Historical Development of Japan's E-Government: A Comparison of its Characteristics with Global Trends

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Abstract

This study aimed to analyze the historical development of e-government in Japan in light of global trends, mainly with reference to the situation in the US and UK. The maturity models of the United Nations, European Union, and Organization for Economic Cooperation and Development (OECD) were used for time-series comparisons spanning from 1994 (when the first e-government promotion plan was made) to 2022. This study analyzed why the departments responsible for e-government control have varied and what the characteristics have been of Japan's guiding principles compared to Europe and the US. Finally, this study explored the reasons for the "delays" in Japan's e-government within their socioeconomic context.

Keywords: e-government; Japan; time-series comparison

1. Introduction

Dunleavy et al. (2006, 42) comprehensively described the historical development of Japan's e-government until 2006, stating that it lagged behind global trends. The present study mainly builds on their model—which has, thus far, reported the most extensive observations about e-government in Japan—and attempts to clarify the extent to which these problems have been addressed by describing subsequent measures.

The novelty of this paper lies not only in explaining the evolution of this system but also in comparing its development to that in other countries with reference to stages used by international bodies. This type of comparison has not been undertaken in other studies in this field.

The present study also attempts to expand the scope of investigation to the wider socio-political sphere to explain the characteristics of Japan's e-government. While Dunleavy et al. (2006, 53, 75) mainly adduced the monopoly of large IT companies as the reason, this paper presents a broader analysis.

Thus, the present study provides essential insights into why Japan's departments responsible for e-government control have varied and what the characteristics have been of its guiding principles in comparison with Europe and the US.[1] In addition, it explains the reasons for

1 This study mainly compared the Japanese model with the European and US models because the Japanese government has concentrated its study efforts on the experiences of these countries as advanced models. Korean experiences have not been referenced because there is extensive literature comparing them with Japan's e-government (Haruki 2023).

the delays in Japan's e-government, placing them in the context of contemporary social conditions and historical circumstances. Accordingly, the conclusions of the present study might help in formulating effective reforms to address Japan's e-government problems.

1.1 Is Japan's e-government truly lagging?

Japan's e-government ranks high in the United Nations' (UN) ranking (14th in the UN E-Government Survey 2022) (UN 2022a) and the Organization for Economic Cooperation and Development's (OECD) Digital Government Index (OECD 2019); for some criteria, such as the UN e-Participation Index, Japan was in the top place (UN 2022b).

However, the perceptions of citizens, companies, and government officials differ greatly from the impressions made by these rankings. In particular, the inadequacy of e-government functions during the coronavirus disease 2019 (COVID-19) crisis, which has been called a "digital defeat" (Ministry of Internal Affairs and Communications (MIC) 2021, 111), has further heightened the awareness of the "delay."

Specifically, the government system had proven almost useless for disease prevention and tracking, statistical reporting, and the provision of subvention money. Many local authorities had to use traditional handwritten documents to report their situation to the central government because of the insufficient interconnectedness of the systems. Although Japanese governments have tried for many years to build the "world's most advanced e-government," the reality that they have failed to attain the standard global level has become starkly apparent (Kamimura 2021, 21).

1.2 Where does the perception gap come from?

There are many reasons for these failures, such as insufficient trust among the citizen customers, inconsistent local-central digital structures, a silo effect among different services, poor user experience (UX) design, and inadequate government information technology (IT) engineers. Specifically, nothing new happened with COVID-19. It would be accurate to say that the problems pointed out thus far erupted suddenly in these particular situations.

Dunleavy et al. (2006, 53, 75) pointed out that Japan's policies were already ineffective at that time and attributed the most basic cause to the harmful effects of giant IT companies' monopoly on government information systems. The Japanese government was also aware of this situation; since then, it has been developing various initiatives to build the "world's most advanced e-government." The question is: how effectively these measures have been implemented?

In addition, during COVID-19, it became clear that local governments themselves had been particularly slow to adopt the necessary IT and that the data collaboration between organizations and the central government was unfeasible. It could be said that this is a manifestation of the "2000 systems problem," which will be discussed later at 3.1.2. of this paper.

1.3 Materials and methods

The aim of this paper is to verify the so-called retardation of Japanese e-government and, if so, to identify the reasons for this delay. To this end, government websites like e-Gov (https://www.e-gov.go.jp/) were mainly used to determine the content and enactment years of the respective legislation. For government decisions and actions, documents provided by the concerned Ministries' websites were referenced. Techniques like time-series comparisons were used to analyze the delays in Japanese efforts, and to determine the reasons for such delays, a vast body of social-political research on the Japanese politico-administrative situation was referenced.

2. Diachronic Analysis (1994-2022)

This section discusses some of the issues that have emerged from the historical developments.

2.1 Evolution of the control tower organization

This subsection provides an overview of the changes in the control tower organization of the Japanese e-government and explains the significance of these changes.

2.1.1 From the management and coordination agency to the IT headquarters and government CIO

As mentioned in the Appendix, the Administrative Management Bureau (AMB) of the Management and Coordination Agency was responsible for the informatization of the central ministries until the pre-stage. However, in 2001, the IT Strategic Headquarters was established in the cabinet and began to play the role of a command tower.

In 2013, a government CIO (Chief Information Officer), a senior government official who was an IT expert, was appointed, and the General Strategy Bureau for ICT (Information and Communication Technologies) (ICT Bureau) in the Cabinet Secretariat was established as a practical organization to assist him/her. The ICT Bureau has contributed to the general coordination to enhance citizen benefits through ICT utilization.

This change can be seen as a shift to e-government as a part of the IT adoption policy for the society and industry from the perspective of administrative reform within the government, for which the former AMB was responsible as an expert organization for business-efficiency matters.

Within the government, there was a struggle for leadership over IT issues between the MIC—which also had jurisdiction over the telecommunications industry—and the Ministry of Economy, Trade, and Industry, which managed the IT equipment industry and industrial informatization. This situation explains the background of the headquarters being placed in the cabinet so that it can oversee each ministry and agency.

In addition, the transfer of functions from the MIC, which is merely one of the other ministries, to the cabinet is in line with the so-called *presidentialization* phenomenon of prime ministers in various countries (Poguntke and Webb 2005; Kamimura 2017). Therefore, without the 2001 reforms, which strengthened the Cabinet's functions and concentrated many operations in the Cabinet Secretariat, the establishment of the Cabinet of the IT Headquarters, the Government CIO, and the latest Digital Agency would have been unfeasible.

2.1.2 Foundation of the Digital Agency

In 2021, the ICT Bureau was reorganized into the Digital Agency as the control tower for the DX (Digital Transformation) in the central government. Prime Minister Suga Yoshihide prioritized this establishment for his administration. He especially expected its function to break down bureaucratic sectionalism and intended it to exert its power to implement bold regulatory reforms, whose necessity had become cruelly obvious through the stigma of digital defeat.

The agency recruits digitally talented staff from both the public and private sectors and takes the initiative to promote DX in the society (Okuda 2021). The main functions of the Digital Agency include: (i) single control over information system–related budgets and procurement, (ii) standardization and sharing of local government information systems, and (iii) infrastructure development, such as base registries.

In particular, the Digital Agency is different from previous organizations in that it is attempting to overcome the fact that the government's CIO thus far did not have its own affairs and was limited to the comprehensive coordination of the measures of each ministry.

In contrast to the past control towers, the Digital Agency currently has jurisdiction over the ID and authentication systems, such as My Number; furthermore, it maintains and manages important information systems and has the authority to allocate budgets to ministries. The Minister responsible for the Agency also has the power to make recommendations to other ministers, to secure comprehensive coordination authority (House of Councilors Cabinet Committee Statement by Minister of State Takuya Hirai on April 20, 2021).

2.1.3 The Digital Agency regarding international trends

The most notable of these characteristics is the significance of the Agency's budget allocation authority. This is extremely important for government IT implementations that require large budgets. Chung (2020, 65) stated that for the e-government's success, a powerful control tower is needed to direct various ministries and coordinate tasks among them. He stated that the most important component of the tower is the right to allocate the IT budget.

In the US (Dunleavy et al. 2006, 45-46), many organizations related to e-government existed before the NPR (National Performance Review under the Clinton administration); moreover, there was no central control organization to promote cross-agency services. However, the US government established the Government Information Technology Services Board in 1996 under the NPR. The current US e-government service is a part of the Office of Management and Budget (OMB); according to Chung (2020, 65), this ensures that the country's e-government remains sustainable and steady.

In the UK, the HM Treasury was once responsible for e-government; however, the central organization was later placed within the Cabinet Office. In 2011, the GDS (Government Digital Service) was established, working with the Treasury and convening private sector experts to operate e-government. It is believed that the style of operating the GDS by bringing together public and private sector experts has become a model for Japan's Digital Agency.

2.2 Paradigm change in Japan's e-government: When did the shift to the citizen-centered model happen?

2.2.1 Overview of historical trends

In previous works, Kamimura (2011; Kamimura et al. 2012) pointed out that a kind of paradigm shift has occurred in Japan's e-government, harnessing the OECD model. The remainder of this paper is organized as follows.

The transition of the various stages was confirmed through the development of Japanese e-government, as described in Appendix. The first stage was the supposed NeoWeberian (Pollitt and Bouckaert 2017) internal control and efficiency phase (Phase 1), followed by a reduction in the burden on citizens and companies (Phase 2). The subsequent stage focused on improving convenience and welfare (Phase 3). The current stage is to innovate society as a whole through data utilization (Phase 4).

As mentioned in Appendix, the user's viewpoint began to be emphasized in the third stage in Japan. Until the second stage, Japan's e-government was pursued for its own sake, without truly questioning its value from the standpoints of citizens and businesses (Kamimura 2021).

This explains, why—unlike in countries such as the UK or New Zealand, where new public management (NPM) thinking has strongly influenced public reform attempts—the Japanese version of the "user-centric" paradigm has not emerged until recently. This is similar to the situation described by Grönlund (2010, 13): "We find that development so far has overall been too narrowly guided by a technical focus and economic and administrative values and too little informed by public sector values."

2.2.2 An overview of the OECD's paradigm shift

The OECD (2009) noted the existence of a shift from a government- to a customer-centric paradigm in e-governments, noting that this trend is common to all countries that have experienced changes in e-government thinking.

The former reflects the situation in which government staff are exclusive beneficiaries, and the impact on customers is indirect and invisible. Here, the ICT was merely a tool contributing to formatting a "technology-centric" e-government where the notion of UX was extremely poor. Consequently, the utilization rate remained relatively low.

Contrarily, in the latter paradigm, e-government contributes to the improvement of broader public welfare. According to the OECD, public service provision must focus on the needs, wishes, and satisfaction of the users (customers). It must facilitate (1) personalized services, (2) the transformation into a holistic and consistent public sector on the customers' side, and (3) a whole-of-public sector approach (OECD 2009, 26, Table 1.1).

2.2.3 Positioning of the New Information Technology Strategy (2010)

When and what triggered this shift? In summary, the New Information Technology Strategy of 2010 can be considered a turning point where the basic policy on proceeding with e-government changed. Since then, in the various current strategies that have inherited it, an emphasis has been placed on aspects such as inclusion, leaving no one behind, and ease of use.

The 2010 strategy went far beyond the conventional concept of the "simplification and efficiency of administration." This represented an approach similar to the US's "open government." A major feature was that citizens were supposed to monitor, control, and use various types of information held by the government.

Therefore, it is clear that this strategy diverged from the administrative-reform-oriented e-government of the past. For the highly indebted Japanese government, the expectations for e-government have generally been primarily from the viewpoint of the "simplification and efficiency of administration," especially the reduction of budgets and staff numbers.

However, among the nine items listed as "concrete efforts" related to the e-government in the 2010 strategy (seven items related to "administrative renewal and visualization" and two open-government-related items), only one item explicitly states "administrative efficiency" as a goal. This proportion was much lower than that in earlier strategies. This decrease appears to mirror a customer-centric shift in the e-government paradigm.

2.2.4 Why would the strategy of 2010 have such a perspective?

The main reason for this might be the nature of the ruling party at that time, namely, the Democratic Party of Japan. This party promoted an anti-bureaucratic system and made many attempts to exclude bureaucrats from the policymaking scene. Although many parties' anti-bureaucratic attempts have failed, the impact of e-government has continued thus far. For example, the Basic Policy on Reform for the Formation of a Digital Society (2022) envisioned a digital society where citizens with diverse backgrounds and lifestyles could choose among the digital tools that serve their needs and achieve a higher quality of life, aiming at a society wherein "No one left behind" and "Human-centered digital transformation" are the core principles (Okuda 2021).

However, regarding timing, what had been analyzed as a global trend in the 2009 OECD report was only established as a plan by 2010 in Japan. There has been an obvious delay; at best, this idea has just begun to be incorporated into measures. This postponement seemed to have been clearly manifested in the malfunction of the Japanese COVID-19 measures in 2020.

2.3 Has e-governance been realized in Japan?

To the best of the author's knowledge, there are no Japanese government documents in which the terms *e-governance* or *digital governance* have been used to refer to a similar notion in other advanced e-government countries. What do these terms imply? While *IT governance*, also used in Japan, mainly refers to the methods for managing the effective use of the IT systems, *e-governance* entails the broader relationship between the government and the entire nation. According to previous researchers, their definitions are as follows:

Melitski (2018, 85) describes *e-governance* as the value and application used to encourage online citizen participation. It includes the notion of e-democracy (i.e., citizen participation in governance).

Grönlund (2004, 719) defines *e-governance* as the entire system involved in managing a society. The system includes activities undertaken by not only the government organizations but also companies, voluntary organizations, and citizens.

Chung (2020, 13-15) further developed this idea by presenting concepts beyond people's political participation (e-democracy, e-voting, and online political activities), stating that modern *digital governance* uses artificial intelligence and social networking services to simplify business and decision-making processes through citizen participation across both the public and private sectors. This includes solving public issues through collaboration with civil society, citizens, and companies.

Regarding the active participation of private actors, this way of thinking goes far beyond the fourth stage of the UN model ("Governments actively collect public opinions and information through their websites"). From this perspective, as previously mentioned, Japan's e-government has not yet reached this stage. As for e-democracy, only about 10 local governments have implemented e-voting; moreover, at the national level, even the necessary bills have not been adopted thus far (MIC 2006). Consequently, it must be said that Japan's *e-governance* has absolutely not emerged.

3. Comprehensive Analysis: The Reason Why Japan's e-Government is Lagging

This section presents the main reasons for Japan's e-government delays, as understood from the above background.

3.1 Silo effects

3.1.1 Breaking down the central government

According to Dunleavy et al. (2006, 218-224), e-government is lagging in NPM countries because of the decentralization of government management, downsizing of organizations, and outsourcing of IT experts. They emphasize that for proper operation of e-government, centralized control and retained technical resources within the government are required.

Thus, although Japan is not classified entirely as an NPM country (Oyama 2010, 82), government functions have been decentralized since before the Second World War, with each ministry acting independently. Focusing on this harmful effect, it was only after 2001 that the prime minister was granted the right to initiate cabinet meetings and the Cabinet Secretariat was given the function of policy planning. Therefore, Japan continued to have a system that was unsuitable for e-government for a long time.

Specifically, in Japan, because of traditional sectarianism rather than NPM, the IT knowledge of the government as a whole has not been concentrated; furthermore, it seems that this has led to a tendency to rely on the private sector. This has also caused a significant lack of uniformity and interoperability for the government as a whole due to differences in the IT standards and document forms among ministries. Similar cases are likely to occur in other countries as well (Homburg 2017, 364).

3.1.2 The "2000 systems problem" of the local governments

In Japan, each prefecture and municipality has its own business system, which makes data distribution among other organs extremely difficult. This insufficient interoperability is the so-called *2000 systems problem.* Hasegawa (2017) reveals this problem in the field of personal information protection. Generally, in Japan's administrative system, policies are often planned by the central government ministries and implemented by municipalities. Therefore, the impossibility of the mutual distribution of information during the implementation stage is a major problem in the construction of digital government. This problem leads to unnecessary expenditures on IT development and a lack of consideration of user interface and user experience (UI/UX) in their designs. This problem became apparent with *the digital defeat* during the COVID-19 pandemic mentioned at the beginning of this paper. Accordingly, appropriate measures not only for the whole government within the central administration but also for the local governments are necessary. As mentioned previously, the Digital Agency has begun unifying the core systems of the local governments. In the June 2021 ICT Bureau's "Draft on the Utilization of Government Cloud by Local Governments," the significance of unification and standardization of municipal information systems was explained by (1) reduction of maintenance and operation costs, (2) rapid construction and flexible expansion of the system, (3) saving residents the time and effort of entering information by "once-only" service, and (4) adopting the latest security measures. However, there have as yet been no concrete results. Undoubtedly, success or failure of these measures will be an important factor in predicting future trends in Japan's e-government.

3.2 The lag of IT adoption in the Japanese society as a whole

With insufficient IT literacy and willingness to use IT in the private sector, it is unthinkable that the provision of electronic services, such as electronic applications, will become widespread, even if the government advances IT alone.

Therefore, the MIC (2021), citing OECD statistics, noted that Japan's ICT investment (nominal) has been decreasing since peaking at 20.0 trillion yen in 1997, reaching 15.8 trillion yen in 2018.

Nonetheless, in the US, investment has continued to increase over the past 30 years by more than 4.7 times, as of 2018.

Furthermore, the MIC (2021) has stated that 80% of the ICT investment in Japan is devoted to the maintenance and operation of current businesses and that strategic utilization to create innovation is scarce. It has also indicated that the waterfall-type development method of the mainframe era has not been abandoned, and the introduction of agile development is delayed. Therefore, data utilization is not progressing owing to delays in openness, cloud systems, and standardization of operations and data.

In addition, neither government nor private companies often develop their own system departments, instead relying entirely on external companies for IT. This situation also signifies that a sufficient BPR and effective organizational restructuring cannot be expected because the necessary IT human resources have not yet been developed within these organizations.

3.3 Are there really social needs for an e-government?

According to a study of Dutch municipalities, Homburg et al. (2013) argued that citizens' expectations is the most important influencing factor in decisions regarding personalized e-government services. Do Japanese citizens have expectations of an e-government? Statistical verification is necessary for accurate statements; however, in Japan, the citizens do not seem to express great dissatisfaction (concerning slowness, inaccuracy/opaqueness, unkindness, corruption, etc.), especially at the local level.

Among the services for citizens, 24h/365J and push-type administrative services may be convenient. However, there is a strong possibility that citizens perform an unconscious benefit/cost analysis, through which they decide that there is no need to spend time and effort for procedures that are not repeated many times a year, such as obtaining My Number Cards and preparing devices (e.g., card reader/writer). If there is no such pressure from the public, it seems that government offices have almost no incentive to bear the huge cost (not only the financial cost and time but also the psychological price of changing the business model) of adopting IT services.

Another crucial point of contention is the public's distrust and concern about the e-government system. According to the Cabinet Office's 2018 poll, the reasons for not obtaining a My Number Card were, in descending order of the number of responses: "(1) they don't feel the need to get one, (2) they have other things that can be used as identification cards; therefore, many respondents did not feel the benefits of obtaining a My Number Card (57.657.6% and 42.2%, respectively). The third and fourth are (3) because they are worried about the leakage of personal information (26.9%), and (4) because they are worried about loss or theft (24.9%)," there is a deep-rooted sense of distrust among the public. Incidentally, the fifth most common answer was (5) that the application procedure was troublesome (21.3%) (Cabinet Office 2018). This shows that a significant portion of the public perceives the cost of time and effort involved in obtaining a card to be disproportionate to the merits of My Number Card.

3.4 Insufficient political leadership

Chung (2020, 64) emphasized the importance of the commitment of high-level government officials as a lesson learned for successful e-government. The success of such measures in the US seems to have been largely due to Vice President Gore's eight-year appointment as the person responsible for computerization. Francis Maude, the minister accountable for the establishment and operation of the British GDS, was similarly considered a major factor in its success.

In Japan, IT has often been positioned as a top policy priority since the beginning of the Mori administration. However, it cannot be said that there are many cases in which the key ministers demonstrate leadership with a strong personal commitment to e-government. As an exception, former Prime Minister Suga had a strong interest in improving the efficiency of the government through the use of IT even before he became the Chief Cabinet Secretary, which led to the establishment of the aforementioned Digital Agency under his administration. However, the head of the government has limited energy to spare for e-government.

Taro Kono, who has served as the Digital Minister since 2022, is famous as an exceptional politician with a strong reform mindset and has achieved results such as the abolition of seals in government procedures and deregulation of matters related to the digital economy. However, this ministerial post also covers consumer and food safety issues, the civil service system, and so on; therefore, it is unfeasible for Minister Kono to concentrate solely on e-government.

Nevertheless, in the local governments, when chiefs with specialized experience in the IT field are appointed, they become increasingly IT-oriented. For example, there are the cases of Governor Kumagaya of Chiba Prefecture (a former Nippon Telegraph and Telephone Corporation (NTT) Communications employee) and Governor Oigawa of Ibaraki Prefecture (a former executive officer of Microsoft, Japan). Because the prefectural governors in Japan are directly elected by the residents, they can exercise president-like leadership in their prefectures. This is also thought to be the reason for the difference with the central government.

3.5 Difficulties in transforming civil servants' mindsets

Chung (2020, 64) also stated that one of the most important factors in the transformation of a country to digital government is a change in the perceptions of civil servants and consequently in the business model within the government. Accordingly, Japanese civil servants, especially in local governments, tend to follow precedent; moreover, there is a strong culture of fear of challenge (e.g., Cabinet Secretariat 2001).

It is believed that the fact that Japan has adopted an extremely closed appointment system for public servants contributes to the existing mentality to fear challenges. Unlike in Western countries, it is extremely rare for outside personnel to be appointed high-level officials by the Japanese ministries through open recruitment. The low number of outside personnel appointed as executive-level officials can be easily confirmed by reference to the annual handbook of government officials, the *Seikan-Yoran* (*Political and Administrative Directory*). Thus, there is no environment in which the best practices of the private sector and foreign

countries can be reflected within the ministries or where external personnel challenge each other to achieve results in a relatively short term for their performance evaluation. This phenomenon also seems to be well-explained by the *social influence* factor, which is an element of the unified theory of acceptance and use of technology (Venkatesh et al. 2003) related to the acceptance of IT.

In addition, top-level reform intentions (e.g., those of former Prime Minister Suga) often do not permeate the implementation field because there are no political appointments of senior/mid-level officials in the Japanese ministries. The lack of a political interpreter connecting the top government management and the enforcement unit may explain the latter's feeble responsiveness.

3.6 Difficulties in escaping the oligopoly of the major IT companies

Although this problem was already recognized in the e-Japan Strategy 2001, this study positions the lack of competition among the major IT firms as the greatest problem. The strategy identified the "de facto monopoly of the telecommunications businesses" as the main cause of the delay in the introduction of ICT in Japan. Therefore, the priorities in this strategy were the development and competition policies (Kamimura 2021).

Dunlevy et al. (2006, 2) also pointed out the harmful effects of leaving the e-government in Japan's private sector, stating: "In Japan the market is also concentrated but almost entirely 'home-grown,' with Japanese IT corporations involved in long-term relationships with government ministries."

The Japanese government has taken various efforts since the second stage, such as separating from vendor lock-ins, opening up systems from dependence on legacy systems, and withdrawing from data communication service contracts (see the MIC 2006 Business and System Optimization Guidelines).

These efforts were expected to overcome the declining performance of government systems due to the oligopoly of giant companies such as Fujitsu, Toshiba, Hitachi, NEC, and NTT DATA. The government aimed to promote competition, reduce procurement prices, and introduce higher quality and more effective systems.

However, the problem was so deeply rooted in the behavior and operation of the government's IT that considerable effort was needed to solve it. As mentioned above, most of the government CIO's energy at the beginning was used to reduce the IT budget and the number of systems, and the cost-cutting aspect was pushed to the forefront. Therefore, customer-oriented system construction centered on citizens' perspectives became a secondary priority because of limited time resources.

Therefore, the continuation of IT systems that were difficult to utilize as well as useless to individuals and companies caused *the digital defeat*, while inexpensive and highly flexible CSS s (Client-Server Systems) and open software became widespread within the private sector.

The Digital Agency continues to make efforts to promote competition and has recently started a project to migrate the government's portal site "e-Gov" to the IT infrastructure "Government Cloud" shared by the national and local governments, for which NEC won the bid instead of Fujitsu—which, until then, had received most of the orders for projects related to e-government (Nikkei Cross Tech 2023). In Japan, it is extremely rare for the contractor of a large-scale system to be changed. Therefore, the agency's efforts have achieved some positive results.

However, this change in the procurement source is also the result of the highest priority proposition of "reducing the construction and operation cost of the IT infrastructure by 30%," and the system to be constructed is not promised to be truly user-friendly for the people, as this depends on whether the future design is based on a customer-centered approach.

4. Conclusion

This paper reported that e-government depends on the social conditions and historical circumstances in which the government finds itself; its degree of development has been determined by various social conditions. As observed in various international surveys, Japan's e-government has made significant progress in the development of systems and technological infrastructure; however, because of the factors mentioned above, the effect is not truly recognized by the public.

Thus, the central government reform of 2001 was a major step in changing the shape of the Japanese government, including weakening or eliminating the silo effect and introducing cabinet-led administrative management. The establishment of the Digital Agency was undoubtedly due to this reform. However, it is also true that many effective reforms need to be accomplished to address Japan's e-government problems.

In general, this study sought to explain the reasons for the delays in Japan's e-government, placing them in contemporary social conditions and historical circumstances. Accordingly, the conclusions might help in formulating effective reforms not only to address Japan's e-government problems but also to benefit society at large, especially in the field of public administration.

However, this study has certain limitations. For example, it could not thoroughly follow the proceeding of the Digital Agency's efforts because this agency began functioning rather recently and has yet to yield sufficient results. Therefore, this paper could not conduct a quantitative analysis due to the lack of relevant statistics in this field. Furthermore, recent changes in the definitions and policies of data collection have rendered numerical time-series comparison useless. Such studies would be needed in the future to corroborate this paper's findings.

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Appendix: An overview of the development of e-government in Japan

This appendix provides a historical overview of e-governance in Japan, divided into five stages, including a pre-stage, and evolution of the leading principles of e-government during each period. This periodization is based on the classification presented in the 2021 White Paper on Information and Communications (MIC 2021, 111).

A-1 Pre-stage (1994-1999)

A characteristic of this era was that e-government was regarded mainly as a tool of administrative reform.

A-1-1 Status of laws and government decisions

In this era, no laws on e-government were enacted or promulgated. The following government decisions were made:

Government Decisions

1994: Basic Plan for Promoting Administrative Informatization (BPPAI)

1996: Guidelines for Reviewing the Procedures for Applications and Notifications Corresponding to Digitization (revised)

Measures to reduce the burden of application

1997: BPPAI (revised)

1999: One-stop service plan

Millennium Project (e-Government Realization Project)

A-1-2 Specific measures taken in this period

In this phase, the government focused on infrastructure development. Thus, in 1997, the central government's Wide-Area Network (Kasumigaseki WAN) was launched. As of April 1999, there were 0.98 personal computers per employee in the bureaus of the central ministries (figures from a Management and Coordination Agency survey 1999).

Other efforts, such as the conversion from general-purpose mainframe computers to client-server systems (CSSs), adoption of the transmission control protocol/internet protocol (TCP/IP), and standardization of the document structure format (Standard Generalized Markup Language, SGML), were taken.

A-1-3 Characteristics of the pre-stage

The introduction of mainframe computers by the Japanese government began in the 1950s, among the earliest worldwide. However, each ministry had its own system until 1994, without any interoperability. Thus, in 1994, the BPPAI was formulated as a unified policy for the entire government, with the aim of sharing information within the government and realizing an interface between the public and private sectors. Consequently, the spread of staff PCs and the development of inter-ministerial local area networks (LANs) progressed rapidly. However, efforts were mainly focused on the hardware side. Consequently, unawareness of the importance of software caused a delay in realizing the potential of the new Internet era (Dunleavy et al. 2006, 52).

Additionally, the political focus was on improving the efficiency of administration. Consequently, in the revised BPPAI of 1997, the role of e-government was defined as "an important tool for implementing administrative reform" that aimed at the realization of efficient, comprehensive, and responsive administration through such measures as simplifying application procedures, digitization, paperless offices, and networking.

A-1-4 Comparison with the UN model (UN 2010)

During this period, the focus was solely on improving the technical infrastructure within the government, and no progress was observed from the citizens' perspective. Therefore, this period can be considered the preparatory stage for the first stage of the UN development stage model (Table 1).

Table 1. The United Nations model of the e-government stages

Emerging stage (first stage)	A stage where policy information, laws, administrative documents, service information, etc., are provided by the government website. There are links between the ministries and related government agencies, and users can easily obtain government information.
Enhanced stage (second stage)	Users can communicate in one direction (or simple twoway), such as by downloading application forms from the government websites. The government site has an audiovisual function and is multilingual. Some websites can be used to send non-electronic data by email.
Transactional stage (third stage)	Two-way communication with users is possible through the government website, which also has a policy advocacy function. Some procedures require personal authentication. Electronic voting, tax filing, application, and more are performed.
Connected stage (fourth stage)	Governments actively collect public opinions and information through their websites. Electronic services are seamless across the ministries and agencies. Various data and information are transferred from each institution to the integrated applications. There is a shift from a government-centric to a citizen-centric approach. Tailor-made services are provided according to the life events and segments of the residents. The government is fostering an environment that encourages people to participate in government decisionmaking.

Source: Kamimura (2021): Excerpt from the United Nations E-Government Survey 2010

A-1-5 Comparison with foreign e-governments

In the US, in 1994, the National Performance Review (NPR) took the initiative in measures led by Vice President Gore to establish a national information infrastructure and afford all citizens electronic access to the government by 2000 (Dunleavy et al. 2016, 46).

Japan's BPPAI was formulated in 1994, and the term "e-government" appeared in its revision (1997). Thus, the Japanese government was already aware of the notion of e-government. Nevertheless, the need for an interface between the citizens and the government remained unrecognized. The nationwide rollout of the Japanese version of broadband has been underway since 2000, more than five years after the US.

Regarding laws and regulations, in the US, the Paperwork Reduction Act regarding digitalization had already been enacted in 1980 (Manoharan and Melitski 2018, 7); thus, there was a 10-year gap or more from the time of the initial legal action for administrative information.

A-2 The first stage (2000-2002)

The e-government measures of this era focused on infrastructure development.

A-2-1 Status of laws and government decisions

Laws

In this period, three important laws were promulgated:

2000: Basic Act on the Formation of an Advanced Information and Telecommunications Network Society (hereafter "the Basic Act on IT")

2002: Administrative Procedure Online Act

Public Personal Authentication Act

Government Decisions

Following the articles of the Basic Act on IT, a policy was decided for the introduction of IT to various levels of government and the entire society.

2001: e-Japan Strategy

A-2-2 Specific measures taken in this period

In this phase, the first control tower for IT matters for the entire government was established by the Basic Act on IT (2000), which was the "Advanced Information and Communication Network Society Promotion Strategy Headquarters (hereafter "IT headquarters"), chaired by the prime minister and joined by all ministers and some private sector experts.

Subsequently, the legal basis for online filing and personal authentication was developed in 2002. Additionally, each ministry had a chief information officer (CIO); in 2002, their liaison council was established as a practical promotion body. Regarding the technical infrastructure, the construction of a government portal site (e-gov) and a local government wide-area network (LGWAN) to connect the local governments began in 2001. To meet the needs of industry and personal life, development began with an "ultrahigh-speed network infrastructure (broadband)."

A-2-3 Characteristics of the first stage

In a change from pre-stage policy, the e-Japan plan of 2001 moved away from the use of IT limited to the government and aimed at overcoming delays in its utilization in business so that it might spread throughout society as a whole. The government of this era created the "ICT revolution" flagship, and IT was expected to strengthen national industrial competitiveness.

The background to this change was the recognition during Prime Minister Mori's term (2000-2001) on the part of senior administration officials of the importance of the ICT revolution, who considered it a priority issue in national policy. Considering that insufficient understanding of IT at the highest levels of the government until that point had delayed the Internet age (Dunleavy et al. 2006, 52), this was an improvement; however, the enthusiasm at that time did not necessarily affect the executive branch. Moreover, it cannot be said that this mood was sustained at its highest levels after this period.

Additionally, e-government at this stage was regarded as a means of reducing staff numbers, which was a major theme of the 2001 central government reform and a part of the administrative reform.

A-2-4 Comparison with the UN and European Union models

This era aimed to provide a variety of information on websites and enable the public to submit opinions, requests, and inquiries online. Therefore, the citizen-government interface was considered to have advanced. Various information provisions by e-gov (the Japanese Government website) and the links between the ministries through Kasumigaseki WAN were established; hence, the definition of the first (Emerging) stage of the UN model may be considered to have been satisfied.

Simultaneously, it showed aspects of the UN's Enhanced stage (second stage), defined as a situation wherein users could communicate in one direction (or simply two-way), as by downloading application forms from government websites, as with the launch of e-gov technology, information became easier to obtain. However, at this stage, e-government was solely employed for the transmission of government information, was not especially citizen-oriented, and had not reached the third stage of two-way communication.

Regarding the European Union's (EU) service supply development model (Wimmer et al. 2007, 18), Japan's First stage can be compared to the (1) information and (2) one-way interaction levels.

A-2-5 Comparison with foreign e-governments

During this period, the influence of the Gore initiative in the US was crucial. Japan's rapid broadband development could be considered the Japanese version of the information superhighway concept. Although the 2001 "e-Japan Strategy" stated that online procedures by citizens would be possible by 2003, the realization of this was postponed until after 2003, thus lagging behind the developed countries.

In Japan, the CIO position was established in each ministry in 2002. However, in the US (Manoharan and Melitski 2018, 7), the Clinger–Cohen Act had been implemented in 1996; thus, Japan was about six years behind. In addition, while the Basic Act on IT of Japan in 2000 was not specific to e-government, the E-Government Act in the US was enacted in 2002 (thus far, Japan has not enacted a law solely on e-government). Nonetheless, the US government launched government websites in 2000, showing almost no difference from Japan's e-government, launched in 2001.

In the UK (Honda 2013, 150), efforts toward e-government were stated in the 1996 Green Paper "Government Direct"; furthermore, in 1997, the e-government initiative was declared a major government commitment of the Labor government (Dunleavy et al. 2006, 48). In addition, the "Modernizing Government White Paper" announced in 1999 set the goal of a 100% electronic operation of administrative procedures by 2008, thus surpassing Japan.

Furthermore, in 2001, a portal site called UK Online, as well as Government Gateway—an authentication platform used to register all government services—was built.

A-3 The second stage (2003-2008)

During this period, the emphasis was placed on improving convenience and services for people, and efforts were made to improve the utilization rate of IT services.

A-3-1 Status of laws and government decisions

In this era, laws related to e-government were not enacted or promulgated. The following government decisions were made:

Government Decisions

2003: e-Japan Strategy II

e-Government Construction Plan

Determination of the business/system optimization targets

2006: ICT New Reform Strategy

A-3-2 Specific measures taken in this period

In three ministries, online applications began in 2003. In 2004, electronic acceptance of national tax returns began in some areas, and online applications began full-scale operations. In 2003, local governments instituted the electronic network of basic resident registration records.

Business and system optimization influenced by enterprise architecture (EA) in the US began with the central government.

A-3-3 Characteristics of the second stage

A-3-3-1 Efforts for improved utilization

In response to the progress of infrastructure development (the original goal of the eJapan Strategy), the emphasis on e-Japan Strategy II shifted to IT utilization, and initiatives aimed at improving the utilization and convenience of IT for the people's sake were stipulated. E-government measures are particularly focused on promoting the use of online applications.

The ICT New Reform Strategy (2006) further developed this idea; it aimed at creating "the world's most convenient and efficient e-government" by reducing the number of attached documents and incentivizing users to increase the number of online applications, with a focus on improving the utilization rate by 50% or more by fiscal year 2010.

A-3-3-2 Re-engineering the government business process

Another characteristic of this era was the recognition of the harm caused by the monopoly of giant IT companies. Consequently, efforts to break their hold begun by introducing a kind of government business process re-engineering (BPR) or enterprise architecture (EA), that focuses on topics such as the standardization/unification of systems and business outsourcing. Particularly, legacy systems were targeted for complete revision by switching to general-purpose software packages, opening systems, unbundling hardware and software (separate procurement), transitioning from free contracts to competitive bidding, and reviewing data communication service contracts.

A-3-4 Comparison within the UN model

The UN's transactional stage (the third stage) began with online applications in Japan.

Its many elements, except electronic voting, which is sporadic in Japan, have been fulfilled.

A-3-5 Comparison with foreign e-governments

This era was marked by the introduction of EA and BPR, which originated in the US.

In Japan, the optimization of business and information systems follows the federal EA model. Additionally, the US-style business model reform movement was introduced to the Japanese government.

A-4 The third stage (2009-2016)

The characteristics of this era include the enhancement of e-government governance, the promotion of openness, and a shift to a citizen-centered model.

A-4-1 Status of laws and government decisions

In this era, several important laws were enacted. There were also some government decisions regarding the nature of epoch-making.

Laws

2012: Revision of the Cabinet Act (founding the Government CIO)

2013: Act on the Use of Numbers to Identify a Specific Individual in Administrative Procedures (My Number Act)

2015: Revision of the Personal Information Protection Act (introduction of Anonymized Personal Information)

Government Decisions

2009: i-Japan Strategy 2015

2010: New Information and Communication Technology Strategy

2011: Basic guidelines for promotion of e-administration

2012: E-Government Open Data Strategy

Declaration to Create the World's Most Advanced IT Nation

A-4-2 Specific measures taken in this period

This era marked the beginning of many important components of e-government. For example, in 2009, government-shared service systems such as document management systems, public employee common authentication platforms (Government Identity Management for Authentication, GIMA), and personnel and payroll systems were launched.

In 2013, a common government platform (Government Cloud) was implemented.

Furthermore, an open government emerged. Following the government's decision in 2012, a data catalogue (a government site) was implemented in 2014. Thus, the utilization of digital, governmental, and personal digitized data was planned.

Simultaneously, the Act on the Protection of Personal Information was revised (2015) to circulate and utilize anonymized personal data.

Regarding the Japanese version of the national identity (ID), the use of My Number began in 2016— although only in the fields of welfare, medicine, and tax administration.

The acquisition rate was initially low; however, as of March 2023, the application rate for the entire population had reached 75%. In the future, there are plans to integrate health insurance cards and driver's license functions into these cards.

A-4-3 Characteristics of the third stage

A-4-3-1 Shift to a Citizen-Centered Perspective

In the i-Japan Strategy (2009), it was stated that digital technology, which had been based on a "technology-first orientation" and "supplier-side logic," should be converted to a "human-centric" perspective, reflecting the fact that the inadequate user perspective was the reason for the delay in digitization.

This was further revealed in the 2010 New Information Technology Strategy. Because the government at that time was ruled by the Democratic Party, which was hostile to the bureaucratic leadership system, a citizen-centric consciousness was strongly expressed. For example, it situated "information disclosure/sharing" as a central feature of the e-government, which was completely different from previous decisions.

Furthermore, expressions such as a "society led by the people who are taxpayers/consumers" were observed in this decision. The aim was to make a shift from a "society led by the government/provider."

A-4-3-2 Strengthening the IT governance

The position of government CIO, nearly the highest-level official in Japan, was established in the Cabinet Secretariat (2012), to which a private sector expert was appointed. This measure aimed to undertake a review of silo-based systems, build a common sharing system, and create a platform using cloud computing from the standpoint of the unified supervision of each ministry and agency.

Consequently, IT governance was strengthened to ensure a more efficient use of the IT budget (with the target of a 30% reduction from the 2009 budget of 6340 million yen) and the elimination of system duplication (1485 systems in 2012 to 787 by 2018, a change of -53%). These targets were largely achieved by FY2021 (MIC, 2021). In addition, as mentioned above, the concept of an open government was introduced for the first time, and efforts to provide government data were initiated.

A-4-4 Comparison with the UN and EU models

In this era, Japan remained in the third stage of the UN model, in which its progress was promoted and its actual usage rate increased. This may correspond to the two-way interaction stage in the EU model.

A-4-5 Comparison with foreign e-governments

A-4-5-1 Open government

This initiative in Japan was influenced by the January 2009 memorandum (Transparency & Open Government) of US President Barack Obama and the "Open Government Directive" in December of the same year. However, while the US site, Data.gov, was launched in 2009, the Japanese data catalog was approximately four years behind.

In 2010, the UK announced its "transparency agenda," and data.gov.uk was launched at approximately the same time as in the US, three years earlier than Japan.

The Open Data Charter was adopted at the 2013 G8 Summit and Japan's efforts have been consistent with this trend.

A-4-5-2 IT governance

To improve IT investment management during this period, the US federal government's CIO launched Portfolio Stat, which aimed to identify duplicate IT investments and shift to a shared service model. It has become the model for efforts related to IT governance in Japan.

In the UK, according to Mike Bracken of the GDS, established in 2009, considerable efforts were needed to overcome the oligopoly of the IT companies, a problem that has been common in Japan (Sikkut 2022, 181).

In addition, the UK's Government Digital Strategy of 2012 stated the policy of a "Digital by default service standard"; however, this would not appear in Japan until 2017, during the subsequent stage.

Furthermore, the UK's Civil Service Reform Plan calls for the unification of government sites into a single website for the whole government, gov.uk; nevertheless, Japan still uses unique websites for each ministry and agency, and such unification has not been discussed or planned.

A-5 The fourth stage (2016-present)

Since 2016, efforts have been made to improve people's lives and welfare, transform society and the economy through the use of data, and review the nature of government administration itself from a digital government viewpoint. Thus, these efforts have continued.

A-5-1 Status of laws and government decisions

The Basic Act on IT (2001) was transformed into the Basic Act on the Formation of a Digital Society (2021), and the Administrative Procedure Online Act (2002) was revised to become the Digital Procedure Act (2019). These measures were taken to strengthen the existing legal provisions suitable for the digital age.

Similar measures were also observed in the formation of the related government decisions.

Laws

2016: Basic Act on the Advancement of Public and Private Sector Data Utilization

Revision of Personal Information Protection Act

2017: Revision of Government Personal Information Protection Act

2019: The Digital Procedure Act

2021: The Basic Act on the Formation of a Digital Society

Government Decisions

2017: Digital Government Implementation Plan

Basic Plan for the Advancement of Public and Private Sector Data Utilization

Guidelines for promoting digital government

Basic guidelines for open data

2018: Digital Government Action Plan

2020: Digital Government Action Plan (revised)

Local governments' DX (Digital Transformation) promotion plans

2022: Basic Policy on Reform for the Formation of a Digital Society

A-5-2 Specific measures taken in this period

In addition to the many legislation and decisions pieces described above, the *Mynaportal* was implemented in 2017. This website is linked to the My Number, which allows users to search for notifications from the government, implementation of various procedures, and status of the My Number usage. It may be likened to a small version of Borger.dk and Eesti.ee in Denmark and Estonia, respectively.

Another important achievement was the establishment of the Digital Agency (2021) as the new control tower. These functions has been described in the previous sections.

Furthermore, initiatives related to the Society 5.0 concept, digital garden city concept, and smart cities/super cities projects have recently begun as initiatives that surpass the category of e-government (for the contents, see the websites of the Cabinet Office/Cabinet Secretariats in the References).

A-5-3 Characteristics of the fourth stage

The application/distribution of the My Number card, which began in 2016 as a nonmandatory scheme, was sluggish until 2020; the problem became conspicuous during the COVID-19 crisis (delays in identity verifications related to the payment of benefits, etc.). This indicates that in Japan, institutional and infrastructure development were at a high level; however, conditions related to the use of data were inadequate.

Reflecting on this, efforts toward the realization of a "digital government" with a focus on "user-centered services" and "creation of innovation through a public-private collaboration" based on utilizing public and private data were promoted. Accordingly, various laws and government decisions have been enacted.

Thus, the Digital Agency was established, and a substantial revision of the Basic Act on IT was performed to fundamentally strengthen government's efforts to digitize the entire society.

Under these circumstances, *inclusive digitalization* was promoted to leave no one behind out of concern about the digital divide.

A-5-4 Comparison with the UN and EU models

If all these measures had succeeded, this period would have been the connected stage (fourth stage) of the UN model. However, the requirement that "Governments actively collect public opinions and information through their websites" was only satisfied by the passive public comment procedure by e-Gov. Therefore, the efforts were insufficient at this stage.

Additionally, due to inconsistencies in formats and procedures among ministries, there was insufficient cooperation even at inter-agency online conferences during the COVID-19 pandemic. The Japanese government's electronic services have not been *seamless* across ministries, and the services for citizens are not *customized*, for which reason this can only be considered the fourth stage with qualification.

Additionally, with the exception of cities such as Kakogawa, which use Decidim in some cases, the citizens' participation in political decision-making has not yet been realized, and the situation remains at the entrance to the fourth stage.

Compared to the EU model, neither a full electronic case nor a "personalization" state has been reached.

A-5-5 Comparison with foreign e-governments

Regarding the foreign influences in this era, that of the EU is noteworthy. Although not detailed in this paper, the impact of the GDPR on the full revision of the Japanese Personal Information Protection Law was significant. Furthermore, in the fields of digital taxation and IT competition policy, the EU, as a rule setter, has been especially closely followed in Japan.

According to the MIC (2021) and Kogure (2019 and 2021), among the seven principles stated in the "EU e-Government Action Plan 2016–2020" (EU 2016), the four e-government-related

items are as follows: Digital by Default, Once-Only Principle, CrossBorder by Default, and Interoperability by Default, which are reflected in the three basic principles ("Digital First," "Once Only," and "Connected One Stop") of the Digital Procedure Act.

Among the seven EU principles, inclusiveness and accessibility were also reflected in the Digital Agency's mission of "digitalization that leaves no one behind."

In 2018, the government CIO published a practical guidebook on design thinking influenced by the works of the cross-administrative "Mind Lab" in Denmark.

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