

Innovative Applications and Strategy on ICT Applications for Aging Society - Case Study of Japan for Silver ICT Innovations

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ABSTRACT

One of Japan's greatest public policy questions is whether Information and Communications Technology (ICTs) can be used as a policy tool in three social structures: the information society, global society, and super-aging society.

This issue has become a challenge not only in Japan but in all countries.

What is the role of ICT in the super aging society? Innovation has been brought to all aging peoples' lives by positive use of ICT. Moreover, ICT will be an engine for economic growth and innovation to support aging society.

This paper focuses on ICT applications for aging society by utilizing the case study of Japan. This paper also includes e-democracy, the emerging role of ICT for empowerment of people, and strategy and initiative for innovation in Aging society.

Moreover, the paper discusses the role that social media can play role in the aging society. This paper analyzes the power of social media as well as e-government and mobile applications. As a case study, it introduces a social survey on the relationship between aging people and usability of ICT in Japan. Finally we will propose several recommendations on actions for digital inclusion.

Categories and Subject Descriptors

K.6 [MANAGEMENT OF COMPUTING AND INFORMATION SYSTEMS] : K.6.0 General

General Terms

Management, Economics, Security, Human Factors Standardization

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Keywords

ICT Application; Aging Society; Silver ICT Innovation Japan; Social media; Silver Democracy

1. INTRODUCTION

1.1 The Current situation on “Super-aging society”

The issue of the aging society will be a vital global issue in the near future, just like environmental problems.

The issues on aging will become a common challenge in not only Japan but in all countries of the world where large numbers of people will soon join the aging society. Europe, and Northeast Asian nations such as China and South Korea are paying attention to measures for aging people in Japan. Japan should immediately construct a "Japan model" for the efficient use of ICT, and introduce it to the world.

The 65-year-old population will be about 40 percent of the total population of Japan in 2050. This social change will bring various policy tasks that cannot be accomplished with previous policies.

Figure 1: The Aging society in Japan

Various population related statistics in 1960, 2010 and 2030

	1960	2010	2030 (projection)
Numbers of Elderly	5 (million)	29 (million)	37 (million) ↑
Proportion of Elderly	5.7%	23.0%	31.6% ↑
Life Expectancy at Birth	Men 65.3 Women 70.2	Men 79.6 Women 86.4	Men 82.0 ↑ Women 88.7 ↑
Total Fertility Rate	2.00	1.39	1.34 ↓
Mean Number of Household Members	4.52	2.46	2.27 ↓
Households with heads aged over 65	—	15,680 (thousand) One-person 29.7%	19,031 (thousand) One-person 37.7% ↑
Social Security Expenditure	0.7 (¥ trillion)	108.1 (¥ trillion) (2011)	151.0 (¥ trillion) † (projection for 2025)
Place of death	Hospitals 18% At home 71%	Hospitals 78% At home 13%	—

Source: Ministry of Internal Affairs and Communications, Population Census, Statistics and Information Department, Ministry of Health, Labour and Welfare, Life Table, National Institute of Population and Social Security Research, Population Statistics of Japan 2012, National Institute of Population and Social Security Research, Population Projection for Japan: 2011–2060 (January 2012), National Institute of

The population of Japan has been decreasing gradually since 2004. Japan is the only "Population decrease and super-aging society" in the world at this moment.

This reality has created an uneasy element that has shaken the socio-economic system of Japan. And, it is difficult to say that excellent preparation has been implemented, though it has been urged by the change of the social structure. Japan's labor force will decrease if the government continues to make unclear economic policy on aging issues in the future, and the global competitiveness of Japanese industries will decrease as well.

1.2 The fact and issues of the Super Aging Society in Japan

News surrounding senior citizens have increased rapidly in Japan in the last few years. The major topics are for example "Lonely death" and "the senior citizen has to nurse the senior citizen by themselves". In addition to historical trends of Figure1, the serious current situation of the Super Aging Society in Japan can be understood with these facts and issues:

1. The ratio of 65-year-old population to total population is the 25.1 % (2013), No.1 in the world.
2. Average life span for man is 79-years old, and female is 86-years old (2012) as No.1 in the world.
3. The aging people who live alone among elderly households which accounts 10 million homes is about half of the households for aging people (21% of the total of the homes) (2010).
4. In Japan 40 years from now, total population will decrease by over 25% based on the statistics in 2013
5. Drivers 70 years-old and above account for most car-related injuries and fatal accidents.
6. Japan has the second highest suicide rate among senior citizens in the world (the 1st place is South Korea, with 31.2 people in every 100,000).
7. The annual number of consultations and reports concerning elderly abuse is 21,692 (2008).
8. Senior citizens have 60 percent of individual financial assets in Japan, worth 1.6 quadrillion yen.
9. About 50 percent of all voters will be senior citizens within 10 years. They will be the biggest pressure group.
10. The cost of Social Security under super aging society in Japan is 1.5 quadrillion yen in 2025.
11. About 30% of the Japanese population are aging people or handicapped people.
12. Aging people (65 years old and beyond) spend half of national healthcare expenditure.
13. Victims of Tsunami were mostly the Aging people. About 70 % of persons injured at big disasters (such as earthquakes, Tsunami and typhoons) and 50% of traffic accidents are seniors.
14. About 80% of aging people would like to die at home, not at hospital
15. About 80% of retired people look for jobs and only 20 % of these can get jobs
16. Average annual income of 30 % of the elderly is around 2 million yen or below (about \$21000) and mainly income from Pension.

Solutions for these issues are urgently needed. But government actions have not caught up to the issues.

2. OBJECTIVE OF RESEARCH

2.1 Significance and motivation for research

As for the term "Silver-democracy", many definitions focus on the usage of ICT in political processes and public decisions based on needs of senior citizens. Our approach to e-democracy as a phenomenon resulting from the usage of ICT as a tool is to enhance the democratic system of governance for senior people. There is no doubt that both technology and innovation are quite important for information society, but the focus must be put on the governance system with accountability and transparency. Some of the major challenges that silver-democracy faces include the issues such as availability, accessibility, affordability and usability of ICT. On this regard, new employment system for senior people with life-work balance will be the significant factor for the sustainable society.

Also, other challenges to silver-democracy are information security policies for ensuring appropriate handling and protection of personal data and information from the users. By political commitment with e-democracy as well as its engagement from citizens, silver-democracy projects and initiatives are increasing. Whether Projects can be national in scope or local, valuable lessons can be obtained from them. The advantage of local projects is that they can be used as pilot projects to evaluate the benefits and conveniences at grass root easily. From the side of citizens, silver-democracy practices include the cases such as online petitions for the government, e-discussion forums, social media and politician' web pages. Government portals are focusing on supplying citizens with services, adding applications such as open data, e-procurement and digital inclusion, in an attempt to facilitate the relationship between citizens and government.

One of the most well-known examples of silver-democracy is the one related to e-voting which can increase active participation by both senior and handicapped people. Japan

has implemented e-voting in some local elections. A full scale of internet campaigning has started for the national election in July.

In the end, e-participation will be easier if e-democracy matures in society. Due to the increase of active senior people, e-democracy will be influenced by “Silver Democracy”.

The concept of “Silver ICT Innovation” is relatively new, but we define it as “innovation which will promote the smooth convergence of the information society and the aging society”.

The usability of ICTs will bring a paradigm shift to such a society. Innovation is brought to seniors’ lives by positive use of ICT. Moreover, ICT will be an engine. For this aspect, the objectives of this research are as follows;

1. To solve the risks of the super aging society
2. To clarify the vital role of ICT Application for the aging society
3. To solve Digital Divide for aging people
4. To create a society in which aging people can live safely and securely
5. To create a mechanism for aging people to engage with society through “e-participation by senior people” and verify the appropriate ICT applications

In this paper, various issues relating to these points mentioned above are discussed.

2.2 Literature Review

Many of themes of the early thesis that relates to the aging society can be summarized as focusing the social securities, the pensions, and medical treatments. In a word, there is little thesis that attempts to solve the problems by ICT use.

The concept of uniting the aging society and the information society is relative new. The research on “Active Aging and Independent Living Services -The role of Information Communication Technology (Norbert Malanowski)” in Japan is also similar. Aging social measures have been limited to service like nursing and social participation, etc. As for a super-aging society, it is necessary to support senior citizens with usability of ICT applications. However, there is a limit also in this respect. ICT that supports senior citizens perform a key role in the aging society, however its effect is limited due to the need for human interaction among senior people as a process for social innovation.

Moreover, the availability of ICT for aging is higher than it is thought. Uniting "the super aging society" and "Information society" that has only a superficial understanding can still be called the referred thesis is pioneering content that solves the problem of a super aging society considering such a current state.

The hypothesis is as follows: ICT is not functioning well in "super aging society" at this moment. However, if the

issue of usability of ICT is to be solved, the convergence between Aging Society and Information Society is theoretically possible. Obi (2011) mentioned “Japan will be able to produce a solution model with the best practices of managing aging society for the rest of the world” [1]

This paper aims to solve the issues of the super aging society by utilizing ICT, and to create an effective new social system. As for the convergence between Information Society and Super Aging Society, it is mentioned that aging people who use new technology are able to use and enjoy ICT in their life (Obi,Iwasaki 2010) [2]

3. ROLE OF GOVERNMENT ON THE SUPER AGING SOCIETY – CASE OF JAPAN (1)

The emerging role of ICT as a tool for aging society is to enable digital inclusion. The main achievements and Points on promoting information society are as follows:

1. In today’s world there are about 4 billion people who use mobile or/and Internet.
2. Mobile communication technology became the world’s most common way of transmitting voice, data and services for business development. This mobile usability is especially active in developing countries as common platform.
3. Smart phones with ability to share video, voice and pictures are becoming more significant tools.
4. The Internet has also played an important role in education especially in universities where training for seniors by online courses has started.
5. ICTs can make it easy for handicapped people (60% of the group is the elderly people) to access information.
6. Women and youth are interested in social networking sites.
7. Online political communication such as election campaign has increased. For example the Arab spring in 2011 has continued up to now and similar movements have appeared in some places in the world.

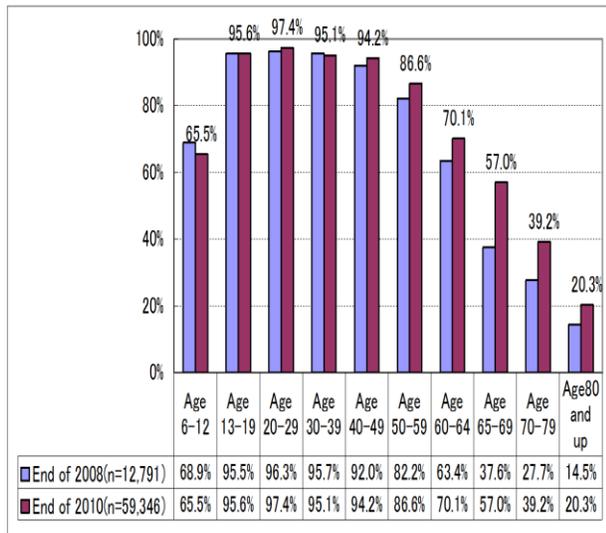
The above seven points are issues which have been achieved. The following six points that should be achieved are still in progress:

1. Deployment of broadband is a big priority in developing countries.
2. Firm commitment by political leaders is vital to promote digital inclusion
3. Decentralization of governmental organizations will bring public decision-making as close to senior people as possible.

- Use of ICT in rural areas can promote economic growth. User friendly interfaces for aging people are also a key ICT solution.
- Incorporating ICTs training with lifelong education system: The installation of software, creation of websites, storing of data are needed.
- Sharing and proper usage of content to prevent criminal from misusing the information available on the internet

Figure2: Internet Usage by Age Groups

The rate of internet users is increasing even at the age of 65 and over. Of the people in the age group from 65 to 69, 57% use the internet in their daily lives.



Source; Mitsubishi Research Institute 2012

4. SILVER-DEMOCRACY IN AGING SOCIETY-CASE OF JAPAN (2)

The search for an appropriate measurement for the use of ICTs to benefit people is increasingly being discussed in relation to Information society paradigm, according to which the creation, distribution, diffusion, use, integration and manipulation of information by the means of ICTs is the driving force behind transformation and development of a society. In information society ICT infuse every aspect of life from business to government providing new and powerful tools, which enable more (1) convenient, (2) friendly, (3) transparent, (4) inexpensive, and (5) faster communication and transactions between the parties.

ICTs have the potential to considerably support the independent lifestyle of people, as communication and transactions don't require physical presence any longer, while active participation in politics and in other decision-making processes can be easily accessed. Potential benefits of ICTs for the aging people refer to

- Improved skills,

- Increased employability;
- Better health awareness and
- Online access to health services;
- Increased quality of life;
- Strengthened community cohesion and trust;
- Better access to information and engagement in public issues.

Aside from services addressing health and safety concerns, senior people have a desire for participation in civil, economic, political and social activities, for being active members of the society, and for having their importance to the society tangibly confirmed.

Democratic political participation must involve the means to be informed, the mechanisms to take part in the decision-making and the ability to contribute and influence the policy agenda. There can be a one-way relationship in which government produces and delivers information for use by citizens, a two-way relationship in which citizens provide feedback to the issues submitted by the government for consultation, and a relationship based on partnership with the government in which citizens actively engage in defining the process and content of policy-making .

In Japan, formal tools for enabling the elderly citizens to engage with their government have been limited. The main means for soliciting citizen comments is the public comments system, which the government established in 2005. Though the public comments system does not have legal binding, each government must, under the basic law on reform of the governments, use the public comments system to provide a public opportunity for participation in the process of political decision-making. However, this system to date has not proved to be effective in encouraging citizens' input. In particular, it has been found that:

- Solicitation for comments comes late;
- Comments induce little change;
- Public comments receive little attention; and
- Business groups send a bulk of the comments, while the senior citizens' use is low.

Despite the means of introducing public comments being mostly limited to feedback options available at public Web sites, such as e-mails to the governor, mayor, or public relations section, there are some examples of more sophisticated mechanisms of e-participation. The best examples include Fujisawa City and Mitaka City, which implemented a system for adopting proposals from "e-forums".

The e-forum of Fujisawa, being the first e-forum in Japan, served as a means for discussion of the overall city administration. An e-Forum established in the city Mitaka aimed to collect citizens' views about what policy goals should be set within the new master plan of the city. This e-forum involved e-symposium and e-community carte.

“E-symposium” is organized to discuss the principal policy goals identified based on prior conducted surveys. The animated recording and minutes of the symposium are distributed via the Internet so that those citizens who cannot attend the symposium but are interested in the subject can see the content of discussion and make comments if they wish.

“E-community carte” is aimed at collecting on-site information relevant to urban policy, such as dangerous crossings and industrial wastes, etc. All these views and information that were collected through an e-forum are examined by policy-makers, who attempt to incorporate these responses into the final revised master plan.

Aside from low contributions in the form of opinion posting and making proposals based on discussions, neither project reached a key objective of e-participation, namely of inviting previously non-engaged citizens to express their views. Those users of e-forums who did contribute to the discussion are the same citizens who have already been active in various community activities. This has a direct consequence for the social inclusion issue, as the main idea of using ICT is to reach a wider audience and to support those who would not typically access the Internet and take advantage of the large amount of available information. This requires the provision of relevant information in a format that is both more accessible and more understandable for less experienced users.

This brings us to the problem of accessibility of Web sites and offered applications, including those serving as a means of e-participation. In Japan, the aging population is a segment with the lowest usage of PCs and internet, lagging behind their younger counterparts. The generational gap for internet usage, the so called “digital divide” in PCs is wider than for mobile communication usage as the use of PCs demands a fair amount of knowledge or “digital skills” that older people often lack.

5. THEORETICAL CONCEPTS

5.1 Theoretical concept-The role of ICT Applications for solving the issues of Super Aging Society

The rate of mobile phone usage in Japan at the end of 2012 has almost reached 80% for the age 60 and over group. As for the mobile internet usage, 3G mobile internet usage reached 70%. Remarkably, diffusion of mobile internet usage is also continually advancing among all levels of people.

The introduction of universally designed mobile phones was pioneered with the Raku-Raku phone (easy use friendly to the senior) by NTT DoCoMo in 2001. The strategy for the Raku-Raku phone concept has been built on three fundamental characteristics-easy to read, easy to hear, easy to operate. Such as text reading, and a voice-activated call feature based on recognition technology. In spite of policy initiatives, accessibility of mobile web content for the elderly and disabled people are found to have little impact. While it is mandatory for government national and

municipal websites to follow accessibility standards most of them still lack a lot of functions important for elder users such as changing font size of the text.

More efforts are required to improve government services both in terms of accessibility of Web content and of offering means for e-participation. On this regard, UNESCO UNITWIN Program on Emergency Preparedness and Responses (Disaster education) as my chairmanship implies the importance of e-participation for senior people in community activities under disaster.

Demographic change phenomenon characterized by a rapidly aging population will cause serious social, economic and political issues. According to UN estimations the global population of older persons is growing at a rate of 2.6 per cent per year, which is more than twice as fast as the growth of the population as a whole. Developing countries, in spite of a relatively low percentage of aging people at the moment, are aging at a faster pace than developed countries and thus will have less time to adjust to the consequences of population aging.

The prospects and consequences of demographic challenges are being viewed in aging societies in the contexts of replacement migration and employment protection policies, necessary changes to be done in pension regimes and health care systems, and the potential offered by ICTs for enhancing quality of life through sustaining independent living and providing opportunities for greater democratic and societal engagement of the senior population.

Exploring opportunities for the elderly in the area of ICT receives a lot of concern in Japan, which became the fastest-aging society in 2005 when the ratio of aging people reached 20 % (now 25%). There are now over 30 million older people, that is, ages 65 and over in Japan. In addition, there are at least 4 million children and adults with disabilities which constitute about 3-4 % of the country population.

It is hard to be aware of the onset of psychiatric disorders so in many cases people reach medical institutions only after a long delay. This means that there are significant numbers of people in Japan that have yet to experience and benefit from e-health and other ICT enabled innovations and become real citizens of information society.

The Japanese government at national and local levels are looking for measures to promote ICT-based innovations for a growing number of aging people and people with disabilities who are found to be willing and economically able to secure independent living. According to the recent study, Japanese senior people hold a half of all personal financial assets and also spend a half of national healthcare expenditures.

Consequences of the aging process will continue to shape Japan’s future. The challenges that Japan’s fastest-aging society are confronting today will be soon faced by other countries given an increasing pace of aging worldwide. Considering the latter, this paper aims to explore effective measurement and strategies for promoting

ICT-enabled innovations for people with special needs. This presentation is focused on reviewing current public initiatives in the field of e-health and accessibility addressing challenges faced by Japan's rapidly aging society. The results of efforts in promotion of ICT solutions for its elderly population are then evaluated against availability of special infrastructure, devices and interfaces, and services and applications for senior people in Japan. This presentation concludes with an outline of proposed measures for promoting ICT-based innovation for the aging society and an outline of directions for future aging/disability-inclusive development.

5.2 Research design-Social Survey in Japan -Lessons from data Analysis on older Japanese

The Institute of e-Government, Waseda University conducted a survey in cooperation with LASDEC (Local Authorities Systems Development Center), as follows:

Table 1 Social survey on ICT usage by the seniors in Japan

Area	Tokyo, Hiroshima, Ichikawa (Chiba Pref.), Yokosuka (Kanagawa Pref.) Saga Pref. Ibaraki Pref., Okinawa Pref., Yamanashi Pref.
Date	August 2009 – February 2010
Valid Responses	348 (Male; 146, Female; 202)
Attribution	Age 40; 18%, Age 50; 19%, Age 60; 34% , Age 70; 22%, Age 80; 1% , Unknown; 6% Age, Sex, Family Structure, Annual Income, Ownership of ICT tool
Methodology	Direct Distribution, Online Survey
Features	-Classification of the current status of the elderly living -Classification of existing government and e-government services -Use of ICT: mobile phones, car navigation systems, banks ATM, experience with e-government services and electronic equipment -The survey results will be used for the development of future international comparative research

Source: Institute of e-Government, Waseda University 2010

This survey focused on ICT usability and accessibility for the aging people. The Institute of e-Government of Waseda University classified the current status of the aging people. Examples of questions are:

1. Which ICT tools do you have?

2. What is the most appropriate and convenient ICT tools for the aging people?
3. What tools do you want to use during disasters?
4. What is the motivation to use ICT tools? (The ICT tools include mobile phones, car navigation systems and as touch panels).

The issues on the aging society in Japan are becoming a global challenge. Therefore the questionnaire was made in order that the survey will be used for future international comparative research.

According to the result of the survey, the majority of the high-income earners have PCs, mobile phone, landline and TV. On the other hand, most of the low income people do not own ICT equipment. Aging people with annual incomes of more than \$70,000 usually have mobile phones, fixed telephones, televisions and personal computers. The majority with annual income of \$40,000 or less often do not have ICT equipment. Over 90% of all the respondents talk over the mobile phone and 70 percent of the people who have mobile phones use the Internet and e-mail service.

According to the result of the same data, the findings are that 89.2 % of respondents can use the ICT easily. The survey found that 52.3% learned how to use the devices on their own; 22.5% were taught by others; 19.9% thought the devices were intuitively understood; and 6.2% found the letters and design of the ICT device easy to use.

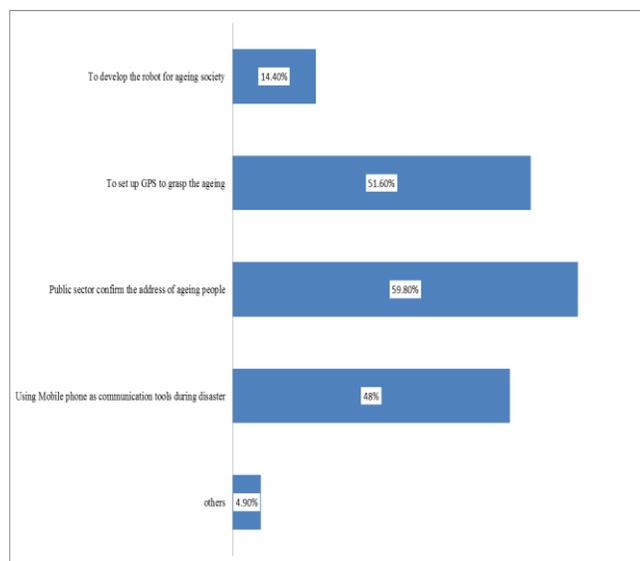
As for the need for touch panels, a majority of respondents feel they are necessary (55.2%). In addition, there is higher demand for ICT tools with voice recognition and remote control. People would be more motivated to use ICT if they were offered free internet classes with training. On this regard, social environment has a large impact on ICT adoption and usage. The elderly are motivated to use ICT if their friends were active users of PCs and mobile phones.

Moreover, especially during disasters, ICT tools which youth can use immediately are very convenient for not only the youth but also for aging people.

As for the solutions how aging people can be protected from disasters by ICT, it was found that 48% of seniors use mobile phones as communication tools during disasters; 59.8% of public sector confirms the address of aging people; and 14.4% believe that robots have useful applications for disaster and aging society (Table 2).

From the result of the above analysis with Table 2 [ICT solutions in disasters], aging people are classified into two groups; "Active Aging" and "Negative Aging". The negative aging group tends to be victims in disasters since they cannot use ICT tools. There are also day to day inconveniences for the senior people who cannot utilize ICT.

Table 2 ICT solutions in disasters



Source: Institute of e-Government, Waseda University

E-mail and mobile phones were not available easily in the affected areas of 3.11 (Tohoku earthquake), and the information related to the damage and rescue was conflicting.

According to the report of MIC, twitter played a big role [for what?]. The number of “Tweets” per day was reached about 10 times before the earthquake. Affected municipalities tried to send messages through twitter. Twitter played the new role of communication residents in 3.11.¹

Moreover, mass media as well as municipalities were utilizing twitter. For internet services, although the usability of the Internet and email is high, the usability of video sharing sites, twitter, SNS, an internet broadcasting site, and a location-based service were low relatively. (As for twitter, SNS, the internet broadcasting site, and especially the location-based service, the areas of usability are restrictive). Social media is effective for senior people if they can use this tool.

5.3 Government and social media for the senior people

To address urgent needs and enable social and political integration of people, governments should ensure a genuine access to data and bring citizens closer to administration, service delivery, decision and policy-making. The vision of the future society system is based on the paradigm shift with convergence of five priority phenomena in Japan - "Informatization", "Aging", "Environment friendly", "Urbanization" and "Globalization".

¹ Obi, Iwasaki (2011) “Silver ICT Innovation Saves the Super Aging Society”, Mainichi Shimbun Publishing.

In light of fast-approaching and almost global phenomena of social inclusion, Japan has made great progress in terms of developing policies aimed at promoting ICT applications and accessibility of ICTs to meet the needs of its citizens. E-inclusion of people addressed by government in general policy areas as well as in specific legislation and regulations are beneficial for several fields. Implementation of accessibility policies has been especially beneficial to the development of mobile broadband and applications that address people’s needs for human rights such as education, employment, health and safety.

E-dimension for provision of e-government services for aging people to enable their integration into decision-making remains unexploited to date. Although present e-Government framework stipulates development of ubiquitous government services for the aging people, it lacks more concrete measures promoting their development. Additional channels such as interactive digital TV are also not yet utilized to achieve social and political integration of senior people. At the same time, the government services provided through PC-based access lack means for introducing public participation and civic engagement and lack accessibility features.

Thus, in spite of some good progress in the development of ICT-enabled applications benefiting people, there is an urgent need to find effective measures for exploiting ICT for all the societal domains and promotion of commercialization of innovative solutions meeting all possible needs of the stakeholders such as civil society, NGO, academia and business sectors in addition to the public sector.

According to Andreas Kaplan and Michael Heinlein, they define social media as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content”. Social media has substantially changed the way organizations, communities, and individuals communicate. Social media provides a powerful platform to help government communicate directly with people and be more visible on the Web. Social media will be more useful empowerment of senior people as a tool of e-participation. It is believed that the best services to people through different ways like SNS and open data with a shared database can be effective in aging society.

6. IMPLICATION OF RESEARCH

Recognizing remaining challenges, the government of Japan established a taskforce on ICT applications for Aging Society² under both Japanese Ministry of Internal Affairs and Communication and Local Authorities Systems

² The task force is chaired by Toshio OBI, Waseda University and consists of 12 members representing academic and business communities, e-local governments, think tanks, lawyers, NGO working with senior and disadvantaged people.

Development Center (LASDEC) in 2010. The main aim of the task force is exploration of appropriate measures to exploit ICTs for social and economic benefit of people with special needs.

Taking an integrated approach, the taskforce aims at proposing a comprehensive, cross-cutting solution to the problems currently addressed separately, seeking out related solutions across the private and public sectors with the emphasis on industry-government-academia cooperation that already proved to be an effective partnership model for various kinds of ICT based innovations designed for the senior people.

Based on the various experts groups which play leading roles such as the taskforce by LASDEC on the vision in ICT innovations for aging society, the author as chairman has recommended the following 8 main areas as significant priority agendas. Most of them are correspondence to our survey:

1. e-Government/e-Municipality: Improving the e-government and administrative services so that the elderly feel comfortable to use them (5-3);
2. Healthcare: Expanding efficient hospitals and healthcare systems by healthcare computerization (4,Table 1);
3. New traffic systems: Development and diffusion of new elderly-friendly traffic systems (e-mobility) and smart city planning for active aging people (3);
4. Disaster prevention and reduction: Establishing disaster prevention networks, safe/secure remote supervision system by mobile and GPS services (Table 2);
5. Elderly Housing: Promoting “Ubiquitous and Smart Homes” for the elderly and expanding ICT-based nursing homes program (Figure 1);
6. Life-long education: Encouraging senior citizens to participating in knowledge-based society through distance and lifelong education as a part of e-participation/e-Inclusion (4,Figure2);
7. Social participation: Promoting positive e-participation to civil society through volunteer activities; expanding the ICT-utilized social networks for the elderly and creating the community volunteering culture (5-3);
8. Pro-elderly employment: Creating a new pro-elderly employment systems and markets such as teleworking and 3-day /week work (2-1).

7. CONCLUSION AND RECOMMENDATION

Following the outcome of the taskforce, we proposed several measures as a next step for transforming society to meet the needs of its biggest stakeholders-aging people.

As one recommendation, the government of Japan has started introducing new policies directed at promoting ICT-based innovations for elderly People. Since these measures were only introduced one year ago, it is difficult to judge the results at this point.

At the OECD-APEC joint workshop on ICT applications for the people with special needs held at Waseda University in September, 2012 which Prof. Obi, author was a chair with 400 experts, it is recommended to establish an international commission that would monitor and analyze specific policy measures introduced by different governments and investigate experiences, case studies, good practices on ICT for aging and disabled solutions disseminated by the governments³.

As the consequences of e-participation by senior people will continue to shape the world’s future it is absolutely necessary to establish [ICT for e-participation-Social Inclusion for aging people] – a new field of research that aims at integrating the five major paradigms mentioned above, and formulating the evaluation methodology on effectiveness of multifaceted solutions.

More efforts also need to be focused on provision of training on the use of ICT applications to resolve the obstacles and problems of people arising from low trust and confidence in their own contribution on sustainable communities.

Finally, more verifications on methodology are necessary for this paper under the limited space. The test bed relates to this issue has been just implemented in Japan in cooperation with some local municipalities. It is assumed to be the relevant research topic to create a new finding with these results. This paper aims to challenge and find out the solution of the most serious problem in the 21st century.

Innovative strategies and sound initiatives of digital inclusion with empowerment of active senior people will be a quite important platform to the Millenium Development Goals of UN (the author is a member of the Expert Group in UN DESA) and future international development strategies and priorities for post-2015. The quick convergence between Information society and Aging society will create a new paradigm shift with good governance of ICT usability by lessons learnt from the best practices of Japan as the first super-aging society.

As our limitations in this paper, it can be said that due to the limited numbers of the completed results on pilot projects at this stage since the government council led by the author started 35 PPP projects on silver ICT applications last year. For the future research we expect that we will be able to get the nice achievement results in full scale as further analysis.

³ The conference proceedings [Aging society and ICT] edited by Professors Obi, Auffret and Iwasaki is available at IOS Press

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