i-Japan Strategy 2015

Striving to Create a Citizen-Driven, Reassuring & Vibrant Digital Society

Towards Digital ***i***nclusion & ***i***nnovation

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IT Strategic Headquarters

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Chapter 1. Introduction

I. Vision of Japan and its Digital Society in 2015

(1) Current Situations in Japan

(a) Changes in the Socio-Economic Environment

As the Japanese economy is currently confronted with an unprecedented global economic crisis, the government adopted the Policy Package to Address the Economic Crisis worth ¥15.4 trillion this past April and is currently working to implement the stimulus measures as quickly as possible. Consequently, it is expected that the Japanese economy will make a rapid recovery and achieve new growth. As these developments unfold, the Japanese economy will continue to have various strengths, but it will also face numerous structural challenges approaching the year 2015.

Among the specific strengths that the Japanese economy will continue to enjoy in 2015 are one of the world's highest-GDPs and expansive domestic markets that support it, high educational levels, world-leading information and communications infrastructure and unique and advanced methods of using that infrastructure, the world's highest manufacturing capabilities, energy-saving and renewable energy technologies, and proximity to rapidly-growing economies in Asia.

At the same time, however, Japan's economy will face a number of serious challenges in 2015 including stagnating and declining productivity and incomes as well as shrinking domestic markets as a result of the aging society with a low birth rate, a decrease in social vitality, intensifying international competition and declining international competitiveness in conjunction with advancing globalization of markets, tighter constraints concerning resources and the environment including global warming, structural limitations on an export-oriented economy under a slowing global economy, and persistent regional disparities.

(b) Changes in the Digital Use Environment

The socio-economic changes described above and the major transformations in digital technologies themselves will give rise to a wide array of issues including: (a) a growing number of challenges that cannot be addressed by a single country as the world economy becomes increasingly globalized and flat; (b) increasing complexity of challenges caused by accelerating integration of the real and virtual worlds; (c) increasing need for higher reliability of network-based information and appropriate selection and use of tremendous volumes of information in conjunction with the

widening negative aspects of a highly-networked society and the explosive growth of information volumes.

It is desirable for Japan to realize its latent potential through the use of digital technologies and address the many issues that it faces including issues that are unique to digital technologies by 2015.

(2) Vision of the Digital Society in 2015

Digital technologies can overcome distance and time to link people, goods, capital, knowledge, and information while integrating all economic activities to drastically increase the efficiency of socio-economic systems, generate new added value and culture, and serve as a force that will bring about structural reform in Japan's economy and society.

As we move toward 2015, the i-Japan Strategy seeks to utilize digital technologies in a way that they will be accepted universally as the norm in every corner of society like air and water, creating a condition of digital inclusion throughout the economy and society. This will lead to the development of environments in which necessary information can be obtained and used whenever needed, fairly, easily, and safely, to create a society that can support enriching lives and connections among people.

In addition, digital technology and information will lead to digital innovation and new vitality through the economy and society where individuals and society as a whole can use this vitality to undertake spontaneous and forward-looking creation and innovation that generate new value and to create a society where business enterprises will be able to shift to low-cost and high-profit structures, sustainable economic growth and environmental and resource constraints will be balanced, and cooperation, collaboration, and coexistence with international society will be achieved.

By achieving this vision of a digital society in the future, Japan will develop into a society that is truly citizen-driven that can contribute to resolving the issues it will face in 2015 indicated in 1 above. It will also be able to achieve both the "advanced, high-quality, and waste-free digital society capable of continuous progress" and the "digital growth society that can energize citizens, businesses, NPOs, and regional society and make dreams into realities," the objectives discussed in the New Strategy for a New Digital Era: Three-Year Emergency Plan.[1] These measures also seek to enhance Japan's competitiveness as a country and to exercise international leadership by overcoming shared global challenges.

[1] Adopted by the Strategic Headquarters for the Promotion of an Advanced Information and Telecommunications Network Society (IT Strategic Headquarters) on April 9, 2009.

II. Digital Strategy for Achieving the Future Vision of Japan

(1) Background to and Problems with Previous Strategies

Japan established the IT Strategic Headquarters in 2001. With the e-Japan Strategy, it emphasized the development of network infrastructure, while e-Japan Strategy II and later strategies dealt mainly with the transformation of socio-economic structures through the use of digital technologies. The development of information and communications infrastructure has progressed, but many citizens have yet to experience the outcomes of that development.

This result is believed to have occurred because previous policies have emphasized the use of digital technologies and were apt to prioritize technology, and there was excessive emphasis on the perspective of manufacturers and service providers. The new strategy must reflect on the problems of past strategies and be designed to create a digital society where all citizens (users) can accept human-centric digital technologies developed from the perspective of citizens (users). It is also essential that efforts be made to gain broad acceptance, including in emerging economies, of digital technologies created in Japan as global standard technologies and use formats.

(2) Digital Strategy from a New Perspective

In light of the above, the i-Japan Strategy 2015 emphasizes the perspective of enabling everyone to enjoy digital technologies and was adopted with a focus on the following points. The strategy will be steadily implemented in the future through the Three-Year Emergency Plan and its revision.

(a) Easy-to-Use Digital Technologies

Advances in digital technologies and the development of digital infrastructure will cause a shift from ownership of information systems to use of information systems. Based on the assumption that digital technologies will become a presence as commonplace as air and water, environments under which digital technologies and information can be used safely and securely from anywhere and at anytime, regardless of scale, time, and location, will be developed.

(b) Breaking Down the Barriers that Hinder the Use of Digital Technologies

Barriers in systems, practices, organizations, and so on that are not premised on the use of digital technologies in various fields including government services, healthcare, and industry will be broken down through comprehensive business process reengineering (BPR). This will support the development of socio-economic structures that are efficient

and internationally competitive on the individual citizen and customer level.

(c) Ensuring Security When Using Digital Technologies

Basic rules will be adopted and explained to address concerns and the growing risk of leaks of confidential information such as personal and technology information through the use of digital technologies. In addition, information security measures will be taken to counter risks by minimizing the impact of information leaks and barriers and ensuring continuity of services.

(d) Creating a New Japan by Diffusing Digital Technologies and Information throughout the Economy and Society

The above measures will result in the broad diffusion of digital technologies and information throughout Japan's socio-economy. By accelerating the creation and distribution of knowledge and information and integrating digital technologies in the government, industry, and the lives of members of the public, a new national model for Japan's development will be established, and Japan will exercise leadership in international society.

III. Scope of the Strategy

The scope of the strategy covers each of following three fundamental policies ranging from the perspectives of maintaining compatibility with the Three-Year Emergency Plan and implementing medium- to long-term strategies.

Also, future visions that should be achieved by 2015 and shared by the private and public sectors and the general direction that the country as a whole should take as a target are indicated altogether as "Future Visions and Goals." Actions that the government should implement under an appropriate division of roles between the public and private sectors for achieving these targets are indicated as "measures."

(1) Three Priority Areas

(a) Electronic Government and Electronic Local Government Fields
(b) Healthcare and Health Fields
(c) Education and Human Resource Fields

(2) Revitalizing Industry and Local Communities and Nurturing New Industries

(3) Development of Digital Infrastructure

Chapter 2. Strategies in Individual Fields

I. Three Priority Areas

(1) Electronic Government and Electronic Local Government Fields

Future Vision and Goals

New administrative reforms will be promoted through digital technologies to dramatically enhance convenience to citizens, standardize, increase the efficiency of and simplify administrative procedures, and make government more transparent by 2015.

In order to achieve these goals, electronic government implementation structures will be created, prior plans will be followed up, and PDCA structures will be established. In addition, the use of the National e-PO Box (tentative name) will be encouraged broadly among citizens, businesses, and so on so they become infrastructure that enables citizens to link to government information concerning themselves with peace of mind. Through this and other measures, the following administrative services will be provided to citizens, who are the government's clients.

1. Reform of Points of Contact with Government

(1) Citizens will be able to participate in electronic government and electronic local government through various channels of their choosing including televisions, PCs, mobile phones, and in person.

(2) Citizens will be able to obtain necessary certificates and other documents from their homes, convenience stores, and other locations 24 hours a day.

(3) High-quality, one-stop administrative services will be provided at government offices for seniors and others who are not accustomed to digital technologies to enable stress-free participation.

(4) National and local government information and service menus will be accessible through a minimum of screen operations that require only about three mouse clicks.

(5) Citizens and businesses will be able to securely and seamlessly link private and government services in areas such as finance, healthcare, and education.

2. Reform of Government Offices

(1) The administrative offices of government agencies will interconnect data to implement paperless exchange of information among government agencies and eliminate the need for citizens to perform unnecessary administrative procedures and submit documents.

(2) National and local governments will conduct comprehensive business process reengineering (BPR) of systems and services from the perspective of citizens and businesses and promote the use of the National e-PO Box. The use of these repositories by citizens will result in significant reductions in administrative costs of 30% or more. A portion of the savings will be reinvested with a focus on developing and improving administrative services.

3. Reforms to Make Government More Transparent

(1) Government will be made much more transparent, enabling citizens, businesses, and others to trace the processing of administrative procedures and to confirm the existence of information concerning themselves.

These reforms will result in the world's highest international evaluations and the formation of electronic government and electronic local government that is open to the people.

Measures

1. As a follow-up to prior plans,[2] the success factors and hindering factors of individual measures will be identified, a plan prepared that will clarify specific targets and processes with a target of the autumn of 2009, and the development of electronic government and electronic local government accelerated. The measures described on (1) through (3) below will be taken to carry this out.

(1) Clear and objective evaluation standards that can contribute to enhancing the quality of government such as the satisfaction level of users including citizens and businesses will be established and systems of PDCA cycles implemented to carry out continuous reviews and improvements based on appropriate evaluations, and the results will be announced every year. Priority will be placed on reforming operations with respect to 71 priority procedures[3] with high rates of use by citizens and businesses in order to

[2] The Program for Building e-Government (decided by the Chief Information Officer's (CIO's) Council of government agencies on July 17, 2003; partially revised on June 14, 2004), the Program for Promoting e-Government (decided by the Chief Information Officer's (CIO's) Council of government agencies on August 31, 2006; partially revised on December 25, 2008), the Action Plan for Expanding On-Line Use (decided by the IT Strategic Headquarters on September 12, 2008), and other plans.

[3] The Action Plan for Expanding On-Line Use categorizes "priority procedures" as those online procedures that are broadly used by citizens and that have a use frequency by citizens and businesses of 1 million times or more annually or are used repeatedly or continuously mainly by businesses even if the number of uses is less than 1 million annually.

raise user satisfaction. Also, collaboration between related organizations will be reinforced and plans reviewed based on the results of evaluations and improvement measures. Furthermore, structures will be created so the results of such reviews can be accurately reflected in budgets.

(2) The use and public announcement of valuable government information will be promoted by digitalizing the information. Also, electronic government and the electronic local government clouds will be constructed and shared use, consolidation, and integration of government information systems including servers will be encouraged to promote the optimization of operation and information systems and of government information systems as a whole to streamline operations.

(3) Problem areas in structures, information systems, and so on will be inspected and improved such that existing national and local networks can be used to their full potential. The development of infrastructure systems for collaboration between the national and local governments using regional information platforms will also be encouraged. In addition, extensive reviews of administrative processes will be conducted in government offices. In conjunction with these reviews, the transition from paper-based procedures to electronic procedures will be examined and rules concerning electronic processing of administrative procedures adopted.

2. The National e-PO Box will be provided to those citizens and businesses who request them as private accounts for the safe deposit and management of information such as pension records in an electronic space. They will allow for the provision of social security and a wide range of other services for one-stop administrative service.

The government seeks to establish the National e-PO Box by fiscal year 2013, and is considering integration with the Social Security Number & Card (tentative name) concept to facilitate the use of existing systems. The Cabinet Secretariat and other relevant ministries and agencies will form a liaison committee to verify the cost effects and develop a basic concept with respect to the matters described in (1) through (7) below as well as the establishment of the National e-PO Box discussed in section 1 above, with the intention of practical implementation, for a decision by the IT Strategic Headquarters by the end of fiscal year 2009. Policies will be steadily implemented in cooperation with the private sector in line with the reform process table indicated.

At that time, the intentions of local public bodies will be adequately reflected in the forums where national and local public bodies can collaborate equally to accelerate the development of electronic government and electronic local government.

(1) Based on a July 5, 2007 agreement between the government and the ruling party,

inter-ministerial investigations and trials will be conducted on Social Security Numbers & Cards (tentative name) and they will be introduced at the earliest possible date.

(2) With respect to the establishment of a structure for the provision of the National e-PO Box to citizens and businesses that request them without any redundancy and operation and management of that structure, integrated investigations will be conducted to ensure that there is no redundancy with the Social Security Numbers & Cards discussed in (1) above. Based on the idea that the National e-PO Box are a means of providing higher quality services to citizens, measures will be taken to ensure that they are under the control of their owns (for example, individuals will be able to check the existence and sharing of government information about themselves and select which agencies such information will be shared with) and effective use of existing infrastructure such as the Basic Resident Registers Network will also be taken into account. In addition, structures will be created to establish links among existing corporate codes in the information systems of each administrative agency to facilitate inter-operation.[4]

(3) The types and scope of data that should be linked will be clarified so that convenience to citizens and businesses and the efficiency of administration can be dramatically increased. As a part of this process, rules will be adopted to the effect that citizens and businesses may not be requested to provide information when administrative information concerning citizens and businesses is shared with other government agencies.

(4) The ability to select from among multiple technological methods as means of access to information will be made available according to the degree of confidentiality of the information. In addition, linking of information will be made easier while keeping in mind the independence of the databases of each agency.

(5) While monitoring methods of operating and managing information systems, structures including third-party agencies for taking necessary measures regarding the protection of personal information will be investigated.

(6) Comprehensive portal functions for national and local government and a Shared Data Center for Administrative Information (tentative name) will be created and operated.

(7) Measures will be taken to show citizens the convenience of the National e-PO Box

[4] With respect to the "coordination and investigation of the relationship with existing ID structures concerning the optimal format for individual and corporate IDs" discussed in the Three-Year Emergency Plan," investigation will be conducted on "a structure for the provision of the National e-PO Box to citizens and businesses that request them without any redundancy" and "a structure for linking existing corporate codes to facilitate inter-operability" based on the idea that the National e-PO Box will be provided to citizens and businesses that request them.

such as linking with payment services and incentives to encourage the adoption and use of the Box in the private sector will be introduced.

3. Structures for implementation of electronic government (control tower functions) will be reinforced and the measures described in (1) through (3) below will be carried out to establish the legal structures necessary for strong support of electronic government and electronic local government.

(1) Government chief information officers (CIOs) will be appointed to take charge of electronic government and administrative reforms and necessary authority will be delegated and organizations for preparing budgets, distributing funds, and so on established as early as possible to clarify authority for implementing electronic government. The CIOs of each ministry will use this powerful coordinating authority to address issues common to multiple ministries by, for example, standardizing administrative processes and data. In addition, information system and administrative experts will be appointed and other measures taken to increase and bolster staff to assist government CIOs. Also, appropriate formats for new organizations to implement electronic government including the consolidation and abolition of the existing agencies will be considered and other measures will be taken to reinforce implementation structures. Government CIOs will reach understandings with the CIOs of local public bodies to enhance collaboration between the national and local governments.
(2) The CIOs of each ministry will serve as executive officers in charge of electronic government projects and will clarify their roles regarding administrative reform of organizations and strategic management and investment management regarding information sources. Their activities and results will be appropriately reflected in personnel evaluations. Also, structures will be established to support ministerial CIOs with respect to both information systems and administration, and electronic government measures and evaluation, administrative reform, and so on will be centrally implemented under the CIO of each ministry. Furthermore, structures will be established for the dynamic implementation of information security measures and appropriate governance conducted within each ministry.
(3) Relevant laws will be reviewed based on the results of the reviews of business processes described in (3) of Section 1. Also, basic laws necessary for the strong implementation of electronic government and electronic local government will be adopted early as possible.

(2) Healthcare and Health Fields

Future Vision and Goals

Digital technologies and information can make substantial contributions to resolving various issues resulting from the aging society with a declining birth rate, and the shortage and maldistribution of doctors in promoting reforms in healthcare, resulting in significantly improved healthcare by 2015.

Specifically, the government will support the use of digital technologies and information to resolve challenges concerning healthcare such as the shortage of doctors in rural areas such that all citizens can enjoy high quality healthcare services. In addition, taking into account recent developments in international discussions, Japanese EHR[5] (tentative name) will be implemented such that it: (a) enables individuals to obtain electronic health-related information from healthcare institutions and others and facilitates the use of that information by the individuals and healthcare workers; and (b) establishes a system for the epidemiological use of anonymous health-related information.

Japan is currently experiencing an aging society with a declining birth rate at the world's fastest pace. By introducing successful models for offering the world's highest levels of healthcare at reasonable costs and overcoming this crisis to other countries around the world, Japan can contribute to enhancing healthcare services around the world.

1. Addressing Healthcare Issues including Shortages of Doctors in Rural Areas

(1) The use of telemedicine technologies will enable patients who have difficulty traveling to hospitals (such as pregnant women living in remote areas, seniors, and physically challenged persons) to receive high-quality healthcare from their homes. Local healthcare institutions can also use such technologies to procure specialized services such as image diagnostics from supporting doctors and others in remote locations.

(2) Support for maintenance and enhancement of skills and knowledge will be made possible from any location in the country to enable doctors working in remote locations to raise their skills or advance their careers and allow female doctors to continue working.

(3) Digital infrastructure will be developed in healthcare institutions to raise the efficiency of healthcare work, reduce excess work by healthcare workers, and improve

[5] EHR: Electronic health records. Measures are being taken to encourage the widespread use of EHR in Europe, the United States, South Korea, Singapore, and other countries.

operations. It will also be used to support collaboration in regional healthcare.
(4) Emergency responders and healthcare workers at emergency sites will have rapid access to accurate patient information, facilitating the selection of the healthcare institution to which the patient will be transported and speeding patient intake. This will reassure patients and make it easier to receive high-quality healthcare services.
(5) Collaboration among healthcare institutions, care providers, insurers, local governments, and others will make possible healthcare management based on the regional attributes of patients and others who receive care at home.

2. Implementation of Japanese EHR (tentative name)

(1) By managing health-related personal information obtained from healthcare institutions and providing it to healthcare workers, medical errors can be reduced, continuous treatment based on the content of prior diagnoses can be made available, and unnecessary medical tests can be avoided. Such information can also be used when obtaining second opinions to support choices concerning healthcare and health-related services.
(2) By issuing prescriptions and dispensing information electronically (including issuing prescriptions to patients receiving healthcare at home through the use of telemedicine technologies), feedback can be provided to patients and healthcare facilities concerning changes from prescription information to drug dispensing information. This will allow patients to enjoy safer and more convenient healthcare services.
(3) Anonymous health-related information will be collected on a national scale and used for epidemiological purposes to raise the quality of healthcare.

Measures

1. Addressing Healthcare Issues including Shortages of Doctors in Rural Areas

(1) Telemedicine technologies concerning which data (evidence) with a scientific basis relating to telemedicine has been accumulated and for which evidence concerning safety and effectiveness is proved to exist will be introduced where appropriate and its use expanded. Such technologies will be used for the appropriate payment of compensation for diagnoses and other purposes. In particular, policies that provide incentives to healthcare facilities that provide remote support to doctors directly treating patients will be considered.
(2) Remote education environments and programs will be established to allow doctors and others providing healthcare services in remote locations to conduct research and maintain and enhance their skills so they can obtain specialized qualifications. Such programs will also be used to support the continuation and return to work by woman

doctors and others who unavoidably stopped working for childbirth or childcare.
(3) Support will be provided for the introduction of electronic record systems and telemedicine equipment that uses technologies such as ASP and SaaS to contribute to the development of information processing environments at healthcare facilities at reasonable cost. Also, including the use of the systems described in 2. (1) and (2) below, structures will be created to support information collaboration among healthcare facilities and others for cooperation among regional healthcare facilities and health management.
(4) Details concerning the use of digital technologies and healthcare clerks and other business process reengineering (BPR) issues will be clarified to eliminate and reduce work burdens on healthcare workers. At the same time, healthcare clerks will be trained to understand and use digital technologies and standardization of necessary healthcare information systems conducted.
(5) Various issues concerning the introduction of online processing of medical insurance claims will be resolved. Also, ongoing support will be provided for the introduction of digital technologies in healthcare facilities, pharmacies, and so on, and the efficiency of health insurance processing including reviewing billing documents will be increased.
(6) Communications support systems will be created to increase the efficiency and effectiveness of selecting healthcare facilities where emergency patients are transported and intake procedures at healthcare facilities.

2. Implementation of Japanese EHR (tentative name)

(1) As medical insurance claim procedures are moved online, the network connectivity environments created at healthcare facilities will be used effectively to establish safe and secure information collaboration structures among healthcare facilities to the extent that safety in healthcare facilities can be sufficiently ensured.
(2) Structures will be established to provide objective health data (test results, prescription and drug information, diagnosis information, etc.) to patients who request it. Individuals to whom information is provided and healthcare workers can use the information and individuals will be able to check histories of who accessed information.
(3) ID infrastructure relating to the healthcare and nursing care fields will be established at an early time to achieve the objectives in (2) above based on the results of investigation of the Social Security Card (tentative name) concept.
(4) The necessary systems will be provided to effectively carry out the followings, based on the unique characteristics of health-related information and the status of development of relevant systems for the protection of personal information.

(a) The provision of digital diagnostic information to patients by healthcare facilities.

(b) Making health-related information anonymous for use as statistical epidemiological information.

(5) Systems necessary for the digitalization of prescription and drug information will be established, and standards for electronic prescriptions and pharmaceutical product data masters will be established and maintained.

(6) Environments will be established to safely gather individual health-related information and procedures for handling it will be clarified so health service industry groups that use individual health-related information including the provision of health guidance tailored to individuals can be formed.

(7) Rules and structures relating to analysis and use policies for the Database System for Medical Insurance Claims Information and Specific Health Checkup Information (tentative name) will be adopted. Also, requirements will be clarified for expanding the scope of data subject to collection from the perspective of raising the quality of healthcare.

(3) Education and Human Resource Fields

Future Vision and Goals

The following measures will be taken by 2015 regarding education at kindergartens and nursery, elementary, junior high, and high schools and regarding human resource development at universities and other educational institutions.

1. The desire of children to learn and their academic abilities will be enhanced using methods whose effects are objectively measured.

The use of digital technologies in classrooms will be encouraged according to the characteristics of each subject to make topics easier to learn and develop creative and advanced, bidirectional classrooms. The effects of educational methods that use digital technologies will be objectively measured such that the technologies can be used to raise the desire of children to learn and their academic abilities.

2. The ability of children to use information will be enhanced.

The following results in children will be produced by enhancing educational information: (a) Skills for independently selecting and using information and information sources will be raised; (b) understanding of information sources structures will be enhanced; and (c) the ability to respond and attitudes concerning the negative aspects of information will be improved.

3. Stable and ongoing structures will be established to prevent the occurrence of mismatches with respect to highly-skilled digital human resources.

Advanced educational sites will be established over a broad range at universities and other educational institutions to stably develop and nurture highly-skilled digital human resources who are capable of working in international markets. In industry, human resource education will be conducted on an ongoing basis to improve skills even further according to the experience of each individual.

4. Information education, digital infrastructure, remote education, and so on at universities and other educational institutions will be expanded and improved.

Information education and digital infrastructure at universities and other educational institutions will be expanded and improved. In addition, remote education using advanced networks and support for classes and training using educational programming will be provided broadly.

About Highly-Skilled Digital Human Resources

Digital technologies are used in products such as PCs, mobile phones, automobiles, consumer electronics, and industrial equipment as well as in the backbone systems of industry, government, and society. They have become an essential presence in the lives of individuals as well as the activities of businesses and government and support the economy and society. The personnel who support these technologies must be highly-skilled human resources who can understand and use digital technologies and can create high added value. Specific attributes of such personnel are as follows.

(1) Human resources who can create new technologies and innovations.

(2) Human resources such as the chief information officers (CIOs) of user companies and other organizations who have a broad range of knowledge and experience concerning not only digital technologies, but also management, administrative reform, and other areas.

(3) Human resources with the architectural and system design skills to build large-scale and complex information systems and software.

(4) Human resources who have the project management capabilities to make highly complex information systems and software easy to use and reliable.

(5) Human resources with advanced software engineering capabilities.

(6) Information security human resources with advanced knowledge.

(7) Human resources who are familiar with both digital technologies and operations and who can create new businesses and services.

* Also, the above human resources will have the ability to use English at advanced levels and can work in international markets.

Measures

1. The use of digital technologies and information education in classes for each subject will be promoted according to the degree of development of networks. The following measures will be implemented based on clear assessment of the effects to raise children’s academic abilities and ability to use information.

(1) Raising the teaching abilities of teachers using digital technologies

Checklists concerning the teaching abilities of teachers with respect to the use of digital technologies will be used to support organized and systemic training at schools and boards of education according to the skills of individual teachers. The aim will be to enable almost all teachers to provide instruction using digital technologies.

(2) Establishing structures to support the use of digital technologies by teachers

Support personnel and oversight personnel with an understanding of digital technologies and education will be appointed to all boards of education and elementary,

middle, and high schools to work with teachers to raise the quality of methods of using digital technologies and education.

(3) Establishing bidirectional and easy-to-understand classes

The hardware and software aspects of systems will be developed and enhanced to contribute to the establishment of bidirectional and easy-to-understand classes. Specific measures, which will take into account the status of use in schools and verification of effects, will include the following: (i) continued provision of high-speed Internet connections, educational computers, administrative computers, and school LANs in accordance with the New IT Reform Strategy; (ii) support for the widespread introduction of digital equipment such as electronic blackboards[6] in classrooms; (iii) encouraging the development and use of educational content and the educational use of content owned by public bodies; and (iv) encouraging the development and widespread use of effective educational methods using digital technologies.

(4) Improving and expanding the content of the information education

The following abilities will be developed in accordance with the new teaching guidelines: the ability to use information sources appropriately according to the topics and objectives; the ability to voluntarily gather necessary information and to assess, express, process, and create it; the ability to understand the characteristics of information and information sources; and the ability to use information such as information morals including information security

(5) Computerization of school administration and information collaboration with homes and local communities

The further computerization of school administration will be encouraged through the use of administrative computers and networks to reduce administrative burdens, increase efficiency, raise the quality of education, and improve school management. In addition, community-based structures for promoting education will be created through information collaboration with homes and local communities as well as cooperation with businesses.

2. In light of the need in economic circles for 1,500 highly-skilled digital human resources annually and the experiences of various other countries, the relevant ministries and agencies will adopt plans that include specific targets while adopting international perspectives. Systems for stably and continuously developing highly-skilled digital human resources will be established by implementing the

[6] A device that displays educational materials from computer screens on a screen or display and allows the content to be directly manipulated such that text and graphics can be written on, moved, enlarged or shrunk, and saved.

following measures.

(1) Broad establishment and improvement of practical educational bases

Collaboration among universities as well as with cutting-edge businesses will be used to broadly establish practical educational bases and to improve and expand existing educational bases using a variety of methods such as lectures by practitioners, team instruction, and so on.

(2) Improvement and expansion of national center functions through collaboration among industry, academia, and government

National center functions will be improved and expanded. Such functions will include the development of educational programs for persons with industry experience to become university contractors, development and distribution of educational materials and curricula for practical digital education, and the development of practical internships and systematic recurrent education through collaboration between industry and academia.

(3) Support for the development of attractive employment and career paths on both the supply and user sides of systems and services using digital technologies

Optimal placement and mobilization of human resources will be promoted through the use of human resource support evaluation tools such as various qualification systems and by sharing information concerning human resource skills. In addition, various measures such as the adoption and distribution of model careers and support for the creation of communities by professionals will be used to support the realization of attractive employment and career paths according to skills and experience. Also, environments will be created to support increases in persons who seek to become highly-skilled digital human resources, discover highly-skilled digital human resources, and raise their abilities through implementation of education and training tailored to needs on the supply and user sides and the discovery and development of creative human resources.

(4) Certification and qualification of highly-skilled digital human resources

Structures for the certification and qualification of highly-skilled digital human resources will be investigated, established, and broadly applied using development techniques and various human resource evaluation tools that measure different effects.

3. Information education and digital infrastructure in universities and other educational institutions will be improved and expanded. Also, support for remote education as well as classes and training using digital technologies will be provided.

(1) Improvement and expansion of information education and digital infrastructure

Information concerning models of information education at universities and other

educational institutions will be distributed and disseminated. Also, digital infrastructure will be developed to make possible a wide range of educational activities.

(2) Enhancement and use of educational content

Support will be provided for enhancing and using educational content in advanced and supplementary education.

(3) Use of advanced networks

Advanced networks will be used to create educational environments in which there is a sense of being on site even in the case of remote education and in which texts and other educational materials can be used widely and efficiently to improve the educational effects.

II. Revitalizing Industry and Local Communities and Nurturing New Industries

Future Vision and Goals

Digital technologies and information will be used to transform structures in all industries and revitalize local communities by 2015. Collaboration with Asian and other countries as centers of growth will enhance the international competitiveness of Japanese industries and enable them to exercise strong leadership in global socioeconomic systems.

1. Reforming and Revitalizing Industry

Innovations in electronic commerce and management systems and business process reengineering (BPR) will be conducted regardless of corporate scale. Increases in adaptive speed to domestic and overseas markets, productivity and safety will lead to higher corporate competitiveness, and integration with digital technologies will lead to higher added-value in the manufacturing and service industries.

(1) Business reforms will be implemented with respect to both internal matters and relationships with suppliers and clients with a focus on small and medium businesses and the service industries to substantially raise productivity of existing industries.

(2) Under environments that release workers from restrictions on their work places and times and maintain a proper work-life balance, employment of persons who also perform child care or nursing care for family members as well as disabled persons will be encouraged, the creativity of individuals will be supported, and business continuity will be maintained even during crises. Specifically, telework that enables employees to work from home contributes to safety nets in a time of low birth rates and an aging population, and the number of teleworkers will be doubled to 7 million persons[7] by 2015.

(3) Convergence of manufacturing and digital technologies in fields such as intelligent consumer electronics and automobiles and the functionality and reliability of embedded software will exercise world leadership.

(4) Energy saving through the use of digital technologies throughout society and energy-saving by digital equipment will be positioned as the two central pillars of Green IT to reduce carbon dioxide emissions. In addition, intelligent transport systems (ITS) and the like will be used to reduce traffic accidents and traffic congestion, improve traffic flows through electronic toll collection and the provision of information, increase

[7] Persons who engage in telework including those who work from home within the definition of teleworkers specified in the telework population doubling action plan (adopted by the relevant ministry and agency liaison conference for the promotion of telework on May 29, 2007).

the efficiency of logistics, reduce carbon dioxide emissions, raise the efficiency of social systems, and revitalize related industries.

2. Using Digital Technologies to Create New Markets

Media revitalization achieved through the integration of communications and broadcasting and collaboration between the two, the effective use of radio spectrum as a result of the completion of the transition to digital broadcasting, advances in radio technologies, and the development of distribution environments for programming will lead to the creation of the following new markets.

(1) Markets for the use and sharing via networks of intellectual property rights such as digital content and other intellectual information through the maximum use of digital technologies.

(2) Markets for personalized network services adapted to the needs of individual consumers through the accumulation and analysis of digital information.

3. Revitalizing Local Communities

Direct links among businesses and consumers in widely separated regions and broad collaboration among businesses will be promoted to take advantage of the potential of regional industries, agricultural, forestry, and fisheries industries, traditional culture, tourism resources, and so on. This will serve to enhance the added value of local products and agricultural products and increase transient populations, leading to enhanced international competitiveness.

In addition, digital technologies will be used to improve and expand public services and support collaboration among residents to raise the quality of life in local communities.

4. Supporting Global Deployment and Collaboration

The international competitiveness of digital industries will be raised by deploying overseas outstanding digital technologies, products, services, and content from Japan including terrestrial digital broadcasting, mobile phones, IP networks, and certification technologies.

Also, Japan will cooperate with Asian countries to establish the foundations of infrastructure, systems, and human resources for the use of advanced digital technologies. This will lead to advances in industry, electronic government, education, and so on as well as the formation of pan-Asian seamless knowledge and economic zone and greater international interpersonal exchanges.

Measures

1. Development of Business Foundations for Small and Medium Businesses, Reinforcement of the Competitiveness of Existing Industries, and Reform of the Information System Industry

(1) The development of environments will be encouraged including the development and standardization of business infrastructure (such as next-generation EDI) and the standardization of SLA through the adoption of various guidelines for the widespread use of ASP and SaaS and through other measures.

(2) Common business practices will be reviewed as necessary to encourage the use of digital technologies. International rules and systems will be developed to promote electronic trading with overseas business partners.

(3) Joint development, standardization, and sharing of software that can serve as a source of competitiveness for various products such as automobiles will be encouraged.

(4) Business reforms relating to the logistics will be supported through the use of geographical location information (such as development of various spatial identification codes) and the adoption of electronic tags.

(5) Examples of management success will be made available, the reliability of information system and software increased, business innovations achieved through collaboration among user businesses and information system vendors, and a transition from the existing made-to-order oriented business model to planning and proposal oriented business model in the information system industry will be promoted to encourage IT management.

2. Increasing the Number of Teleworkers

To achieve a good work-life balance and support a wide variety of working styles, telework from home will be encouraged with digital technologies including expansion of telework by public employees, the dissemination of information concerning telework, encouraging the creation of telework centers, and development of labor systems and environments.

3. Promotion of Green IT and Intelligent Transport Systems (ITS)

(1) Measures will be taken to reduce carbon dioxide emissions through the use of digital technologies including energy-saving semiconductors, developed of new technologies such as all-optical communications, and encouraging the use of green consumer electronics.

(2) Energy savings will be encouraged in the development of safe, secure, and reliable cloud computing environments.

(3) Efficient transport systems will be constructed by using digital technologies in public transportation and to prevent accidents and provide optimal routing information. Also, next-generation on-board automotive devices, vehicles, and systems will be developed and facilities deployed to encourage the widespread application in Japan and abroad of ITS services that can collect payments, provide information, and increase logistics efficiency. International standardization of such systems will also be accelerated.

4. Establishing Environments for the Creation of New Creative Markets

(1) Digital technologies will be used to the maximum possible extent to establish environments for the creation of new markets (IPTV, digital signage, etc.) where intellectual property assets can be used and shared via networks on the basis of existing content type (advertising, works of art, design, film, video, photographs, software, games, music, performing arts, television and radio programs, etc.) and newly archived administrative information.

(2) Environments will be developed for nurturing start-up businesses in new markets by building platforms for network services targeting individuals (services that take into account geographical location information, past conduct, and so on, healthcare concierge services that use diagnostic information, services that use life logs, etc.) through terminals with advanced functions.

(3) Rules will be adopted concerning digital content copyright processing and the protection of information to facilitate the safe use of information relating to individuals such as historical data, and viewing data.

5. Revitalizing Local Communities through the Use of Digital Technologies

(1) Information concerning local agricultural, forestry, and fisheries products, traditional crafts, tourism, and so on will be distributed using various means including in domestic and foreign media and the Internet and structures will be built to provide goods and services directly to consumers and tourists. Matching of consumer needs and local products will promote the establishment of new business types in local industry and the agricultural, forestry, and fisheries industries and increase transient populations.

(2) Best practices relating to revitalizing local communities will be implemented nationwide. As a part of this measure, applications that can be easily adapted to local conditions will be developed and extended and environments created to enhance the skills of implementers and users. Advisors on local computerization will be actively used to also contribute to revitalizing local communities.

(3) Intensive use of digital technologies for telemedicine, monitoring children and

seniors, and the provision of disaster information using various media will contribute to the creation of safer and more secure local communities.

6. Promotion of Development in and Collaboration with Asian Countries and Design of the Digital Global Vision (Tentative Name)

(1) Strategic measures will be taken for the creation of a pan-Asian seamless knowledge and economic zone based on Japan's experience and expertise. Such measures will include development of broadband infrastructure within Asia, accelerated distribution of digital content, ensuring global information security, encouraging green economic activities in the region, and introducing digital human resource skill standards.

(2) The Digital Global Vision (tentative name) will be adopted as a statement of optimal globalization of Japan's digital technologies including the measures described in (1) above (further description appears below).

III. Development of Digital Infrastructure

Future Vision and Goals

The following measures will be carried out by 2015 to support advances in the use of digital technologies in all fields and to establish the digital infrastructure necessary for future growth.

1. Environments in which various people and goods can be seamlessly linked by different networks according to need will be established, and further advances in ultra-high-speed broadband infrastructure will be made (in the Gbps class for fixed and in excess of 100 Mbps for mobile) to allow everyone to easily obtain and exchange information safety and securely from anywhere at any time.
2. Devices (such as devices without keyboards) and application infrastructure will be created to enable individuals to safely, securely, easily, and intuitively exchange information that suits their particular lifestyles and needs selected from the total pool of information, which is undergoing explosive growth.
3. Environments will be created to allow the proper persons using safe devices to access appropriate content.
4. Structures will be created to allow anyone to freely use high-quality content via networks in exchange for appropriate value.
5. New information and knowledge use environments known as cloud computing that allows anyone to easily use only the needed functions of services when needed via networks will be created to take the place of ownership of information systems.

Measures

1. Establishment of Broadband Infrastructure

(1) Construction of ultra-high-speed broadband infrastructure will be promoted to enable comfortable and easy connections from anywhere in Japan at optical fiber speeds (in excess of 100 Mbps) for high-quality and high-reliability mobile access.

(2) Measures will be implemented to create environments for connecting all good and people including individuals, families, libraries, schools, hospitals, government agencies, and private organizations to various networks and to construct high-speed, high-quality, reliable broadband infrastructure that can adapt sufficiently to needs in various fields including electronic government, electronic local government, health and healthcare, education, and human resources. In conjunction with this, adoption of the IPv6 protocol will be accelerated including pioneering measures by government agencies in anticipation of the depletion of the IPv4 address stock.

2. Widespread Adoption of Easy-to-use Devices for All People

(1) Widespread adoption of devices and application infrastructure that can connect wirelessly and be used easily with the same feeling of a television remote control and without trouble will be promoted. Also, environments that eliminate the barriers to access by seniors and disabled persons will be established.

(2) Support will be provided for enhancing tools for building information systems and developing content geared towards the realization of environments that can be used to develop necessary applications and content by anyone using software present on networks.

3. Establishment of Information Security Countermeasures

Measures based on the National Strategy on Information Security[8] adopted by the government will be steadily implemented. Such measures will include the realization of safe and secure devices and networks with established information security and the development of environments for the use of such devices and networks, the establishment of information security governance, implementation of measures for improving security levels concerning personal information, promoting enhancement of IT barrier countermeasures in critical infrastructure, and promoting international collaboration and cooperation between businesses including personnel exchanges in information security fields.

4. Development of Infrastructure for Distribution and Utilization of Digital Information

(1) With respect to foundational information in a digital society concerning actors, objects, and geographical location, the development of infrastructure for distribution and utilization of digital information can be promoted to facilitate its utilization throughout society. In addition, support will be provided for standardization such as assignment of codes and development of institutions relating to its distribution in light of the effective use of existing codes.

(2) Information will be analyzed and combined in various ways to establish infrastructure that can be used to create new value. In addition, environments that allow the infrastructure to be used by anyone will be established.

(3) Networks and other infrastructure for utilization of digital information will be improved and expanded to serve as the foundations for research and development in academic fields.

[8] As of July 2009, this corresponds to the Second National Strategy on Information Security (adopted by the Information Security Policy Council on February 3, 2009).

(4) The national government will drive to take a pioneering role in introducing new technologies and systems such as cloud computing as they are needed and promote their widespread use to support the development of environments for utilization of new information and knowledge.
(5) Institutional and technological structures for the efficient distribution of digital content will be established. In addition, technological development and improvement of the system to protect children from unlawful and hazardous information will be promoted.

5. Promotion of Development of Digital Fundamental Technologies

The maintenance and construction of digital infrastructure that always remains one step ahead of the rest of the world will be necessary to respond to globalization. To do this, research and development will be supported concerning technologies in areas of Japan's strengths such as technologies that look beyond next-generation IP networks and technologies to facilitate the comfortable, safe, secure, reliable, and easy use of information on networks by everyone. In addition, efforts will be made to adopt the results as international standards and have them accepted broadly around the world. Also, structures will be created to facilitate research and development that extends over multiple fiscal years.

Chapter 3. Issues That Require Further Strategic Investigation

I. Priority Inspection of Regulations, Systems, Practices, etc.

The development of a digital society will require drastic reviews of regulations, systems, and practices that hinder the use of digital technologies and information and optimal forms and operation of service structures in ways that are to the benefit of the citizens. To this end, an initial priority inspection will be conducted in 2009. Based on the results, the government will take necessary measures and continue implementation in 2010 and later.

II. Adoption of Digital Global Vision (Tentative Name)

In addition to this strategy, more detailed visions that include reinforcement of the international competitiveness of Japan’s digital technologies and related industries and promotion of globalization as well as the establishment of a pan-Asian seamless knowledge and economic zone using advanced digital technologies are necessary. The Digital Global Vision (tentative name) will be adopted by the end of fiscal 2009 to achieve these objectives.

Chapter 4. Positioning of *i*-Japan Strategy 2015 (this Strategy) and Structures for Implementation and Investigation

In addition to positioning this strategy as described below for implementation of measures pursuant to Chapters 1 through 3, the government will establish the structures necessary for implementation and investigation.

I. Positioning of this Strategy

1. Relationship between this Strategy and the Three-Year Emergency Plan

This strategy incorporates the Three-Year Emergency Plan adopted earlier as an integral part. In other words, the various measures under that plan will be steadily implemented in accordance with the medium- to long-term goals indicated in this strategy as concrete measures for achieving those goals.

2. Relationship between this Strategy and the New IT Reform Strategy (January 2006)

This strategy is a new strategy that, in addition to succeeding to and emphasizing the results of the New IT Reform Strategy (the former strategy), advances and develops the former strategy with a perspective that extends to 2015 in light of the dramatic changes that have taken in domestic and foreign economies. Follow-ups concerning the former strategy, however, will continue through fiscal 2010, taking into account the relationship with this strategy.

3. Relationship between the Priority Plan Specified in the Basic Law of the Formation of an Advanced Information and Telecommunications Network Society (the IT Basic Law) and the Three-Year Emergency Plan

Three-Year Emergency Plan will be maintained and revised annually for the next three years including immediately after the adoption of this strategy in a manner that achievement of its goals can be verified and will be reflected in the annual priority plans.

When doing so, individual measures for implementation of the Three-Year Emergency Plan will be packaged while clearly indicating corresponding goals and measures under this strategy and the implementing ministries from the perspective of clarifying the results of this strategy and the parties responsible for its implementation at the time of evaluation.

II. Structures for Implementation and Investigation of this Strategy

1. Promotion of the PDCA Cycle

In order to promote this strategy from a medium- to long-term perspective, a structure for sure implementation of the PDCA (plan, do, check, act) cycle will be maintained firmly and evaluation functions will be enhanced. The Expert Evaluation Committee will be established under the IT Strategic Headquarters to perform these tasks and evaluate strategic measures taken by the Government pursuant to the IT Basic Law.

2. Priority Inspection of Regulations, Systems, Practices, etc.

Expert Committee on Priority Inspection for Digital Utilization (tentative name) will be established under the IT Strategic Headquarters to conduct Priority Inspection of regulations, systems, practices, etc. The committee will collaborate with relevant bodies such as the Council for the Promotion of Regulatory Reform, examine matters that require priority review and improvement measures, and report to the IT Strategic Headquarters.

3. Adoption of Digital Global Vision (tentative name)

The Expert Committee on Digital Global Vision (tentative name) will be established under the IT Strategic Headquarters to formulate Digital Global Vision (tentative name).