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STUDY GROUP REPORT

Announcement of Interim Report from the Panel on ICT Vision

The Panel on ICT Vision (Chair: OKA Motoyuki, Chairman of the Board of Directors, Sumitomo Corporation) was established by MIC in October 2008 to investigate a vision for an integrated ICT policy, looking at the future in the "age of full digitalization" that will come after 2011 and further develop a "ubiquitous network society." The panel recently announced its interim report.

Background

Japan's current economic conditions can be said to be of the type of emergency situation that occurs only once in a hundred years. For some time, along with pulling the country out of the lower depths of the business environment through government guidance, and emerging from the economic crisis ahead of other countries, and realization by the private sector of sustained economic development in the mid to long-term, there is a need to aim for a societal structure in which every single individual in the country can experience the true value of information and communications technology (ICT) as it ties in with the strengthening of future growth.

The Panel on ICT vision has been, since October of last year, looking at the future structural changes in the ICT market and carrying out an ongoing investigation towards a vision for overall ICT policy that holds the timeframe around 2015 in its

sights, with a final report expected in June.

An interim report with the panel's findings was released on April 20th. The final report is expected to be released in June of this year.

Basic Philosophy

(1) Awareness of Current Situation

Using the formulation of the e-Japan Strategy (January 2001) as a momentum, Japan has been working towards economic vitalization and making people's lives more convenient by putting in place a broadband network and promoting widespread utilization of ICT. There is therefore first a need to determine what has happened and what has not happened as a result. In concrete terms, this can be broken down into the five categories below.

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**International Policy Division,
Global ICT Strategy Bureau
Ministry of Internal Affairs and
Communications (MIC)**
1-2, Kasumigaseki2-chome, Chiy
odaku, Tokyo 100-8926, Japan
Fax: +81-3-5253-5924
Tel: +81-3-5253-5920

We welcome your comments via:
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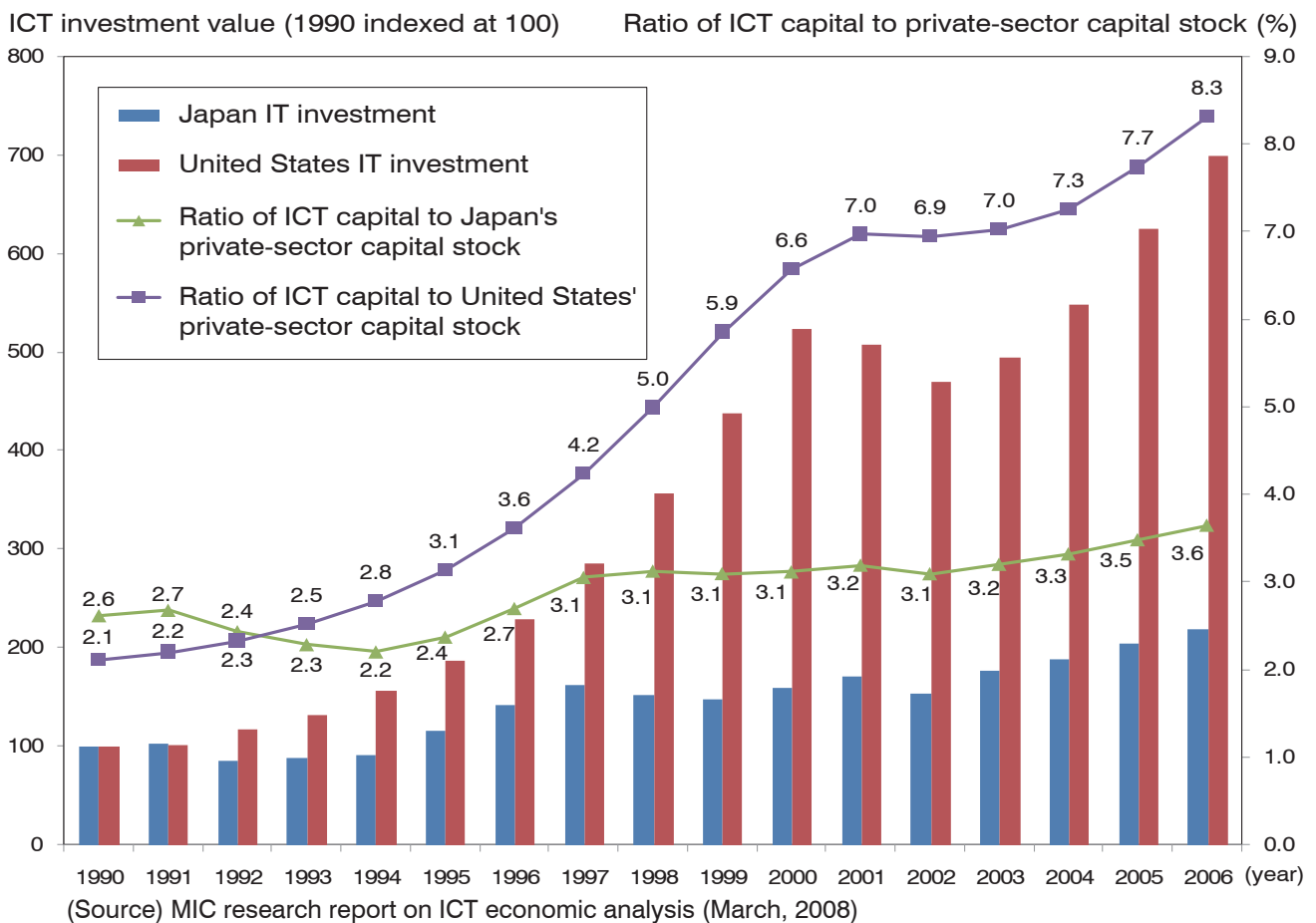
(a) Japan has made headway in the installation of a broadband infrastructure and broadband services which are at the highest levels internationally can be used at low cost. On the other hand, the full use of ICT has lagged behind other countries in various areas starting with the administration, medical care and education, and Japan's ICT competitiveness has been rapidly losing ground. And the reasons for this can be said to include administrative barriers such as red tape and the fact that there

are few opportunities when ordinary people can actually experience the true value of ICT.

(b) The ICT industry accounts for about 10% of all industry, and has consistently been making a positive contribution to economic growth. In particular, more recently it has become the major industry that has driven almost 40% of the economy's growth. On the other hand, ICT-related investment by other sectors has been weak. For example, in comparison with the

United States, whereas Japan's level of ICT-related capital to private sector capital stock was at about the same level until the first half of the 1990s, the gap with Japan started to widen from the second half of the 1990s, and it is currently at about the half the level of the United States (see figure below). Consequently, even there was an opportunity for Japan to raise its real growth rate to the 2% range, it was let slip.

Changes in IT-related investment value in Japan and the United States



(c) Through the penetration of the Internet, broadband services and digital equipment such as PCs and mobile phones, ICT has had a noticeable impact on economic activity and making life more convenient, making people's lives richer and creating new net-based communities. On the other hand, numerous societal problems have

surfaced in terms of criminal activity, such as leaking personal information on the net and libel, and phishing, and there are voices speaking out about the effects of ICT on young people in particular. With regard to this matter, it is a fact that the more there are users, the more societal problems will occur and this holds true for both the real

world and the cyber world. Also, since the amount of information available to individuals has exploded, another factor to consider more urgently is the growing difficulty in how to discriminate in handling information and how to use it.

(d) Japan's ICT industry has always had high levels of technology and, in particular, is world-leading in areas such as wireless, optical communications and video. Japan also holds close to 90% world market share for components and materials for mobile phones. On the other hand, we are weak when it comes to evaluating our technology, and in standardization and intellectual property strategy, and so are lacking in ability to create new businesses such as competitiveness in overall manufacturing ability and global development. That is why no new products or services are seen coming from Japan. For example, in the area of digital consumer electronics, such as mobile phones and PCs, Japan's world market share has been falling sharply. And, as a background to this, one can mention that the fact that the ICT industry has come to orient itself towards the domestic market has, even on the societal side, led to a loss of interest in overseas, particularly among young people, and a generally inward looking tendency.

(e) Japan's animation, movies, broadcast contents, manga, and photography are highly valued overseas also, and the latent growth potential of the creative sectors that reflect Japan's soft power is very high. On the other hand, when it comes to production of contents and the like, one cannot say that there are adequate human resources to come up with original and creative new values, and transmit them to the world. As a result, the lack of ICT staff has created deterioration in the labor environment which in turn has created an even greater dearth of human resources.

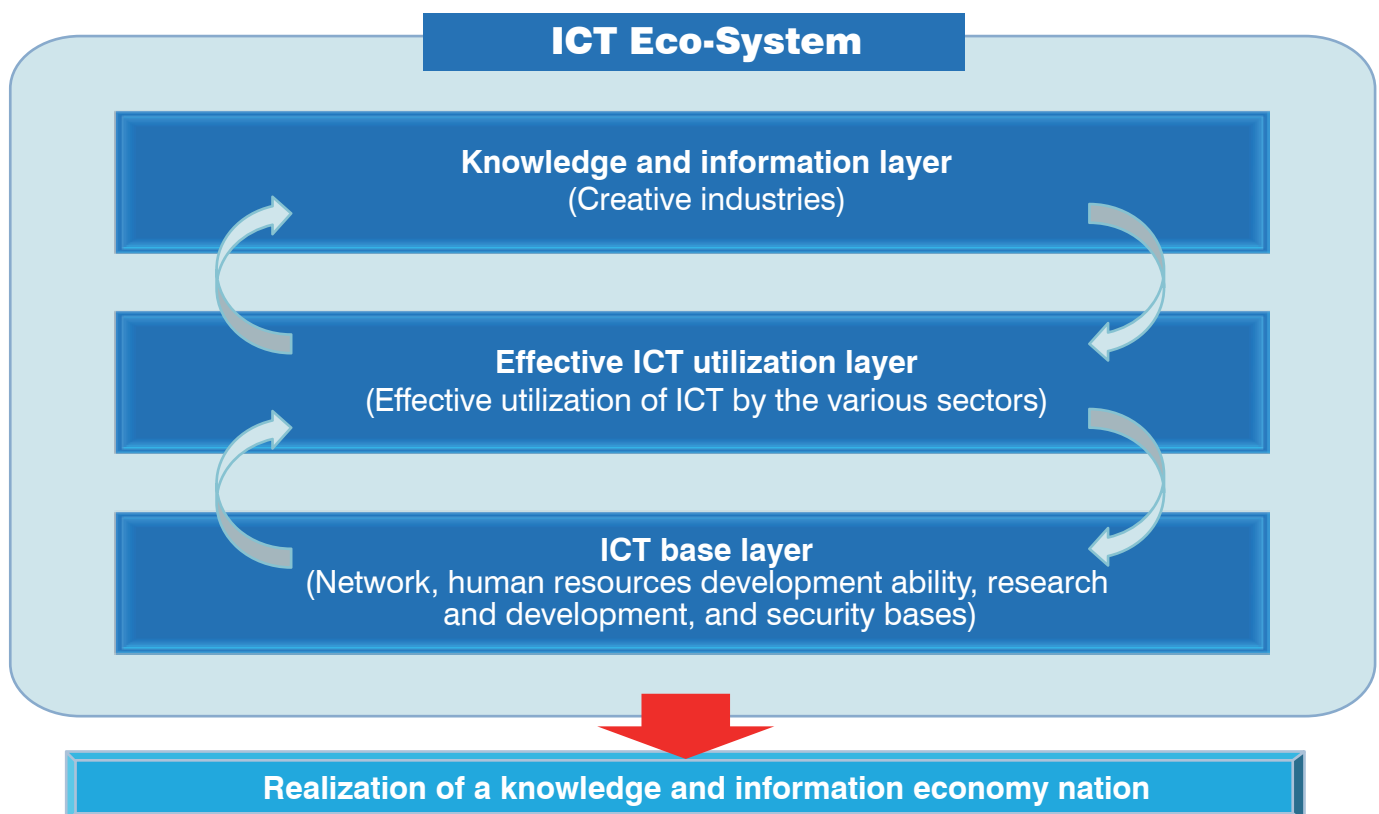
(2) Core Strategy - Successfully Forging a Knowledge and Information Economy Nation

With a full awareness of the current circumstances, there is a need to expand further the areas in which Japan has an edge while on the other hand to work towards putting in place an environment in which the overall strength in ICT can shine, by working to lift up the areas that are lagging.

The ICT industry is made up of three layers, as follows:

- 1- The "ICT base" layer that supports all socio-economic activity
- 2- The "effective ICT utilization" layer that aims to increase efficiency and added value by using this base
- 3- The "knowledge and information" layer where a diversity of knowledge and information circulates based on the other two layers

There number of players (market participants) active in each one of these layers branches off in many directions or, to put it another way, it is not a provider-centric market as has been the case in the past with the telecommunications market and the broadcasting broadcast, but should be seen as one in which starting with individuals, a variety of stakeholders, such as the government, regional municipalities, corporations, NPOs, and the like participate at each level, a dynamic ICT eco-system in which all parties influence one another.



And, within this dynamic ICT eco-system, an environment should come about in which new business models and innovations will appear easily, and in which positive growth cycles will happen between each of these three layers. When that happens, the fact that, most especially in cyberspace, there will be no boundaries between domestic and overseas markets, it will be necessary to clarify a global strategy for the ICT eco-system as a whole, and share and promote this. That is to say that, along with strengthening each of the base, effective use and knowledge and information layers that constitute the ICT eco-system, and working to increase mutual coordination between them, it will also be necessary, by accelerating the global development of each of the layers, to diffuse rapidly to the socio-economic system as a whole the results of advances in ICT technology and added-value creativity.

Major Policy Areas

In order to realize an ICT eco-system that will make possible rapid overall socio-economic diffusion of the results of advances in ICT technology and added-value creativity, there is a need to plan for strengthening each of the layers. In order to do this, we have arranged major policies under the following 4 pillars (i) strengthening the ICT base, (ii) promoting effective use of ICT, (iii) accelerating the distribution of knowledge and information, and (iv) strengthening global strategy.

Furthermore, with regard to a framework for major policies, this panel will continue to investigate the matter from a broad-ranging perspective, and plans to compile its findings in June of this year.

Strengthening the ICT Base

(1) Building the world's most advanced digital network

Japan provides the world's most advanced broadband services but it is not yet the case that the people enjoy the advantages of broadband in all areas. Also, in other developed countries such as the United States, the United Kingdom and France, a trend is starting to be seen towards accelerating the creation of a broadband infrastructure as part of proactive support by the governments, meaning that there is no guarantee that Japan will always hang on to its leading position.

This is why Japan needs to accelerate the putting in place of an information and communications base that will always step one step ahead of the rest of the world by building the world's most advanced digital network.

(2) Creating new digital industries

Once it has shaken free of the current economic crisis, and while keeping in its sights factors for global economies turning positive, Japan needs, in order for its ICT industry to be immediately impactful and develop globally, to keep global markets in its sights, and to accelerate the creation of new digital industries by bringing forward the research and development and commercialization of new technologies. In order to narrow down the technologies that Japan should strengthen, it is necessary to have a mid-term plan concerning the research and development and standardization of each technology, while being aware of global developments. Looking at it in the mid-term, if one takes into consideration the basic relevance and marketability of technologies, and their relative merits as well as their impact on society, efforts should be directed towards the

creation of new digital industries once the four areas of networks, wireless, video and the environment have been focused on for strengthening. "Strength" in a technology does not come with a simple increase in research and development. There is the possibility that one can win on the technology front and lose on the industry front. That is why it is necessary, along with working towards an open model in technological development, to bring together in an integrated way the standardization and intellectual strategy of core technologies.

Taking the above into consideration, it is necessary to develop policies that uses the above four areas as axes, and are based on the following five points: (i) acceleration of research and development in strategic areas, (ii) strengthening of research and development system, (iii) a strategic approach to standardization, (iv) the promotion of investment in ICT-related venture capital, and (v) the training of high-level ICT personnel.

(3) Realizing a safe and secure ICT environment

A basic requirement in order to promote the effective use of ICT is the necessity to realize a safe and secure ICT environment. In concrete terms, it is necessary to develop policies from the two perspectives of promoting safe network building and ensuring cyber-security.

However, completely eliminating any risk from cyberspace would also lead to a loss in the vitality of such a space. The realization of a safe and secure ICT environment should work towards continuing to encourage the vitality of cyberspace while at the same time reducing risk and improving people's information literacy.

Strengthening the ICT Base - Concrete Approaches

Building the world's most advanced digital network

- Rapid realization of all-digital network

✓ Assured implementation of full digital networks looking ahead to July 2011

- Acceleration of building of next-generation networks

✓ Acceleration of next-generation networks that are not necessarily based on TCP/IP

- Fusion of distribution of goods, traffic, electric power and information using ICT

✓ Building a comprehensive and effective infrastructure by putting in place spatial codes, promoting the quasi-zenith satellite system, introducing and developing Intelligent Transport Systems (ITS) and putting smart grid in place

Creation of new digital technologies

- Acceleration of research and development in strategic areas

✓ Accelerating the development of next-generation wireless communications technologies for the realization of Cars that don't crash and a cordless pleasant living environment by using frequencies left over from analog television

✓ Formulating a policy and a research and development roadmap for the migration to and reorganization of the dynamic used frequencies for the systems that are expected to grow after 2010

✓ Formulating a roadmap for the accelerated development and research of innovative network technologies that will be world-leading in terms of ultra high-speed and reliability and ultra-minimal power consumption

- Strengthening of research and development system

✓ Strengthening of transmission of information through leaders who would become the faces of research and development, securing personnel who would undertake management of research and development, and investigating mechanisms for registering and making use of open innovators

- Consolidating a strategic approach to standardization

✓ Training standardization personnel securing mutual connections in which overseas companies also participate from the standardization stage

- Promotion of ICT-related venture investment

✓ Creating ICT related funds, and investigating tax measures for the promotion of ICT related investments

- Training of high-level ICT personnel

✓ Sharing of lecturers and teaching materials provided by industry, and promoting the development of practical distance learning systems using Cloud technology

Realizing a safe and secure ICT environment

- Promoting safe net building

✓ Promoting approaches towards building secure networks through those related to industry and academia, and organizing topics with a view to establishing basic rules relating to Lifelog information

- Ensuring cyber-security

✓ Putting in place a tested environment in order to eliminate security risks, promoting such as the training of information security personnel, and dissemination and education activities

Promoting the Effective Use of ICT

(4) Realizing a society in which the people appreciate the true value of ICT

In order to promote the effective use of ICT, it is first necessary to promote the use of information technology in a concentrated way, as the core area to enable people to appreciate the true value of ICT. In concrete terms, the three areas that can be picked up as having fallen beyond in their actions to move towards information technology usage are the government (including regional public bodies), industry (medical care, education, and agriculture) and regional communities. Taking up these three areas of focus is based on high expectations of positive results in revitalizing regions and improving services to residents. Regional economies are impoverished and regional finances are in a crisis situation. That is why using ICT to revitalize the regions is a truly urgent matter. In addition, in looking to greater efficiency and better services from each category, the fact that the various governmental ministries and agencies are caught up in red tape means that results are slow to show. By using a cross-functional paradigm, the ICT base produce outstanding results in greater efficiency and improved services.

(a) The government (Building an innovative e-government)

In order to accelerate the effective use of ICT, the government itself needs to be the first to take the

initiative in implementation. However, at this stage, the use of e-government is not making headway and the people do not have the feeling that administrative services have improved thanks to e-government. This is why the government needs to show unflinching resolve in changing the way things are done at the various ministries and agencies, as well as aim to bring about an innovative type of e-government that makes positive use of new technologies, so that it can provide government services that are seen to be the most efficient in the world and truly convenient for the people

(b) Industry (Using information technology in medical care, education, and agriculture)

In industrial fields, other than the medical care and education fields which are behind despite the fact that the importance of using information technology has long been clamored; the agricultural sector also makes three areas of focus that need to take measures. This kind of approach is vital to enhancing the activities of regional communities, and is linked to greater efficiency and the creation of new business in each of these fields. Furthermore, the panel will continue its investigations on ongoing ways to promote the use of information technology beyond these three fields.

(c) Regional communities

ICT holds an important key to connections between people that have become diluted and to

bringing back the ties between people and society, and so work should be done to revive regional societies using ICT. There have already been numerous examples of measures that have revitalized communities using ICT, but there are few cases which have gone beyond trials to full implementation, and so the development has not been widely spread. Additionally, investigations are ongoing with regard to measures concerning the promotion of the use of information technology in regional communities. For example, the effects of ICT on physically handicapped people in terms of participating in society and their community are enormous. It is necessary to deepen the level of the investigation and include a framework for the effective use of ICT in the welfare field.

(d) Revising the system so as to promote the effective use of ICT

Despite the fact that revising a system that does not take into account the effective use of ICT is something that the country has been tackling since the announcement of its e-Japan Strategy II in July 2003, progress has been slow. This is why it is necessary to implement a revision of the system in a focused way, centering on the IT strategy headquarters, and using a transparent procedure, and MIC should participate in this approach to the full.

Promoting the effective use of ICT - Concrete approaches

The government (Building an innovative e-government)

- Building the Kasumigaseki Cloud

✓ Coordination between the back office systems of various government departments, and code-sharing

- Realizing electronic post-office boxes for people

✓ Realization of push-type one-stop administration (a digital administration service is the right of citizens)

- Building a regional municipality Cloud

✓ Advanced development and testing of "Municipality Cloud" in all the various prefectures and administrative districts, improving the citizen support system for electronic applications, developing a new public individual verification system, etc.

- Building a national digital archive

✓ Archiving of the knowledge and culture held in places like National Diet Library, standardization of formatting and metadata, promoting mashup with private-sector information by opening up administrative information Application Programming Interface (API)

Industry (Using information technology in medical care, education and agriculture)

- Medical field

✓ Promoting the introduction of online receipts (including support of business agents) and electric medical records

✓ Promoting remote medical care, and encouraging the use of wireless tags

✓ Introduction of infrastructure for making use of health information (use of health and medical information through people's own initiatives)

- Education field

✓ Putting in place a consultative system from instructors, using information technology for school work using ASP and SaaS

✓ Promoting the use of in-school LANs, electronic teaching materials and electronic blackboards, and the introduction of edutainment-type teaching materials

- Agricultural field

✓ Increasing the efficiency of agricultural work by using mobile phone networks, satellite images and wireless tags

✓ Formulating an overall vision concerning the use of ICT in agriculture (coordination between related government ministries and agencies)

Regional communities

✓ Building regional infrastructures using ICT to exercise the culture and characteristics of each regional block (support for small and medium-sized companies and the like), support for nationwide and international development for regional ventures

✓ Installation of broadband networks by public organizations and promotion of safe and secure urban development (ubiquitous towns) with a focus on ubiquitous technology

✓ Support for the development of open-source software (realizing a nationwide infrastructure using ASP and SaaS, and allowing changes at will depending on regional characteristics)

Revising the system so as to promote the effective use of ICT

- Revising a system that does not take the effective use of ICT into account

✓ Focused revision of system centering on IT strategy headquarters

- Overall revision of legislation for communications and broadcasting

✓ Promoting the putting in place of fair competition rules in the information and communications market

✓ Promoting the overall revision of legislation for communications and broadcasting

Accelerating the Distribution of Knowledge and Information

(5) Nurturing creative industries

With the rapid growth of consumer-generated media (CGM) which is contents that are created and distributed by consumers, a change is coming about in societal structure, known as the shaping of a knowledge-emergent society. And from such enormous accumulation of knowledge will be born creative industries that will

create new economic values. The development of creative industries will give rise to a cycle that will lead to the even greater development of the knowledge-emergent society. There is also a continuing diversification in the variety of terms of contents distribution channels too. In effect, the shift to IP and broadband will continue to accelerate in the future and the single purpose of earlier generation networks will become diluted, with

more and more fusions and cooperation between communications and broadcasting. In the future, on the broad assumption that the framework for contents will, in addition to the existing type of contents, include contents that are created on a daily basis by corporations and government organizations, making it necessary to strengthen the development of creative industries.

Acceleration of knowledge and information distribution (development of creative industries) - Concrete approaches

<p>Strengthening contents creation</p>	<ul style="list-style-type: none"> ✓ Support for creation of regional video contents and distribution nationwide and overseas ✓ Development and diffusion of next-generation digital signage, and promoting global development ✓ Promoting the utilization in manufacturing and service development of user interfaces (UI) that use the design abilities of contents creators
<p>Training people who will support the ability to create and distribute contents</p>	<ul style="list-style-type: none"> ✓ Introduction into elementary and junior high schools lessons and a curriculum to nurture "design ability for video contents" ✓ Investigate a human resources training program for interested creators, both domestic and overseas
<p>Putting in place a contents trading market</p>	<ul style="list-style-type: none"> ✓ Setting up an operational organizations that would consolidate information relating to copyrights for broadcasting contents ✓ Support for the setting up of organization that would supervise and warn concerning the circulation of fraudulent contents on the Internet
<p>Strengthening coordination of platform functions</p>	<ul style="list-style-type: none"> ✓ Coordinated consolidation of platforms for verification and payments so as to promote the circulation of contents using a variety of distribution routes

Strengthening Global Strategy **(6) Becoming a nation that is a frontrunner in problem-solving**

A number of issues such as environmental problems, the problem of food, the problem of sourcing water, and the development of space and the oceans are problems on a global scale. At the same time, developed countries such as Japan, will see an acceleration of fewer births and an aging population. Looking to solve these problems, rather than seeing the lower birthrate and aging population as a problem, efforts should be made to make proactive use of ICT so as to become a nation that is a frontrunner in problem-solving" such as finding proactive solutions to problems as a developed country with fewer children and an aging population.

For example, in terms of environmental measures, it has been calculated that, through the effective use of ICT, about half of the 6% cut in comparison with 1990 as specified by the Kyoto Protocol, amounting to 38 million tons of carbon dioxide emissions will be achievable by 2012, which is an impressive result. This is why ubiquitous green ICT" should be promoted as something that will itself grow into an industry, having resolved the environmental problem.

Furthermore, there will be ongoing investigations, including topics other than environmental problems, on the effective use of ICT in dealing with global-scale issues.

(7) Promoting the globalization of the ICT industry

Against a background of ongoing globalization and flattening of economic systems, there is a need to support the globalization of Japan's ICT industry. In order to do this, along with working to improve the international competitiveness of the ICT industry, the challenge of issues on a global scale should be faced together with other countries, and efforts should be made to enhance both competitiveness and coexistence, in terms of the global marketplace. Also, one should consider that, as cyberspace is a free space that knows no national boundaries, problem will also arise that were not even imagined in the past, and a global approach will be necessary to find solutions to these new problems.

(a) Improving global competitiveness

By the year 2055, Japan's population is estimated to be less than 90 million, meaning that the country will experience a reduction of approximately 30% in its population in a period of about 40 years. The personal consumption market which accounts for about 55% of Japan's GDP, will shrink considerably as the population lessens. In order to make up for lesser domestic demand with overseas demand, the global development of the ICT industry is a must and, along with a shift in the minds of those concerned from an inward-looking mindset to an outward looking one, the government should work proactively towards improving international competitiveness.

In the current economic environment, it is necessary not to rely on overseas demand but, for a while, to realize continued economic growth based on domestic demand, but it is necessary to work towards improved international competitiveness so as to be able to quickly develop Japan's ICT industry globally when business does begin to recover.

(b) Promoting the building of global consensus

The possible areas for working towards the building of global consensus in the field of ICT might include those shown below, but first of all, investigations by the relevant people domestically should pick up pace and Japan's stance should be made clear, while at the same time promoting consultations between governments at various levels, including at the ministerial level, as well as the organization of forums by industry, academia and government.

Improving global competitiveness - Concrete approaches

Becoming a nation that is a frontrunner in problem-solving

- Environmental problems (promotion of ubiquitous green ICT)

- Other global-scale issues (Food problems, water supply problems, space and ocean development, etc.)

Promotion of globalization of the ICT industry (Strengthening both competitiveness and coexistence)

- Improving international competitiveness

- Promoting the building of global consensus

- Clarifying Japan's stance
 - Inter-governmental consultations, including at the highest levels, organizing forums with industry, academia and government, etc.

✓ The greening of the ICT industry itself (supporting the construction of green data centers, promoting low-power consumption eco-Internet, and putting priority on the development of all optical communications technology, etc.)

✓ Environmental countermeasures using ICT (Promoting telework, promoting low-power consumption urbanization using open sensor networks based on IPv6, etc.)

✓ Ongoing investigations of measures for effective use of ICT

✓ Promoting projects that will work to show off technological dominance by locally building model systems that meet the partner country's needs

✓ Promoting the overseas development of systems and services that has been tested in special ubiquitous areas

✓ Technology transfers that will encourage developing countries to operate their own systems, and building a mechanism that will integrate the introduction of micro-financing

✓ Promoting an Asia knowledge and information distribution area construction initiative for integrated development of joint research, policy discussions and cooperation between industry, academia and government in order to set up an Asia knowledge and information area

✓ Promoting the construction of a Digital Silk Road (provisional name) that would amplify joint international research and human resources training across Asia, the Middle East and Africa

✓ Putting in place mechanisms to provide information about Cloud computing to users, and accelerating discussions on the topics that should be set up as international rules concerning a framework for mutual operation between multiple Clouds and ensuring the security guarantee of information

✓ Accelerating discussions concerning Internet governance

✓ Investigating frameworks for rules to operate systems in cyberspace, such as copyright rules regarding CGM

Promotional Measures

This panel will continue its investigations towards a concrete ICT visions. As it does so, it will be important to keep in mind the following two points. The first is that, given that ICT is vital to all socio-economic activity, coordination between relevant government departments is a must, and there is a need to strengthen the approach of the government as a whole. In order to do this, it is necessary to work towards considerable strengthening of the IT strategy headquarters and the

intellectual property strategy headquarters which are the government's core promotional bodies. The second is that, in order for MIC to receive the recommendations of this panel and to promote the development of a policy, and in order to maintain the transparency of the policy, it will be necessary for an action plan determining "by when, what and how" the promotion should occur to be announced quickly, along with announcements on the evaluation of the state of advancement and progress reports

by third parties, and the operation of a Plan-Do-Check-Act (PDCA) cycle for the revision of the plan. In addition, on the occasion of regular evaluations, it will be necessary to establish easy to understand multiple benchmarks as evaluation standards. At that time, there should be investigations on setting up, not just provider-side benchmarks such as system installation rates, but also user-side benchmarks such as utilization ratios by the people, ease of use and satisfaction levels.