Provision of information by local governments using the Internet: case studies in Japan

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PROVISION OF INFORMATION BY LOCAL GOVERNMENTS USING THE INTERNET: CASE STUDIES IN JAPAN

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Abstract – The Internet is an effective medium that has great potential for the low-cost provision of information from local government. This paper discusses the relationship between geographic conditions and local government policy for the use of Information and Communications Technologies (ICTs), via case studies of official websites operated by local governments in Japan.

This paper explores three main issues. First, the process of the diffusion of local government websites in Japan is analyzed. Second, the diversity of website content presented by local governments is assessed. Finally, the effects of national policy on Internet utilization by local governments is discussed.

The following results are based on data collected by a questionnaire survey and an analysis of websites for local governments in selected areas of Japan. The diffusion of official websites for local governments began in the mid-1990s and was largely complete by 2000. In the early stages of this diffusion process, many websites aimed to transmit information to audiences outside of the municipality. In the later stages, however, larger cities established official websites and a greater proportion of websites were internally oriented. The content of these sites targeted the multiple needs of the local residents in terms of public services. Although the Japanese Government established a positive policy with the aim of improving ICT utilization by both local and national government, the national policy had only a minor effect on official local government websites.

Keywords – local government, official website, local information, national policy

Résumé – Internet est un moyen efficace pour l’administration locale de fournir à moindre coût des informations à forte valeur ajoutée. Dans cet article, nous traitons de la façon dont les collectivités locales sont parvenues à développer des services en direction des populations en construisant des webs publics territoriaux.

Trois dimensions sont évoquées. La première porte sur le processus de diffusion des sites Internet des administrations locales au Japon. D’abord orientés en direction des publics étrangers à la ville elle-même (années 1990), les services se sont attachés, à partir des années 2000, à répondre aux besoins des habitants. La seconde évalue la diversité des contenus de ces sites. Enfin, la troisième évalue l’impact de la politique nationale notamment en matière d’e-administration sur celles des collectivités locales.

Il semble que l’impact de l’initiative gouvernementale soit faible sur celles des collectivités locales qui ont développé leur propre approche. Les résultats proposés sont fondés sur des données collectées selon une méthode d’enquête par questionnaires et une analyse des sites sélectionnés dans différentes zones du Japon.

Mots clés – administration locale, site web public territorial, informations locales, politique nationale

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1. Introduction

The Internet has great potential for the effective and low-cost provision of information by local government and they are the most common providers of local information via the Internet.

Before the mass popularization of the Internet, a number of local governments in the USA, Europe, and Japan undertook experimental projects that involved the provision of information services for local residents using telecommunication networks. Typical examples of such projects were the Santa Monica Public Electronic Network (PEN) and the Freenets that were established in many cities in the USA and Europe. These experiments were concerned with the potential of a new form of local governance that utilized the technology of electronic conferences. During the early stages of development, these networks could only be accessed from governmental networks; the development of the Internet, however allowed almost all of these networks became connected to the Internet, thus enabling external access (Graham and Marvin, 1996, 2000).

Corresponding with the widespread adoption of the Internet in the latter half of the 1990s, it became commonplace for local governments in developed countries to provide online information and public services via the Internet. A number of empirical studies, which involved systematic analyses of the services provided online, were undertaken in the USA and Europe (West, 2001, 2002, 2003; Paradiso and D’Aponte, 2003; Einemann and Paradiso, 2004). Einemann (2003) also considered strategic policies and organizational designs that were implemented to promote the provision of manifold online governmental services (e-government).

Van der Meer and Van Winden (2003) proposed the concept of the “digital flywheel” as a theoretical framework within which to discuss the activities of local governments in terms of utilizing Information and Communications Technologies (ICTs). They argue that ICT utilization in a community progresses via a dynamic interaction of three manifestations (access, infrastructure, and content) that are augmented by external factors such as institutional conditions, economic conditions, and national policies. Content, which is defined as “electronically available information, interactive services or other content related to or concerned with a specific locality,” is interchangeable with the concept of “local information” used here. Within this framework, the present paper focuses on the Internet content provided by local governments. Van der Meer and Van Winden (2003) argue that local governments are one of the most important suppliers of local content, and the content provided by local governments clearly reflects features of their ICT policies. In this paper, the relationship between geographic conditions and local government policy for ICT utilization is discussed via case studies of official websites operated by local governments in Japan.

We explore three main issues. First, the process of the diffusion of local government websites in Japan is analyzed. By undertaking an analysis of temporal changes in the purpose and content of official websites, we document the changing role of the Internet in society is documented.

Second, the diversity of website content provided by local governments in Japan is assessed. An increasing range of content, corresponding to manifold public services, has occurred with the rapid increase in the number of Internet users.

Third, the effects of a national policy in Japan on the utilization of the Internet by local governments is examined. The current policy of the Japanese Government promotes the
digitization of the business and services of national and local governments, yet the response of local governments to this national policy has yet to clarified.

To collect research material, the official websites of local governments at *shi–cho–son* (city–town–village) levels in selected areas of Japan were systematically analyzed (Figure 1). *Shi–cho–son* are basic local municipalities in the Japanese local administration system, each with their own government. The population of different *shi–cho–son* municipalities varies from under 1,000 to more than 1 million. Although a *shi* (city) in Japan generally has a population of at least 30,000, the population of a *son* or *mura* (village) numbers just several thousand, while the size of a *cho* or *machi* (town) is midway between that of a *shi* and a *son/mura*. The contrast in population size between *shi*, *cho*, and *son* affects the characteristics of the website content for each entity, as discussed later in the text.

A questionnaire survey of these local governments was also carried out. The aim of the survey was to gather material for analysis in terms of detailed items of information provided on the websites of local governments, as well as background conditions. One or two areas were selected from large metropolitan regions (Tokyo except for the 23ku-Wards; Osaka except for Osaka City), representative provincial regions (Ishikawa and Nagano), and peripheral regions (eastern Hokkaido and Oita, as shown in Figure 1). Questionnaires were sent by e-mail (and a small number by post) to 271 local governments within the research areas and 144 responses (53.1% of targeted municipalities) were returned.

![Figure 1: Selected areas for the questionnaire survey](image)
In the following sections, the three issues outlined above are discussed in terms of the data collected from the questionnaire survey and an analysis of websites.

2. Process of the diffusion of the official websites of local governments in Japan

2.1. Development of official local government websites

Although official statistics compiled by the Japanese Government revealed that just 2.1% of municipalities in Japan had opened their own websites in 1995, this figure surged to 95.6% in 2002 (Ministry of Internal Affairs and Communications, 1999, 2004; Kuroda, 2000). Almost all municipalities currently run their own websites. The earliest official website identified by this research was established in 1994, just one year following the development of commercial Internet services in Japan. The number of official websites increased rapidly during the latter part of the 1990s (Figure 2). As just 9.2% of the Japanese population used the Internet in 1997, it is apparent that local governments in Japan were one of the first groups in society to make widespread use of the Internet.

![Figure 2: Increase of the official websites of local governments](source: Questionnaire survey by the author)

2.2. Purposes of official websites

The purposes of official local government websites can be roughly divided into two categories. The first is the delivery of local information such as public services and local events, largely targeting local residents. The second is the provision of information concerning tourism and business relations to an audience outside the local community. Whereas the purpose of many of the early websites involved the external provision of local information, later websites tended to have a focus on the local residents. The percentage of websites aimed at attracting tourists declined from 68.4% of websites opened during 1994–1996 to 56.2% opened during 2003–2005. Temporal changes in the percentage of websites that focused on business relations show a similar trend.
These changes can be explained in light of the following trends. In the mid-1990s, the Internet was not yet an effective means of delivering public service information because only a small number of municipal residents used the Internet. In contrast, tourists with a strong need for information on remote places and companies seeking business opportunities are likely to use multiple information sources. Accordingly, tourists and companies were more likely to use the Internet than regular citizens. For small municipalities that are unable to afford the cost of using mass media or creating their own publications, the Internet is a suitable medium for promoting tourist attractions and business relations. The demand for an affordable and effective means of providing information has had a positive effect on the number of small municipalities starting up their own websites.

However, with the popularization of the Internet, many local governments began to use the Internet to deliver information to their residents. Consequently, the proportion of websites that provide information to external sources has decreased over time. This hypothesis is supported by the fact that the chief purpose of any given official website is closely related to the population of the municipality.

2.3. Early official websites for small villages

It is noteworthy that some small villages (mura) started official websites during the very early stages of the diffusion process of local government websites. The earliest website reported by respondents to the survey was a site opened by Shimojo Mura, a small village of approximately 4,000 residents. An even smaller village, Neba Mura, with approximately 1,000 residents, opened their website in the following year.

Both of these villages are located in mountainous parts of Nagano, in the center of the Japanese main island of Honshu (Figure 1). These villages staked their hopes on tourism as a means of regional development, in the absence of other industries within their regions. The authorities at both villages also desired to promote the areas as tourist attractions; however, the mass media largely ignored the villages, as they are not well-known sightseeing areas, and the
villages had only limited budgets for their own promotional activities. Accordingly, the Internet was the only medium that they were able to employ. Using the Internet allows tourist information to be easily transmitted to the entire nation at a relatively low cost. The fact that the tourism division was in charge of website operations within the Neba Mura authority supports this analysis.

Despite the demand for official websites in the two villages, both had to overcome technical challenges in constructing their sites. In fact, both villages had a common technical background in terms of constructing and opening their websites. An ICT technical school located in a nearby city (Iida Shi) supported the establishment of the two websites. Iida Computer School (ICS, Iida Yumemirai ICT College at present) was established in 1987 with financial support from Iida Shi (City), which is the primary city in the region. Since becoming established, ICS has aimed to support the adoption of the Internet in the region in addition to providing courses in computing. ICS called for the opening of official websites by nearby local governments as an activity that makes use of the Internet for regional development. With support from ICS, Shimojo Mura and Neba Mura opened their websites from the school’s website server and began to provide local information, mainly concerned with tourism. At the time that these websites went online, few local people had access to the Internet. This was not a problem, however, as the main purpose of the websites was to provide local information to tourists located outside the region. In both these cases, a school located in the primary city of the region played a considerable role in enabling the development of the websites.

2.4. Local government websites and infrastructure conditions in a peripheral area

In peripheral areas, the conditions of ICT infrastructure were limited during the early stages of the diffusion of local government websites. When the first local government websites opened, few residents had access to the Internet. In particular, residents and organizations in peripheral areas experienced difficulties using the Internet because there were few Internet providers in those areas. In contrast, large metropolitan areas were serviced by a number of private Internet providers. At that time, providing commercial Internet services to peripheral areas with low population densities was considered to be uneconomical because of the relative high cost per user for ICT equipment. To overcome these difficulties, a number of local governments in peripheral areas attempted to construct communication networks independently and thereby operate as an Internet service provider. In this context, the focus of this paper now turns to the case of the Ohotsk Committee.

The Ohotsk Committee was established in 1990 by 26 local governments within the Ohotsk Region, a coastal area in eastern Hokkaido. Abashiri Shi (City) is the primary city within this region (Figure 1). The Ohotsk Region is one of the most peripheral and coldest regions of Japan; consequently, economic conditions are challenging. The Ohotsk Committee formulated various projects with the aim of encouraging development within the region. One of these projects focused on the use of the Internet to improve the image of the region; this was undertaken under the leadership of Abashiri Shi in 1996.

The Ohotsk Committee planned to build a common website named “Ohotsk Fantasia,” which would house the official webpages of all the local governments. From the beginning, the committee aimed for nationwide transmission of information on the region; however, there was no suitable commercial network service at this time. The committee then decided to establish a telecommunications network that would connect all of their government offices and provide an Internet service for their residents. The network was designed with the
main-center located in the city hall of Abashiri Shi and two sub-centers connected to the main-center using telecommunication lines leased from Nippon Telegraph and Telephone (NTT). The users in each of the local government offices and residents were able to access the network via dial-up connections. The cost of the network was shared by member municipalities and private organizations within the region.

The planned content for Ohotsk Fantasia was to be focused mainly on tourism. Budget constraints and limited human resources meant that it was difficult for small municipalities to construct websites that appealed to a nationwide audience. A common website for all members provided the basic infrastructure for each website page and minimized the work involved in site maintenance.

The establishment of the network also provided Internet access to local residents who were previously unable to access the Internet. The number of subscribers to the service reached approximately 23,000 at its peak, equivalent to 17% of all households in the region. This rate of uptake was remarkable for a peripheral area, considering that the national rate of Internet uptake was less than 20% in the period prior to the popularization of broadband Internet and access via mobile phones. The Internet service provided by the Ohotsk Committee made a significant contribution to ensuring rapid uptake of Internet use in the region.

Since 2000, increasing numbers of member municipalities began to open their own independent websites, and by 2002, all members had their own websites. Accompanying this change, Ohotsk Fantasia changed its role from that of a common website to a portal for local information. The Internet service set up by the committee was terminated once commercial Internet services began operating in the region, thus ending a unique activity by the Ohotsk Committee. However, the experience of the Ohotsk Committee demonstrates that the public sector can play a very important role in the early stages of Internet diffusion within peripheral areas that are subject to challenging economic conditions.

3. Diversity of website content among local governments

There was no clear differences in the commencement times of official websites for large and small municipalities; however, significant differences in the type of local information and interactive services provided by local government websites appear to be related to population.

3.1. Targets of the websites

As stated previously there are two major purposes for local government websites: the delivery of local information to local residents and information to those outside the local community. The relative importance of each purpose is closely related to the population of the municipality. The official websites of local governments within small municipalities tend to target external viewers and firms. In fact, 65.8% of municipalities with fewer than 100,000 residents emphasized tourist information on their websites, compared to 50.0% for larger municipalities. Similarly, 55.0% of all towns and villages emphasized business relations on their websites; the equivalent figure for cities is 48.4% (Figure 4).
Small municipalities demonstrated a strong need to transmit information outside the municipality in order to develop the local region. The ease of use of the Internet as a means of providing information, even for small municipalities, helped to promote this trend.

In contrast, large municipalities require the efficient delivery of public service information to local residents. Almost all large municipalities have published various guidebooks and newspapers for local residents; however, these printed materials are severely limited in terms of the frequency and flexibility of information delivery. In addition, the cost of publishing and delivering printed material to large numbers of residents is very high. In contrast, websites represent a more flexible medium in terms of the amount of information and the frequency of updates. A local government that utilizes its website efficiently can obtain an effective and low-cost medium for providing information, as the operating cost of a website is not related to the number of potential readers.

3.2. Use of the Internet in dealing with natural disasters

Municipalities are required to prevent and mitigate natural disasters. Each municipality makes every effort in terms of disaster prevention. Television and radio are suitable media for delivering disaster-related messages rapidly; however, these media are severely limited in terms of providing detailed information for each municipality because the broadcasting area is generally far larger than the area of individual municipalities. In contrast, local governments are able to deliver detailed disaster information to residents, using their own websites.

Large cities use the Internet to deal with natural disasters. All local governments with more than 100,000 residents have information on disaster prevention on their official websites, while less than 50% of towns and villages have such information. Almost half of all cities with more than 200,000 residents have prepared webpages for making emergency announcements (Figure 5).
Figure 5: Emergency webpages in the official websites by population size
(source: Questionnaire survey by the author)

It is more difficult to deliver emergency announcements in large cities where the social linkages among residents are relatively weak compared to small municipalities. In this regard, the Internet can be a very effective means for the direct delivery of emergency announcements from the government office to individual residents. In addition, a website designed for access from mobile phones is useful for the delivery of emergency announcements in Japan, as Internet connection services have a high rate of uptake in Japanese society. More than 80% of all cities with more than 100,000 residents have emergency websites designed for access from mobile phones.

3.3. Information for foreign residents

Multilingual webpages are common in official websites. Webpages in languages other than Japanese convey information on schools, nursery services, medicine, garbage collection, and special public services that are important for the everyday life of foreign residents. These webpages are commonly written in various languages, not only English (Figure 6).
A number of differences in the way that large cities and small municipalities dealt with foreign languages on their sites were observed. All of the governments in cities with more than 200,000 residents provided webpages in foreign languages, while just 12.5% of towns and villages provided the same service. In addition, large cities have webpages in languages that reflect the backgrounds of non-Japanese residents: many of these webpages are aimed at Chinese or Korean residents (Figure 7).

It is noteworthy that a number of medium-sized cities provide webpages in Portuguese. These government announcements are aimed at Japanese-Brazilians. The Japanese Government strictly regulates the immigration of unskilled foreign workers; however, the descendants of Japanese emigrants to Brazil receive special treatment in this regard. Accordingly, a large number of Japanese-Brazilians work in large factories in the automobile and electrical equipment industries. Because most of these factories are located in medium-sized cities, the governments of these cities provide Portuguese webpages to support the everyday life of local residents.
3.4. E-communities within official websites

E-communities are virtual places where residents and local government officials can discuss various issues related to the municipality. This is a new tool for local governance that is based on the bulletin board system. Most e-communities on official websites are operated by the governments of large cities where discussions between residents on local issues are rarely undertaken face-to-face. However, a number of small villages also operate e-communities on their official websites. Many people who live away from the village in which they were born use these e-communities to communicate with their home village. In the case of Hara Mura in the Nagano Region, the government called for “e-Sonmin” (e-village people) from across Japan to provide ideas and opinions for improving village activities. These examples from small villages demonstrate the rich possibilities of e-community in terms of connecting a wide range of both local and nonlocal people.

4. Effect of national policy

4.1. National policy for local government ICT policies

In 2000, the Japanese Government began to establish various policies to promote the utilization of ICT in every level of domestic government. The “e-Japan Priority Policy Program,”
which aims to dramatically improve the ICT utilization of local governments as well as the national government, was drawn up by the Japanese Government in 2001. A nationwide exclusive network termed the Local Governments Wide Area Network (LGWAN), which connects all of the local governments in Japan, was constructed to provide the basic infrastructure required by government policy. LGWAN was completed in 2003 (Namiki, 2002; Promoting Information Economy and Society Committee, 2003). However, it does not appear that the national policy promoted the diffusion of official local government websites, as almost all local governments had already opened their official websites before the national policy was established. In fact, few of the surveyed municipalities stressed the effect of national policy as a reason for establishing their official websites; instead 73% of all municipalities emphasized the impact of proposals by high-level officials within the municipalities.

4.2. Domain name for local governments

The establishment of a domain name exclusively for local governments appears to have significantly enhanced the rapid diffusion of official websites for local governments during the latter part of the 1990s. This type of domain name includes the municipality name and can be registered exclusively by local governments. Soon after the provision of this type of domain name in 1996, almost all local governments had considered the possibility of website construction and had applied to register their domain names; accordingly, the number of official websites increased remarkably at this time. The registration of domain names at this time, including those for local governments, was administered by a nongovernment organization, the Japan Network Information Center (JPNIC). The fact that this body was independent of the national government supports the proposal that national policy had minimal influence upon the early stages of the diffusion of local government websites.

4.3. Online public services

The intention of the national policy described above was to increase the provision of online public services, such as the booking of sports or cultural facilities and various registration procedures. However, these services are less common in small and medium-sized municipalities (Figure 8). The Japanese Government encourages small and medium-sized e-municipalities to establish cooperative organizations for the common operation of online booking systems. In reality, the number of cooperative organizations is small; however, online library systems, almost all of which are developed by private IT companies, have achieved greater penetration in many local municipalities. Almost half of all municipalities have already introduced online library systems, while 71.9% of cities also provide this service.
5. Conclusions

The process of the diffusion of the official websites of local governments began in the mid-1990s and was largely complete by 2000.

During the early stages of the diffusion process, many websites aimed to transmit information to those outside of the municipalities. This tendency was especially pronounced among small municipalities located in mountainous or peripheral areas. These municipalities built local websites with the aim of promoting tourist attractions and business relations in order to enhance regional development. A low uptake rate of the Internet among local residents did not prevent the provision of local information to external readers; however, the local governments in peripheral areas had to overcome challenging conditions in terms of Internet use. Some municipalities constructed their own network infrastructure and provider services for local residents because there were no commercial providers.

Later, larger cities built official websites, and greater numbers of websites focused on providing information and services to local residents. Websites for large cities typically provide for the delivery of emergency announcements in the context of disaster prevention, information services for foreign residents, and e-communities. The content on such sites targets the manifold needs of local residents in terms of public services.

The experience of official websites of local governments in Japan suggests that the “digital flywheel” framework proposed by Van der Meer and Van Winden (2003) is inadequate when discussing the full range of possibilities of Internet utilization by local governments when we expand the discussion to a wider range of municipalities.
First, external factors have less effect than expected on ICT policymaking in local government. There were some remarkable examples of this, including the early official websites operated by small villages under challenging economic and technical conditions and the ICT infrastructure constructed by local governments in remote areas that are subject to challenging geographic conditions. The national policy had only a minor influence on official local government websites. In contrast, the establishment of a domain name solely for local governments worked effectively in promoting the utilization of the Internet by local governments.

Second, the framework of “internal dynamics” based on the interdependency of content, access, and infrastructure presupposes that the receivers of the information provided by local government are limited to local residents. Many local governments, especially in small municipalities, target multiple external receivers. The local conditions of communication infrastructure and information accessibility are not important in providing information to an external audience.

Use of the Internet is appealing to city governments as a means of promoting local governance and democracy. The Internet brings a broad range of possibilities to municipalities as a means of overcoming the constraints of geographic space.

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