

# Part I

## Special Theme: Realization of Sustainable Growth through Utilization of ICT

### Chapter 1

#### Revitalizing Local Communities and Regenerating “Ties” via ICT

In this part of the report, we will quantitatively and qualitatively examine the revitalization of local communities through the promotion of ICT (Information and Communications Technology) utilization in said communities, along with the role of ICT in strengthening social ties in these communities and improving quality of life in local communities by facilitating the social participation of all members of society.

#### Section 1

##### Local Community Revitalization via the Thorough Application of ICT

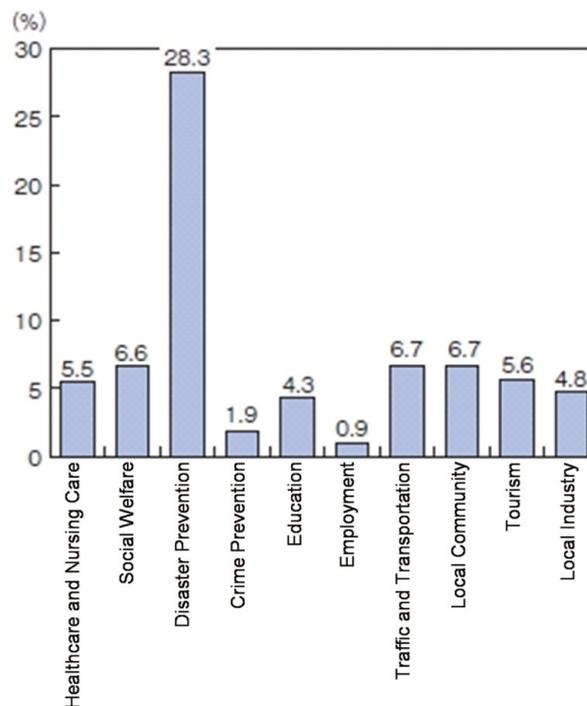
We will evaluate the economic value of benefits to citizens brought by extensive utilization of ICT in public service sectors integral to life in local communities, such as “health and medicine,” “education and labor,” and “lifestyle and living.” In addition, we will analyze examples of use of ICT to revitalize local communities, and estimate the economic values that can be obtained if broadband service penetrates to 100% of households.

##### 1. Estimation of benefits to citizens from ICT utilization in the public service sector

###### (1) Status of ICT utilization in local communities

Figure 1-1 shows the results of a survey on implementation by local governments of typical programs employing advanced ICT systems in 10 sectors: medicine, social welfare, education, disaster prevention, crime prevention, traffic and transportation, labor, local communities, tourism, and local industry. The survey showed that 28.3% of communities had implemented such projects in the disaster prevention sector, while the other sectors had implementation rates below 10%.

Figure 1-1 Status of ICT utilization by local governments throughout Japan (overall)



(Source) Ministry of Internal Affairs and Communications “Research into Regional ICT utilization” (2010)

###### (2) Desire of utilization of ICT services that reflect the public viewpoint

The Ministry of Internal Affairs and Communications has identified three sectors integral to life in local communities, “health and medicine,” “education and labor,” and “lifestyle and living,” and independently come up with three potential ICT services for each sector, as shown in Figure 1-2.

**Figure 1-2 ICT services related to health and medicine, education and labor, and lifestyle and living**

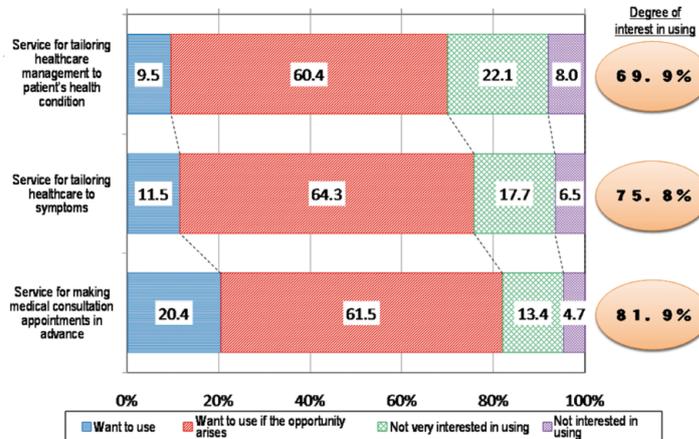
Sector	Service	Contents of Service
Health and medicine	Health management services tailored to individuals' physical condition	<ul style="list-style-type: none"> <li>• A web site allowing users to manage their own health information including personal data (height and weight, etc.) and medical history and their average amount of daily exercise, etc.</li> <li>• Users can obtain advice tailored to their physical condition and information on examinations being conducted in nearby municipalities, helping them to prevent the outbreak or worsening of illnesses</li> </ul>
	Service for tailoring healthcare to symptoms	<ul style="list-style-type: none"> <li>• A web site allowing users to register their own medical information (from their medical file, etc.), personal data and health information (height, weight, medical history) etc.</li> <li>• The registered information can be disclosed to medical institutions, and users can undergo examinations ideally suited to their symptoms, as well as avoiding redundant examinations, and obtaining examination results at a nearby clinic which they can then take to a general hospital for further treatment</li> </ul>
	Service for making medical consultation appointments in advance	<ul style="list-style-type: none"> <li>• Based on specific conditions such as their area of residence, symptoms and physical condition, users can search nationwide for the hospital or clinic most appropriate to their needs</li> <li>• For the hospital or clinic they have found, users can confirm the examination hours, the location and means of access, as well as the availability of appointments, and can make reservations when appointments are available</li> </ul>
Education and labor	Learning and teaching exchange service suited to the individual	<ul style="list-style-type: none"> <li>• Users of the service will be able to conduct classes using textbooks and teaching materials in digital form (including teaching with audio and video materials)</li> <li>• The service can be used for individually tailored instruction or as a forum for students to teach and learn from one another</li> </ul>
	Online education portal services	<ul style="list-style-type: none"> <li>• Users can view information, primarily from Japanese universities, graduate schools and vocational schools, on available online courses and lectures and events open to the general public</li> <li>• In addition to searching for the most appropriate information from among available courses and lectures, including desired subjects, teaching methods, and duration and schedule of courses, users can apply for and even attend courses online, obtaining credits and degrees accordingly</li> </ul>
	Job-hunting support service tailored to each job seeker's education and qualifications	<ul style="list-style-type: none"> <li>• A web site allowing users to register information such as their own academic history and qualifications obtained, work history, objectives and preferred occupation and career plan</li> <li>• Based on the information they have registered, users can receive employment advice, or disclose the registered information to a job-placement office or directly to corporations, making consultations more efficient and enhanced and matching job hunters with head-hunting corporations</li> <li>• Users can search for information on the necessary academic background and qualifications for a career in their desired field, and in some cases can make use of academic services and take tests to obtain qualifications online</li> </ul>
Lifestyle and living	One-stop service for completing all necessary procedures involved in moving home	<ul style="list-style-type: none"> <li>• When moving, users can submit necessary documents and information to various institutions all at one time</li> <li>• Documents submitted can be shared among institutions (particularly administrative bodies such as local governments), so that users can avoid submitting the same document multiple times</li> </ul>
	Support service to help with the creation, etc., of tax returns	<ul style="list-style-type: none"> <li>• Regarding medical and other expenditures eligible for deduction, the receipts acting as evidence of expenditure are put in electronic form and can be saved on the web site (My Page) of this service</li> <li>• The service can be coordinated with household accounts, etc. and tax returns can be filed using the saved electronic receipts</li> </ul>
	Large item/unwanted item recycling services	<ul style="list-style-type: none"> <li>• When planning to dispose of unwanted furniture, appliances and so on, users can view the disposal fees and terms and conditions of municipal governments, recycling businesses, appliance manufacturers, etc.</li> <li>• When having the municipal government pick up the items as bulky garbage, the site can be used to make reservations and pay fees online</li> <li>• When users post information about unwanted items online using this service, others can view the items and if they find things they want, the items can be transferred from user to user</li> </ul>

(Source) Ministry of Internal Affairs and Communications "Research on Community Revitalization and International Competitiveness through the Application of ICT" (2010)

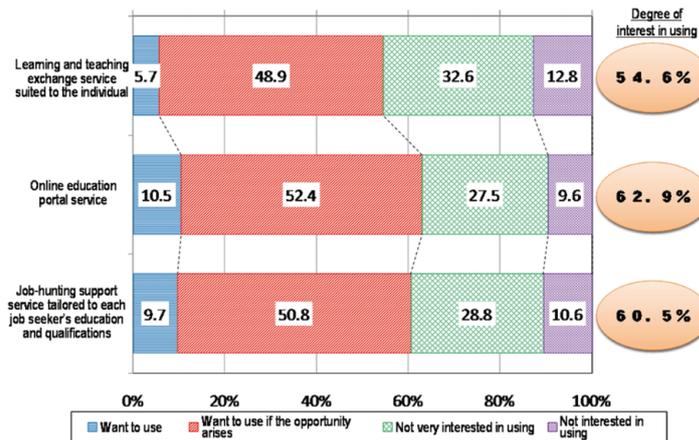
Figure 1-3 shows the results of an online survey given to Internet users regarding interest in utilizing the nine ICT services outlined above. It can be seen that for the majority of the services, approximately 60% or more of Japanese citizens expressed an interest in utilizing them.

Figure 1-3 Interest in utilizing services in the fields of “health and medicine,” “education and labor,” and “lifestyle and living”

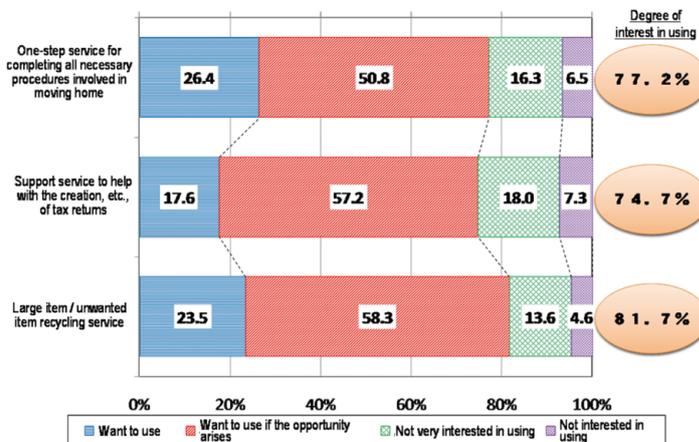
[Health and Medicine]



[Education and Labor]



[Lifestyle and Living]



\* Each graph shows the interest in utilizing the services in question among 15-64 year old respondents, adjusted for population (Source) Ministry of Internal Affairs and Communications “Research on Community Revitalization and International Competitiveness through the Application of ICT” (2010)

**(3) Public benefit of ICT services that reflect the public viewpoint**

Figure 1-4 shows the results of evaluations and estimates of economic value (potential value) to users and providers from the implementation of such ICT services as we have described, according to an independently established logic model. According to these estimates, the combined economic value to users of the three ICT services in the “health and medicine” sector totals approximately 1.49 trillion (1,490 billion) yen, that of the “education and labor” sector approximately 619 billion yen, and that of the “lifestyle and living” sector approximately 45 billion yen.

**Figure 1-4 Economic value to users from the utilization of ICT in the public service sector (estimated)**

Potential benefits		Economic value for users	Total for all three services	Economic value to providers
Healthcare and medicine service	Service for tailoring health-care management to patient's health condition	Medium estimate (25% of effects) 577.7 billion yen	Economic value for users 1490.0 billion yen	Medium estimate (25% of effects) 1347.9 billion yen
	Service for tailoring healthcare to symptoms	Medium estimate (25% of effects) 244.3 billion yen		Medium estimate (25% of effects) 536.0 billion yen
	Service for making medical consultation appointments in advance	Medium estimate (25% of effects) 668.2 billion yen		For providers, the goals are more efficient medical treatment and lessening of the medical workload, to which it is difficult to assign a quantitative value. For this reason, economic effect is not estimated.
Education and employment service	Learning and teaching exchange service suited to the individual	Medium estimate (25% of effects) 80.2 billion yen	Economic value for users 619.0 billion yen	For providers, the goals are improved academic performance for students and a better work environment for teachers, to which it is difficult to assign a quantitative value. For this reason, economic effect is not estimated.
	Online education portal service	Medium estimate (25% of effects) 238.3 billion yen		For providers, the goals are to provide an open learning environment and opportunities, to which it is difficult to assign a quantitative value. For this reason, economic effect is not estimated.
	Job-hunting support service tailored to each job seeker's education and qualifications	Medium estimate (25% of effects) 300.9 billion yen		Medium estimate (25% of effects) 40.9 billion yen
Life and Lifestyle Service	One-stop service for completing all necessary procedures involved in moving home	Medium estimate (25% of effects) 6.0 billion yen	Economic value for users 45.0 billion yen	Medium estimate (25% of effects) 3.8 billion yen
	Support service to help with the creation, etc., of tax returns	Medium estimate (25% of effects) 39.1 billion yen		Medium estimate (25% of effects) 24.7 billion yen
	Large item / unwanted item recycling service	Medium estimate (25% of effects) 400 million yen		Medium estimate (25% of effects) 2.3 million yen

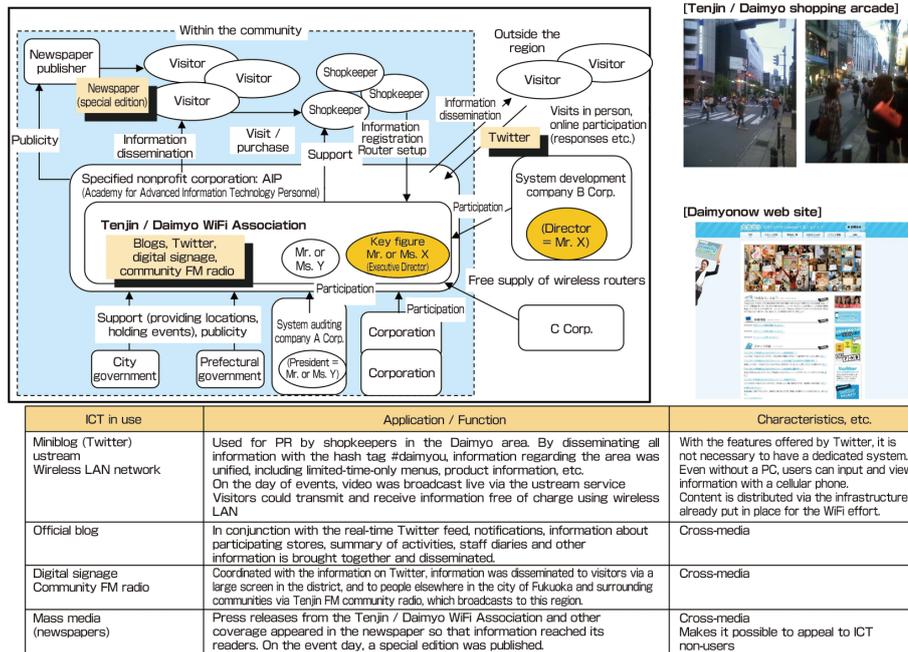
(Source) Ministry of Internal Affairs and Communications “Research on Community Revitalization and International Competitiveness through the Application of ICT” (2010)

**2. Leading-edge examples of community revitalization via ICT**

“Daimyonow” (based in Fukuoka) is a project employing ICT such as micro-blogging service Twitter, digital signage, and FM radio to disseminate real-time information about the Daimyo shopping district in central Fukuoka, and thereby encourage more shoppers to visit and give a boost to local tourism (Figure 1-5). Its goal is to provide a digital environment allowing participating shopkeepers to disseminate information easily, for example by entering it into their cellular phones, letting them publicize limited-time-only menus, seasonal product information and so on as an extension of their everyday business activities.

“Daimyonow” is a joint industrial, academic and governmental project administered by the Tenjin / Daimyo WiFi Association, established under the auspices of an NPO aiming to cultivate local ICT personnel. The office of the association plays the role of coordinator, encouraging shopkeepers to participate and disseminating information internally and externally. The project draws strength from an effective distribution of duties, with a “Mr. X” living outside the area providing objective evaluations and advice from an external viewpoint, while local corporate employee “Ms. Y” and other members foster relationships with shopkeepers and so on.

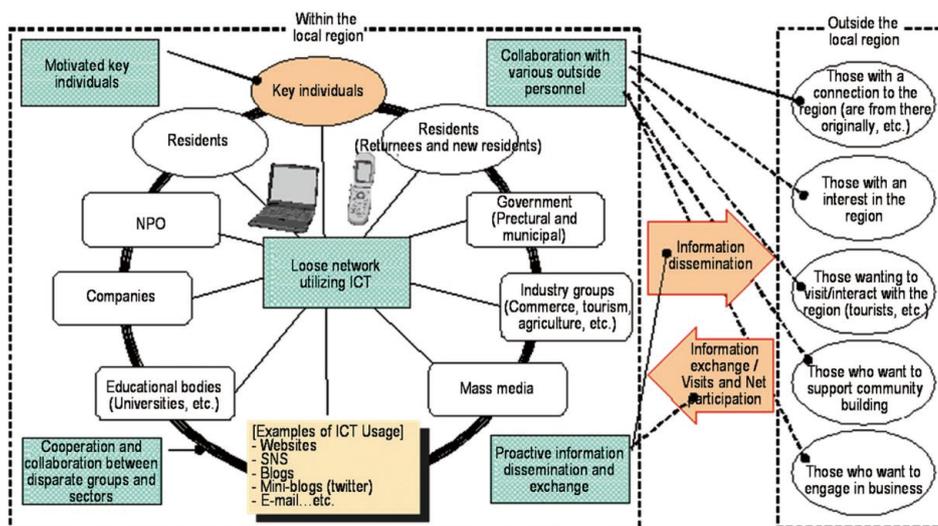
Figure 1-5 Shopping district information is disseminated via micro-blogging in the Daimyonow project



(Source) Ministry of Internal Affairs and Communications “Survey of Leading-edge Examples of ICT Utilization in Japan” (2010)

In best practice examples of local community revitalization, we see motivated key figures acting as a driving force; collaboration and cooperation between disparate groups and sectors, including residents, corporations, NPOs, local governments, local media, and so on; coordination with various outside personnel; and proactive information dissemination and exchange inside and outside the area in question. All of these are made possible with the help of ICT (Figure 1-6). Henceforth, the establishment throughout Japan of mechanisms for advancing such efforts, in which ICT is used to turn rich local resources into a means of local community revitalization, will become increasingly essential.

Figure 1-6 Five key elements in the revitalization of local communities using ICT



(Source) Ministry of Internal Affairs and Communications “Survey of Leading-edge Examples of ICT Utilization in Japan” (2010)

### 3. Public benefit of broadband service penetration

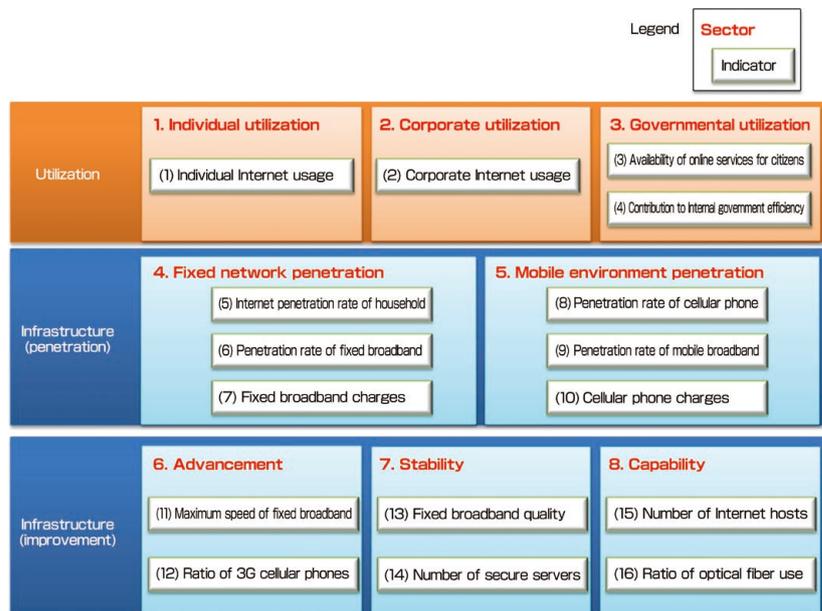
We will now examine the current status of Japan's ICT infrastructure from various perspectives, making use of international data, and estimate the potential economic values to consumers of ensuring that 100% of households have broadband access and an environment conducive to convenient and comfortable application thereof.

#### (1) International comparison of Japan's ICT infrastructure and utilization

##### A. Evaluation method

For a comprehensive and balanced picture taking into account the progress of ICT, penetration rates in other countries and levels of development, 16 indicators in eight areas (figure 1-7) were selected, and Japan's ICT infrastructure and rate of utilization was compared with that of 25 countries<sup>1</sup>. In order to eliminate arbitrariness and ensure neutrality, for each indicator, existing data from international organizations, etc. is used in its existing form as a basic rule, the deviation value among 25 countries extracted and comparisons made.

**Figure 1-7 Makeup of indicators used to evaluate Japan's ICT infrastructure (improvement, penetration) and rate of utilization**



(Source) Ministry of Internal Affairs and Communications "International Comparative Survey on ICT Infrastructure" (2010)

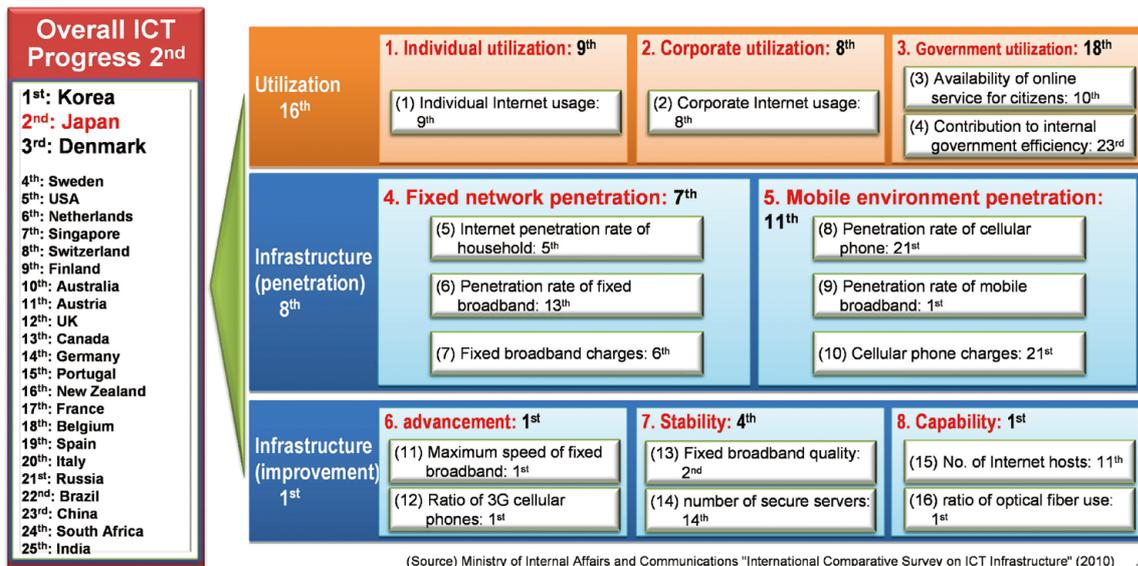
##### B. Overall evaluation and evaluation by area

The results of comparison are shown in Figure 1-8. In terms of the overall ranking (overall ICT progress) encompassing ICT infrastructure (improvement, penetration) and rate of utilization, Japan was ranked second among 25 countries, with South Korea coming in first. As Japan was ranked first in two areas under the "Infrastructure (improvement)" category, "6. Advancement" and "8. Capability," it is safe to say that Japan is first in this category overall. In terms of "Infrastructure (penetration)," Japan is seventh for area "4. Fixed network penetration" and 11<sup>th</sup> for indicator "5. Mobile environment penetration," combined for a ranking of eighth worldwide. Compared with the first-place ranking for "Infrastructure (improvement)," this could be called quite a poor ranking.

Furthermore, in terms of Utilization the overall ranking is 16<sup>th</sup>, a low ranking in comparison to Infrastructure (both Development and Penetration.) Looking at individual areas, Japan ranked ninth for "1. Individual utilization," and eighth for "2. Corporate Utilization," rankings comparable to the eighth place for of the Infrastructure (penetration) category, but in terms of "3. Government utilization," the ranking is a low 18<sup>th</sup> place, making it clear that this is an area requiring particular effort and attention.

<sup>1</sup> With consideration for regional balance, availability of source data and continuity of data reporting, etc., the 25 countries selected were 1) Japan 2) the US 3) The UK 4) South Korea 5) Singapore 6) Sweden 7) Denmark 8) Italy 9) India 10) Australia 11) Austria 12) The Netherlands 13) Canada 14) Switzerland 15) Spain 16) Germany 17) New Zealand 18) Finland 19) Brazil 20) France 21) Belgium 22) Portugal 23) South Africa 24) Russia, and 25) China.

Figure 1-8 Overall ICT Progress: rankings by area and indicator



- ※ Figures on graph are all deviation values (numbers from the second decimal place onward rounded up or down.) Only the top five countries are shown (however, six are shown in cases where Japan ranks sixth or below)
- ※ Deviation values for each area represent the average for all indicators in this area (deviation values)
- ※ Values for the categories "Utilization (overall)," "Infrastructure (penetration) (overall)" and "Infrastructure (improvement) (overall)" are the averages of deviation values for all areas in each category
- ※ The value for "Overall ICT Progress" is the average of the deviation values for all indicators

(Source) Ministry of Internal Affairs and Communications "International Comparative Survey on ICT Infrastructure" (2010)

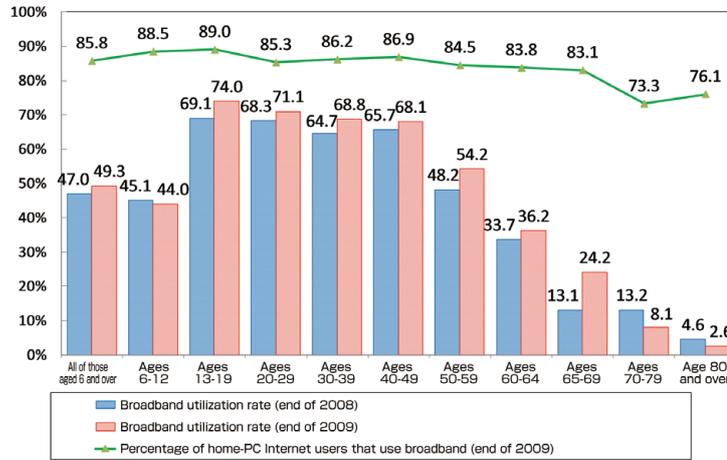
## (2) Current status of Japan's digital divide

Examining the status of broadband utilization by different generations of Japanese citizens, we find that for users between 13 and 59 years of age, there was over 70% utilization at the end of 2009 for all age categories, representing a year-on-year increase. However, for other age groups, in particular elderly, we find the utilization rate diminishing in accordance with increasing age, and the total rate of utilization for those 70 and over represents a decrease from the previous year (figure 1-9, upper half). In terms of the breakdown by area of residence, the rate was 55.8% in special wards of Tokyo, ordinance-designated cities, and prefectural capitals, 49.5% in other cities, and 35% in towns and villages. While all figures represent a year-on-year increase, there continues to be a major gap in utilization rates between urban centers and rural areas (figure 1-9, middle table)

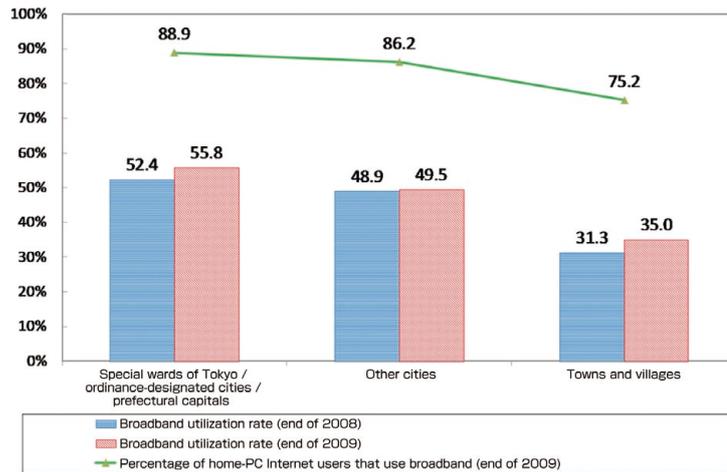
Furthermore, examining the utilization rate breakdown by household income level, as of the end of 2009 the utilization rate is over 50% for all households earning over four million yen annually, whereas for those earning under four million yen there is clearly a diminishing rate of usage correlated to lower income, with a utilization rate of 35.6% for households earning two million yen or more but less than four million, and 26% for those earning under two million yen per year (figure 1-9, lower table.)

Figure 1-9 Status of broadband utilization (by attribute)

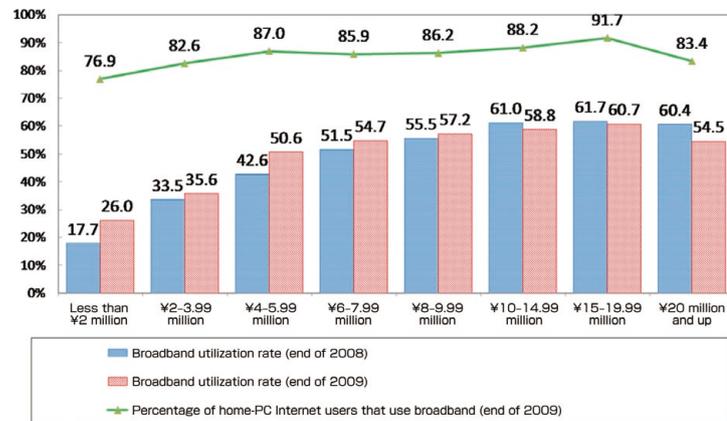
(by age group)



(By area of residence)



(By annual household income)



(Source) Ministry of Internal Affairs and Communications "Communications Usage Trend Survey" (2009)

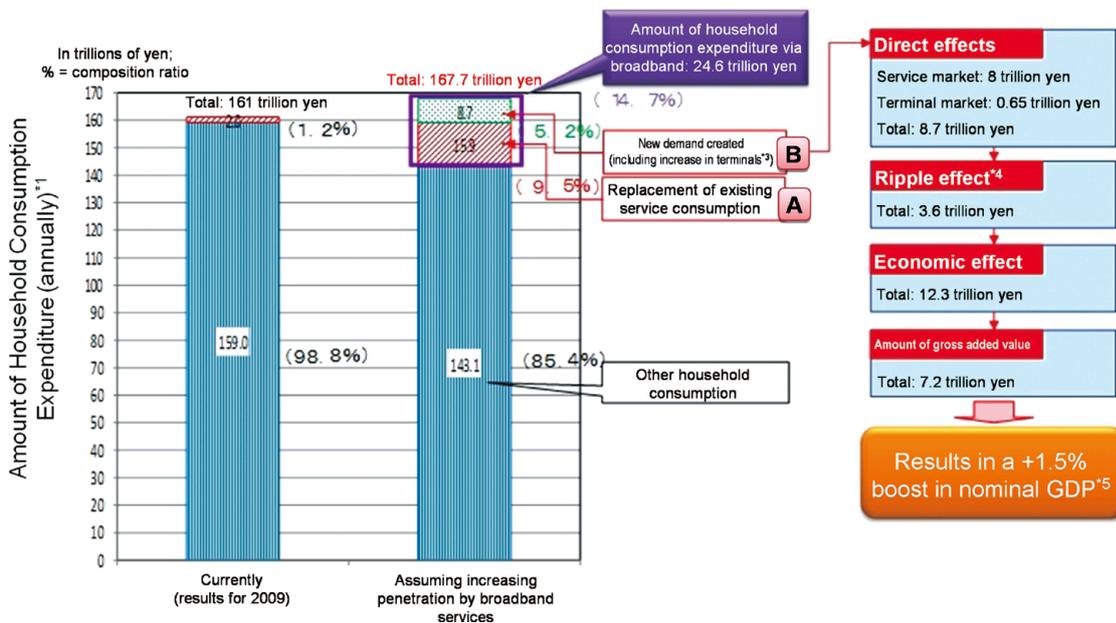
**(3) Economic values of broadband service penetration**

In order for broadband penetration to extend beyond current levels so that all citizens can enjoy its benefits, it is essential for applications and services (broadband services) that meet the needs of a greater number of citizens, and can only be accessed using broadband, to gain in both quality and quantity. With this in mind, we have envisioned an environment that provides broadband services and their accompanying benefits to all potential users, and estimated the economic value according to an independently established logic model.

Increased penetration and enhancement of broadband service is expected to bring benefits to consumers, and when the consumer-side (end user) benefits are converted to economic value, the boost to the nominal GDP is estimated at up to 1.5%<sup>2</sup>.

In an environment fully pervaded by broadband services, 14.7% of household consumption could take place through the medium of broadband, and of this amount, 5.2% could constitute an expansion of the household consumption market derived from the benefits and benefit of broadband services. Of the expanded market, direct benefits break down as 8.0 trillion yen for the broadband services market and 650 billion yen for the terminal market (for a total of 8.7 trillion yen). When these direct benefits are added to the estimated 3.6 trillion yen in ripple effects, the total is 12.3 trillion in economic values (Figure 1-10).

**Figure 1-10 Economic value derived from the penetration of broadband services (estimated)**



- ※ 1: Based on the Survey on Household Consumption, Ministry of Internal Affairs and Communications
- ※ 2: Estimated based on the “total volume of expenditures via the Internet” given above
- ※ 3: Regarding the amount of increase due to terminals, for computers and televisions it is equivalent to the number of households, and for other types it is obtained by multiplying by the population (between ages 16 and 69) to calculate the total amount and then deriving the monetary amount per household
- ※ 4: Based on the 2007 ICT Input-Output Table
- ※ 5: Nominal GDP for 2009 (474 trillion yen) from the Quarterly Estimate of GDP (Jan – Mar 2010 Preliminary Report, May 20, 2010)

(Source) Ministry of Internal Affairs and Communications "International Comparative Survey on ICT Infrastructure" (2010)

<sup>2</sup> An analysis in the World Bank report “Information and Communications Report 2009: Extending Reach and Increasing Impact (<http://issuu.com/world.bank.publications/docs/9780821376058>),” also finds that a 10% increase in the broadband utilization rate correlates to 1.3% economic growth (1.38% for low and mid-income nations, 1.21% for developed nations)

## Section 2

### Strengthening Community Ties through ICT

In this section, we will consider the potential of using ICT as a communication tool to revive the local community ties that have been lost and restore vitality to Japan's communities.

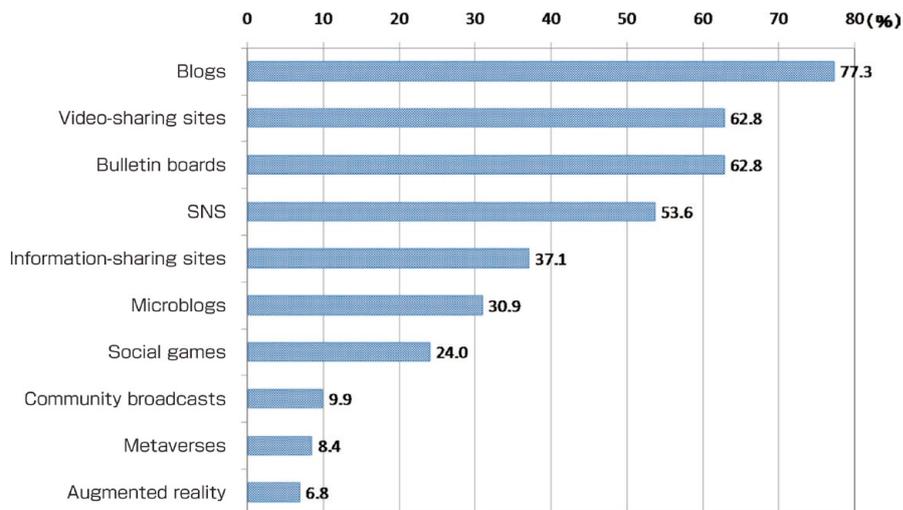
#### 1. Strengthening ties through social media

In local communities, where nuclear families continue to take the place of extended families, familial ties themselves are becoming weaker, interaction among neighbors is dwindling, and neighborhood and residents' associations are lacking in power, it is hoped that ICT can play a role in strengthening community ties. Social media such as blogs and SNS (social networking sites) are representative examples of applications that make maximum use of the communicative power of ICT. Here we will examine this issue based on the results of a survey of social media users on how such social media actually reflect users' sense of social bonding.

##### (1) Use of various types of social media

Figure 1-11 shows ten categories of social media, and the percentage of respondents who have used the various categories of media at least once. The categories are: blogs, video-sharing sites, bulletin boards, SNS, information-sharing sites, micro-blogs, social games, community broadcasts, metaverses, and augmented reality. The most frequently used were, in order, blogs with 77.3%, video-sharing sites and bulletin boards with 62.8% each, and SNS with 53.6%, all of which had been used by over 50% of respondents. Meanwhile, 37.1% had used information-sharing sites, 30.9% micro-blogs, and 24.0% social games, while less than 10% had used community broadcasts, metaverses and augmented reality respectively.

**Figure 1-11 Types of social media used at least once in the past**



(Source) Ministry of Internal Affairs and Communications "Survey of Social Media Usage" (2010)

The following is an analysis of the ways in which people use social media and the effects thereof, focusing particularly on blogs and SNS.

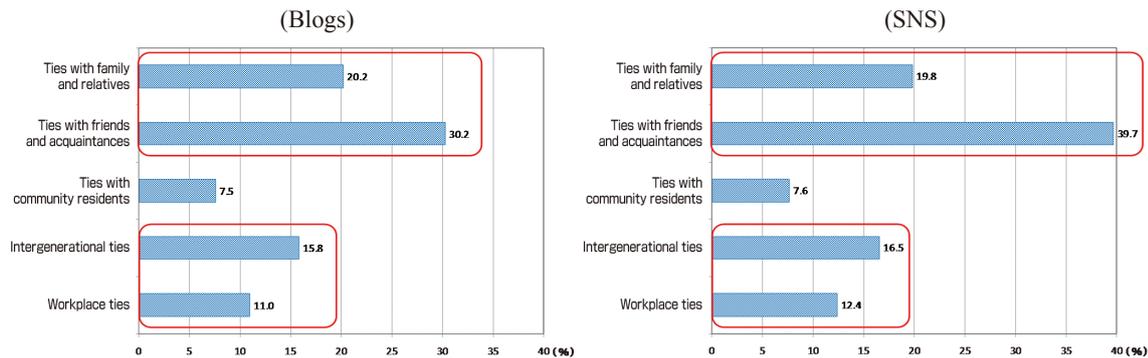
##### (2) Strengthening ties through social media

###### A. Effects of social media on geographic, familial, workplace and other ties

Figure 1-12 shows the percentage of people who said that certain types of ties had been strengthened through their use of social media. Of those who used blogs, 30.2% said they had stronger "ties with friends and acquaintances," 20.2% stronger "family and relatives ties," 15.8% stronger "intergenerational ties," and 11.0% stronger "workplace ties."

Meanwhile, for SNS, 39.7% said they had stronger "ties with friends and acquaintances," representing the highest value for all media, 19.8% stronger "family and relatives ties," 16.5% stronger "intergenerational ties," and 12.4% stronger "workplace ties."

**Figure 1-12 Effects of social media on geographic, familial, workplace and other ties**

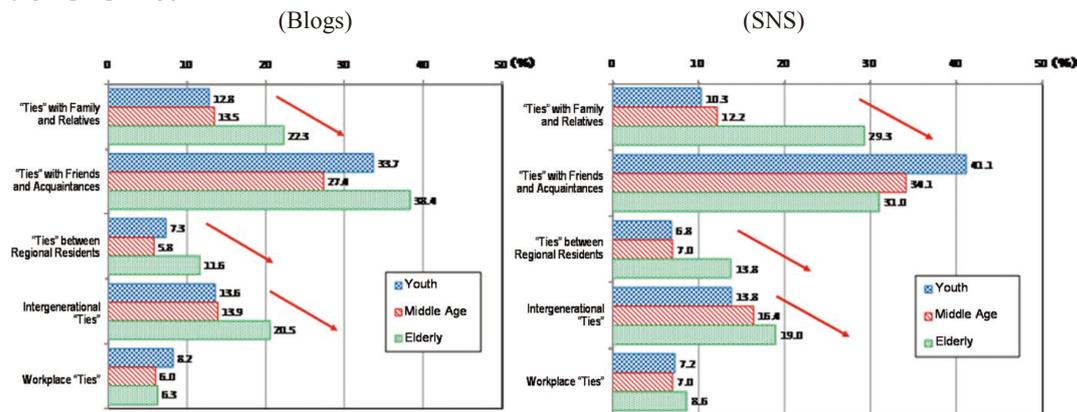


\*Portions inside solid lines indicate categories with responses of 10% or over

(Source) Ministry of Internal Affairs and Communications “Survey of Social Media Usage” (2010)

While the older respondents were, the more likely they were to say that “family and relatives ties,” “ties between Regional Residents” and “intergenerational ties” were weakening. However, at the same time the older respondents were, the more often they stated that blogs and SNS contributed to strengthening these same ties. It follows that blogs and SNS can be considered highly effective means of strengthening ties (Figure 1-13).

**Figure 1-13 Effects of social media (blogs / SNS) on geographic, familial, workplace and other ties (by age group)**



(Source) Ministry of Internal Affairs and Communications “Survey of Social Media Usage” (2010)

## 2. Revitalization of local community ties via local SNS

As of February 2010, there were 519 local (community) SNS<sup>3</sup>, which seek to facilitate “face-to-face” communication within specific regions. While the number of such sites is growing year by year, there appear not to be many local SNS that enjoy the highly active participation of local residents and foster dramatic vitalization of the community. In order to examine the characteristics of those local SNS that are vigorously active, and their benefits to users, the MIC has conducted a survey of administrators and users of local SNS, and analyzed their effects on said administrators and users.

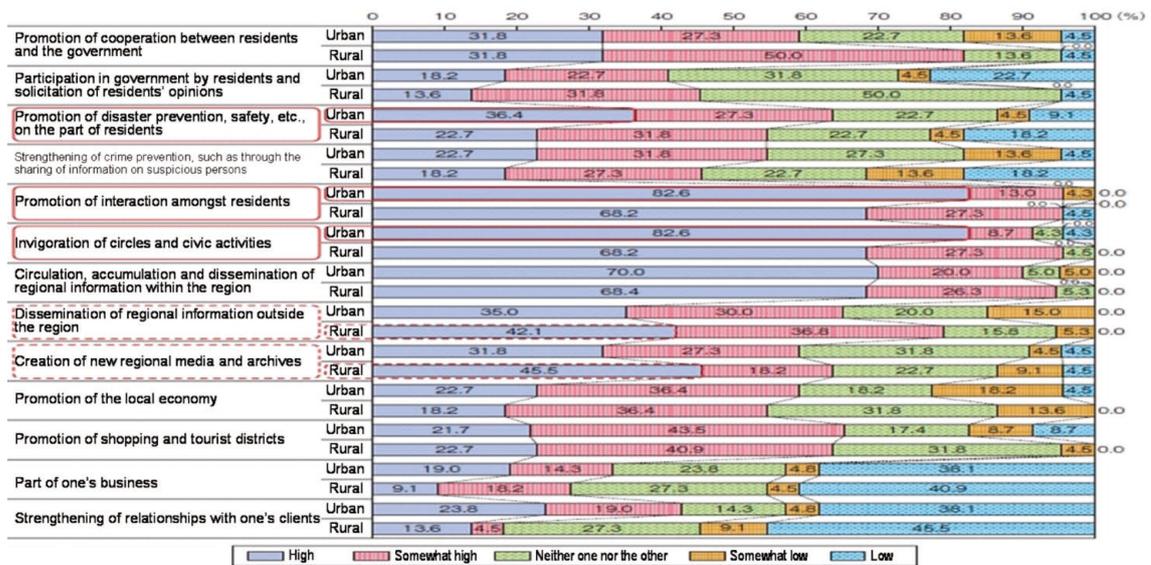
<sup>3</sup> The difference from normal SNS (Mixi, GREE, etc.) is that normal SNS provides nationwide service, while local SNS are limited to specific regions

**(1) Objectives of local SNS administration**

Figure 1-14 shows the objectives for administering local SNS, categorized as either “urban” or “rural area.”<sup>4</sup> The results show that in urban areas, notable objectives include “Promotion of disaster prevention, safety, etc., on the part of residents,” “Promotion of interaction of city residents” and “Invigoration of circles and civic activities,” while in local areas “Dissemination of local information outside the region” and “Developing new regional media and archives” were emphasized.

In urban areas, an aging society is accompanied by a dramatic rise in the number of elderly people living alone, meaning that watching over and protecting the safety and security of these people has become an important issue. Meanwhile, in rural areas, there is perceived to be a pressing need for dissemination of local information and “local color.” It is evident that the issues addressed by local SNS are quite different depending on where they are based.

**Figure 1-14 Objectives for administering local SNS (for “urban” and “rural” areas)**



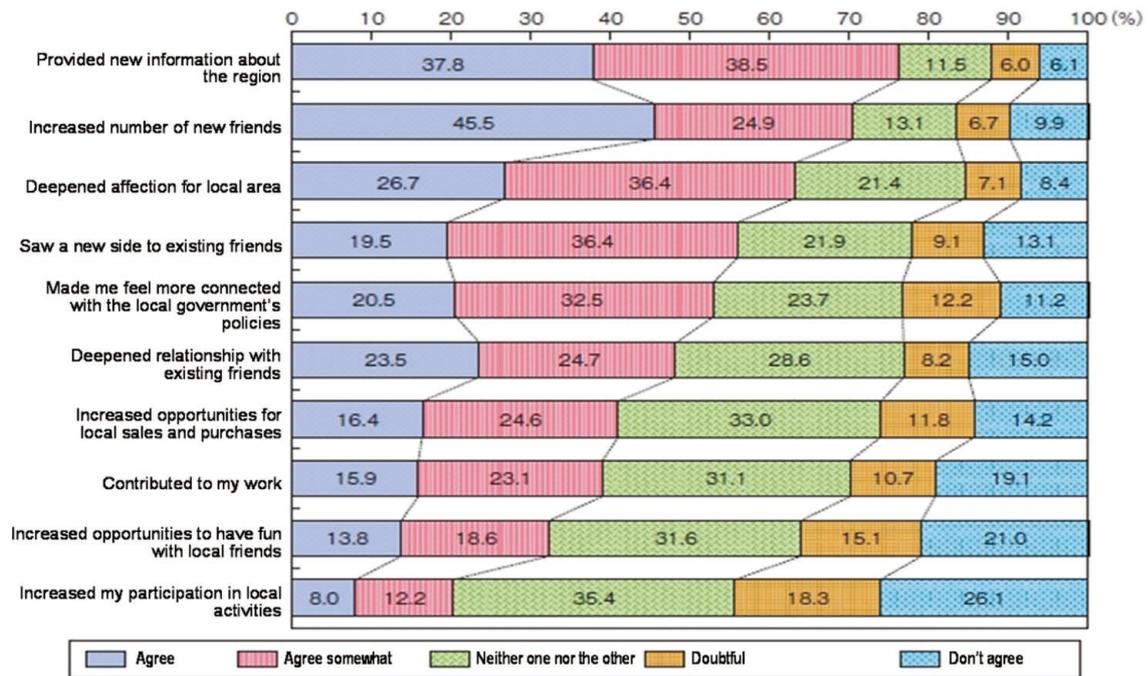
\*Portions inside solid lines had high response rates in urban areas, portions inside dotted lines had high rates in rural areas  
 (Source) Ministry of Internal Affairs and Communications and International University of Japan GLOCOM 'Survey of Local SNS' (2010)

**(2) Benefits to users of local SNS**

Potential benefits of using local SNS have been classified in 10 categories, and one of five survey responses – “Agree,” “Agree somewhat,” “Neither one nor the other,” “Don’t agree somewhat,” and “Don’t agree” – obtained. As shown in Figure 1-15, there was a high rate of “Agree” or “Agree somewhat” responses for the categories “Provided new information about the region” (76.3%), “I made new friends or acquaintances” (70.4%), and “Deepened affection for local area” (63.1%). These results indicate a high level of appreciation for the benefits unique to local SNS including “meeting new people,” “Obtaining Regional Information” and “Developing regional attachment.” Furthermore, for nearly every category 30% or more of respondents recognized benefits, and it is evident that local SNS have much to offer in terms of deepening ties with existing friends, gaining familiarity with local government measures, and increasing opportunities for local sales and purchases.

<sup>4</sup> SNS serving one of the three major metropolitan areas were classified as “urban” and those serving other areas classified as “rural.” However, even outside the three major metropolitan areas, if they are based in prefectural capitals or other major cities, the SNS were classified as “urban.”

Figure 1-15 Benefits to users of local SNS



(Source) Ministry of Internal Affairs and Communications and International University of Japan GLOCOM 'Survey of Local SNS' (2010)

## Section 3

### Using ICT to Support Social Participation by Every Member of Society

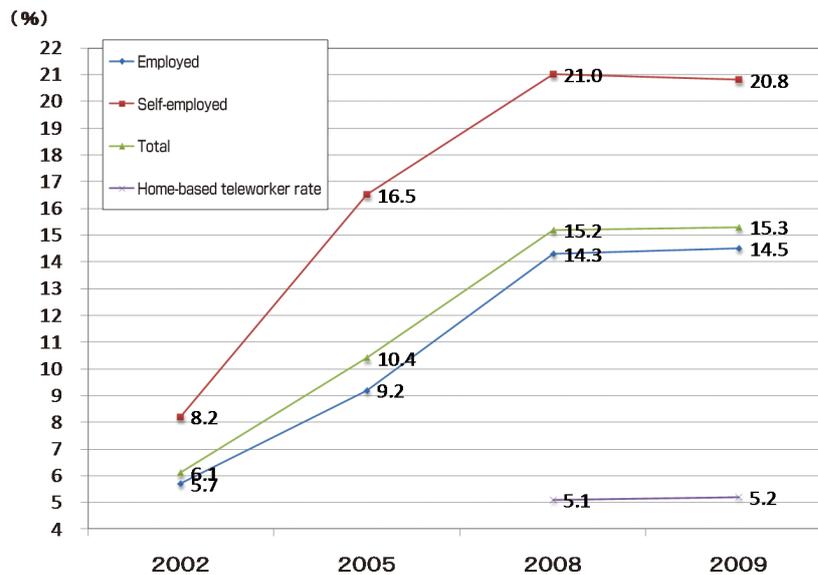
This section examines the current status of telework penetration in Japan, social participation by challenged people using ICT, and ICT utilization by the elderly, and discusses some innovative initiatives.

#### 1. Realization of a sustainable society via telework

##### (1) Current status of telework

In terms of the penetration of the telework paradigm, in fiscal 2009 teleworkers made up 15.3% of the total labor force, a figure more or less equal to that from the previous year (15.2%). It can be said that while the telework paradigm has penetrated to a certain extent, it has still not been adopted by the overall labor force.

Figure 1-16 The teleworker rate in Japan



- ※ Teleworkers are defined as workers engaged in a regular remunerative job that involves the use of IT, and who have an IT-enabled environment outside of their regular office from which they work a total of at least eight hours per week.
- ※ The “teleworker rate” is the percentage of the labor force aged 15 and over that meet the above definition of a teleworker.
- ※ The teleworker rates in the table above are calculated by applying the Internet utilization rate found in the Survey on ICT Utilization and the ratio of employed to self-employed persons found in the Employment Status Survey to the teleworker rate based on the sample obtained in the current survey.
- ※ The “home-based teleworker rate” is the percentage of workers surveyed in the fiscal 2009 Survey on the Telework Population that perform at least a small amount (one minute or more a week) of narrowly defined telework at home (not excluding in home offices).

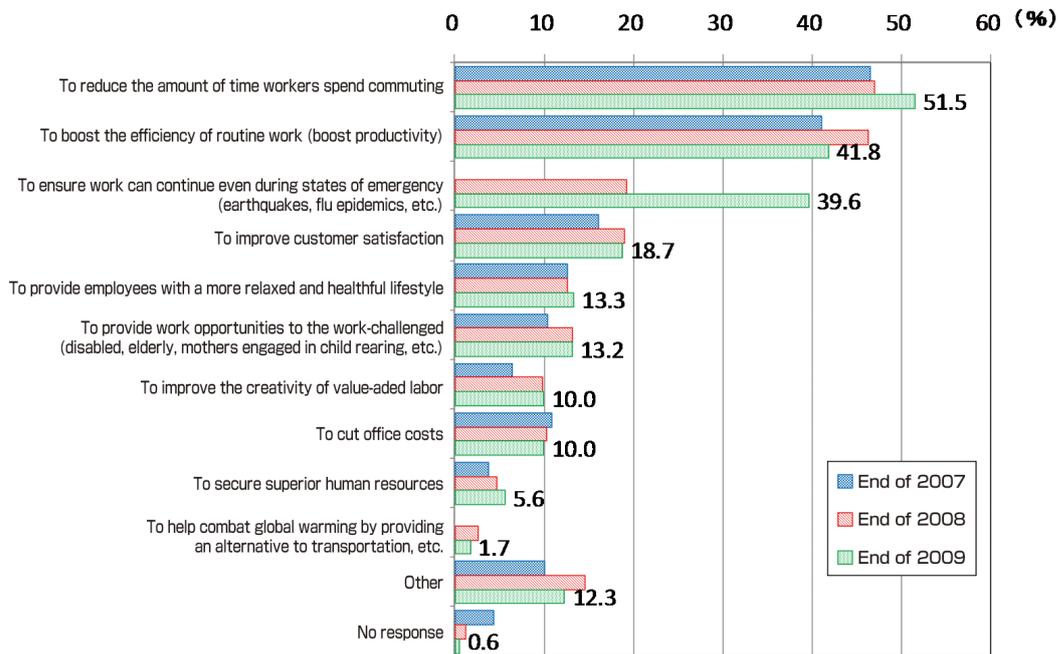
(Source) Compiled from the Survey on the Telework Population (2009), Ministry of Land, Infrastructure, Transport and Tourism

##### (2) The assorted benefits of telework

###### A. Reasons corporations introduce telework

The various reasons corporations introduce telework include “to reduce the amount of time workers spend commuting (51.5%)”, “to boost the efficiency of routine work (boost productivity) (41.8%)”, “to ensure work can continue even during states of emergency (earthquakes, flu epidemics, etc.) (39.6%)”, “to improve customer satisfaction (18.7%)”, “to provide employees with a more relaxed and healthful lifestyle (13.3%)” and “to provide work opportunities to the work-challenged (disabled, elderly, mothers engaged in child rearing, etc.) (13.2%)” and others (Figure 1-17).

Figure 1-17 Aim of adopting telework



\*The response "To ensure work can continue even during states of emergency" was not part of the 2007 survey

(Source) Ministry of Internal Affairs and Communications "Communications Usage Trend Survey" (2009)

### B. The benefits to corporations of introducing telework

When corporations give business-objective reasons for introducing telework, these are often directly related to improvement of productivity and work efficiency. Telework not only eliminates commuting time and other non-productive time in the workplace, when it is conducted at home it also cuts down on distractions such as conversations with nearby employees and calls from inside and outside the company, allowing workers to concentrate on a single task.

In addition, some corporations boost efficiency by designating certain days on which workers focus on tasks that are suitable for telework, thus cutting down on office work days and commuting hours and reducing the total amount of overtime performed by workers. In this way, the introduction of telework provides an excellent opportunity for both employees and management to thoroughly reevaluate work contents and processes, and also to achieve both a positive work-life balance for employees and greater productivity and efficiency for the company simultaneously. Telework makes a great contribution to the building of mutually beneficial relations between companies and their employees.

### (3) Toward the realization of a sustainable society

Of the 44.22 million people who were not part of the labor force in 2009, 4.71 million, or almost 10% consisted of desiring employment. Of these, approximately 1.5 million gave reasons for unemployment such as "a lack of suitable employment in the region" and "see no way to continue working due to homemaking and childrearing," and are thus considered potential workforce to grow (Figure 1-18).

Telework can help compensate for a diminishing labor force due to a low birth rate and aging society and make contributions to employment in communities throughout the country, as well as helping to address global environmental problems. It follows that telework is an indispensable element of Japan's efforts to realize a sustainable society, and should be recognized and promoted throughout Japanese society.

**Figure 1-18 Breakdown of the Nonlabor Force (by reason)**

	(x10,000 people)			
	2008	2009		
	Total Persons	Total Persons	Men	Women
Nonlabor Force	4,388	4,422	1,487	2,936
Of those, the number desiring employment	454	471	126	345
No suitable employment apparent	149	163	47	116
No nearby work apparent	30	31	7	24
No work suited to one's knowledge and skills apparent	21	21	8	13
No work suited to one's desired working hours, salary, etc., apparent	56	56	11	45
No work apparent in the current economic climate or season	11	26	10	16
No other suitable work apparent	31	29	11	18
See no way to continue working due to homemaking and childrearing	115	123	1	122
Health reasons	67	62	25	38
Other	107	106	45	61

(Source) Compiled from Ministry of Internal Affairs and Communications "Labor Force Survey"

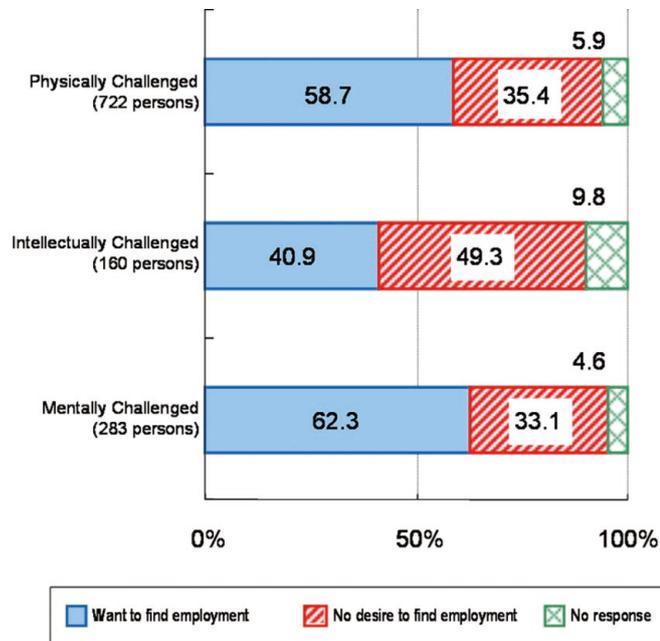
## 2. Social participation by and lifestyle support for the challenged through the use of ICT

### (1) Status of social participation by challenged people

#### A. Employment situation of the challenged

According to a survey by the Ministry of Health, Labor and Welfare of disabled people between the ages of 15 and 64, the number of disabled people working in 2006 was 826,000. Of these, the physically challenged totaled 578,000 (65.6%), the intellectually challenged totaled 187,000 (17.3%), and the mentally challenged totaled 61,000 (17.1%). As for the presence or absence of a desire to work among the unemployed disabled, 58.7% of physically challenged, 40.9% of intellectually challenged, and 62.3% of mentally challenged people had a desire to work.

**Figure 1-19 Desire of disabled people to work**



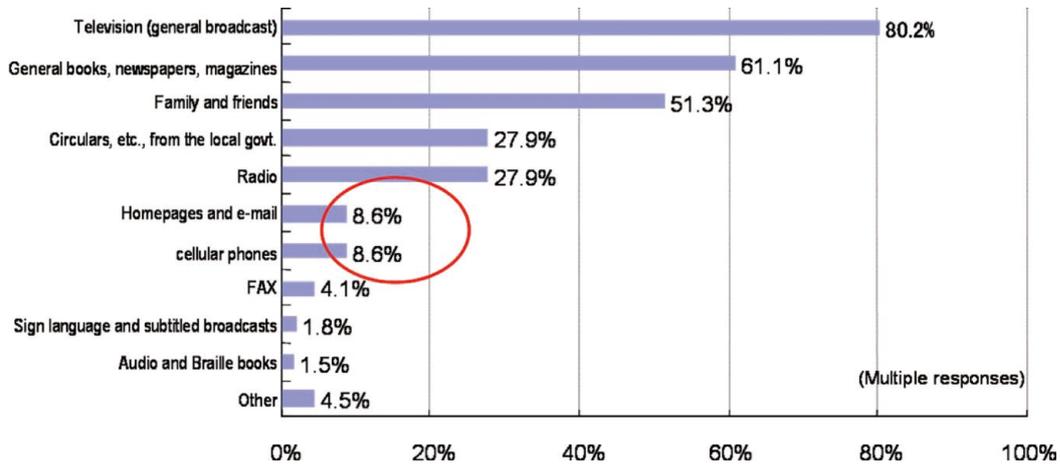
(Source) Created from the Ministry of Health, Labour and Welfare's "Employment Survey Results for the Physically Challenged, Intellectually Challenged and Mentally Challenged" (announced January 18, 2008)

#### B. Information in the lifestyles of the physically challenged

According to a Ministry of Health, Labour and Welfare (MHLW) survey, the most prevalent source of information for the physically challenged is "television" at 80.2%, followed by "general books, newspapers, magazines" at 61.1% and "family and friends" at 51.3%. "Website and e-mail" and "cellular phones" were given as responses by less than 10% of those surveyed, indicating that ICT tools are still not prevalent among the physically challenged as a means of obtaining information (Figure 1-20).

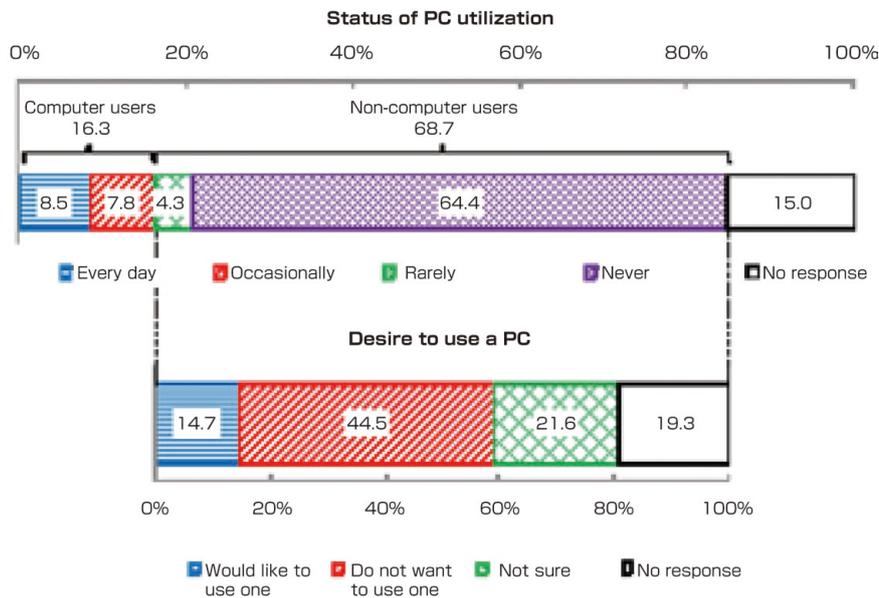
In terms of computer use, 16.3% of respondents use a computer “every day” or “occasionally,” while of those who “rarely” or “never” use a computer, 14.7% expressed an interest in utilizing one (Figure 1-21). On the grounds that the right to communication using ICT should be enjoyed by all citizens equally, the issue of promotion of barrier-free information, including distribution of ICT products and services to the challenged, is of increasingly pressing concern.

**Figure 1-20 How the physically challenged obtain information**



(Source) Ministry of Health, Labour and Welfare “2006 Survey of Disabled Children and Persons”

**Figure 1-21 Status of PC utilization and computer nonusers desiring to use computers**

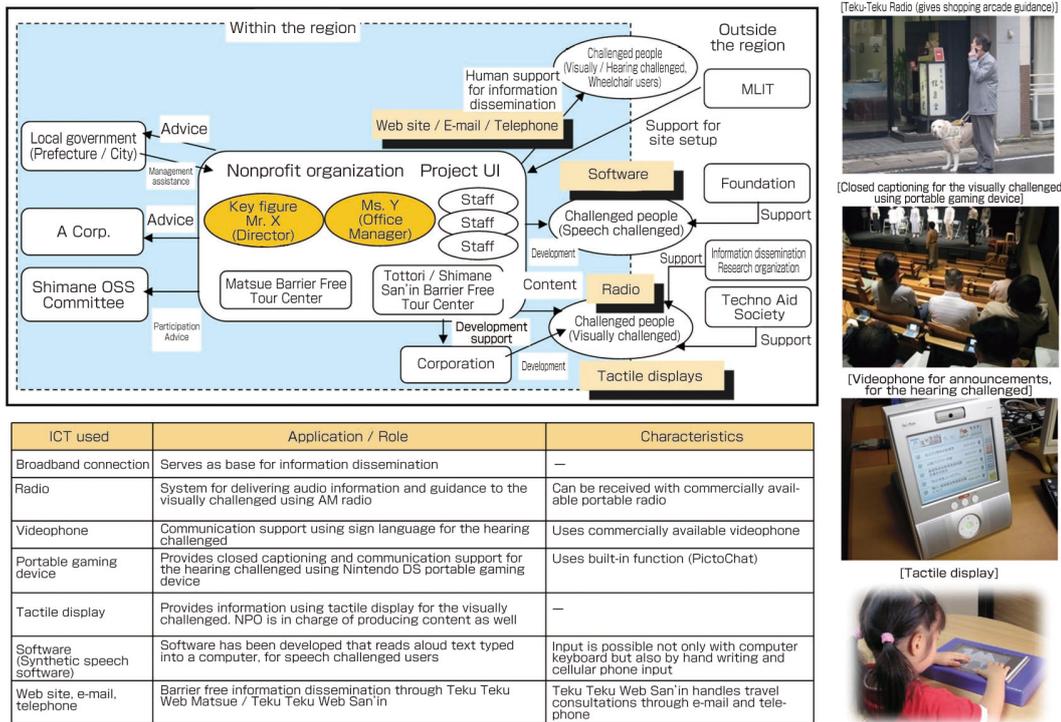


(Source) Ministry of Health, Labour and Welfare “2006 Survey of Disabled Children and Persons”

**(2) Examples of social participation by and lifestyle support for the challenged through the use of ICT**

Based in the city of Matsue, Shimane Prefecture, “Project UI” is a non-profit organization (NPO) engaged in promoting social participation by challenged people both inside and outside the region, digitalization of information, and development of user-friendly communities. The organization has seven full-time employees, of which two are visually challenged and one hearing challenged. The Project Director, Mr. X, is visually challenged. Based on the notion that advancing the digitalization of information requires four-way collaboration and cooperation amongst private industry, academia, government and the public, the organization is working to develop devices and systems to support the challenged using ICT. Their activities include community development and content creation such as the production of barrier free maps, along with technological development of information support devices utilizing portable gaming terminals, video phones, computers and so on, audio guidance software and tactile displays, as well as proactive dissemination of information.

**Figure 1-22 Non-profit organization Project UI (Matsue, Shimane Pref.)**



(Source) Ministry of Internal Affairs and Communications “Questionnaire of Leading-edge Examples of ICT Utilization in Japan” (2010)

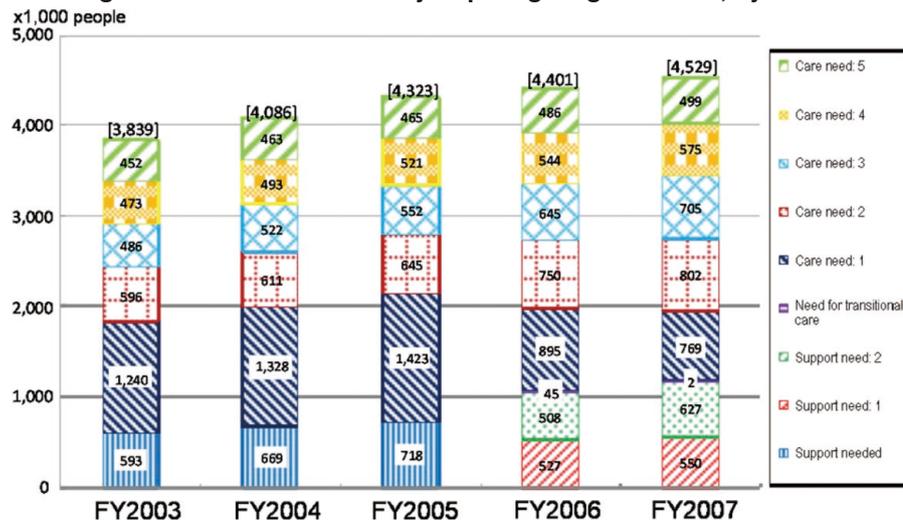
**3. How ICT supports lifestyle for the elderly in a variety of ways**

**(1) Status of the elderly**

According to MIC statistics, the 65-and-over population stands at 29.01 million as of October 2009<sup>5</sup>, indicating that Japan is a full-fledged aging society where approximately one in five people is elderly. Of these, as of the end of fiscal 2007 around 4.38 million are certified as requiring long-term care or support, a figure that keeps increasing year by year (Figure 1-23).

<sup>5</sup> Refer to “PopulationEstimates” (<http://www.stat.go.jp/data/jinsui/2009np/index.htm>) (MIC) (current as of October 1, 2009)

**Figure 1-23 Changes in the number of elderly requiring long-term care, by care level**

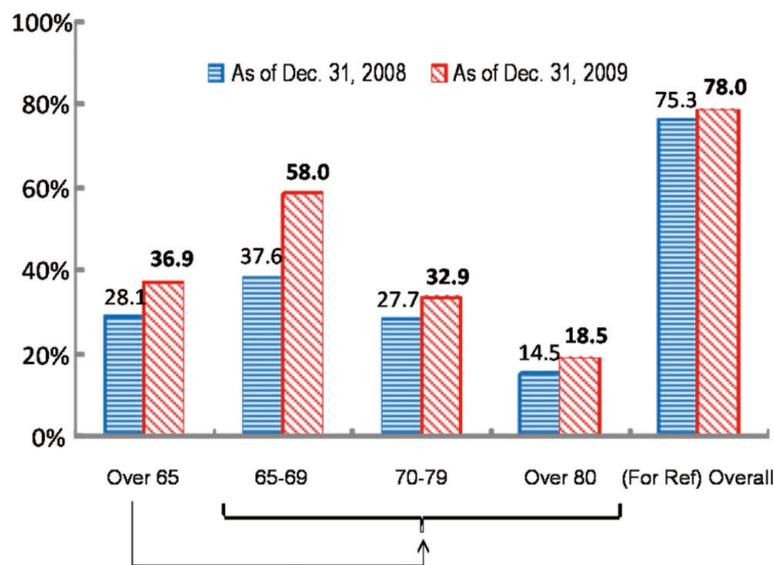


(Source) Created from the Ministry of Health, Labour and Welfare's "Annual Status Report on Long-term Care Insurance"

**(2) Status of Internet utilization by the elderly and challenged facing promotion of utilization**

The Internet utilization rate for elderly people was 36.9% at the end of 2009, representing a year-on-year increase particularly for those aged 65 to 69, who at 58.0% showed a jump of 20.4 percentage points over the preceding year (Figure 1-24). However, the average Internet utilization rate for all age groups was 78.0%, indicating that the usage rate among elderly people remains low compared to other age groups.

**Figure 1-24 Internet usage amongst the elderly**



(Source) Ministry of Internal Affairs and Communications "Communications Usage Trend Survey" (2009)

ICT can provide support for elderly in a wide variety of ways, by support for active social participation by active seniors, helping them with day to day life, compensating for supplements the decreased functioning that comes with aging, and by helping them secure a means of communication and independent problem solving even when their condition necessitates support and nursing care. While individuals may choose to avoid ICT for personal reasons, it is clear that considering the widespread penetration of cellular phones and digital health devices, ICT has a vital role to play in boosting social welfare by allowing the elderly to live self-sufficient lives, maintain health preventively, and avoid the need for long-term care.