togo, with more than 4.7 million mobile money users, accounting for 62 percent of the population. Mobile money is accessible via USSD code, which works on any mobile phone even in areas with poor network coverage. NOVISSI was the first time the government used mobile money to deliver G2P transfers at scale. The population's familiarity with mobile transactions and the availability of an extensive distributor network played a role in the program's success, since people did not need to travel far to cash out or use the funds.

A key factor in the operation was the relationship with the country's two mobile money operators. The government actively sought to maintain a good relationship with both, inviting them to collaborate on the program. Together, the parties agreed to eliminate transfer tariffs so the money could be received without fees. MENTD also integrated its systems with the mobile money operators, allowing for the first payment to automatically result in the opening of a mobile money account for the beneficiary if the phone number indicated they did not already have one. This collaborative approach was an important asset to guarantee operational efficiency and an agile approach to problem-solving.

5. A deliberate effort to make governance transparent and accountable

In the interest of transparency and good governance, the payments made through the NOVISSI platform and mobile money operators are reconciled on a daily basis to ensure that they can be traced from source

to destination and to ensure financial integrity. MENTD outsourced this reconciliation process to Ernst & Young, an independent auditing firm. This mechanism was deliberately designed to instill public trust in the NOVISSI program. It was also critical to prove that all the funds set aside for use within the program were used for the intended purposes. This allowed donors and partners to feel confidence in NOVISSI based on clear proof of financial probity determined through a process devoid of political influence.

Technology is only one part of the equation. Galvanizing public support and easing frustrations around such a new service depends on excellent customer care. MENTD set up a toll-free contact center which, at peak operation, runs for 24 hours a day, 7 days a week. This service allowed MENTD to provide remote assistance and to gather essential feedback, which was sent to the technical and outreach teams. Improvements to the system were made rapidly based on this established feedback loop. The feedback received through the call center fed into the radio outreach campaign, with the most frequently asked questions discussed during talk shows in multiple languages. Social media was also used to channel information to locals and the international community about transactions made, people enrolled, and other updates. This further boosted transparency and public confidence at home and overseas.

Why Did It Take a Crisis to Leverage MENTD's Capabilities?

Togo succeeded because it relied on its existing technical capabilities to deploy a completely new service. As digital service groups think about how to adopt some of the learnings, it is important to ask what had been constraining this potential before the crisis.

1. In regular times, skepticism gets in the way of digital transformations

Togo had considered using mobile payments to deliver social benefits for several years. But since digital solutions are still often viewed as inaccessible, it was thought that these solutions would not be embraced by low-income groups. This crisis proved that this assumption was wrong. The success of NOVISSI has shown that when you design something well, people will find ways to leverage it and reap the benefits.

2. When there is too much time to make a decision, there is time to propose several solutions and more innovative and riskier ones tend to be neglected

Whenever there is an important problem to be tackled at a national level, each ministry or stakeholder wants things to be a certain way. When given time, each of them does their own research and comes up with a preferred idea. The usual problem is that it is hard to coordinate a single infrastructure solution across several government bodies, especially if the proposal seems riskier and less traditional. In this crisis, when the president asked for a solution as soon as possible, only the digital team had the capability to deliver quickly. Even though the NOVISSI design seemed adventurous, it was the only one that could potentially address the problems with the urgency required.

3. Experience matters

Learning from failures over the past several years allowed MENTD to become more efficient. Today, MENTD knows what works and what does not, and is able to address issues in fresh ways.

Crisis contexts force governments to make big bets, take risks, and be more efficient. Despite the tragic consequences of COVID-19, MENTD's response to the pandemic has allowed Togo and other countries to permanently unlock their digital potential.

Part II: Shared Code and Shared Governance

Public-Sector Code-Sharing Communities

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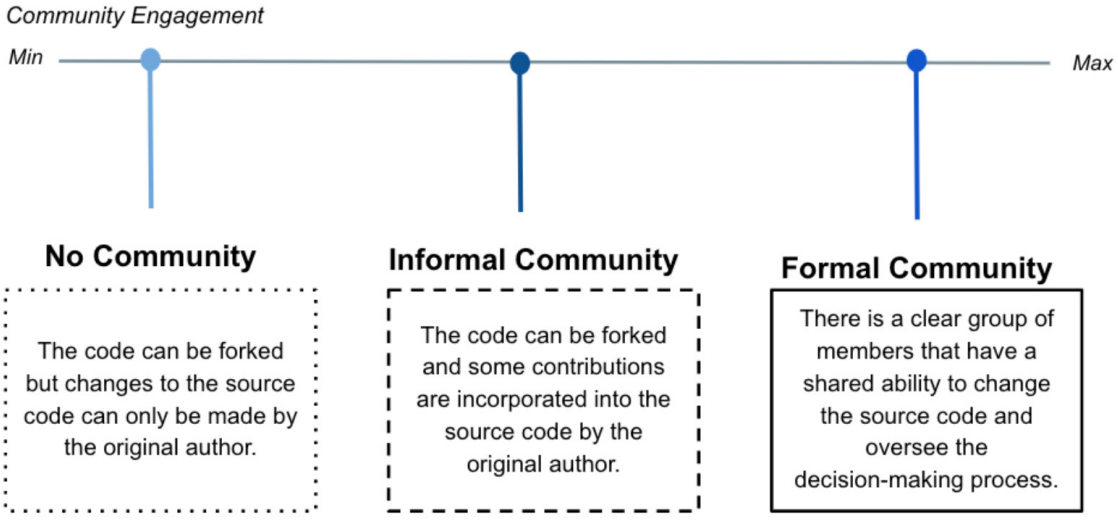
Open-source communities have existed in nongovernment spaces for over 40 years. Many of these communities organize around a proposed solution and over time create their own community engagement practices and governance models, or sets of rules, customs, and processes that outline how decisions are made.

Governments have become interested in emulating the success of these communities and have begun using and participating in open source. As governments share more code, they need to decide what type of community they want to build. A government must be able to answer questions like: Where will the code be shared and who can access it? How will project contributions be managed? What is the authorized use of this code and what licensing considerations must be discussed?

This article focuses on what we see as the first big question: What type of community engagement should a project have? We examine two cases—that of Alberta Health Services/ Ontario Digital Service and that of the Nordic Institute for Interoperable Solutions (NIIS)—to understand how they made this choice.

Figure 2.1: Community Engagement Spectrum



Community engagement refers to the ways in which the code's publisher interacts with other teams or with members of the public. Figure 2.1 outlines three possible levels of community engagement that exist on a spectrum ranging from no engagement to formalized engagement.

"No community engagement" would just make the code open to the public. This allows other government agencies or nongovernment actors to see the code; however, there is no clear way to contribute to the source code or influence its future direction. The advantage of this is that it establishes transparency and moves towards the creation of a digital public good. Through this approach, the publisher of the code

can avoid any administrative costs that come with opening the project to collaborators. However, the publisher then forgoes the opportunity for shared knowledge and community insight.

At the other end of the spectrum, a "formal community" requires a set of norms and rules by which decisions are agreed upon, clear expectations and pathways for community input, and some level of shared control over the source code. This allows for diversified operations (and in some cases, financial support) as multiple people take on the responsibility of moving the project forward. This route also requires a more robust administrative commitment.

As shown in the following case studies, governments can choose any spot on the spectrum that best satisfies a variety of local criteria. These local factors can include intended control over the project's future, willingness or need to share operating costs, desire for publicity, and political or diplomatic goals.

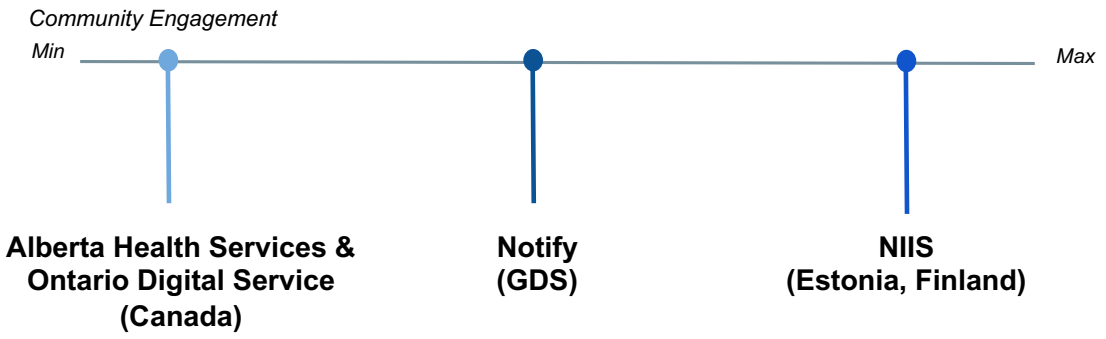
There is no "correct" place to be, and a **formal community should not be seen as the ultimate end goal** for every project. The case of Alberta Health Services highlights a scenario in which a formal community was not an ideal choice. Alberta's goal was to quickly share code such that other communities could leverage it as a resource during the height of the COVID-19 pandemic. Attempting to establish a formal community would have created burdensome bureaucratic roadblocks and inhibited their real goal—COVID-19 response.

It is also important to note that two organizations could choose the same spot on this spectrum (i.e., formal community) yet define the parameters of that community differently. Our case study of NIIS describes a different type of formal community than the one enacted by their peers at the Bangalore-based Modular Open Source Identity Platforms (MOSIP). While these parameters are important, the type of community must be established first and is the focus of our case studies.

Case Studies

The following cases outline each end of this community framework: Alberta Health Services and Ontario Digital Service are examples of no community engagement and NIIS as an example of formal community engagement. While we have not included a case on Notify, a project of the United Kingdom's Government Digital Service (GDS), we see that as a great example of an informal community, as shown on the spectrum below.

Figure 2.2: Community Engagement Spectrum with Examples



Through these examples, we'll provide more information about what questions a government should consider, what factors influence its decision, and the political ramifications of governing open-source communities.

Alberta Health Services & Ontario Digital Service Shared Self-Assessment Tool

Authors: Spencer Daniels, Senior Product Manager, Ontario Digital Service; Lauren Lombardo, Master in Public Policy 2021, Harvard Kennedy School

In early 2020, when governments and digital service teams were at the forefront of the coronavirus crisis, Alberta Health Services (AHS) created a COVID-19 self-assessment tool to prevent emergency services from being overwhelmed and reassure the population. The product launched with great success, and within 24 hours over 300,000 people were using the tool, according to internal metrics. The high rate of adoption—in a province with about 4.3 million people—was partly via social media channels, with news of the product quickly going viral on Twitter.

Two AHS employees, Kass Rafih and Ammneh Azeim, were soon contacted by the Ontario Digital Service (ODS), which was looking to develop a similar self-assessment tool. In less than 24 hours, AHS and ODS had agreed on a way to share the tool's source code. Within five days, ODS launched its own version of the self-assessment tool.

What Is the Alberta Health Service Self-Assessment Tool?

AHS began working on a self-assessment tool just two days after the first local case of COVID-19 was reported. The news of this first case prompted Albertans to seek medical advice, which quickly resulted in AHS's Health Link experiencing unprecedented call volumes. AHS began researching how other health jurisdictions were providing resources to the public.

One striking example was the United Kingdom's National Health Service (NHS) self-assessment tool. AHS decided to develop something similar to increase the public's understanding of COVID-19 and decrease the number of calls Health Link received. With these goals in mind, AHS worked closely with Health Link to codify official health assessment questions and guidance into an easy-to-understand online self-assessment. AHS also spent time testing the language and user interface with Albertans to ensure that the community members using the tool would find it useful and empowering.

In just a few days (of nearly round-the-clock work), the first version of the product launched. Since then, AHS has continued to enhance the tool with regular updates. These updates include similar tools specifically for health-care personnel and first responders, a referral form for testing, more symptoms in the assessment, and testing recommendations for asymptomatic people. With each additional feature, user testing remained an integral component of the development process.

AHS's Decision to Share Source Code

The day after AHS launched the initial version of the COVID-19 self-assessment tool, the Saskatchewan Ministry of Health and Ethos and the Ontario Digital Service both reached out to learn more. These conversations led to a decision to share the self-assessment tool source code with both ODS and Saskatchewan. This, in turn, led to governments around the world (including New York City, Ireland, and the Asian Development Bank) contacting AHS about repurposing the tool.

Some of these relationships involved only information-sharing, while others opened a channel of two-way communication that has lasted throughout the pandemic. ODS, in particular, has formed a true friendship with the AHS team. ODS started the conversation about posting the source code on GitHub, and the teams have continued to discuss their individual changes and updates to the tool.
The code-sharing between AHS and ODS was informal. The relationship could be summarized as information-sharing between friends, with the code eventually shared through Google Drive. Part of what made

this process easy was that, at the time, the self-assessment code was a flat file—a simple website that assisted decision-making and did not connect to any underlying applications or databases. The fact that the tool did not collect any personal information meant other government agencies, like ODS, did not need to do a threat-risk assessment or privacy impact assessment for the source code.

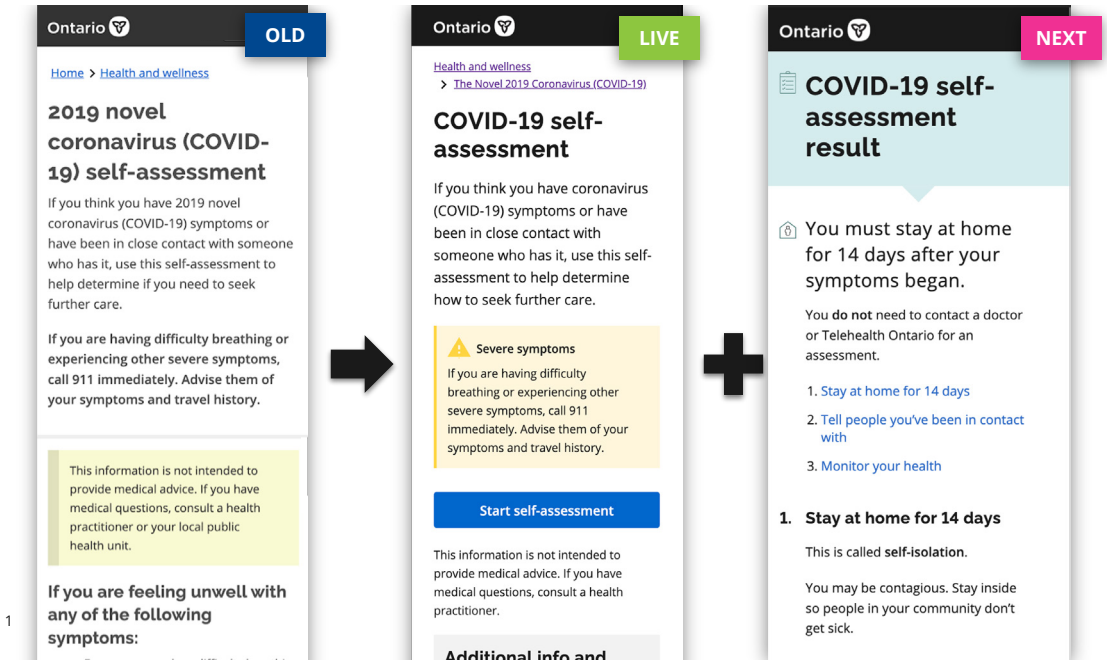
Ontario's Implementation

ODS knew it needed to get information and resources to Ontario residents quickly. But the team knew the tool would be more successful if they took the time to understand and prioritize users' needs.

Through user interviews, the digital service discovered that some of AHS's language did not translate well to the Ontario context. The language was too focused on a medical diagnosis and ignored what ODS believed to be an important emerging social context. For example, Alberta's tool included a risk warning for those who had trouble waking up in the morning. However, through user interviews, ODS found that in the midst of a public-health-crisis-turned-economic-crisis, users had plenty of reasons unrelated to COVID-19 infection to want to stay in bed.

By talking to Ontario residents, the team radically simplified the tool's language, both improving its adoption rate and making it more flexible, so that it could respond to multiple, rapidly changing needs brought about by the pandemic.

Figure 2.3: Selections from Versions of the Ontario Digital Services COVID-19 Self-Assessment Tool



Source: Presentation by Spencer Daniels, 2020 Digital Services Convening; adapted from the Government of Ontario's COVID-19 Self-assessment Tool, Queen's Printer for Ontario, 2012–20

ODS improved the tool by independently adapting the AHS source code to better fit Ontario's needs. At the time of launch, the ODS tool used 30 percent of AHS's original code. The changes made focused on providing shorter and more actionable information, explaining coronavirus symptoms, offering examples, and delivering clear guidelines to users.

Ontario's Diverging Self-Assessment Tool

By October 2020, Ontario's self-assessment tool had been visited seven million times and had helped Ontario residents complete nearly five million assessments. The tool was widely popular because it quickly became the default place for Ontario residents to find situational information about COVID-19.

ODS released dozens of significant updates and feature changes as public health guidance shifted dramatically in the early months of the pandemic. ODS leveraged new public health information to make sure the self-assessment met a variety of use cases. Now, Ontario residents can receive a robust series of results screens, with eight different possible results based on their symptoms and demographics.

Through user testing and feedback, the digital service found many residents reporting, "I'm fine, but I need proof for my employer, or my school, or my business." This led the team to develop a new feature through which residents can complete the self-assessment as a "healthy" person and get a results screen, with a timestamp, that they can show to their employer to help verify their self-assessed health status.

ODS also saw a need for different types of assessments for different people or use cases. One example is the school and child-care screening tool. Ontario's COVID-19 protocols treat children differently from the rest of the population; they are assessed for different symptoms and slightly different risk factors. By October 2020, the school screening tool had helped students and teachers complete over one million assessments while providing a more customizable result indicating whether or not it was safe to go to school based on the assessed symptoms.

A similar tool was created for Ontario courthouses. The COVID-19 courthouse screener helped keep courthouses operating by asking necessary screening questions, letting residents know whether they could enter a courthouse, and providing a results screen to be shown upon entry.

As of the time of writing, the ODS team continues to work on new self-assessment services and features. What's next? One goal is adapting the screening tool to support workplaces and businesses, so that Ontario residents can specifically assess whether they can work or shop in person. After this, the team will combine these multiple streams—school and child care, courthouses, workplaces, and businesses—into a single, end-to-end experience with multiple paths and result screens. This iteration will make it easier for residents to understand their results and make safe choices to protect their health.

Ontario's Historical Relationship with Open Source

One significant advantage ODS enjoyed is that the use of open-source code had long been normalized within the Ontario Public Service. The argument for using and producing open-source code was fought and won well before COVID-19, starting with the team that successfully built Ontario.ca using open-source software.

This norm around open-source code was codified in the Simpler, Faster, Better Services Act of 2019. This act codifies a commitment to openness, which the ODS team has defined as building with open-source tools and making Ontario code available on GitHub. Now, ODS code is posted on GitHub by default, making it easy for the team to share its adapted version of the self-assessment tool.
This matters because ODS did not have to spend precious time working with lawyers and policymakers to assess whether it could use AHS code. Many of the traditional barriers to reusing or sharing code had already been removed, allowing the team to focus on delivering a rapid solution for Ontarians.

Reflecting on the Partnership

ODS quickly published its version of the self-assessment tool on GitHub with consent from, and credit to, AHS. This move piqued the interest of the AHS team, which could no longer keep up with the incoming requests to share its source code. Inspired by ODS, AHS then also shared its own code on GitHub so that anyone could use it.

AHS's source code gave ODS the boost it needed to develop a highly effective self-assessment tool in just five days. In turn, ODS's practice of sharing its code on GitHub helped make the entire project open.

This was able to happen because the AHS team was willing to share its source code informally (i.e., no memorandum of understanding was signed). By making this code easily accessible, AHS enabled ODS to move much faster towards its own version of the solution. The informal relationship also meant ODS could quickly adapt and change the code to fit its local context, without any obligation to get those changes approved or communicate them back. For its part, the AHS team avoided any expectation that it would act as a consultant for other governments' adaptations of the self-assessment tool.

Outside of the Ontario example, AHS's original code has now been reused and adapted for other use cases, including by the Saskatchewan team mentioned above. ODS's changed version of the code has been reused and adapted, too, including as an eligibility checker for businesses expecting financial help from the government.

AHS has continued to prioritize its own feature enhancements while its willingness to informally share its source code has helped other governments respond quickly to the COVID-19 pandemic.

The Establishment of the Nordic Institute for Interoperability Solutions

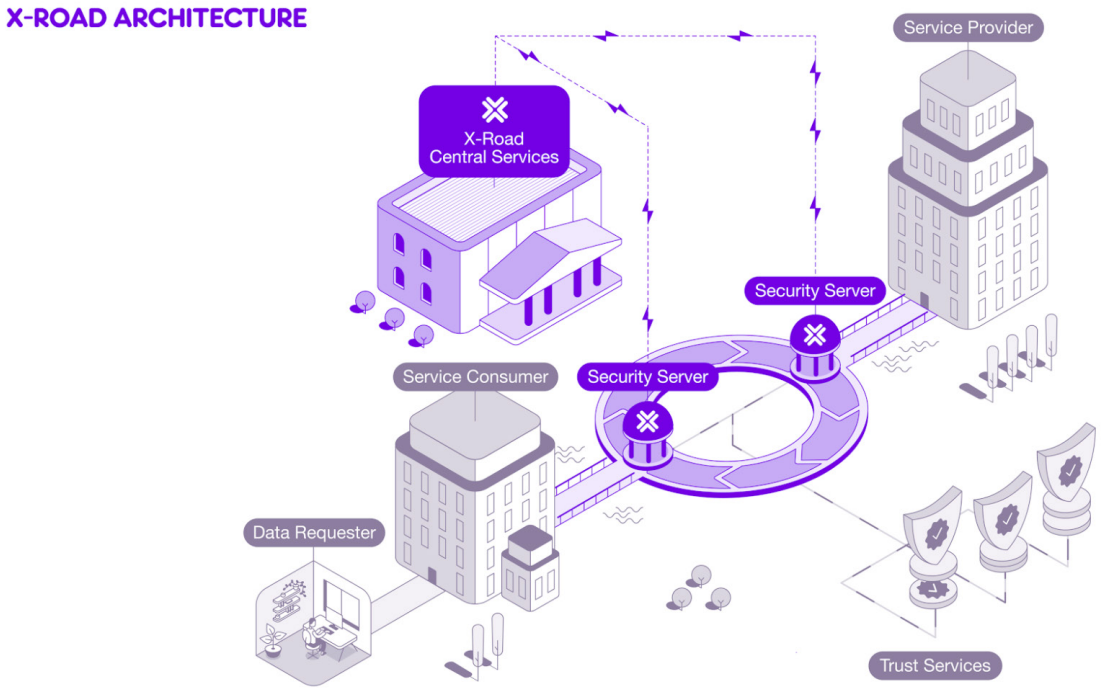
Authors: Ville Sirviö, Chief Executive Officer, Nordic Institute for Interoperability Solutions; Petteri Kivimäki, Chief Technology Officer, Nordic Institute for Interoperability Solutions

The Nordic Institute for Interoperability Solutions (NIIS) is a nonprofit association established in 2017 by the governments of Estonia and Finland. Its mission is to ensure the development and strategic management of X-Road® and other cross-border components for e-government infrastructure. NIIS is both a network and cooperation platform and executioner of IT developments in members' common interests. NIIS focuses on practical collaboration, sharing of experience, and promotion of innovation.

What Is X-Road?

X-Road is an open-source software and ecosystem solution that provides unified and secure data exchange between organizations. X-Road implements a set of standard features to support and facilitate data exchange and ensures confidentiality, integrity, and interoperability between data exchange parties.

Figure 2.4: X-Road Architecture



Source: X-Road Architecture Overview, Nordic Institute for Interoperability Solutions

An X-Road ecosystem is a community of organizations using the same instance of the X-Road software for producing and consuming services. The ecosystem may be nationwide, or it may be limited to organizations meeting specific criteria, e.g., clients of a commercial service provider.

X-Road was originally developed by the Estonian State Information Systems Department (at the Ministry of Economy and Communications), and the first version was launched in 2001. In Finland, the Suomi.fi Data Exchange Layer service based on the X-Road was published in November of 2015. Today, Finland's and Estonia's data-exchange layers are connected to one another, which enables cross-border data exchange between the countries. Estonia and Finland have been developing the X-Road core together since 2015.

First Steps

The cooperation between Estonia and Finland officially started in 2013 when the prime ministers of the two countries, Andrus Ansip of Estonia and Jyrki Katainen of Finland, signed a memorandum of understanding initiating formal cooperation between the two states on developing and maintaining a software environment enabling secure connectivity, searches, and data transfers between various governmental and private databases—the X-Road®. This is considered to be the world's first digitally signed international agreement.

Deepening the Cooperation

Subsequently, the Population Register Centre of Finland (VRK) and the Information System Authority of Estonia (RIA) concluded a cooperation agreement intended to formalize cooperation on X-Road and function as a contractual platform for deepening cooperation.

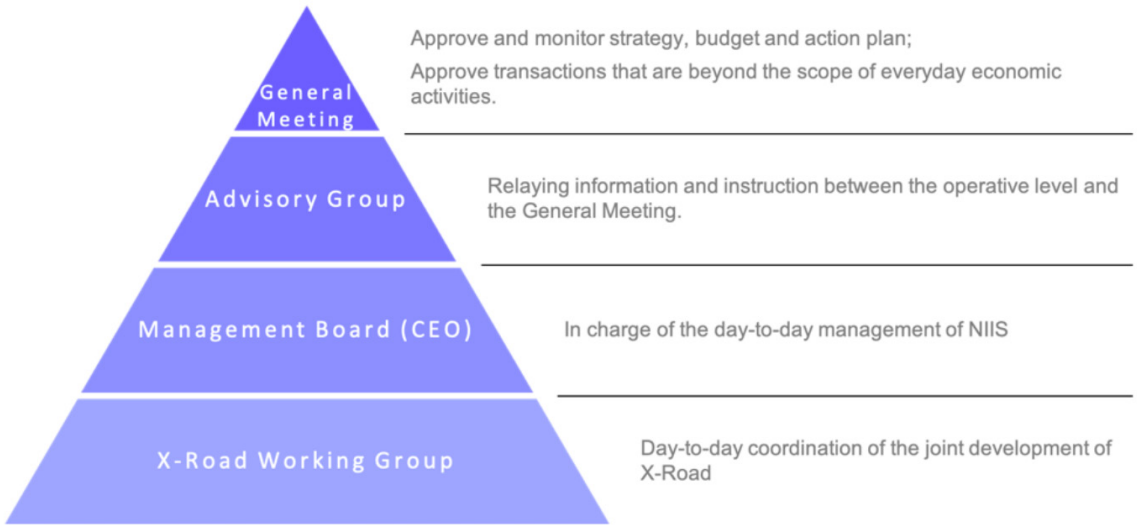
Finland's Population Register Centre and the Republic of Estonia's Information System Authority were responsible for the coordination of the X-Road core development. They agreed on a set of practices and guidelines for managing the cooperation. Another important outcome of the collaboration was publishing the source code of the X-Road core as open-source under the MIT License. The source code was published in two parts between 2015 and 2016, and made publicly available on GitHub.

Shared Organization

The governments of Estonia and Finland decided to deepen their cooperation in a more formal yet flexible manner by forming a separate, jointly managed special-purpose organization to administer the X-Road development—NIIS. The Formation and Cooperation Agreement establishing this was signed in Helsinki on March 7, 2017. The parties to the agreement are the Ministry of Finance of Finland and the Ministry of Economic Affairs and Communications of Estonia. The Memorandum of Association was signed on June 14, 2017, and the institute started its operations in August 2017.

The governance structure of NIIS consists of multiple levels: General Meeting (GM), Advisory Group (AG), and Management Board (CEO). The highest body of NIIS is the General Meeting of its members, where all members of the association may participate. The Advisory Group was formed for the purpose of supporting the chief executive officer and relaying information and instruction between the operative level and the General Meeting. For clarity, the Advisory Group is not a formal organ of the institute and has no decision-making power on its own. NIIS is managed and represented by the Management Board. The Management Board comprises a single member who acts as the chief executive officer of the institute. The practical collaboration and coordination of the joint development of X-Road takes place at the X-Road Working Group. The Working Group consists of representatives from the operators of X-Road environments, NIIS members, NIIS employees, and NIIS development team members. For clarity, X-Road Working Group is not a formal organ of NIIS and has no decision-making power on its own.

Figure 2.5: The Governance Structure of NIIS



Source: Organization and Management of NIIS, Nordic Institute for Interoperability Solutions

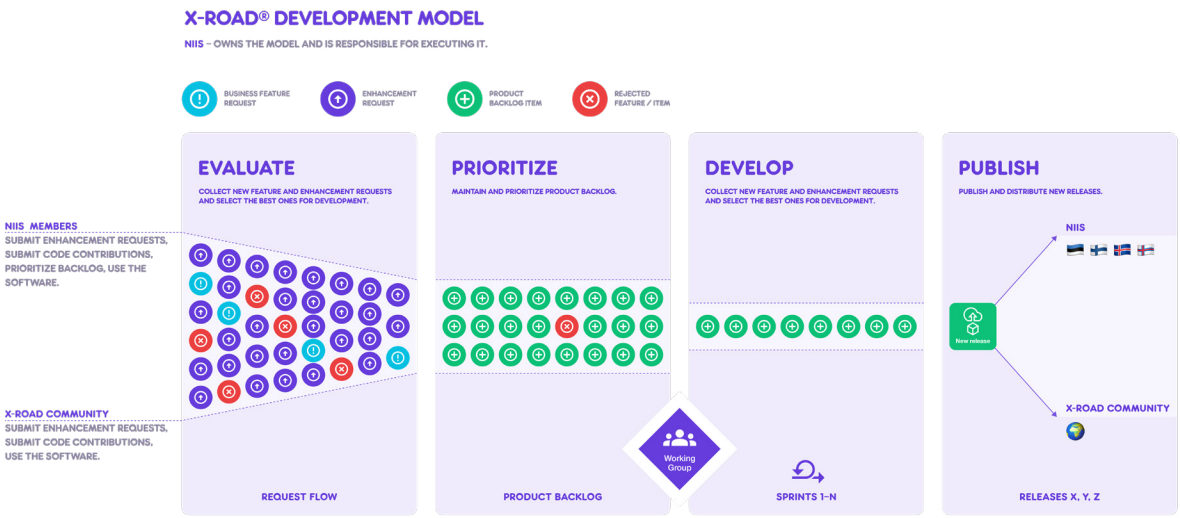
In addition to the two founding members, Estonia and Finland, NIIS also has two partners. Iceland became a partner in September 2018, followed by the Faroe Islands in May 2019. NIIS partners and individual specialists may attend and observe the Working Group meetings by invitation only.

An organization meeting the requirements defined in the articles of association may apply for NIIS membership or partnership. The general meeting of the association assesses and decides membership and partnership applications. Also, an organization may first join as a partner and apply for membership at a later stage.

Joint X-Road Core Development

In June 2018, NIIS took over the X-Road core development from Finland's VRK and Estonia's RIA, as well as the management of the source code for the X-Road core. The first step of the handover had already been completed earlier in the year, when NIIS took the responsibility of running the Working Group that serves as the platform for day-to-day coordination of the joint development.

Figure 2.6: X-Road Development Process



Source: X-Road Organizational Model, Nordic Institute for Interoperability Solutions

The X-Road development activities follow a well-defined process. Since X-Road is open-source, anyone is welcome to contribute to its development. All contributions are evaluated according to the same criteria, no matter who has submitted them. Enhancement requests, error reports and other proposed changes to X-Road are reviewed in the Working Group meetings. Contributions that align with the product roadmap are approved and sent to the product backlog, where they are prioritized.

New X-Road versions are released regularly, and they are made available to NIIS members and the open-source community at the same time. While anyone can contribute and benefit from new releases, only NIIS members are included in the decision-making about what is included in the product roadmap and backlog, and how the items are prioritized.

The Future

NIIS continues to develop X-Road actively. The aim is to make it a modular, easy-to-use, cloud-native, secure, and sustainable data-exchange solution. The involvement of X-Road users—who provide feedback at different stages of the process—in the design and development plays an essential role in reaching this goal. NIIS aims to be a strong influencer in the field of e-governance and a growing platform for cross-border cooperation and innovation. NIIS is cooperating actively with the Nordic and European Union countries, onboarding new members, and facilitating the global X-Road community.

Part III: Sustaining Digital Service Groups

Introduction to Levers for Digital Service Groups

Authors: David Eaves, Lecturer in Public Policy, Harvard Kennedy School; Tom Loosemore, Partner, Public Digital; Lauren Lombardo, Master in Public Policy 2021, Harvard Kennedy School

A recurring question from every Digital Services Convening is how to help digital service groups effect change. While success on individual projects is important, scaled impact through shifting practices and behaviors across the government is the larger goal. This paper seeks to share learnings garnered through interviews, surveys, and the discussion at the 2020 convening regarding the different levers digital teams use (or aspire to use) to push change across the enterprise.

To explore, identify, and ultimately define how digital service groups use levers, we socialized a preliminary list of levers for digital service groups before the 2020 convening. This list was updated as we received feedback from attendees about which levers they have available and which they would like to possess. We then used this list (reproduced below) to discuss how levers can be earned and leveraged, as well as the risks of using them.

We adopt the word "lever" because it traditionally refers to "a simple machine that uses force to provide leverage." Professional schools, consulting firms, and strategists have adopted this mechanical term to refer to business initiatives, tools, or processes that force change. Two keywords from the definition—force and leverage—are particularly important.

Force means that a lever should have some ability to enact change. One example could be modeling behavior to induce others across the enterprise to voluntarily comply with a new set of practices. Another would be policies or laws that mandate that others shift their behaviors or practices. Leverage, on the other hand, is about the scope of change. A lever should effect change across the enterprise. While a lever may help a specific project, it is a tool built not for a single project or initiative, but, rather, for use at the systems level.

GDS's Use of Domain Control as a Lever

Author: Tom Loosemore, Partner, Public Digital and former GDS Deputy Director

In 2012, the United Kingdom's Government Digital Service (GDS) got a full cabinet mandate to create GOV.UK. It was essentially a legislative tool that mandated the GOV.UK project. GOV.UK was created to replace 2,500 central government websites with a simpler, clearer, and faster website aligned with the needs of citizens rather than the convenience of the government. This gave us one of our most powerful levers: domain control.

Domain control is the ability to oversee all government domains (e.g., GOV.UK) that departments use to access and transact with the public. In the UK, this meant we controlled what went on the official government website and how it looked.

Mike Bracken and I knew we needed to get levers from day one. So, we went to a pub before we started and we drew four or five of these out. These included domain control, spend control, and the importance of communications. We knew we needed to go for these at the start.

To get domain control, we spent most of 2011 and the early part of 2012 delivering value to ministers (see "Reputation" and "Proximity to Power" below). We turned around and used that initial political capital to get this full cabinet mandate. We couldn't have done that on day one. We could have tried to do it in 2011, but we'd still be arguing with the civil service today

At GDS, we decided to initially use domain control as a voluntary lever—a carrot. We didn't make moving services to GOV.UK mandatory. Instead, we built it such that departments and agencies would be excited to use it. They would want their services to be on GOV.UK. At some point, it would likely make sense to mandate it and turn it into a stick. Another digital service could use this same tool as a mandatory lever from the start, but that wouldn't have worked well in our context.

List of Levers for Digital Service Groups

This is a working list, designed to better understand which levers digital service groups can use to influence their organizations.

Profile		
Lever	**Definition**	**Examples**
Communications Power	The group has access to communications platforms and can openly discuss successes and failures, either internally or externally.	Public or enterprise-facing blogs; independent access to press
Cool Factor	The group is first to access new enterprise tools, and it uses the most up-to-date hardware and software.	Everyone has the kind of equipment they need (including Github, Macs, iPhones, Slack, etc.)
Proximity to Power	The group has formal and informal ties to political and executive sponsors; it can use these relationships to build rapport and influence policy.	Report directly to the executive; physically located near the executive; direct access to the executive to communicate wins
Reputation	The group, or individuals in the group, are well known for high-profile projects in their current or previous roles.	The group brings attention to the project that increases its profile and importance

Standards		
Lever	**Definition**	**Examples**
Design Standard	The group creates a set of design styles, components, and patterns that other departments can use to save time and money.	UK.design system
Domain Control	The group controls the government domains that departments use to access and transact with the public.	GOV.UK; Restrict access to the GOV.UK domain unless standards are satisfied
Legislative or Policy Mandate	The group's principles or practices are codified in enforceable legislation or policy.	Ontario's Simpler, Faster, Better Services Act
Platform Control	The group creates government platforms for frequently required functionality that save teams time and money, thus scaling adoption with use.	GDS's Notify; cloud.gov
Service Assessments	The group gets to assess whether a new service should go live and to ensure that all new services meet its standard.	UK Service Standard and the associated service assessment process; all assessments are published
Procurement	The group can influence or shape the procurement process to simplify the process and improve the quality of outcomes.	Oversee part or all of the procurement process; veto authority over some or all procurement decisions; help with understanding the project goal and needs; improve supplier ecosystem
IT Spend Control	The group controls IT spending above a certain threshold.	Veto authority for IT spending over $25,000; intercept large, ill-conceived programs and improve them before they start

Standards		
Lever	**Definition**	**Examples**
Academy	The group provides training or educational resources for other government employees.	Canadian Digital Service resources; GDS academy
Emergency Oversight	The group can rescue failing development or procurement processes and conduct a program review.	Act as problem-solving consultants or emergency resources
Technical Capacity	The group has highly experienced digital talent, tools, and processes not easily accessed by other departments.	A staff of engineers or designers; access to cloud-based tools
Hiring	The group can attract and hire digital talent. It can create and classify new digital-government roles and establish attractive career paths for digital specialists.	Develop digital-specific hiring practices and role descriptions such as coding tests or case studies; create communities of practice

Special Powers		
Lever	**Definition**	**Examples**
Magic Wand	The group can redesign rules or processes that must be adhered to.	Fast-track hiring practices; redefining procurement norms by going back to first principles and redesigning hiring and procurement processes
Quasi-Autonomous Nongovernment Organization (Quango)	Access to or support from a semi-autonomous organizational structure that allows for more flexible rules	iSpirit in India, IREMBO in Rwanda

Levers as a Spectrum

In our discussions with digital service groups, two salient points about levers emerged. The first is that levers are not all created equal. Some induce or attract voluntary compliance, while others are more heavy-handed and, at least in theory, mandate compliance. Voluntary and mandatory compliance can be thought of as the two ends of a spectrum.

Figure 3.1: Spectrum of Levers for Digital Service Groups

Second, one might infer that teams should want to seek out levers on the mandatory end of the spectrum, as this allows one to compel the enterprise to change practices. But the practitioners we spoke to painted a more complicated picture. Many government mandates are effectively ignored, while some voluntary norms are so universally adhered to that they achieve deep and lasting impact. As the expression goes, "culture eats strategy for lunch."

Moving Between Voluntary and Mandatory

Some levers are static—they can only be used in a voluntary or mandatory way. Others can move from one end of the spectrum (or back) over time.

Communications power is an example of a static lever; it can only be used in a voluntary way. It's a powerful lever: Organizations with communications power can push the media to ask certain questions or help build public and political support for an issue. Further, many digital service groups' ability to "work in the open," share alpha and beta versions of their projects, and talk openly of successes and struggles has helped foster communities of supporters across the government and the public at large. This support can be powerful, but it cannot be used to compel others to behave a certain way.

In contrast, other levers can transition. Let us return to the GOV.UK story discussed in the sidebar above. The United Kingdom's Government Digital Service initially chose to exert domain control as a voluntary, not mandatory, lever, to induce ministries to move services onto GOV.UK. GDS made this choice because, at the time, it aligned best with their political context and leadership style. However, over time, asserting domain control more formally—as a mandatory lever—became key to compelling holdouts to migrate their services onto the domain.

The same story can be told about service assessments. Often these start off as a voluntary lever—a way for a team to helpfully advise. However, over time best practices from these assessments may become codified and ultimately form the basis of a policy or formal process that projects must clear before being approved.

Gaining Levers

There are two ways in which digital service groups tell us they acquire levers. Some are capabilities the team builds itself without relying on powerful stakeholders or formal authorities. This might be establishing a voluntary standard, having the "cool factor," or working in the open to gain communications power. Other levers must be granted through legislative action or by an executive sponsor. Examples of these include IT spend control (the ability to veto or stop projects) or a "magic wand" (the ability to forgo adhering to rules).

The most common way to get levers from outside the team is to cash in earned political capital. As outlined in the story about GDS, the team did this by generating wins up front. At the same time that GDS was working to gain enough political capital to be given the lever of domain control, it built up other levers independently. GDS could control its public profile and how it built its technological capabilities. By carefully crafting relationships with the media and hiring smart, capable people, GDS created its own communications power and technical capacity levers. This gave the group a reputation as trusted technologists and designers that was magnified through its international media connections.

Key Takeaways

1. Levers can be given or built

It's essential to understand how each option for gaining levers works and how each applies to a given context. A digital service can build levers, particularly voluntary ones, by hiring the right people, establishing the right relationships, and sharing its work in the right places. However, other levers must be granted by an authority. Successful teams should collect a combination of both types, meaning they must simultaneously build levers and earn political capital that can be traded in for levers from outside authorities.

2. Voluntary and mandatory levers can be equally powerful

A group should not assume that mandatory levers are the eventual goal. The ability to influence decision-making through voluntary levers can be a powerful tool. Voluntary levers allow groups to change culture, set expectations, and reward good behavior. Further, too many mandatory levers—especially unpopular ones—can foster resentment or make the group a political target. Instead of only aiming for mandatory levers, a group should pursue the combination of levers needed to execute its transformation strategy.

3. Levers have to be used appropriately

Equally important to selecting the right levers is making sure that they are used effectively. Knowing when to use a power and when not to use it is primarily a matter of instinct. Overusing a lever can create resentment, but underusing it can lead other departments to ignore the group's power. This is particularly true for unpopular levers, as these are the ones that can spark the most defiance. These levers need to be used, and they need to be used early so that expectations are set about how the group will exercise that power if needed.

At GDS, the most unpopular lever was IT spend control. As it began to use this lever, GDS faced pushback from departments that were upset about this oversight. However, GDS had solidified its control over this lever and learned how to use it swiftly and effectively to change departments' behaviors. Specifically, GDS used IT spend control alongside complementary voluntary levers, such as communications power. By using the media to highlight the savings its work was creating, GDS undercut some of the pushback against its use of this unpopular lever. Because GDS didn't hide its unpopular levers, it could use them to catalyze long-term change.

4. Levers compound over time

GDS used each of its levers to accumulate even more power over time. The team built communications power and technical capacity and then used these levers to generate political capital. GDS traded in this political capital for domain control, which in turn generated more capital due to the success of GOV.UK. The website's success allowed GDS to get the additional levers of IT spend control and service standard, each of which led to more achievements and allowed for further accumulation of power and support.

Exploring Nongovernment Funding for Digital Service Groups

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The COVID-19 pandemic has revealed the need for global digital service delivery. Critical pandemic relief services such as track and trace programs, emergency cash transfers, and telemedicine were possible only in those countries that had a sufficiently strong digital backbone. Moreover, the need for digitized services is not likely to abate. As some participants highlighted during the 2020 Digital Services Convening, in the future, digital service groups will be expected to deliver increasing value to citizens in the form of new services and capabilities. The question is, how will teams meet this rising demand within their budgetary constraints?

As Aaron Snow, CEO of the Canadian Digital Service, put it, in a post-pandemic world, "Any ask digital services groups make for investment or change of any sort is now competing with not only direct COVID-19-related priorities but also with follow-on economic consequences of the pandemic." This articulation of the increasingly competitive budgetary landscape that digital service groups will be operating in resonated with many at the convening. However, while some experts believe that tighter government budgets for digital teams will be the new norm in the future, others, including Snow, believe the pandemic may serve as a transformative moment, helping to make a stronger case for better-funded government digitization efforts.

Critically, this debate does not highlight the nongovernment pools of funding available to digital service groups. One of the major findings of the 2020 Digital Services Convening was that some digital service groups—particularly those based in developing countries—are receiving funding from a diversified pool of investors. In light of this finding, our goals are to:

- highlight the nongovernment funding approach available to teams and show through the cases of two different countries the key motivators impacting a digital service group's funding decision
- summarize key lessons for successfully making the case for digital unit funding

Different Funding Models for Digital Units

The discussions during the 2020 Digital Services Convening underscored several important aspects of funding digital service groups. Later in this chapter, we define this broader funding landscape (see Figure 3.4). However, the primary purpose of this discussion is to explore one element in particular: the spectrum of funding sources available to these groups. The spectrum of funding sources refers to the primary source of digital service group funding and can range from 100-percent government funding at one end to 100-percent nongovernment funding at the other. Here, nongovernment funding refers to funding from a range of bodies including intergovernmental organizations, donor bodies, private institutions, and philanthropic groups.

The traditional assumption is that governments are the source of all funding for digital service groups. The digital services maturity model drafted by David Eaves and Ben McGuire following the 2018 Digital Services Convening reflects this thinking. Even at early stages of maturity, the model assumes that groups will be dependent on funding allocations from other departments or will have to go through a lengthy and difficult budget negotiation to meet their funding needs. Additionally, the assumption is that in a future state, funding is likely to remain highly government-dependent (i.e., services will be granted multiyear budget allocations by their governments). However, this is not necessarily the case.

Figure 3.2: The Maturity Model: Budgeting for Success

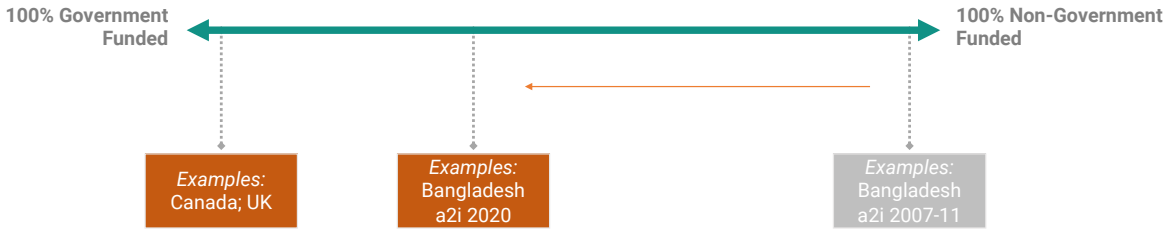
AREA	LOW	MEDIUM	HIGH	FUTURE STATE
Budgeting for Success	Digital services budget is scraped together from funds allocated to other departments.	Digital services are reliant on continuous annual budget negotiations.	Digital services are supported by a multi-year allocation of capital expenditures.	Multi-year budgets include funding through operating as well as capital expenditures.

Source: David Eaves and Ben McGuire, "2018 State of Digital Transformation," Belfer Center for Science and International Affairs, Harvard Kennedy School, October 2018

For countries that can tap into nongovernment pools of funding, the journey to the future state is likely to be less straightforward than the maturity model suggests. Some countries may choose to maintain a mix of government and nongovernment funding even at later stages, depending on their long-term needs, constraints, and strategic goals. Ultimately, the funding mix is calibrated according to the digital service group's long-term objectives.

Our initial hypothesis was that while digital service groups may start off anywhere on the funding spectrum, they are likely to shift towards the traditional end of the spectrum over time as they prove their value and become more embedded within the government. However, as we spoke to different groups, we realized that this movement is not always so straightforward; in fact, some groups may intentionally stay in a state of nongovernment funding for extended periods of time. To better understand how and why digital service groups place themselves at different ends of the spectrum of funding sources, and how their funding sources shift over time, we look at the cases of two countries that started their journeys at opposite ends of the spectrum: Bangladesh and Canada.

Figure 3.3: Sources of Funding Spectrum



a2i in Bangladesh: From Fully Donor-Funded to Majority Government-Funded

Bangladesh's national flagship digital transformation program, a2i (Aspire to Innovate), is an example of a digital service group with long-standing nongovernment funding experience that has deliberately shifted its funding sources over time. Bangladesh started its digital transformation in 2007 as a 100-percent donor-funded effort, backed primarily by the United Nations Development Programme and other donors. Since 2011, a2i has shifted from a fully donor-funded to a partially government-funded model. As of 2020, more than 70 percent of a2i's funding comes from the government while the remainder comes from donors such as the Bill & Melinda Gates Foundation, the United Kingdom's Department for International Development, and proceeds from a2i's assisted rural eCommerce initiative (a nonprofit social enterprise with surpluses that are reinvested into the program).

Motivators for Using Nongovernmental Funding

At the 2020 Digital Services Convening, speakers and participants from countries that have previously pursued nongovernment sources of funding highlighted several key motivators. In particular, Tania Aidrus named several factors that strongly resonated with the Bangladeshi a2i team as reflective of their own experience. These motivators were:

1. The economic climate of the country

Digital service groups operating in countries with a high debt burden and many competing priorities will find it difficult to make the case for funding at initial stages of operation. For these groups, looking outwardly for available nongovernment grants is a fiscally responsible way of obtaining needed funds without straining existing national resources. Going this route requires countries to clearly define their priority areas and find granters who are aligned with internal strategy.

2. Time pressure

Getting into and through the government budget cycle can be a lengthy process. In comparison, looking outside reduces the time requirement and allows groups to move faster and initiate work immediately.

3. Hiring and retaining talent

Attracting and retaining the best talent possible requires compensating staff at levels equivalent to the private sector, which is a major concern for digital service groups. This is only achievable if the group bypasses traditional government salary scales. Looking beyond government funding allows digital service groups to do this without violating procurement rules.

4. Proving value

In the initial stages of operation, units are under pressure to prove their value to the government. Taking money from nongovernment sources buys groups time to focus on building the program and proving their business case.

Drawbacks of Nongovernmental Funding

Despite the strong motivators that may compel teams to seek out nongovernment funding, moving towards this model is not without its challenges. As the 2020 Digital Services Convening highlighted, there are unique sensitivities to using nongovernment funding, which are largely related to trading long-term pains for short-term gains. For instance:

1. Being limited to a program-driven and donor-led approach

Groups dependent on external financing may find themselves limited to a program-based approach. Here, the term "program" refers to tightly defined projects (e.g., improving gender financial inclusion by improving access to mobile banking) that are in line with donor goals.

2. Potential trade-offs between innovation and scale

While nongovernment funding often encourages innovation and provides proof of concept, it often does not allow for the kind of scale that government funding makes possible.

3. Building insufficient competency within government

Leveraging nongovernment funding and external personnel may preclude the building of necessary competencies and skills in public-sector institutions. In the long run, this may inhibit a digital service group from creating sustainable change across government.

How COVID-19 Tested a2i's Funding Model

Unsurprisingly, Bangladesh has experienced a shift with regard to the first funding motivator—the country's economic climate—as a result of COVID-19, which has affected a2i's future trajectory. According to the a2i team, as the economy has tightened due to the pandemic, complete dependency on government funding is no longer feasible. COVID-19 highlighted the weaknesses of the government-dependent funding model, with Bangladesh experiencing fiscal pressures caused by falling export earnings, declining tax revenues, and diminishing inward foreign remittances by Bangladeshi expatriates. Moreover, these fiscal pressures have been compounded by the government's efforts to fight the economic downturn, such as stimulus packages and increasing expenditures in the form of social safety net allowances for the newly poor.

Despite a2i's contributions to the national COVID-19 response, the organization was temporarily downgraded within the internal government classification system due to the government's new priorities, resulting in additional budget controls and approval requirements. Though a2i has since regained its original classification, this experience served as a reality check about the merits of dependency on government

and donor grants. While the pandemic has proven the value of the "government-as-a-platform" concept and validated the need for a more inclusive platform that enables cooperation between social innovation, the private sector, academia, and civil society, the rising funding challenges represent a barrier to sustaining this momentum.

a2i's future vision is to design the a2i Bangladesh Innovation Agency. The agency will enable a funding model that leverages government funding while preserving considerable autonomy, thereby bolstering the team's ability to focus on longer-term interventions. The agency will equip the a2i team with the lever to charge fees—either to other government agencies or to citizens directly—for the services and platforms it develops and manages. At the same time, a2i aims to receive a greater proportion of its funding from international financial institutions to ensure more financial stability. This vision shows that even as it matures, a2i intends to retain a mixed funding model that is in line with the group's strategic objectives.

The a2i experience shows why and how digital service groups may choose to go the nontraditional route. At the same time, there are important reasons why groups may decide to stay at the traditional end of the spectrum, as shown by the case of the Canadian Digital Service (CDS). It is important to recognize that Bangladesh and Canada have dramatically different economic landscapes and that their digital service groups emerged at different times and in different political environments. These circumstances have had a material impact on where CDS has landed on the funding spectrum.

Fully Government-Funded: The Case of the Canadian Digital Service

Established in 2017 within the federal government of Canada, CDS is a wholly government-funded operation. The organization was originally granted a time-limited funding allocation of CA$25 million over a three-year period; CDS later received an additional CA$24 million through March 2022. CDS receives funds through the federal government's Fiscal Framework.

CDS is a product of an innovative and forward-thinking government, and emerged in an environment in which many stakeholders already appreciated the value of digital services. The organization's mandate is to develop government-as-a-platform services and to support service design and delivery partnerships with individual federal departments. As CDS head of public policy John Millons commented after the convening, "A digital service in a lot of ways is a change management organization disguised as a digital service." CDS's goal in its first phase of funding and operations was to prove that a federal digital service group is a worthwhile investment that will bring concrete value to the public.

For two primary reasons, CDS never gave any serious thought to obtaining funding from other sources beyond the Government of Canada.

1. Strategy depends on stable funding

CDS's organizational strategy and operations require long-term stable funding. Given that CDS is attempting to build platforms and confidence with its core clients (i.e., other federal departments), it is critical that the platform services for which these entities rely on CDS are well supported, secure, reliable, and continuously improved. Additionally, CDS believes effective recruitment and retention of digital professionals in government requires some certainty that the organization's mandate and term has a reasonable runway (e.g., more than two years).

One caveat of a 100-percent government funding model is the need for a sufficiently long runway to prove the investment to the government. According to Millons, a five-year term is likely sufficient to initially prove the organization's effectiveness. Having an adequate runway is especially necessary given digital service groups' focus on change management. For instance, these groups often seek to create conditions for departments to deliver services differently, to build trust and confidence in their government-as-a-platform offerings, and to build a solid membership base.

2. Nongovernment funding is uncommon

The other reason CDS did not consider nongovernment funding is that while public-private partnerships are common in Canada, as is outsourcing of services, external funding of federal initiatives is not. The CDS team also noted that while nongovernment funding may be linked to certain requirements—such as a monetary return on investment—that might affect programmatic incentives, government funding has the benefit of being primarily concerned with a return on impact investment.

How the Pandemic Impacted Canada's Funding Model

While CDS in particular has not experienced any change in its funding since the pandemic began, Canada's government has made more money available centrally for COVID-19 initiatives, which CDS and other government departments or partners may be able to draw upon.

Beyond funding, COVID-19 has increased the government's appreciation for the importance of building digital government services and has generated learnings for CDS. First, there is increasing recognition that mature digital platforms are the way forward. Second, during the pandemic, while policy and delivery have started to come together, there is a recognition that this feedback loop needs to be tighter. In an ideal world, policy ideas are implemented as quickly as possible, so that delivery can impact policy instead of the other way around. Lastly, the pandemic has shown that program processes—from determination of eligibility to procurement to delivery—are far too complex and need to be simplified.

How Will the CDS Funding Model Evolve?

CDS does not anticipate changing its funding model from 100-percent government funding in the near future. However, the group is debating or pursuing minor variations within the existing funding model, such as moving from time-bound government funding to a form of permanent government funding. Revisiting the Maturity Model for Digital Service Groups cited above, this move would transition CDS to "future state." Other likely changes to the funding model involve CDS engaging its government partners in a cost-recovery or cost-sharing model to help scale the group's impact.

Lessons Learned: Making the Case for Digital Service Group Investment

No matter what combination of funding sources an organization chooses, it still needs to make a successful case for it. As CDS's Aaron Snow remarked during the 2020 Digital Services Convening, "The pandemic has shifted how existing resources are invested and provides an opportunity to change perceptions of what government digital services groups can deliver that can open more opportunities for making a stronger investment case for their work."

Here, we summarize key lessons shared during the 2020 Digital Services Convening.

1. Savings

Cost avoidance and savings are strong motivators for investment in digital units in general. The United Kingdom's Government Digital Service, for instance, regularly reports the savings that its work achieves. As Snow asserted during the 2020 Digital Services Convening, digital service groups "need to be able to address the question of how long it is going to take to realize the cost savings and whose cost avoidance is it."

2. Negative opportunism

Another key driver for investment in digital units can be the desire to avoid past failures or disasters. This was the motivation behind the United States Digital Service which emerged in the aftermath of the problematic launch of HealthCare.gov and, as the *Washington Post* notes, is aimed at "institutionalizing the approach that saved the health care site and applying it to the work of the government even before disaster strikes."

3. Trust

As the Organisation for Economic Co-operation and Development (OECD) highlighted in its 2019 report on Swedish digital government efforts: "Public trust is at the core of the digital transformation of the public sector, both as a driver and an effect of such a transformation." Similarly, Snow argued during the 2020 convening that "it's important to invest in digital because the public needs to trust that the government works."

4. Comparison with other countries or sectors

Digital service groups can use tools such as the maturity model or list of levers to compare their work to other digital services or sectors. Snow shared this sentiment with the audience, saying, "In making a case for additional investments, teams can consider emphasizing the country's international stance and how it compares to the private sector in digital transformation to create an additional incentive and urgency for further investments."

5. Quick wins

Digital service groups need to deliver and show quick, visible wins that will help their team gain traction, trust, and ability to scale. For example: in the case of CDS, the team leveraged its cooperation with Veterans Affairs Canada to help Canada's 600,000 veterans and their families find personalized benefits available to them using a simple online tool.

6. Economic growth

As convening participants from both Bangladesh and Pakistan emphasized, it is important to highlight the impact of digital services on the country's economic growth, particularly in emerging economies.

While these lessons may help digital service groups bolster their financial prospects, funding is just one of many levers these groups can use to effect change in their environment. There are many non-monetary tools that, in certain circumstances, may be more beneficial than funding alone. This point was highlighted by David Eaves during the 2020 convening: "When you think about investing in the broader and not just financial context, the case might be easier to make, yet more powerful for the work of your digital service group." (For more information on the broader set of levers available to a digital service group, see "Introduction to Levers for Digital Service Groups.")

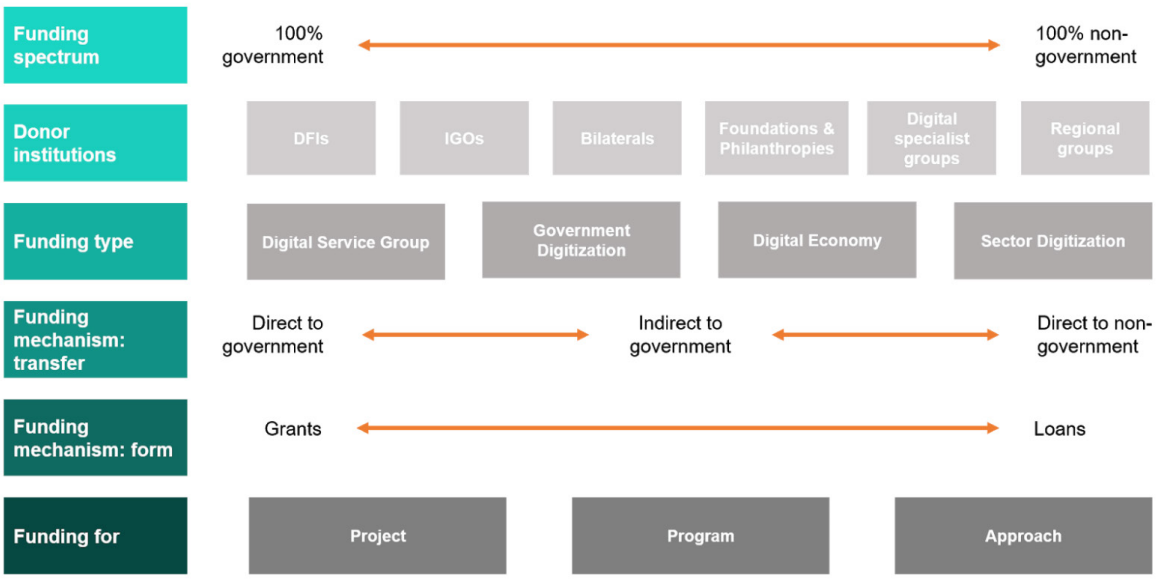
Conclusion: Where Next?

During the COVID-19 pandemic, demands on digital service groups have increased, but budgetary pressures on governments have also risen as health and education issues take precedence. Therefore, the question of what funding options beyond the government are available to digital service groups is critical. The 2020 Digital Services Convening highlighted the possibility of tapping into nongovernment funding, revealing that there is a spectrum of funding ranging from 100-percent government at the one end to 100-percent nongovernment at the other.

As the cases of Bangladesh and Canada have shown, there are compelling, contextually dependent reasons why countries may place themselves at different ends of the spectrum. The organization's strategic needs determine movement along this spectrum in the long run. Regardless of the approach a group chooses, making a persuasive case to secure funding is a critical step; the lessons highlighted in this article are some of the most effective in this respect.

Though our discussion has only dealt with one aspect of funding—the spectrum of funding sources—several other dimensions need to be explored. These additional dimensions are summarized in Figure 3.4 below. Future work on these dimensions and how they interact with one another would add great value to this space.

Figure 3.4: Dimensions of Funding for Digital Service Groups



Closing the Digital Skills Gap in Government: The UK's Digital, Data, and Technology Professional Capability Framework

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Governments around the world face a shortage of digital skills. It is generally assumed that some of the factors driving this gap are salary, career prospects, and cultural differences between the public and private sectors. To counter this trend, the United Kingdom implemented the Digital, Data, and Technology (DDaT) Professional Capability Framework, a template of standardized digital skills required across the civil service. This article traces the creation of the DDaT Framework as part of the UK government's efforts to facilitate skills-matching and career development paths for civil servants with specialist digital delivery skills. Overall, the DDaT Framework can be seen as a stepping stone for attracting and developing DDaT capabilities in the public sector. Whether this approach can be replicated in other contexts, and the extent to which it can successfully reform public-sector culture, remain to be seen.

Why Can't Governments Keep Up with the Private Sector in the Digital Space?

The gap in digital skills in the public sector is a widely documented phenomenon. In a recent study, McKinsey predicts that by 2023 there will be a shortage of 8.6 million people across European governments with the skills necessary to successfully implement e-government initiatives. In the United States, a 2009 study by the Partnership for Public Service and Booz Allen Hamilton found that 41 percent of chief innovation officers and hiring managers said they were dissatisfied or very dissatisfied with the number of qualified applicants for information security openings. A more recent study by the RAND Corporation finds that there is no indication that the situation has improved.

In many developed markets, the shortage of digital talent is traditionally attributed to non-competitive salaries in the public sector. Yet a 2018 study by Christos Andreas Makridis at Harvard Kennedy School's Belfer Center for Science and International Affairs found no evidence of a pay gap between private- and public-sector employees in the United States. In fact, after accounting for non-wage benefits such as health care and pensions, the author found a public-sector compensation premium across the board—even in occupations like computer science, engineering, and design. In Europe, research published by the Institute of Labor Economics in Germany also refutes the notion of a pay gap for skilled workers in the public sector when looking at the "lifetime value" of a career in either sector, a metric that considers the value provided by increased stability in civil-service careers.

What, then, drives this talent shortage? A growing body of evidence points to public-sector culture. By definition, governments are bureaucratic institutions that rely on public support and are accountable to taxpayers. As a result, the adoption of agile and iterative processes is hindered by the rigidity of public procurement frameworks and attitudes, according to the OECD. This might discourage individuals with digital skills from pursuing careers in civil service, instead opting for private-sector jobs that are more conducive to creativity and innovation. The study by Makridis mentioned above also found that government workers report less independence, responsibility, and ownership over their work, as well as weaker collaboration and trust among peers and managers, than their private-sector counterparts.

Another factor is the relative lack of opportunities for career advancement for public-sector workers in the digital space. At a time when digital technologies are continually evolving, governments don't always recognize the value of ongoing learning and reinvention, deterring skilled professionals from entering the public sector in the first place or driving them to leave prematurely. A 2015 study by the UK's National Audit Office found that most of the (few) data and technology leaders in the Civil Service had been in their position for less than two years (although retention rates are a larger issue, as some departments lose 20 to 25 percent of their staff each year, costing the country £36 to £74 million in recruitment, training, and lost productivity). In its key recommendations for strengthening digital government, the OECD highlights developing digital skills, creating career paths, and providing training programs for civil servants as priority items.

Governments have tried to address this gap by setting up digital service groups to respond to complex governmental and societal changes by improving the delivery of digital services. According to a 2019 study by Ines Mergel (University of Konstanz, Germany), most of these groups have emerged as a third space of IT governance—located between centralized and decentralized CIO offices—and tend to be led by private-sector executives. While digital service groups provide an attractive opportunity for those traditionally deterred from public-sector jobs, they also risk absorbing an already limited pool of people. Instead of distributing much-needed digital talent across the board, digital service groups can concentrate talent if they are not deliberate in their efforts to attract talent to other departments or agencies.

Overall, several factors may be driving the shortage of digital skills in the public sector. Lower salaries, stagnant cultures, professional dead ends, and the mere concentration of skills in one sector of

government could explain the differential across public- and private-sector institutions. The extent to which each of these variables impacts the recruitment and development of digital skills certainly varies by cultural context and income level, but none should be overlooked when it comes to designing and rolling out strategies to narrow the gap. The next section of this article traces the UK government's effort to help the Civil Service reform its hiring practices to attain and retain the digital skills it needs to overcome present and future challenges.

Standardizing Hiring Practices to Meet Digital Demands in the Public Sector

In 2012, the UK government rolled out the Digital, Data, and Technology (DDaT) Professional Capability Framework, a template that standardizes job descriptions across departments and provides career development and pay progression opportunities across the board. By 2020, the share of civil servants employed in DDaT increased from 1.2 to 3.2 percent (as a reference, tax and human resources professions represent 4.7 and 2.1 percent of the Civil Service headcount, respectively). Moreover, while the Civil Service shrank by more than 100,000 people over the past decade, the total number of civil servants in digital roles has doubled—from 6,350 civil servants employed in the profession known as IT in 2010 to 13,660 DDaT employees in 2020.

History and goals

The Government Digital Service (GDS) was launched in 2011 to lead the UK government's digital transformation. GDS assists other departments in their digital transformation processes, building platforms, standards, and digital services based on a set of user-centric design principles. Early on, the service struggled to recruit and retain capable talent, realizing that many Civil Service roles did not fit into the digital era. Even as a digital service group, GDS struggled to promote its roles in the external labor market without being seen as an old-fashioned public-sector employer. Other departments also had this public image—sometimes unfairly, but many times, rightfully.

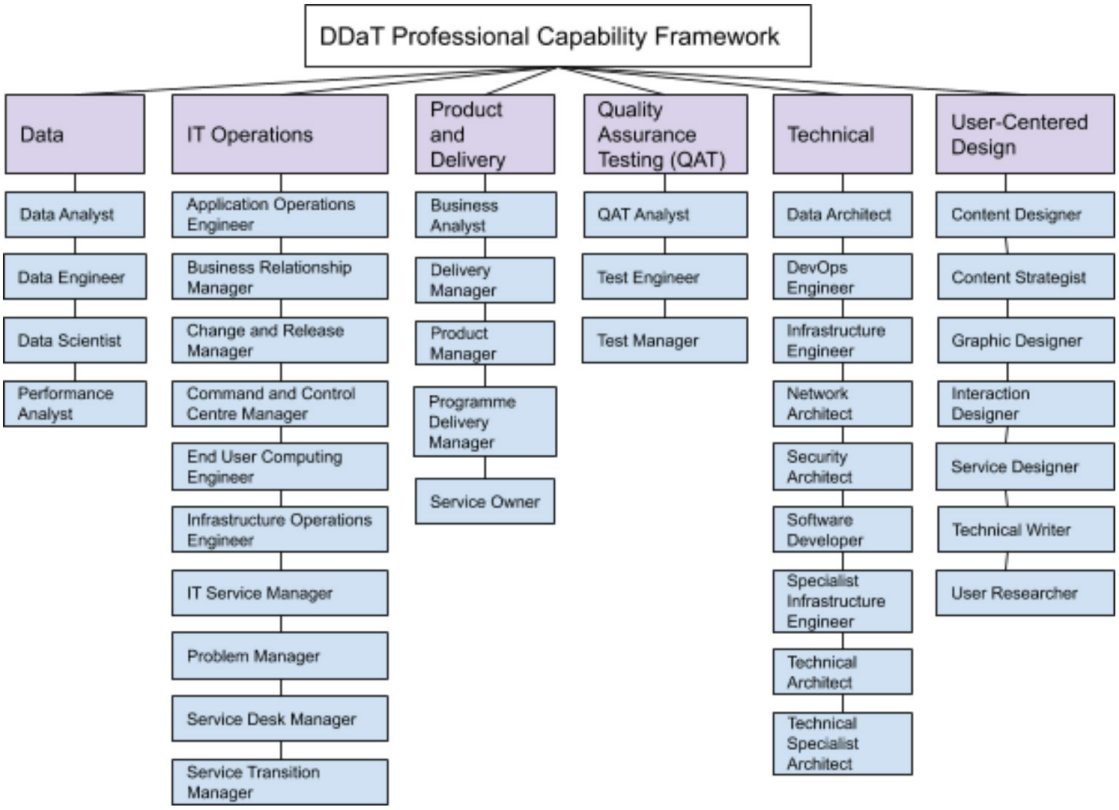
As an insider with an outsider perspective, GDS realized the Civil Service needed a cross-government taxonomy of roles and job descriptions that aligned with the external job market. That is how the DDaT Capability Framework came about: a standardized terminology of functions to be adopted by departments undergoing digital transformation. Between 2012 and 2015, the Capability Framework included simple vital roles that the Civil Service struggled to hire—such as software engineers, developers, and technical architects—though it has continuously evolved since.

Design

To attract and retain digital talent in the Civil Service, GDS set out to accomplish four goals that would strengthen the DDaT Framework: (1) define a common taxonomy of jobs, (2) establish a recruitment strategy, (3) promote workforce planning and training, and (4) offer compensation aligned with the market. In the process of co-creating a common taxonomy of jobs, the service worked with other departments to define job titles, status, responsibilities, and levels of expertise.

As of 2020, the DDaT Profession Capability Framework is composed of six job families: data, IT operations, product and delivery, quality assurance testing, technical, and user-centered design. Each job family includes several roles specific to that family (see Figure 3.5). For example, the user-centered design family contains roles like content strategist and graphic designer, whereas the product and delivery family includes business analyst and product manager roles. Each job role is then broken down into different levels of seniority associated with a corresponding skill level: awareness, working, practitioner, and expert.

Figure 3.5: DDaT Job Families and Roles



Source: Digital, Data and Technology Profession Capability Framework (last updated January 7, 2020), UK Government, Open Government License v3.0.

Implementation and requirements

Since its creation, the DDaT Framework has been implemented following an agile approach. In an ever-changing market, job families and roles constantly evolve based on information gathered from other departments and market research. In addition, the framework is complemented by Success Profiles, a new Civil Service recruitment model that assesses candidates based on abilities, technical expertise, behaviors, strengths, and experience. These two frameworks operate together to find suitable candidates for digital roles across the UK Civil Service.

In a highly competitive market for digital skills, the DDaT Framework levels the Civil Service playing field. Every time a department has a DDaT job opening, GDS coordinates with the hiring manager to ensure that the role fits one of the profiles. But the framework also gives the departments some leeway based on their projects and requirements. As a rule of thumb, 80 percent of the role description should be inspired by the framework and 20 percent by department specifications. This allows all departments to attract a standard cross-section of candidates and keeps big services from absorbing all the talent.

Given the centralized nature of the Civil Service, the DDaT Framework has been rolled out evenly across the UK—i.e., once a department decides to adopt it, it applies across all UK locations. Yet this pro-

cess has not been without challenges. Like any framework, it requires a lot of change management, which is quite slow in government. Initially, many departments were hesitant to adopt the framework because it meant a massive transformation of their hiring processes. For human resources teams—which had spent decades defining payroll schemes and job descriptions—this erased much of their work and demanded a whole new set of tasks. This reaction happened across the board, in departments that were years into their digital transformation and in those that hadn't even considered starting the journey.

Getting some pushback forced GDS to showcase the DDaT Framework's value to achieve the critical mass it needed to thrive. During the first two years of implementation, the team created metrics to show how the framework allowed departments to attract a more capable and diverse pool of talent. Once they hired someone, moreover, the departments found that retention rates increased because people were appropriately placed based on their skills, saw opportunities to rise through the ranks, and were compensated relatively in line with the market. After a couple of years, it became clear that departments that did not adopt the framework would be competing for the same people at a disadvantage, and the uptake increased even more.

Can This Model Be Replicated?

That the DDaT Framework succeeded in the UK is no fluke: There was a set of conditions already in place that allowed the concept to come into operation in a short time. First, the Civil Service had created GDS years earlier, establishing a solid base of individuals pushing for digital transformation in government. Second, the DDaT Framework had buy-in at the highest levels—supported by the minister of digital and creative industries and the digital secretary. Third, GDS was not set up on a shoestring budget, having been granted millions of pounds to set up the DDaT Profession as a centralized unit.

There are few countries, even in the developed world, that can replicate these circumstances. Without an established digital service group, leadership buy-in, and financial resources, it is unlikely that a project of this magnitude would break the barriers that stood in the way of the DDaT Framework. Because of the number of stakeholders involved and the demands it imposed on departments across the country, it is hard to imagine the success of this project without at least the first two conditions being in place. Whether a lack of resources could be mitigated by operational capacity and buy-in could vary from country to country.

According to the OECD's Observatory of Public Sector Innovation, "public procurement is in desperate need of reform to embrace the tools, techniques, and culture of the digital age." In this regard, GDS is leading the Global Digital Marketplace, a partnership with the Foreign and Commonwealth Office that aims to help other governments boost their DDaT spaces. The project moved into alpha testing in 2020, working with the governments of Colombia, Indonesia, Malaysia, Mexico, and South Africa to, among other things, build internal capabilities and develop new professions via models that mirror the DDaT Framework. Whatever the outcomes, this process will undoubtedly produce lessons on how to navigate these challenges in emerging markets.

Do Standardized Hiring Practices Attract Digital Talent to the Public Sector?

To a certain extent, the DDaT Professional Capability Framework successfully adopted better practices that facilitated the recruitment of a digital workforce in government. Not only has the UK's civil sector managed to attract more digital talent in a period of austerity, DDaT salaries are also consistently above the median and show less variation than those of other professions in the public sector. Moreover, the framework seems effective at providing career advancement opportunities within the Civil Service and

reducing attrition—though turnover data is difficult to assess. Significantly, this development hasn't been absorbed by GDS, which only employs one out of every 14 DDaT experts in the Civil Service.

Whether the DDaT Framework has resulted in a cultural change that fosters creativity and innovation is still unclear. Culture is both sticky and difficult to measure; hence, even if substantial changes emerge from this initiative, these probably won't be reflected in tangible short-term outcomes. Likewise, it remains to be seen how applicable this approach is to other contexts with less buy-in, scarcer resources, and weaker digital capabilities. Even so, thanks to the Global Digital Marketplace, there is an opportunity to draw critical lessons as the DDaT Framework gets tested in the field.

The role of the public sector in the digital era is constantly evolving. Yet governments will never be able to compete with Google or Amazon—nor should they strive to do so. Governments supply essential services that should be effective, efficient, and reliable. Most of the time, they should be dependable, not innovative. From a reliability and efficiency standpoint, however, governments should undoubtedly be faster followers. If initiatives like the DDaT Framework help the public sector move in this direction, governments should explore them.

Part IV: Building New Capabilities

Managing the Cultural Challenges of Agile Procurement

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Introduction

Much has been written about the benefits of agile procurement as a means of avoiding high-profile technology procurement mishaps. Beyond cost savings and improved reliability, there are other benefits to governments taking on central integration roles in technology projects. The government is better able to retain control of personal data and—over time—advise vendors based on deep historical knowledge. The government also has purview over its internal system architecture, creating the opportunity to connect otherwise siloed systems. For these reasons, the idea of government institutions embracing and leading agile approaches to procurement has become increasingly attractive.

However, this approach requires a cultural shift—a willingness to implement new practices and skills, as well as to work with vendors who are themselves adopting an agile working style. While digital service groups often seek to achieve this cultural change within their organization, relatively little has been said about the challenges of shifting away from a "waterfall" approach toward an "agile" approach. Identifying the costs of switching to agile procurement is a first step toward overcoming these barriers and creating new best practices.

Long-held working practices are just as big of an obstacle—if not bigger— than legal or technical requirements. While teams can sometimes get one-off approval for agile projects, it is bureaucratically difficult to deviate from the normatively (if not necessarily legally) defined standard operating procedure. Teams also face costs in the form of unassessed risks, insecure funding, and new forms of personal accountability for failure.

It may be tempting to focus on delivery as a strategy: As long as you deliver good products and services, you needn't worry about consequences. Instead, we advocate for identifying potential risks and consequences up front. Only by resolving the difficult organizational and cultural questions that governments face in this area will lasting change be achieved.

California's Child Welfare Services Case Management System

In 2017, David Eaves documented the way that California's Department of Social Services made use of a modular, agile procurement approach in a Harvard Kennedy School case study. The case outlines how the state's Division of Child Welfare Services (CWS) needed a technologically up-to-date case management system that matched the needs of social workers handling reported cases of child abuse and neglect. In 2015 alone, when the Request for Proposals (RFP) was announced, CWS received approximately 500,000 cases.

With the stakes so high, after a lengthy examination of the case management system, California decided to shift from a waterfall-style, vertically integrated solution to a modular, agile approach. This allowed for a more user-centric approach that elicited and incorporated feedback for each portion of the system.

CWS faced many obstacles in its transition to an agile approach for case management, largely because traditional government systems were not designed to match agile process needs. Expectations surrounding procurement, from budgeting to timelines, had to evolve. Given its large scale, the CWS project required a cultural change that would incentivize various stakeholders in different ways.

Challenges to Agile Procurement

The following questions build on CWS's experience with modular, agile procurement. They highlight challenges that a team should feel comfortable discussing, if not fully resolving, with political sponsors and senior civil servants.

1. How do we build new partnerships?

As with employees, a change in working style will be unsettling for traditional contractors. What scope is there for growing this pool of partners? Who needs to be involved in the design process who hasn't been before? Where do we meet them? Do they come to government meetings or prepare pitches in the way that our agency is used to?

The CWS team adopted an iterative, user-centric approach that required multiple partners to work with the government, who ultimately remained accountable for the project's success. This diverged from the previous practice of bidding out the project to a single vendor or aligning the project's needs to match off-the-shelf software. To do this, the CWS team needed to find partners who were willing to build out smaller pieces of the case management system and use open-source software. This required government staff to change how they executed on projects and to start running scrum processes to better support their agile procurement approach.

2. How do we get support and approval for a project?

Agile projects cause uncertain timelines and budgets, which are traditionally used to justify a project in advance. Which oversight bodies will need to become comfortable with new ways of working? How will the project justify the value it provides for the money spent? Without a timeline to completion, what can we promise officials and the public will be delivered and when?

For a traditional waterfall project, outputs typically aren't expected until the final stage. Therefore, allocated budgets can be used closer to those later stages, when the tool is typically built and implemented, and the government can meet the incremental costs in an individual year. The project scope can be adjusted on a month-by-month or year-by-year basis in order to meet predetermined success metrics. This all obscures the impact of any initial investments and reduces clarity around an expected output in a given

year. However, this is also more politically feasible—the impact of the initial investment is inextricably tied to the final output (and how successful or impactful the generated final product is).

Under the new procurement approach, separating work into modules carries inherent risk. In a modular approach, stakeholders can more easily exit at certain points within the project. Additionally, funding may be required at each stage, rather than just towards the end when a solution is implemented. This is a requirement that the annual legislative budget process in California, and across most levels of government, is not designed to meet. Finally, the cost at each stage depends on the work done in the previous stage, so costs are somewhat indeterminate. Due to this increased uncertainty, a modular approach requires more political will.

3. Who is going to have new demands on their time?

Agile projects require hands-on involvement after the RFP is awarded. The work is distributed, rather than front-loaded. Who will manage these ongoing exchanges? Would they normally have moved on to managing a new procurement? If so, who will take on that work? How will user testing be arranged? Are frontline staff motivated to be involved? Will they believe that feedback will be taken seriously and incorporated into the product?

For the CWS project, decision-making needed to be pushed down to those most proximate to system issues. As such, workstreams needed to reflect a bottom-up approach and staff needed to feel empowered to make decisions or course-corrections quickly. Given the traditional orientation of most government IT functions, this type of decision-making culture required executive sponsorship. Many government executives are unable or unwilling to embrace this kind of decision-making structure, and are therefore hesitant or to endorse agile projects. Furthermore, when the project gets tough, this sponsorship may not be enough and decision-making may fall back to a more familiar and traditional approach. It is crucial to adopt a risk-friendly mindset and to continuously engage the team making decisions to ensure proper project management.

Overall, the modular approach is time-consuming. From cultivating an iterative culture early on, to ensuring that the organization has the right talent to be successful, the entire process requires a level of engagement that governments must prepare for.

4. What does success look like?

Agile modular procurement redefines what it means to be "on time and on budget." Without planning milestones up front, how will we assess the progress of the project? What are we expecting from the first delivery? And is everyone expecting the same? How do we know if contractors are working quickly or slowly? How much are we prepared to spend on discovery to avoid a bad outcome that we can't change? How do we reward experimentation?

Laying out new success metrics is crucial for an institution embarking on a modular procurement project. Each stakeholder (or subset of stakeholders) may have different strategic goals and metrics that determine whether the project was successful or not. Developing success metrics for agile projects can also be challenging, as typically project leaders and sponsors may not have an aligned—or any—definition of what success looks like. Without this, the definition of success may become "don't make mistakes," which is counter to the principle of trial-and-iterate. Any instituted metrics must be meaningful and move the project forward while allowing for continuous trials and iterations.

For the CWS case management system, success, at the highest level, was defined as a well-functioning product. Within this, it was important to identify milestones for each phase and across categories to

ensure steady progress was made. For project leadership, success included developing lessons learned and finding best practices to replicate elsewhere. At a supervisory level, for the California Department of Social Services, some indicators included lower turnover of senior team members and more efficient talent recruitment and retention practices.

Some of the success metrics don't change with the transition from waterfall to agile—namely, budgetary and time concerns. Efficient spending and timely results remain critical; the difference is the prioritization of these factors in relation to other goals and metrics. It is important to develop a clear roadmap of these expected metrics, particularly in the public sector, because the use of public funds for a project creates an expectation that there will be specific results. Setting expectations through a clear set of potential outcomes will allow the public to maintain trust in the project.

5. Are agile projects more susceptible to changing external pressures?

Under a waterfall approach, testing is back-loaded, which removes opportunities for the team to improve the product, but also for opponents to intervene or for political winds to shift. With frequent testing, feedback, and iteration cycles, will the team have to spend more energy defending the project from outside? Will regular testing make it hard for the project to make progress out of the spotlight? Although sunk costs are low compared to a waterfall RFP, is there a risk of the whole project losing political support?

In CWS's case, product clients—social workers, municipal governments, and other key consumers of the system—were very supportive of an agile methodology, as it allowed them to be more involved in the new system's creation. Because of the high visibility of the project, as well as its scale and focus on helping vulnerable children, some political pressure arose organically. However, that was largely mitigated by obtaining stakeholder support early on, before beginning the project.

Regardless of whether a team proceeds with a waterfall or an agile process, obtaining external support and political buy-in is essential. In the CWS project, the team adapted its process to match the annual legislative budgetary appropriation cycle. This allowed external stakeholders to receive a project update once a year—at a minimum—to check on progress relative to the modular timeline, similar to a traditional waterfall process. In addition, the adaptation provided the project with ongoing momentum: Because the state had attempted the waterfall method many times in the past, clients or external stakeholders remained interested in trying something new and potentially more effective. California's CWS project continues to serve as a model, given its complexity, scale, and length of implementation.

6. How do we manage risk?

An agile approach removes much of the detailed planning from an RFP and allows flexibility during the project. What safeguards are in place to prevent scope creep? How can someone not involved in the project assess its performance? What steps are in place to ensure problems do not escalate? And are they written in terms that civil servants unfamiliar with agile processes will understand?

When thinking about managing risk and ensuring accountability, the two questions to keep top of mind are: (1) What is left to do? and (2) How are we performing against those deliverables?

In the modular approach used for the CWS project, the state government performed the role of the systems integrator. This necessarily meant assuming most of the project risk. To decrease some of that risk, California brought on Salesforce to ensure that each of the modular units worked in that environment.

The modular approach involves examining and designing each part of the system—intake, licensing, etc.—discretely. As such, the CWS team regularly had to decide whether it could build and integrate a particular portion in-house or whether to bid out that module to a vendor, to meet both client needs and agreed upon performance metrics. There are pros and cons to this discrete approach, as it may take additional time to arrive at a final product, but it also allows each module to be built to the specifications of the user, and permits increased testing and iteration. This tradeoff may dissuade teams from proceeding with a more modular or agile approach. However, such an approach allows the teams to pivot in a way that is impossible with a waterfall approach, including bidding modules out to the marketplace to take advantage of the most updated technology. Conversely, the waterfall approach might require early commitment to a technology that has become outdated by the time implementation commences.

Ultimately, any team moving forward with modular or agile processes must consider who will own the architecture of the project (i.e., the mapping and timeline) versus the development of the project (i.e., implementing the modules and ensuring that they combine seamlessly as one end-to-end system). There will likely be overlap between these roles, but keeping them distinct will be essential to success. In the CWS case, the state played more of the role of systems architect and brought on Salesforce to lead on the technical systems integrator role.

7. Are we prepared for additional accountability?

Waterfall projects frequently run for several years before a course of action is proved right or wrong, rendering accountability for the outcome shared or diffused. Conversely, agile methods quickly reveal whether assumptions or products have the desired outcome, placing accountability on the current team, right now. Can you still be in your role when a project goes wrong—rather than in five years' time, as in a traditional waterfall project—and not be personally penalized? How does this differ for staff and leadership? What if testing rapidly shows that a technology product cannot solve the problem that was initially identified? Where does the team go next?

Similar to waterfall projects, each modular project has a management structure. In the case of CWS, the project director oversaw day-to-day responsibilities and the governing body for the project (i.e., the director and chief deputy of office and systems integration, the director of social services, and other political or governmental leadership). They also served in a leadership capacity to make decisions. When a project veers off course, the chain of command is contacted to identify gaps or failures. Once bottlenecks are identified, they can be addressed appropriately.

Stakeholder accountability in a modular or agile project structure differs from a traditional waterfall operation. Under the waterfall method, the client is not as involved in the progress being made. However, there is an additional accountability to the final user with modular projects because of the continuous exchange of ideas and information from the user to the project team. This increases the complexity of the project

8. How do we make space for risk-taking?

Agile methods force teams to accept that they won't always get the right answer the first time—this is why they test and iterate. Accepting small failures is necessary. Nevertheless, nobody wants to see government resources wasted, which gives rise to strong mechanisms of accountability—individually and for teams—when projects go wrong. What sorts of incentive structures set up the right balance between prior planning (whatever the cost) and trial-and-iteration? How and when should teams deviate from plans? Does the organization value an experimentally)rather than policy-based or theoretically) created answer? Is it okay to say, "I don't know—let's build a cheap prototype to test it"?

It is essential to create a culture in which learning is expected. In this environment, decision-making moves closer to the user and choices based on in-project learning can be made, even where this means changing course from a previous decision.

The CWS leadership team agreed from the start that bumps in the road would be taken in the spirit of learning and that this flagship project would provide lessons for other software developments in the future. Early consensus on this outlook was essential, allowing the culture to persist even in the face of leadership and staff changes. The team recognized the need to be understanding of delays and be willing to spend time and money on prototypes or paths that would ultimately not be pursued.

When moving to an agile or modular process, it is easy to be dogmatic about recommended practices, such as "working in the open" or "daily stand-ups", while losing sight of the purpose of agile processes—to find the truth quickly. For example, the CWS team developed a module in-house just to say it used open-source, rather than purchase a readily available commercial option that would have better met its needs. However, frequent reassessment allowed the team to backtrack on this decision and in other instances where its plans (even if they matched the by-the-book agile methodology) needed to change course.

Conclusion

The success of new procurement models in the private sector, and, increasingly, in the public sector, is giving thousands of digital professionals and teams the evidence, political buy-in, and enthusiasm to try something new. Across types and sizes of organizations, the way we build technology for governments, and ultimately citizens, is starting to improve. But in each government, often within each department or team, someone must be the first to say, "Hey, there's a better way we can do this." The nature of the challenges these people face is as varied as the personalities, histories, and cultures of the places they work—but many of the themes are the same.

Government staff members are regularly busy and stressed doing things the way they have always been done. This alone may explain why it has been easier to apply agile methods to brand-new products or services, rather than replacement of legacy systems. Unfortunately, it is exactly these complex system overhauls that most need an agile, modular mindset. Moving agile from new practice to best practice will take work. Many in government do not have the bandwidth to assess whether a given new practice—which pushes to the limit existing processes and safeguards—will make services better for the citizens they serve. This creates resistance.

It is often said—wrongly—that people are resistant to change. More accurately, people are resistant to change that they do not own or understand. As we transition to a more agile public sector, we must make sure that public servants are part of the change, rather than having it forced upon them. Though we may not have all the answers, we should at least start by engaging with these public servants' questions, which are frequently challenging, but always sincere.

Base Requirements and Threat Model for the Once-Only Policy

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Editor's Note: This article has been adapted and extracted from the first three chapters of a larger work, "Deploying the Once-Only Policy: A Privacy-Enhancing Guide for Policymakers and Civil Society Actors." A more detailed discussion of the various topics introduced here can be found in the final guide.

The COVID-19 pandemic has revealed to many countries the inadequacies of their existing digital infrastructure. In a world where face-to-face contact is dangerous and severely curtailed, the need for more and better digital government services provided at low cost has never been clearer. One policy that is both a source of public value and government cost-cutting and can act as a potential gateway to next-generation government services is the once-only policy (OOP). Under OOP, users (citizens, residents, and businesses) only have to provide diverse data one time when they interact with public administrations. After the initial data transfer, different parts of the government can internally share and reuse this data to better serve users.

OOP is in place in the Netherlands, where it allows citizens to apply for government certificates, benefits, and other services at the push of a button simply by using their national ID. Similarly, in Estonia, as a result of OOP, residents, their doctors, and appointed representatives can access the entirety of their health history by logging into the e-Patient portal using their digital ID.

Though OOP provides great value, it also has the potential to concentrate power in the hands of the state to the detriment of its citizenry's privacy and freedoms. Here, OOP is examined through a privacy lens to identify how countries can harness the benefits of the policy while minimizing the risks. In this article, we will discuss the potential benefits and risks of once-only, sketch out the privacy threat model that is impacted by OOP, and highlight some preconditions to widespread implementation.

The Potential Benefits of Once-Only

OOP's explicit goal is to reduce the administrative burden for both users and governments. When the policy is in place, users are disburdened as they only have to communicate diverse fields of data once, instead of being forced to repeatedly provide the same information to multiple actors. Governments are disburdened as it is easier and cheaper for departments to exchange data that has already been collected, instead of making multiple requests for the same data and storing that data over and over in various silos. Beyond these administrative benefits, OOP has the potential to fundamentally transform government operations. This is because OOP implementation requires governments to develop and use two key underlying elements—identification and data-sharing mechanisms—across multiple layers of operation. Subsequently, governments can leverage these elements for any number of additional purposes. Thus, OOP is not a standalone policy; rather, it fits into the broader conversation about next-generation government digitization, including the government-as-a-platform approach.

The key elements underlying OOP

While OOP is a combination of technical implementation, standards, and policy, it is predicated upon the existence of two key systems:

- An identification mechanism uses one or many unique identifiers that allow individuals to be distinctly identified within a system. Such a mechanism is a base facilitator for advanced data sharing in government. The most common manifestation of an identification mechanism is likely to be a foundational unique identifier, such as a national ID.
- A data-sharing mechanism encompasses the technical and policy standards that need to be in place to allow information about unique individuals to be shared across all levels of government.

While there is no universally accepted definition of government-as-a-platform, we like the working definition proposed by Richard Pope, which describes the approach as: "Reorganizing the work of government around a network of shared APIs and components, open-standards and canonical data sets, so that civil servants, businesses and others can deliver radically better services to the public, more safely, efficiently and accountably."

With OOP and its underlying elements in place, we see several government-as-a-platform goals being realized, especially in the following areas[1]:

1. Service delivery

OOP is fundamentally about user-centricity. It can transform government service delivery by aligning supply of services with users' demand for those services both in terms of method (how services are accessed and delivered) and form (the type of services offered).

2. Data and information

The data-related requirements of OOP mean that reliable data would be more accessible to government servants, making data-driven decisions much easier.

3. Platform governance

OOP creates a technical basis for advanced interoperability and the development of platform services across governments.

4. Government modernization

With a successful OOP deployment in place, it will become easier to push governments toward becoming more digital, adaptable, and transparent.

A Major Risk: How Can OOP Implementation Impact Privacy?

Despite the benefits of OOP, if improperly implemented this policy has the potential to concentrate and enhance state power to the detriment of a citizen's privacy, freedom, and capacity to dissent. OOP and its underlying elements create new privacy and security risks related to government use of people's personal data, making data easily accessible, and keeping institutions accountable. OOP gives governments the ability to stitch together sensitive information about an individual and conclusively link it to a single profile, thus making users permanently visible to and trackable by the government. At an aggregate level, such enhanced state capabilities can be used to influence and control entire populations. This is deeply concerning in the case of nations that have poor accountability track records and creates new risks for even relatively responsible regimes.

While the risks are significant, OOP is not inherently harmful. Rather, the power that OOP grants the state must be circumscribed by enshrining appropriate protections throughout the design of all interlinked policies and systems, and by giving civil society actors the knowledge they need to advocate for "good" privacy-enhancing design.

To understand how a country can implement OOP in a privacy-enhancing way, we must first understand the threats to privacy associated with the use of personal data by the government. Poor OOP implementation is likely to significantly exacerbate these threats. Below, we have broadly defined five primary threats to privacy and briefly explained how failure to secure personal data against each threat could impact trust in service delivery and government in general. Note that the five threats do not constitute a comprehensive list and that the urgency of each of these risks may vary from country to country.

1 Inspired by Jaimie Boyd's remarks at the Institute on Governance, "Policy Crunch—The Future of Digital Governance in a Post-Pandemic World," streamed live on May 5 2020, YouTube video, 21:17, https://www.youtube.com/watch?v=ySrjliVqCRc&feature=youtu.be&t=1277s.

1. Protect individuals' privacy against the state itself

This threat refers to protecting residents' data from the government itself, and/or protecting data against misuse by government agents. Significant examples include government employees accessing information that they are not authorized to see (e.g., a librarian seeing a police report). If the government cannot adequately protect against this threat, the consequences may range from some erosion of trust in government to complete decimation of trust but low impact on service delivery.

2. Protect individuals' privacy against actors contracted by the state

This threat refers to protecting resident data from third-party government contractors who may have been given access to sensitive information. An example of this would be an app developer contracted by the health department to enhance the government's COVID track-and-trace response. Failure to protect against this threat will likely result in some erosion of trust in government and low to medium impact on service delivery.

3. Protect individuals' privacy against foreign state actors

Here we are concerned with protecting resident data from military-level incursions by other malicious states. This challenge is likely to grow as we move towards an increasingly digital world. If this threat comes to pass, it may result in lowered trust in government and will likely cause a significant impact on service delivery. The worst-case scenario would be a debilitating and devastating attack on a nation's government and its residents.

4. Protect individuals' privacy against non-state actors

The idea here is to protect resident data from individuals and organizations (e.g. businesses, political parties, and cybercriminals) that seek to benefit from this data. It is unclear what impact failure to do this will have when it comes to citizen trust in government (the consequences will likely range from erosion of trust in government to an unlawful and insidious influencing of people's democratic choices) but the impact on service delivery is likely to be low.

5. Protect individuals' privacy from people they know

This last threat refers to protecting individuals' data from their family and friends who are not authorized to access certain types of information. The clearest example that comes to mind is a child accessing their parent's medical data without the parent's consent. It is unclear what the impact on trust in government and service delivery would be from such actions.

Conclusion: Preconditions to OOP Implementation

OOP implementation is not without risks, but it has the potential to propel governments into the next phase of digitization. Despite the advances some countries have made in this space, each nation will face its own set of challenges, especially vis-à-vis privacy. Consequently, those seeking to implement OOP for the first time will have to carefully consider the privacy risks and proceed accordingly.

Perhaps most importantly, ultimately a successful all-of-government OOP deployment is contingent on trust in government.

Here, we identify and briefly describe three proxies for trust in government that are assumed preconditions for OOP:

1. Strong rule of law

Enforcement of laws is unrelated to the relative power of affected parties and is formulated, interpreted, and enforced in standard ways.

2. Low risk of new and unanticipated power asymmetries

There is little asymmetry of power, and the risk of these asymmetries being exacerbated if OOP were to be implemented is similarly low.

3. Strong counterpower of civil society

Strong civil society organizations provide non-institutional oversight to government schemes by helping raise the voices of users and creating pressure on the government to address areas of concern.

In the absence of these preconditions, it is both difficult and inadvisable for a country to proceed with widespread OOP implementation.

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