



Chapter 2

Digital-Empowered Online Public Services: Japan's Experience during the COVID-19 Pandemic

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1. Introduction

Since 2020, coronavirus disease (COVID-19) infections have spread around the world and many people have suffered from the virus. Given this situation, the Government of Japan undertook several measures, such as contact tracing and vaccinations, to stop the spread of the virus. It also provided economic support for citizens and businesses, as the disruption to physical activities caused by the virus severely affected business activities.

Most government administration was paper-based before the COVID-19 pandemic. Government processes generally required traditional stamps and most agencies did not have the capacity to deliver their services online. Even if they did, the quality was poor and few people used them.

This is not to suggest that the government did not recognise the importance of introducing information technology (IT) to achieve efficient government administration. The government published 'e-Japan Strategy' in 2001 (Government of Japan, 2001), and the Strategic Headquarters for the Promotion of an Advanced Information and Telecommunications Network Society (IT Strategic Headquarters) was established in the Cabinet Office to promote the digitalisation of government administration, but it had little power over other agencies. As a result, the digitalisation of government services has not advanced because of lack of leadership.

In 2016, My Number – a national identification number for social security and tax purposes – was introduced. The government released the My Number Card as an authenticator for online administrative procedures connecting with My Number. However, concerns over data leaks have prevented widespread use – in February 2020, before the pandemic, only 25% of the population had a My Number Card.

In May 2019, the Act on Use of Information and Communications Technology in Administrative Procedure was amended and it advised government agencies to deliver their services online in general. However, it was not compulsory, and most agencies did not have sufficient capacity to digitalise their processes. They had neither the capacity to develop and operate digital services by themselves nor the motivation to digitalize their services because they were busy dealing with day-to-day tasks.

In 2020, the COVID-19 pandemic forced government agencies to provide digital services to citizens and businesses. People were frustrated with some services because of the large gap between expectations and reality. People were used to convenient digital applications (apps) provided by private companies, so they were not willing to accept non-user-friendly services. Although government officers struggled to deliver public digital services, some services succeeded in meeting users' needs while others did not.

2. Key Learning from Public Digital Services during COVID-19

The government delivered several digital services during the COVID-19 pandemic in response to demand from citizens and businesses. Before that, digitalisation of government services was not a high priority and most government agencies allocated few resources for it. COVID-19 made them notice its importance. Several learnings may be learnt from the quick deployment of digital services. Some cases are outlined below, specifying the learnings for government digitalisation.

2.1. Open API and OSS for rapid deployment

Governments' open application programming interface (API) and open-source software (OSS) have significant capacity for developing collaboration amongst stakeholders to create user-centric digital services quickly during emergencies. We observed two practices during COVID-19.

Case 1. Search service on support for SMEs through Open API

The Small and Medium Enterprise Agency, which deals with policies for small and medium-sized enterprises (SMEs) under the Ministry of Economy, Trade, and Industry, employed several measures to support small businesses during the COVID-19 pandemic. The declaration of a state of emergency restricted people from going out, which damaged SMEs economically. Information on support for SMEs was fragmented on each government agency's website, making it difficult for businesses to find appropriate help. To improve this situation, the Small and Medium Enterprise Agency standardised the data model of support measures for businesses, created a database, and made it open data via APIs. To do so, the agency collaborated with Line, the most popular mobile messaging app in Japan, to provide a service that enables SMEs to search for support measures on their smartphones (Figure 2.1). In addition, Yahoo! Japan created a user-friendly interface on its search portal and provided search services for businesses using the APIs (Figure 2.2). Tokyo Metropolitan Government also created a database of its own support measures in the same format as the data model created by the agency, and integrated it with the central government's data to create a search site for businesses in Tokyo (Figure 2.3).

Standardisation of the data model, and open data based on it, created collaborations amongst the Small and Medium Enterprise Agency and private companies and local governments. In addition, open APIs enabled private companies and local governments to create user-centric digital services through their customised user interfaces, which expanded the touchpoints of information for SMEs.

Figure 2.1. Schematic Diagramme of Oil Refinery Process



SMEs = small and medium-sized enterprises.

Source: Ministry of Economy, Trade and Industry.

Figure 2.2. Support Search Site on Yahoo! Japan



Source: Yahoo! Japan.

Figure 2.3. Support Search Site on Tokyo Metropolitan Government Website



Source: Tokyo Metropolitan Government.

Case 2. Dashboard for COVID-19 through OSS

Tokyo Metropolitan Government created a dashboard that summarised the number of infected people, the status of hospital beds, and other information so that citizens could easily understand the changing COVID-19 situation (Figure 2.4). This website was created under commission by a civic tech organisation called Code for Japan. The development of this site was managed by GitHub, a major open software development platform. Citizens with IT skills submitted pull requests and issues, which were reflected in the development of the site. This helped ensure that the site was accessible for people with disabilities. The display of numerical values was designed to avoid biased interpretation. This site received the Good Design Award in 2020 because of its user-centric interface and the collaborative development process involving the government and citizens. As its source code was open through GitHub, civic tech organisations in other prefectures also used it to build their own dashboards and provided information in cooperation with their prefectural governments.

We can learn that collaboration between a local government and a civic tech group enabled the rapid creation of a user-centric dashboard on the infection situation. In addition, OSS enabled other civic tech groups to create dashboards rapidly in their prefectures.

Figure 2.4. Tokyo Metropolitan Government COVID-19 Dashboard



COVID-19 = coronavirus disease.

Source: Tokyo Metropolitan Government.

From these two cases, we can learn that open APIs and OSS encourage collaboration between central and local governments, governments and private companies, and governments and civic tech groups – enabling stakeholders to deliver user-centric services quickly.

For search portal and messaging service companies, providing government information increases their number of users, creating an incentive to develop services using government APIs. In addition, the services provided by private companies are more convenient for users to get information because they are more popular than the government’s websites. This is consistent with the mission of government agencies to disseminate information to as many citizens as possible.

Open source public digital services are effective in enabling multiple administrative entities to provide the same services quickly through software. Furthermore, by encouraging citizen participation in the development process, it is possible to incorporate users’ needs from the inception stage.

In many cases, the development of digital services by Japanese government agencies relies on outsourcing to IT vendors. Therefore, it is easy for a particular vendor to lock in the operation of the software once it has developed it. The contracted vendor usually puts the source code of the service in a black box so that other vendors cannot check and improve it. OSS is effective in avoiding such lock-in by vendors.

In the Republic of Korea, once an administrative system has been developed, it becomes open source through an 'e-government platform' and no other system related to the same procedure is allowed to be built. If we manage government systems at the source code level, efficient system development becomes possible.

2.2. Creating an integrated cloud database for better operations

Standardisation of residents' personal data and an integrated database are essential for efficient government operations nationwide, such as vaccinations.

The Ministry of Health, Labour and Welfare (MHLW) initially planned to have local governments manage citizens' vaccination records. However, each local government managed vaccination records in different data forms and databases, so the central government expected that it would be difficult to grasp up-to-date national vaccination records. In addition, the data would have to be standardised to provide digital vaccination certificates. Under these circumstances, the IT Strategic Headquarters developed a cloud-based vaccination record system (VRS) that allows each local government to upload citizens' records in the same data model (*Nikkei Asia*, 2021). Before the VRS was developed, each local government issued paper coupons and each coupon had a unique identification number. The IT Strategic Headquarters distributed tablets with an app to read the coupon number for each vaccination site (Figure 2.5). Operators at the vaccination sites uploaded the number to the VRS, linking it to other data (e.g. the name of the vaccine and the date of vaccination) to record each citizen's vaccination status in a standardised form.

This allowed the central government to create a dashboard with the total number of vaccinations in Japan, which helped the government analyse the vaccination status and plan how many vaccines to supply throughout the country (Figure 2.6). Since December 2021, the government has issued electronic vaccination certificates on the mobile app based on the data from the VRS.

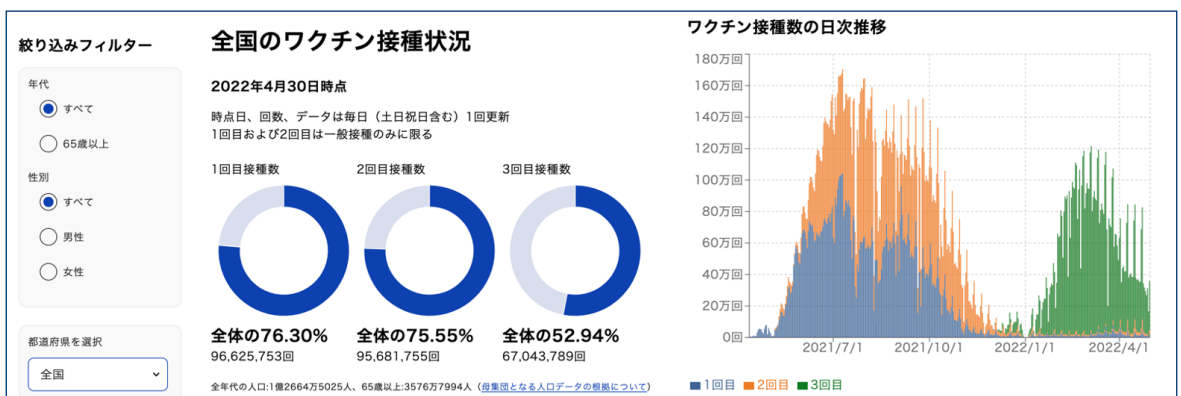
Figure 2.5. Coupon Number Reader for VRS



VRS = vaccination record system.

Source: IT Strategic Headquarters.

Figure 2.6. Digital Agency Dashboard for Vaccination Records



Source: IT Strategic Headquarters.

The VRS enabled the central government to manage vaccination records by centralising data management. It also enabled local governments to register citizens' vaccination records efficiently by using the VRS. Standardised records on the VRS were used for a variety of services, such as data visualisation, analysis of vaccination status, and issuance of vaccination certificates.

It is important that basic personal data of citizens are managed in the same data model for procedures nationwide. If the data can be shared between the central government and local governments, more efficient operations are possible. In the case of the VRS, the central government developed and maintains the system, while the local governments use the system for operations. This kind of collaboration provides more efficient public digital services to citizens.

In countries where digital government has progressed, such as Denmark, a base registry has been established and it can be used in various administrative procedures to reduce repeated inputs of the same data by citizens and businesses for administrative government processes. Digital Agency is also studying the use of a government cloud for 17 local government operations, and the Ministry of Internal Affairs and Communications (MIC) is working on developing a standardised data model for these procedures.

2.3. Distribution of digital IDs for uniform services to citizens and businesses

During the COVID-19 pandemic, not all citizens and businesses had digital IDs. This prevented government agencies from delivering services appropriately online as they could not identify all the eligible recipients.

Cash support for individuals. The central government provided cash livelihood support of ¥100,000 to each citizen from the end of April 2020. The MIC took the lead in managing this budget, but the actual operations of providing the cash were left to each local government. Citizens had to apply to the local government for the cash, and the application method was decided by each local government. The central government recommended local governments to operate the applications through the My Number Portal, an electronic application portal managed by the MIC.

However, as of May 2020, only 25% of the population had a My Number Card, which has an integrated circuit chip for citizens to get authenticated on the My Number Portal. This meant that the number of citizens who could apply for cash support online was limited.

In addition, even if local governments accepted applications from citizens via the portal, the data from the electronic applications could not be processed automatically since the residents' information database was separate from the network of the local governments' database. Officers in local governments spent a considerable amount of time ensuring that the data from the electronic applications was authentic. This caused some local governments to prefer receiving applications by post instead of electronically. Moreover, only the head of the household could apply for the cash of all the family members – even if the family had problems such as domestic violence. The electronic application process was thus frustrating and time-consuming for both public servants and citizens.

The application for citizens' cash support should have been a uniform process, but it was left to each local government to handle differently. Personal data of residents held by local governments could not be connected to their application data because it was on a separate network. This made the operational process inefficient, and many local governments stopped using the electronic My Number Portal (Figure 2.7). In addition, not all citizens could apply for the cash support electronically because of the low uptake of digital IDs for online authentication. These were the main problems facing online applications for cash support to citizens.

Figure 2.7. Applications for Cash Support to Citizens Website



Source: Ministry of Internal Affairs and Communications.

Cash support for businesses. The Small and Medium Enterprise Agency provided cash support to businesses that had sustained economic damage based on the percentage decrease in sales from 2019 to 2020. Businesses were required to apply for it through the electronic system provided by the Ministry of Economy, Trade and Industry (METI).

Corporations could be easily verified through the Corporation Number allocated by the National Tax Agency. However, it was difficult to verify the existence of individual business owners due to the lack of a unique ID number, resulting in the falsification of IDs and illegal receipt of the support. In addition, regarding the evaluation of the percentage decrease in sales, the 2019 sales could be confirmed by the certificate of tax payment but the 2020 sales were self-reported by business owners so the figure could be falsified.

As a result, many illegal applications by individual business owners were discovered and they were arrested (Iwasaki, Adachi, and Machida, 2020). The Small and Medium Enterprise Agency formed a team to investigate such illegal applications, and significant efforts were made to uncover them. The lack of unique ID numbers for individual business owners led to inadequate verification, resulting in illegal applications. The ID number and authentication system are important to verify businesses in online applications. There was no means of accurately capturing the sales of the businesses, and self-reporting led to the possibility of inaccurate sales reports. To prevent these incidents, government agencies should have had APIs to obtain such data from businesses' accounting software.

We can see that it is necessary to develop identification numbers and authentication systems for citizens and businesses to prevent identity theft and fraudulent receipt of cash support. Unlike offline processes, it is very difficult to verify and authenticate the existence of persons or businesses in online application processes. The Government of Singapore is promoting the acquisition of Singpass for citizens and Corppass for businesses to create an environment that facilitates online identification.

The Government of Japan is also promoting the acquisition of the My Number Card for citizens. As of March 2021, 43% of the population had the card. For corporations, it is promoting the use of gBizID.¹ Widespread use of digital IDs is the basis for the provision of online digital services by the government.

¹ An authentication ID service that had been widely used by 930,000 companies and individual business owners as of March 2023 (gBizID, n.d.).

2.4. IT capabilities in government

In the early stages of the spread of COVID-19 infections, a contact confirmation app on smartphones was planned in Japan as well as other countries. The app intended to enable citizens to avoid contact with infected people and to discover the infection route at an early stage. The IT Strategic Headquarters in the Cabinet Office planned the app but did not have adequate budget for development and operations or human resources. The MHLW, which became responsible for the app, proceeded with its development based on the specifications made by the IT Strategic Headquarters.

The Japanese Contact-Confirming Application (COCOA) was developed based on the API provided by Google and Apple, so that contact confirmation could work between Android smartphones and iPhones (Figure 2.8). However, the MHLW did not initially have enough administrative staff familiar with the app's development and relied on contracted vendors for its development and operation. As a result, APIs were not updated – causing problems such as contacts not being recorded due to app errors, which led to distrust amongst citizens.

Figure 2.8. Images of COCOA



COCOA = Contact-Confirming Application.

Source: Ministry of Health, Labour and Welfare.

As the IT Strategic Headquarters had no budget or in-house development team, ownership was transferred to the MHLW. However, the MHLW had not engaged with the project until it became the project owner. The MHLW's understanding of COCOA was inadequate, so it had to depend on the contracted vendors and did not know how the app functioned. The MHLW lacked ownership of the app as well as IT literacy. Because of this, it did not notice app malfunctions until citizens reported them.

In COCOA and many other cases of government system development, most government officials have lacked IT literacy and have thus been dependent on IT vendors. They have had little awareness of the need to take ownership of the project and provide digital services in a user-friendly manner. This has provoked widespread public criticism of inadequate administrative systems (*Kyodo News*, 2021).

To improve capacity for the development of digital services within the government, it is necessary to enhance the IT literacy of administrative officials. However, this requires significant medium-term investment in training. Because most civil servants are more familiar with laws and politics than IT, it takes time for them to acquire the skills related with digital services. To nurture the IT capacity of government organisations in the short term, it is necessary to hire IT professionals who have worked in the private sector, and government officials should work with them to build a team that can transform the organisational culture.

The United Kingdom's Government Digital Service is a pioneer in building such an organisation. It has not only outsourced services to IT vendors, but also promoted in-house development so that it can deliver user-centric public services. In Japan, METI and the Ministry of Agriculture, Forestry and Fisheries have tried to create such a team inside the ministries to improve their digital services since 2018 – introducing IT professionals into their team and creating a new culture for service development (Eaves and Kailasa, 2022).

In terms of local governments, Tokyo Metropolitan Government hired the ex-chair of Yahoo! Japan as a vice governor from 2019 and established the Digital Service Bureau in 2021. Kobe is taking similar initiatives. It launched a programme called Urban Innovation Kobe to collaborate with start-ups in introducing new technologies into its public services.

3. Founding Digital Agency

Digital Agency was established as a top agenda item of the Suga administration in September 2020 (Kyodo News, 2020). The cases above reveal many issues regarding the digitalisation of government services, such as online applications for cash support to citizens and businesses and COCOA. People also consider it important to enhance the IT capability of the government (Okutsu, 2020). A bill to establish Digital Agency was submitted to the Diet in 2020, the law was passed in May, and Digital Agency was launched in September 2021 (Suzuki, 2021).

3.1. Overview of Digital Agency

Digital Agency started with about 600 staff, including about 200 IT professionals from the private sector. This was an initiative of the Minister of Digital Affairs to create a new type of government organisation based on digital technology.

Digital Agency is responsible for developing and providing administrative services and processing systems that should be uniform – not only to all the central government agencies but also to local governments. It also supports the digitalisation of public services operated by private entities, such as education, medical services, and mobility services.

Its upper management includes not only government officials but also CxOs (Chief Executive Officer, Chief Design Officer, Chief Technology Officer, Chief Product Officer, and Chief Architect) from the private sector. This allows Digital Agency to introduce a new culture for product development and organisational management.

The agency has four groups:

- (i) a group for citizens' services, which delivers frontline services to citizens and businesses;
- (ii) a group for common digital infrastructure, which develops common functions and infrastructure for digital services;
- (iii) a group for government agencies, which delivers back-office services to government agencies; and
- (iv) a group for strategy and organisation, which manages the organisational operations of Digital Agency and sets the strategy for all government digitalisation.

Each group has teams for digital service products, and the teams collaborate with each other to deliver them effectively.

It also has technical units that consist of specialists such as product managers, designers, architects, and engineers. These units dispatch specialists to the product team, depending on the needs of the products.

3.2. Mission, vision, and values of Digital Agency

Unlike other government agencies, Digital Agency set its mission, vision, and values when founded. Digital Agency has substantial talent from different backgrounds. In this situation, employees within the organisation need to have shared norms for working together efficiently.

Digital Agency aims to deliver user-centric services to citizens in opposition to the poorly designed government services in the past. Its mission – human-friendly digitalisation: no one left behind – indicates the agency's belief that government services should be user-friendly for all citizens. Government services should be accessible to all because all citizens use them. Users have different levels of IT literacy, e.g. not all old people know how to use digital devices such as smartphones. Digital Agency should care about people from all kinds of backgrounds.

As well as the mission, the government-as-a-service vision indicates that Digital Agency should be like a digital service company – unlike the usual government offices. If all government operations and services are digitalised, physical windows at ministry buildings and city offices will become redundant apart from a limited number of specific needs. In such a situation, government services are like other private services. Digital Agency should close the quality gap between public and private services. This should be realised through collaboration between the government and private companies.

In Japan, government agencies have a tradition of life-long employment and rarely hire outside professionals. This makes it difficult to acquire new capacities within organisations. In this sense, Digital Agency is a kind of venture organisation within the government. The government-as-a-start-up vision indicates that Digital Agency has the spirit to challenge issues in creative ways using digital technologies.

Values are important in changing government culture. By setting values, we can share what we believe for working together in the same organisation. In many cases, people in the central government forget to think about users' experiences of their services. 'For everyone in this country' is an attempt to change such an attitude on the part of government officials. In a large organisation, such as government agencies, employees tend to forget their job purpose. 'Always with a sense of purpose' reminds them why they are working for Digital Agency. 'Across all positions' means that people in Digital Agency should collaborate with many types of stakeholders not only inside but also outside the agency. They need to understand and accept the difference between stakeholders to collaborate closely with them. Lastly, 'Continue to challenge ourselves for impact' means that the agency should create a positive impact on society by confronting challenging issues instead of ignoring them and doing routine work.

These values try to break the traditional culture of bureaucratic government organisations and create a new working environment for both public officials and IT specialists from the private sector (Box).

Digital Agency's Mission, Vision, and Values

Mission

- Human-friendly digitalisation: No one left behind
We strive to create the future of Japan we all could take pride in and to envision a digital society where diverse forms of happiness are realised.

Vision

- Government as a service
We offer services that maximise the value of the user experience through organic collaboration with national and local governments, the private sector, and all other stakeholders.
- Government as a start-up
We lead the digital transformation across society in a bold and speedy way, with mutual trust and learning from a multitude of challenges through aspirational talent from the public and private sectors.

Values

- For everyone in this country
We will prioritise delivering benefits and user-centric services to the people of Japan, while maintaining the highest ethical standards. We will listen to the voices of the silent majority and care for everyone to create a society where everyone can benefit from the digital society.
- Always with a sense of purpose
We will challenge assumptions and the status quo in a constructive manner, actively adopt new methods and concepts, and strive to take the world's leadership positions [for government digitalisation]. We will constantly remind ourselves of our objectives, have the courage to decide to discontinue, and be productive in delivering our work.
- Across all positions
We will collaborate as a team by respecting diversity, empathising, and learning from and complementing each other. We will act with independent minds based on mutual trust in an open, flexible, and transparent environment.
- Continue to challenge ourselves for impact

We will act with speed and seek feedback without excessively pursuing perfection. We will continue to challenge ourselves to create impact. We shall do so by growing as an organisation and giving back to society as a pioneer. As we face a multitude of challenges and setbacks, we will apply learning from these experiences and review/revise our value propositions to users.

4. Expectations for Digital Agency

The establishment of Digital Agency was motivated by the government's desire to improve the content and quality of digital services, especially when facing challenges during the COVID-19 pandemic. Drawing from learnings presented in section 2 of the paper, Digital Agency aimed to improve digital government from the following three aspects: (i) create digital infrastructure for government services, (ii) collaborate with multiple stakeholders for delivering better public services, and (iii) nurture IT capabilities and innovate the culture from within the government (Clarke, 2020).

4.1. Creating digital infrastructure for government services

Japanese government systems are so fragmented that they cannot deliver government services effectively. Most systems are on-premises and are not assumed to connect with one another for data exchange. Digital Agency should reform this situation by using APIs and cloud services.

The My Number Card for citizens and gBizID for businesses were developed for uniform authentication on government systems, but they do not cover all online applications. Moreover, these digital IDs have not experienced a high uptake in Japan. This was one of the biggest obstacles for citizens in applying for cash support during COVID-19. Digital Agency needs to accelerate the distribution of digital IDs. Improving the user experience of authentication is another issue. Digital Agency plans to develop a mobile app that embeds the functions of the My Number Card into smartphones so that citizens can log into government services more easily online.

A data exchange platform is also important to use existing data within government agencies for administrative purposes. For many procedures, government agencies require citizens to fill in the same data on different applications repeatedly because of organisational silos and unconnected systems. If government systems are interconnected, citizens can avoid filling in the same data they already provided for other procedures. Digital Agency plans to develop such a data exchange layer.

As we can see in the case of the VRS, integrated cloud-based systems for local governments will make their operations simple and easy to manage. Japan has 1,741 municipalities and 47 prefectures. These local governments operate their administrations by using customised on-premises systems. Most local governments perform the same tasks, but their systems differ. This creates inefficient IT investment and prevents interoperability amongst local governments. Digital Agency has attempted to resolve this problem by introducing the Government Cloud and standardising software for local administration on it. Under the Government Cloud, Digital Agency procures cloud resources for government agencies and

local governments as an aggregator and supplies them to the agencies that require the resources. By using this scheme, Digital Agency plans to change local governments' software for operations on basic services for citizens from their on-premises servers to the Government Cloud by the end of fiscal year (FY) 2025.

Digital Agency aims to create digital infrastructure for efficient government services. These ideas are coming from other countries' practices.

India Stack is a set of basic digital services for citizens to access online government services. It includes an authentication service, digital signature, payment infrastructure, and so on. These functions should be uniform because it is difficult to coordinate services that are developed separately by individual agencies (Dattani, 2019).

Estonia's X-Road is an example of a data exchange platform that enables government agencies to exchange data for efficient administration by reusing data that has already been input by users. In Estonia, this infrastructure is connected with some databases in the private sector, such as banks and utility companies. By standardising the method of connecting with this platform, each system can reduce the cost of its development (Margetts and Naumann, 2017).

Cloud.gov in the United States (US) is an inspiration for the Government Cloud in Japan. The US General Services Administration (GSA) supplies cloud resources to several government agencies. The benefit for agencies in using cloud.gov is that they do not need to check detailed specifications such as security because the GSA has already approved the cloud services. In addition, cloud.gov provides a platform for service development. This support helps government agencies shift to the cloud from an on-premises environment more easily than before.

Digital Agency should introduce these practices to its government systems to accelerate service development. However, it should adapt them to the Japanese context to maximise efficacy.

4.2. Collaborating with multiple stakeholders to deliver better public services

Digital Agency aims to deliver user-centric government services, but all services need not be developed by the agency. As we saw in section 4.1, Digital Agency supplies digital infrastructure for the development of government services. Other government agencies and local governments can use these. We can call this business model 'government to government to citizens' (G2G2C). In addition, if government agencies want to deliver their services through more familiar touchpoints for users, they can collaborate with private companies through open APIs and OSS. Government agencies can create

new public–private partnerships by making their data and software open to private stakeholders. Tech companies can provide user-friendly services based on the government’s APIs and software. Citizens in civic tech communities can participate in creating digital public services through the process of OSS projects. Digital Agency can also learn about user-centric digital services from such collaboration. We can term these kinds of business models ‘government to business to citizens’ (G2B2C) or ‘government to citizen to citizen’ (G2C2C).

As we saw in section 2.1, such collaboration accelerates service development and expansion. To achieve more collaboration, Digital Agency should create an ecosystem for GovTech – technologies that make government services more efficient and user-friendly. GovTech start-ups have been emerging to make government administrations efficient by using digital technologies. A movement for citizens to develop digital services for their local community has also become popular. Digital Agency should involve these players in the service development process and work together for the digitalisation of public services. Digital Agency has a lot of touchpoints with local governments and other government agencies. It already has a community with local governments on Slack, one of the most popular messaging apps. In addition, it co-develops several digital services with other agencies. Digital Agency should become a catalyst for accelerating collaborations amongst public and private stakeholders.

4.3. Nurturing IT capabilities and innovating the culture within the government

To provide efficient and user-friendly administrative services, it is crucial to enhance the IT capacity of government agencies. Government officers have been dependent on IT vendors for years and have lost ownership of their services. This has locked them into contracts with big IT vendors. Since government officers are generally not IT experts, they cannot make appropriate decisions about their investments and simply follow the guidance given by IT vendors. Introducing IT professionals inside Digital Agency attempts to fill the knowledge gap between the government and IT vendors.

Digital Agency also needs internal development teams to create user-centric services as quickly as possible when new demands for digital services arise, such as COVID-19. Internal development teams can start development more quickly than contract-based development. Hiring IT vendors for service development requires the compilation of documents for product specifications, searching for vendors, tendering for the project, and contracting with the vendor. This process does not work when software needs to be developed as soon as possible. In addition, there are a lot of different protocols inside the government from private companies. For example, government agencies’ decision-making involves many stakeholders compared with a company’s one. Therefore, development teams require close communication with public officers. On the other hand, internal development teams are efficient and meet the need for swift development of services.

Internal development teams can also work to create standards for service development. Government agencies have not had organised methods for developing digital services. Government systems should be interconnected for efficient operations and delivery. If they want to realise this, they need to have their own architecture for government systems and methods of development. Each tech company has its own rules for service development to keep deployment efficient and maintain the quality of its software. The government also requires such mechanisms. Internal development teams can create them while developing their own services and sharing the knowledge with other product teams inside Digital Agency. The development standards nurtured inside Digital Agency will also contribute to the standards of all government agencies and local governments. By sharing the same standards with the whole public sector, the government systems developed based on them will also be standardised and become interoperable.

Decision-making by government agencies is usually slow because of bureaucracy. Digital Agency is attempting to change this by reducing the layers. As mentioned, Digital Agency has talent from both government agencies and private companies, so its working style is different. Digital Agency needs to create a new culture to harmonise these people and make them function smoothly. Both government officers and IT professionals should respect each other and develop and operate digital services effectively. By doing so, product teams can create ownership, improving digital services in agile ways.

Few government officers have a user-centric mindset for their services because most concentrate on policymaking rather than how the policies should be delivered. In this sense, government employees can learn a lot from IT professionals in Digital Agency. In the software industry, usability is one of the most crucial competitive edges. If software is difficult to use, its sales will not increase and it will lose market share. As the mission of Digital Agency says, 'human-friendly digitalisation' will be required if a software company wants to survive in the market. During COVID-19, the core issue of public policy was about how fast and easily citizens could access government support, rather than about the content of such support. The government has been criticised by citizens about the slowness and difficulty of access to its services. In short, the government's service delivery is a more important issue than ever, and requires prompt remediation. For this reason, government officers should learn attitudes and skills from IT professionals.

Most government agencies have customs and cannot transform themselves from scratch. However, Digital Agency can design its organisation and culture with less limitations. Therefore, Digital Agency should become a test bed for government transformation. If it can find good ways to adapt to the digital era, other government agencies and local governments can replicate it. This would create a new working culture in the public sector, indicating how government agencies can transform themselves from traditional models.

5. Conclusion

The spread of COVID-19 has taught us many lessons about how the government should deliver digital public services. The Small and Medium Enterprise Agency and Tokyo Metropolitan Government realised quick deployment and expansion of digital services by utilising open APIs and OSS in the emergent situation. These cases taught us how important government agencies can share their resources with other stakeholders for collaboration.

We also learned that integrated digital infrastructure and standardised data make operations for government services efficient. The cloud database for the VRS indicated that central government agencies and local governments could improve their workflow and reduce tasks by using digital technologies.

On the other hand, we learned that the low level of distribution of digital IDs for citizens and businesses prevented government agencies from delivering their services uniformly. If government agencies want to deliver their services to everyone, they need to verify that users exist. Digital IDs are like passports for the online world, so it is very important to shift the strategy for distributing them online from a paper-based system.

In addition, central and local government systems were fragmented and not interconnected, so digital operations were not efficient. This was another issue in online applications for cash support. Not only citizens but also local government officials had problems with application processes.

One of the most crucial issues in delivering digital services is lack of IT capacity inside the government. The case of COCOA shows that dependence on contracted IT vendors made the MHLW lose its sense of ownership of the digital service.

Digital Agency was established in 2021 based on the lessons learnt from prior experience through a Suga administration initiative. The agency's mission, vision, and values aim to deliver user-centric digital services. Digital Agency has embraced IT professionals from the private sector in METI and is attempting to create a new organisational culture for effective administration in the digital era. The agency is expected to develop digital infrastructure for other agencies and local governments to deliver digital services quickly and make them interoperable. In addition, it should become a catalyst for the public and private sectors to create a GovTech ecosystem, which consists of not only the public sector but also the private sector – such as IT start-ups, civic tech groups, and like-minded people who want to innovate the government by using new technologies. Government services should be connected with private services via open APIs and OSS for effective delivery to users.

One of the reasons why the Japanese government sector is behind other governments on digitalisation is that Japanese citizens are concerned about the control of personal information by the central government. Therefore, citizens' personal data are managed by each local government in different formats and operations, making the data use and information exchange inefficiency. Digital Agency tries to overcome this issue by providing a cloud infrastructure called Government Cloud for local governments. This allows citizens' personal data to be managed by each local government in a

standardised format on the same cloud infrastructure. Digital Agency is also concerned about the exchange of personal data amongst government agencies and local governments. It cooperates with the Personal Information Protection Commission to protect the personal data of citizens based on the 2003 Act on the Protection of Personal Information.

Government Cloud also deals with security issues. Each government agency and local government has different a level of capability on data management. The security levels of their servers are also different. If agencies lack the capacity to manage their data properly, they risk data leaks. Under Government Cloud, each government agency and local government can manage its data with the same level of security, using a standardised data management system.

Digital Agency can be a new model of government organisation because it challenges many ways of working in traditional government organisations. Government officers in Digital Agency find it difficult to adapt to a new environment where employees predominantly use online tools and aim to deliver user-first services. On the other hand, IT professionals who joined Digital Agency may also feel awkward about the government's bureaucracy and rules. However, both should respect one other and create a new working culture.

Considering that the Government Digital Service in the United Kingdom was established in 2011, Japan's government digitalisation seems to be lagging far behind that of other countries. The Government of Japan is only at the starting point of serious digitalisation. Digital Agency will play an important role in advancing digitalisation and innovating the government. The speed at which the government can deliver accessible and convenient services to users depends on Digital Agency. In addition, the agency should overcome the traditional government culture and become like a tech company, focusing on developing and delivering digital services. Digital transformation of the government will be realised when Digital Agency has an environment in which both government officers and IT professionals cooperate with one another and work towards the same vision. It will take time to harmonise the working environment for both. Digital Agency employees should have ownership of their organisation and cooperate with one another to create a new culture.

Digital Agency appointed an ex-chief design officer as a new CEO in April 2022 (*Nikkei Asia*, 2022). This is a strong message to the public that Digital Agency cares about service design more than ever. The combination of digital technology and the design of applications is important to improve the experience for both citizens and government officers. The government already knows what does and does not work well in government services, and how it can fix them, through lessons from digitalisation in other countries. Now, it is time for Digital Agency to achieve its vision.

Most civil servants in the Japanese government have recognised the importance of digitalisation in terms of efficient operations and user-centric services through COVID-19. However, it is still difficult to convince them to promote digitalisation because they are busy with day-to-day tasks. To address this situation, other government agencies will need to enhance their current management system and adopt a model similar to that of Digital Agency. The top management of each agency should introduce a hybrid workforce of civil servants and tech professionals, and create a new organisational culture where both types of employees can cooperate to deliver user-centric digital services. This will also be applicable to other governments that plan to transform themselves for delivering digital services effectively, especially in developing countries.

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