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IT Utilization Status of Local Governments in Japan and Related Issues

Tatsumi Shimada
Tokyo Metropolitan Institute of Technology, Japan, tshimad@cc.tmit.ac.jp

Kiyoshi Ushida
Tokyo Metropolitan Government, Japan, Kiyoshi_Ushida@member.metro.tokyo.jp

ABSTRACT

This paper reveals the actual status of local governments' digital readiness in Japan, and describes the stage of achievement in digitalization and related issues.0 Items requiring analysis are plans for digitalization of governmental administration, organizations, services for residents, information disclosure, and a driving body, as well as impediments to the realization of electronic local governments. The conclusion is as follows. The present IT infrastructure in Local Governments is not yet sufficient. Its major uses are LAN and e-mail. Prefectures and large cities are relatively advanced Governments. The biggest hindrance is financial difficulties. So it is essential to slim legacy systems and thereby fund new IT systems. Security, privacy protection and organizational conservatism are more important problems than equipmental shortage.

INTRODUCTION

In Japan, various measures to introduce digital technology to public administration, citizens, and businesses are being implemented in the early part of the 21st Century in an evolution towards an "electronic government."

This paper reveals the actual status of local governments' digital readiness in Japan, and describes the stage of achievement in digitalization and related issues. Local governments in Japan consist of two layers: 47 prefectures and 3,250 other municipalities under the central government.

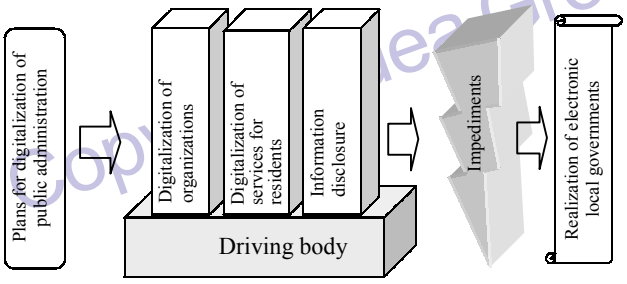
Items requiring analysis are plans for digitalization of governmental administration, organizations, services for residents, information disclosure, and a driving body, as well as impediments to the realization of electronic local governments.

FRAMEWORK OF ANALYSIS AND RECOGNITION OF ISSUES

To realize electronic local governments with high organizational performance, it is necessary to draw up plans for the digitalization of governmental administration based on clear strategies of the local governments, and to digitalize internal organizations and services for residents. At the same time, to promote digitalization, information disclosure and a driving body are indispensable. Furthermore, overcoming various impediments to the realization of electronic local governments is another important issue (See Figure 1).

We would like to address the following five issues. First, "It seems necessary to draw up plans for digitalization, but is it really necessary?" and "Whether the formulation and revision of plans significantly affects the movement of the national electronic government?" Second, "Digitalization can be roughly separated into the digitalization of organizations to improve their internal efficiency and the digitalization to improve services for residents. What is the status of progress on each?" Third, "What is the present state of progress on information disclosure to improve resident democracy and facilitate resident participation?" Fourth, "Whether the driving body to support digitalization has been prepared?" And last, "What are the impediments to the promotion of digitalization?"

Figure 1: Systems of analysis



RESEARCH DESIGN

To conduct empirical research to answer the above questions, we conducted a survey of local governments, and interviewed officials at eight of the local governments that responded to the questionnaire. The methods of the questionnaire survey are as follows:

- Period of survey: July 2000 (the questionnaire was issued on April 1, 2000)
- Targets: 203 local governments in Japan (prefectural governments, cities with a population of 200 thousand or more and prefectural capitals, and wards and cities in the Tokyo Metropolitan Area)
- Total number of respondents: 140 local governments (ratio of respondents: 69.0%)

The following survey results are given by type of local government. The results are as follows, barring some exceptions. Comparison with the results of a similar survey in 1996 is conducted as needed (Shimada, 1999).

OUTLINE OF SURVEY RESULTS

(1) **Information infrastructure**

a. **PC diffusion rate.** The PC diffusion rate (the number of PCs per employee) is 36% (one PC per about three employees: the average of local governments). On the prefectural level, the rate sharply increased from 45% in 1998 to 73% in 2000. This rate of increase, however, is still low when compared with that of local governments which had an approximately five-fold increase in four years from the diffusion rate in the 1996 survey of 7.1% (one PC per 14 employees).

b. **PC diffusion rate at central government offices.** The PC diffusion rate at central government offices has increased to 51% (one PC per 2 employees). In particular, prefectural governments achieved a rate of 92% (about one PC per employee).

c. **Internet connection rate.** The Internet connection rate is still a modest 20 %, but the rate for prefectural governments is higher at 39%.

(2) **Digitalization of public administration**

a. **Status of plan formulation for the digitalization of public**

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administration. 71% of local governments answered that they have already formulated plans for the digitalization of their administration and 13% answered they are in the planning stage. As a whole, formulation of plans for digitalization is proceeding well.

b. **The revision ratio of plans for digitalization of public administration in line with the national electronic government.** Of the local governments who have already formulated plans for the digitalization of public administration, 9% have finished revision of their plans and 48% have planned revision in line with the national electronic government. In November 1999, the Millennium Project aimed at the establishment of an electronic government infrastructure by 2003 was announced. Because the survey was conducted only three months after the announcement, revision was an issue to be addressed in the future. However, a majority (58%) of local governments have already conducted or planned revision, and showed enthusiasm for the establishment of electronic local governments.

c. **Important items in formulating plans for the digitalization of public administration.** In formulating plans for digitalization of public administration, the following items are considered to be important by local governments: development of information infrastructure (66%), delivery of information using the Internet, etc. (53%), one-stop services and non-stop services (40%), digitalization and simplification of handling of various applications and notifications (39%), consistency with administrative reforms (27%), and security (23%).

(3) **Digitalization of organizations.** Digitalization status of organizations: the introduction rates at prefectural governments for LAN (90% *1) and e-mail (74%) are high. These are followed by facility management (39%) and electronic bulletin boards (35%). The introduction rates of schedule management (18%), creation of database of draft documents (15%), delivery of bid information through the Internet (12%), and electronic settlement (7%) are still low. The utilization rate of e-mail at local governments expanded approximately 3.2 times in four years compared to the 20.2% rate in 1996.

a. **Utilization status of e-mail by position.** At the local governments already using e-mail, regular employees use it more frequently than top management and managerial-level staff. However, the use of this technology by only general employees does not lead to the digitalization of the whole organization. It is necessary to increase the e-mail utilization rate of top and middle management as soon as possible.

b. **Creation of database of draft documents.** Only 8% of prefectural governments have created a database of draft documents on an organizational level. Of the local governments who created a database, only 25% created a database of all draft documents, and 45% of them created a database of only lists and similar documents. To cope with information disclosure in the future, database creation must be implemented as soon as possible.

c. **Electronic procurement.** With regard to electronic procurement, tendering and bidding via the Internet and application for participation qualification examinations are not conducted yet. Only 12% of local governments provide order placement information using the electronic procurement system. As a result of the introduction of electronic procurement, combined with the revision of the contract method, some local governments succeeded in dramatically reducing contract prices. Electronic procurement should be introduced for cost reduction reasons as well.

d. **Electronic settlement.** Only 1% of local governments introduced electronic settlement for all operations on an organization basis. However, 52% are examining the issue and introduction in the future is expected. In some local governments, electronic settlement is used only for specific operations (1%) or by specific divisions (5%) such as those related to simple draft documents, overtime payment, travel orders, holidays, financial accounting, and utility bill payments.

(4) **Digitalization of services for residents.** Almost all local governments (93%) provide services for residents via the Internet; however, other operations are not so digitalized. Following the above are electronic libraries (28% *2), electronic galleries and museums (24% *2), electronic applications (18%), and integrated GIS (Geographical Information System) (16%).

Table 1: Introduction status of digitalization of services for residents

	Prefectures	Government-designated cities	Special wards	Cities inside Tokyo	Cities outside Tokyo	Average
Services for residents via the Internet **	100%	100%	81%	71%	98%	93%
Electronic libraries *	48%	14%	14%	17%	24%	28%
Electronic galleries and museums **	48%	43%	12%	0%	18%	24%
Electronic applications	23%	43%	13%	5%	20%	18%
Integrated GIS	9%	14%	19%	5%	23%	16%

** p>0.01, * p<0.05

a. **Services for residents via the Internet.** The rate of introduction for provision of services for residents via the Internet is 100 % for both prefectures and government-designated cities.

b. **Electronic applications.** Local governments who introduced electronic application mainly use it for the following operations: confirmation related to construction (41%), utilization of public facilities (41%), port management (18%), drugs, medicines and medical services (9%), etc. The scope of utilization will expand in line with the movement of the national government, and operations suitable for online processing may in principle be digitalized. With regard to the form of application, 35% are filed using floppy disks, 32% are filed through dedicated terminals, and only 32% are through the Internet.

c. **Integrated GIS.** Local governments who introduced integrated GIS (Geographical Information System) mainly use it for the following operations: city planning projects (59%), valuation of fixed assets (35%), geographical information systems (35%), sewage systems (35%), building construction administration (29%), road ledger systems (24%), disaster prevention systems (18%), geographical environment systems (12%), etc.

d. **Contents of homepage.** The major contents of homepages of local governments are information on upcoming events (96%), utilization status of public facilities (89%), various business conditions (88%), sightseeing and products information (82%), health and medical information (82%), lifestyle information (80%), statistical information (79%), public hearings and surveys (71%), regional industrial information (55%), etc. The utilization rates of electronic bulletin boards (15%) and electronic conference rooms (8%) are still low. This shows that many of their homepages provide only one-way communication.

e. **Reflection of residents' opinions on policy.** 39% of the opinions provided through e-mail, electronic conference room, and electronic bulletin board are reflected in policies; however, this figure differs depending on the type of local government.

Opinions of residents provided through e-mail, etc., are reflected mainly in town building measures such as residents-centered town buildings (30%), long-term plans (27%), and comprehensive city planning projects (25%). These are followed by basic environmental plans (16%) and city planning projects (14%).

f. **Services for residents other than homepages.** 27% of local governments provide services for residents other than homepages. These include: continuing education services (46%), corporate support services (31%), medical services (23%), social work services (23%), library lending services (23%), agricultural support services (23%), etc.

(5) **Information disclosure status.** As many as 95% of local governments have already established an information disclosure ordinance, and 43% have issued regulations on disclosure of and request for electronic documents. However, the information disclosure rate through the Internet is very low, and only 3% answered "only application is possible" and 1% answered "only application and answer are possible." 25% are under examination.
84% of local governments established a personal information protection ordinance.
66% of local governments prohibit online connection with external parties other than enumerated specific partners (basically prohibited) and 20% prohibit online connection with external parties without exception.

(6) **Driving bodies**. The CIOs (Chief Information Officers) are deputy governers and deputy mayors (13%), general managers and bureau directors (22%), and directors (31%). Thus, digitalization projects are mainly driven by director-level officers. 32% answered that they have no driving body.

(7) **Impediments to realization of electronic local governments**. Major factors listed as impediments are financial difficulty (68%), assurance of security (55%), protection of personal information (44%), and old organization structure (30%). These are followed by lack of communications equipment and facilities (21%), understanding of top management (17%), national laws and regulations (15%), ordinances and regulations of local governments (13%), and understanding of managerial-level staff (10%).

The impediment listed first is financial difficulty. To cope with this problem, in introducing information technology, it is necessary to fully revise and streamline operations in order to take advantage of information technology at a lower cost, streamline the existing information systems and improve obsolete systems to reap the benefits of cost reduction from digitalization.

Judging from the fact that the lack of communications equipment and facilities is listed fifth, software-related issues such as security, protection of personal information, and old organization structure are more serious than simple hardware-related factors. Thus, comprehensive measures including reforms related to operations, safety, organizations, consciousness, etc. are considered to be necessary.

Looking into the data by the type of local government, municipal governments recognize protection of security and personal information as a more serious impediment than prefectural governments. Municipal governments put more emphasis on the prevention of personal information leakage because they are in a closer position to residents. Before advancing digitalization of local governments, it is necessary to draw up an "information security policy" to assure security in all aspects. Many prefectural governments listed the issue of old organization structure. This may be because their structures are older than municipal governments due to the larger size of their organizations. Thus, stronger leadership by top management and managerial-level staff is required.

CONCLUSION

Although as a whole, prefectures and government-designated cities are working to digitalize internal organizations and services for residents, fewer local governments have started to work on digitalization.

However, some of them have started advanced digitalization measures. These advanced groups will blaze a path for other local governments. Attitudes of corporate members from top management to general employees are influential factors in the digitalization of local governments. Therefore, it is necessary to raise consciousness and increase motivation of staff members.

Table 2: Impediments to realization of electronic local governments

	Financial difficulty	Assurance of security	Protection of personal information	Old organization structure	Lack of communications equipment and facilities	Understanding of top management	National laws and regulations	Difficulty in finding suitable personnel	Ordinances and regulations	Understanding of managerial-level staff	Other	Understanding of labor unions	Understanding of the assembly
Prefectures	69%	47%	25%	44%	25%	22%	11%	14%	19%	11%	6%	0%	3%
Government designated cities	57%	71%	43%	29%	14%	14%	29%	14%	14%	0%	14%	0%	0%
Special wards	88%	63%	50%	13%	31%	19%	0%	6%	6%	19%	0%	6%	0%
Cities inside Tokyo	60%	45%	60%	35%	15%	15%	15%	15%	15%	5%	5%	5%	0%
Cities outside Tokyo	67%	60%	48%	25%	18%	13%	20%	15%	10%	10%	3%	3%	3%
Average	68%	55%	44%	30%	21%	17%	15%	14%	13%	10%	4%	3%	2%

In realizing electronic local governments in the future, financial difficulty is the worst impediment. It will be necessary to reduce the costs of existing information systems and shift funds to IT investment. Many local governments said that software-related issues are more serious than simple hardware-related issues such as lack of communications equipment. It will be necessary to induce the top-level management such as the CIOs, as well as individual divisions, to take organization-wide measures for digitalization.

ENDNOTES

*1 Internet connection rate is 52%.

*2 Rate of introduction of internet delivery services (including experimental stage)

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