

Chapter 2

Harnessing ICT to Boost Growth and International Competitiveness

Part 1

Section 1 The Importance of ICT as a Growth Engine and Japan's Initiatives

1. ICT's impact on Japan's economy

As shown in Chapter 1, ICT has spread globally and its use and application is helping to solve various public issues. On the industry side, ICT is a growth driver, and ICT investment and ICT use and application have a profound influence on corporate performance as well as the entire country's economic activity. The following sections provide an analysis, based on the results of a survey, of ICT investment and ICT use and application by Japan's industrial sector and the ensuing effects on corporate performance and the Japanese economy.

(1) ICT and economic growth

There is much research probing the links between economic growth and ICT. A point of debate in the past was the productivity paradox pointed out by Robert Solow (1987) that the United States faced in the 1980s, when productivity gains were negligible despite investments in ICT, which was new at the time. Today, many research papers have confirmed that ICT does in fact increase productivity and contribute to economic growth. Japan's ICT investment levels, however, are lower than those in European countries and the United States. (Figure 2-1-1-1). That many corporations have not been able to derive the expected benefits from their ICT investments is considered to be a major cause for Japan's lower investment rate.

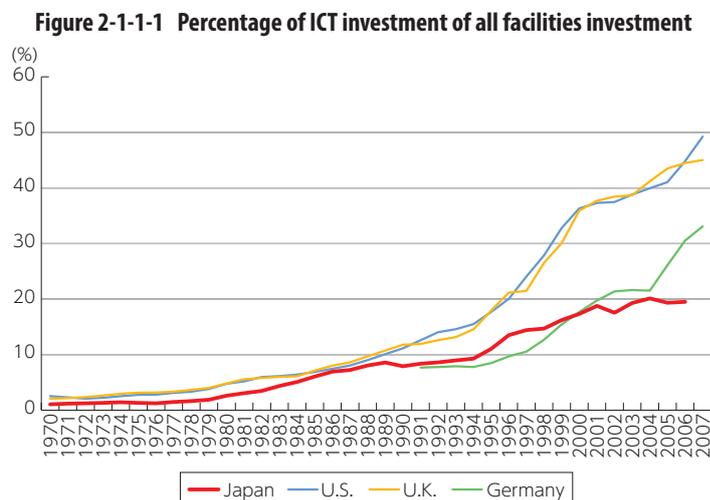
(2) Current ICT investment / use and application by Japan's industrial sector

The following paragraphs clarify our industrial sector's current ICT investment and ICT use and application as well as provide an analysis on ICT's relationship with corporate performance, with a focus on the state of organizational reform and human capital—which are believed to have close correlation with the benefits of ICT—and on outcomes where ICT development leads to corporate and industry growth.

a. Purposes of ICT investment

Analysis of the ICT investment targets companies set uncovers a definite trend for companies to invest for cost-cutting purposes over increasing sales. There is also a strong tendency for more of the received benefits from ICT investment to be related to cost-cutting. Observations of the relationship between purposes and benefits with target-achievement rates show a large percentage of corporations realizing lower costs through ICT investment. As Japanese corporations tend to put more weight on cutting costs than increasing sales in their ICT investment targets, they naturally tend to obtain more cost-cutting benefits than increased-sales benefits from their investments.

A further comparison of external benefits versus internal benefits discovered that a high percentage of corporations invested for internal organizational changes and to support employees and similarly obtained bene-



(Source) Prepared from EUKLEMS data

fits in these areas. Conversely, few corporations tended to target or benefit from investments for cooperation or communications with external entities (Figure 2-1-1-2).

b. Impact on corporate performance from ICT adoption and organizational change and human capital efforts

We measured on an 18-point scale the ICT investment benefits in terms of management improvements — such as improve accuracy and speed of decision making by top management, improve satisfaction levels of existing customers, develop new customers, and improve work productivity per employee. We then analyzed how management improvement scores changed relative to the degree of ICT adoption as well as the extent of organizational change / human capital efforts.

The analysis indicated that the greater ICT adoption and the more organizational change / human capital initiatives taken, the higher a corporation would score on overall management improvements. What this suggests then is that in order to obtain the greatest management improvements from ICT investment, it is important not only to actively pursue ICT adoption but also to carry on organizational change / human capital efforts (Figure 2-1-1-3).

c. ICT contributions to the bottom line

When it came to profits, 52.6 percent of all respondents said that profits had increased from three years ago and 16.1 percent of all respondents said that ICT had contributed to the profit increases. By sector, manufacturing led the way in the percentage of corporations who said ICT contributed to increased profits. Manufacturing also led the way in ICT contributions to sales.

The fact that a mere 16 percent of corporations replied that ICT had helped their bottom line, in terms of sales

or profits, indicates that not many corporations are realizing business performance improvements through ICT usage and that gaps exist between sectors in tying ICT to bottom-line improvements (Figure 2-1-1-4).

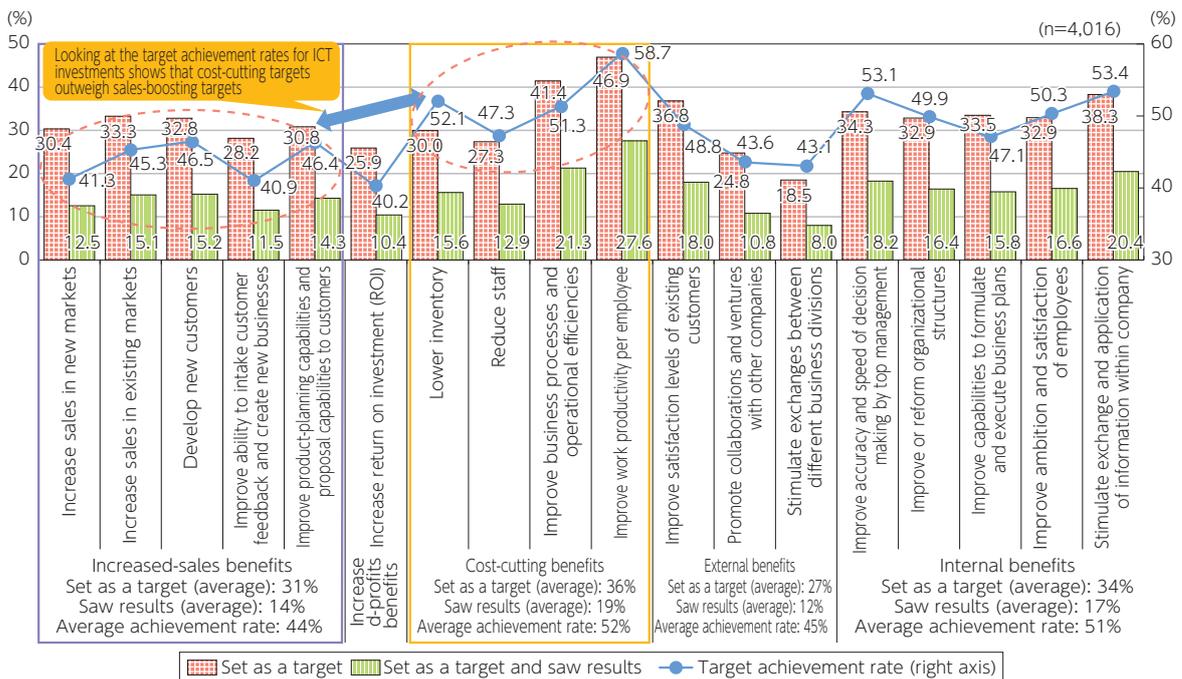
(3) Potential of ICT investment / use and application

If corporations that are less than enthusiastic about adopting ICT and organizational change / human capital initiatives were to more actively engage with these, could this potentially boost Japan's economic growth? This section makes a rough estimate of the potential impact on the Japanese economy if corporations that have been slow to adopt ICT and organizational change / human capital initiatives were to take on these initiatives and improve their business performance.

For the simulation, we calculated the base economic growth rate using a production function model. InfoCom Research Inc.'s "2013-2016 Economic Forecasts" was used for predicted values of the growth rate of IT capital stock and the FY 2014 real GDP growth rate.

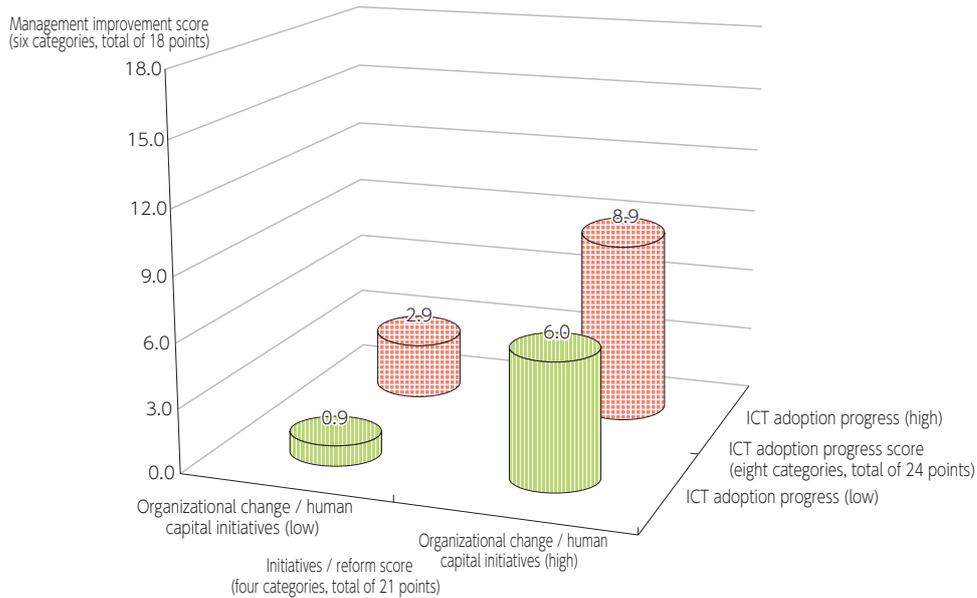
We estimated how much the real GDP growth rate would expand from this baseline if all industries were to adopt effective ICT and organizational change / human capital initiatives. The estimates found that the real GDP growth rate would increase by 0.5 percent over the baseline predictions. In other words, assuming all other circumstances are the same, we can expect that implementing effective ICT adoption and organizational change / human capital initiatives would push the real GDP growth rate up by 0.5 percent compared to if these measures were not taken (Figure 2-1-1-5).

Figure 2-1-1-2 ICT investment purposes and benefits



(Source) "Study Report on Accelerating Economic Growth with ICT: Challenges and Solutions," MIC (2014)

Figure 2-1-1-3 Relationship of ICT adoption and organizational change / human capital initiatives with management improvement benefits



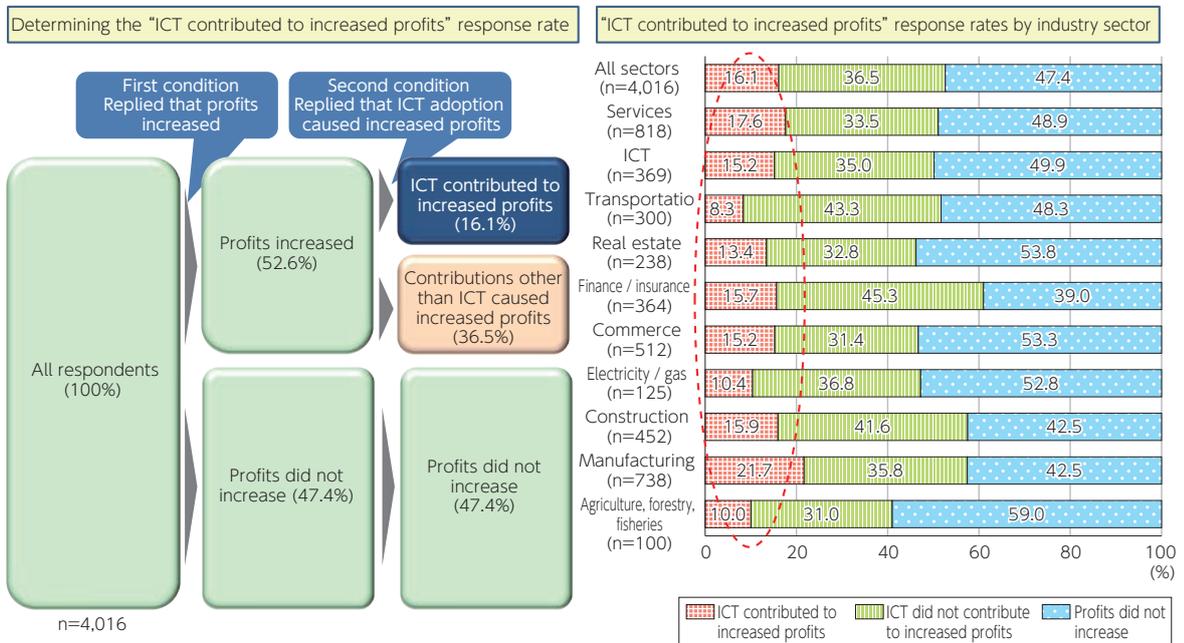
The four cylinders in the graph represent the "ICT contributed to increased profits" response rate among companies that fall into one of the following four attribute combinations

- Right rear cylinder: initiatives / reform (high) x ICT adoption (high): 1,095 samples
- Left rear cylinder: initiatives / reform (low) x ICT adoption (high): 637 samples
- Right front cylinder: initiatives / reform (high) x ICT adoption (low): 155 samples
- Left front cylinder: initiatives / reform (low) x ICT adoption (low): 2,129 samples

Total: 4,016 samples

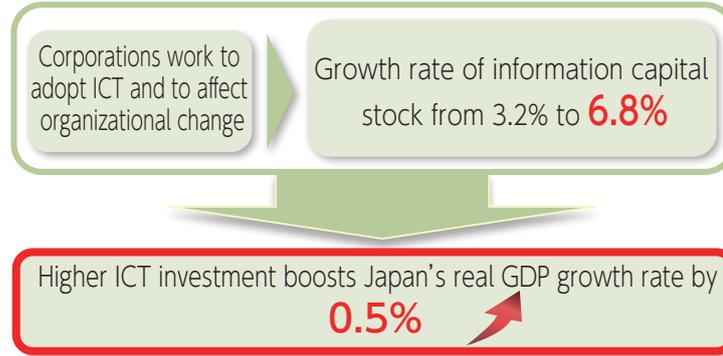
(Source) "Study Report on Accelerating Economic Growth with ICT: Challenges and Solutions," MIC (2014)

Figure 2-1-1-4 ICT contributions to increased profit



(Source) "Study Report on Accelerating Economic Growth with ICT: Challenges and Solutions," MIC (2014)

Figure 2-1-1-5 GDP boost from ICT investment



(Source) "Study Report on Accelerating Economic Growth with ICT: Challenges and Solutions," MIC (2014)

2. Japan's initiatives toward an ICT-driven economic strategy

As stated so far, ICT is a growth engine for Japan and further ICT usage is imperative for our country's growth strategies. This is why the government has positioned ICT as a pillar of its growth strategy.

(1) Declaration to be the World's Most Advanced IT Nation

The original Declaration to be the World's Most Advanced IT Nation and its roadmap were released by the IT Strategic Headquarters in June 2013. The IT Strategic Headquarters released a revised version in June 2014 that clarified and expanded on the original details and spelled out initiatives for FY 2014 and beyond. The revisions were based on a PDCA management cycle by various groups including the New Strategy Promotion Investigating Committee, lead by the government CIO, and deliberations by the newly instituted Strategic Council for Promoting the Use of IT Communications (Figure 2-1-2-1).

(2) MIC initiative—Smart Japan ICT Strategy

MIC set up the Council on ICT Strategy and Policy for Growth, chaired by the Minister for Internal Affairs and Communications, in February 2013 to study, from multiple perspectives, policies and other measures that utilize ICT as a prime growth driver for Japan's economy and as an ace contributor to the international community while tracking global developments. The Council compiled the ICT Growth Strategy in June 2013. Later, the ICT Growth Strategy Promotion Committee, also chaired by the Minister for Internal Affairs and Communications, was launched in January 2014 to facilitate the steady enactment of the ICT Growth Strategy. As well as studying new issues, this Committee endeavors to ensure the steady fulfillment of the ICT Growth Strategy, by managing and assessing the overall progress of the ICT Growth Strategy, a process that includes among other aspects studies by the ICT Town Development Promotion Council and other committees and initiatives

Figure 2-1-2-1 Declaration to be the World's Most Advanced IT Nation

I. Basic Principles

<p><u>1. Eliminating Gridlock and Rejuvenating Japan</u></p> <ul style="list-style-type: none"> • Loss of international status as a result of a prolonged economic recession and declining economic growth • Japan is a developed country with major issues, including a low birth rate and aging population, rising social welfare expenditures, and the necessity to deal with major natural disasters • IT will be used as an engine of growth based on a growth strategy to overcome Japan's impasses and achieve continuous growth 	<p><u>2. Becoming a Society that Utilizes IT at the World's Highest Levels</u></p> <ul style="list-style-type: none"> • The 2020 Tokyo Olympic and Paralympic Games are an opportunity to showcase to the world our advanced IT utilization in Japan • Based on reviews of past results, the IT Strategic Headquarters and the government CIO will implement IT strategic measures and address policy issues throughout the government by breaking down vertical barriers in ministries • Use IT to expand perspectives with the aim of breaking down organizational barriers, systems and rules, and demonstrating, presenting, and internationally deploying successful models • Implement over the course of about five years (through 2020) • Implement a PDCA cycle based on a roadmap
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II. The Society that Japan Should Seek to

Take action based on the following three pillars to become the world's most advanced nation in the use and application of IT, and deploy the results internationally

1. Create a society that encourages the creation of new and innovative industries and services and growth
 - Promote private sector access to public data (open data) and support the use of big data (distribution and use of personal data, etc.)
 - Raise levels in agriculture and related industries to make them into intelligent industries, and
 - Rejuvenate local communities (including remote islands), and
 - Convey Japanese hospitality with the use and application of cutting-edge IT that underpins the Tokyo Olympic and Paralympic Games and other large events
2. The world's safest and most disaster-resilient society where people can live safely, with peace of mind, and comfort
 - Create a healthy, longevity society, and
 - Conduct efficient and stable energy management, and
 - Respond to diversifying work formats and achieve a good work-life balance
3. Create a society with one-stop public services that anyone can access and use from anywhere at any time
 - Provide highly convenient electronic government services, and
 - Reinforce IT governance in government

by various groups.

In June 2014, based on studies by the ICT Growth Strategy Promotion Committee, the second installment of the ICT Growth Strategy—the ICT Growth Strategy II—was formulated. The Initiative for ICT International Competitiveness Enhancement and International Expansion, an international strategy, was established based on recommendations by the Round-Table Conference on ICT International Competitiveness Enhancement and International Expansion which will be discussed later in this document. The Smart Japan ICT Strategy, which unifies both national and international strategies, was formulated in tandem with these first two programs (Figure 2-1-2-2).

The Smart Japan ICT Strategy’s stated mission is to be “the most active country in the world” in terms of innovating with ICT to realize economic growth and to contribute to the international community. With a three-point vision—(1) building a knowledge and information based nation by 2020; (2) leveraging ICT for “three-in-one” solutions to global issues, Japan’s issues, and partner countries’ issues, and (3) combining speed and practicality with a global perspective, the strategy is designed to move forward in step with the ICT Growth Strategy II, a national strategy, and the Initiative for ICT International Competitiveness Enhancement and International Expansion, an international strategy (Figure 2-1-2-3).

ner countries’ issues; and (3) combining speed and practicality with a global perspective, the strategy is designed to move forward in step with the ICT Growth Strategy II, a national strategy, and the Initiative for ICT International Competitiveness Enhancement and International Expansion, an international strategy (Figure 2-1-2-3).

The vision behind the ICT Growth Strategy II is generating new innovation by linking things and services with ICT. The strategy sets out three priority projects that will take advantage of the special National Strategic Zone: (1) revitalize local regions through ICT smart towns, geospatial-information cities, and other initiatives; (2) solve social issues by applying ICT in medical, education, disaster-management, and other fields; and (3) move ahead with the creation of free public Wireless LAN access networks, further the Global Communication Project (an advanced multilingual voice translation system), and implement other initiatives ahead of the 2020 Tokyo Olympic and Paralympic Games. And to build out common ICT frameworks, the strategy calls for the creation of geospatial information, ICT smart town, and other platforms, the development and expansion of

Figure 2-1-2-2 The Smart Japan ICT Strategy

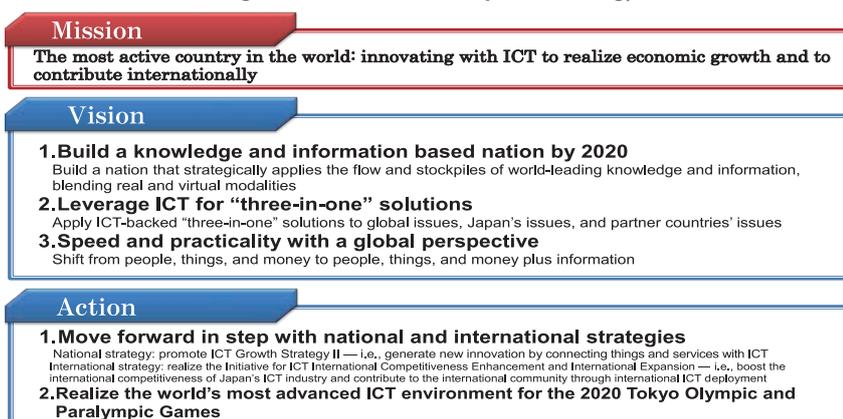


Figure 2-1-2-3 The ICT Growth Strategy II

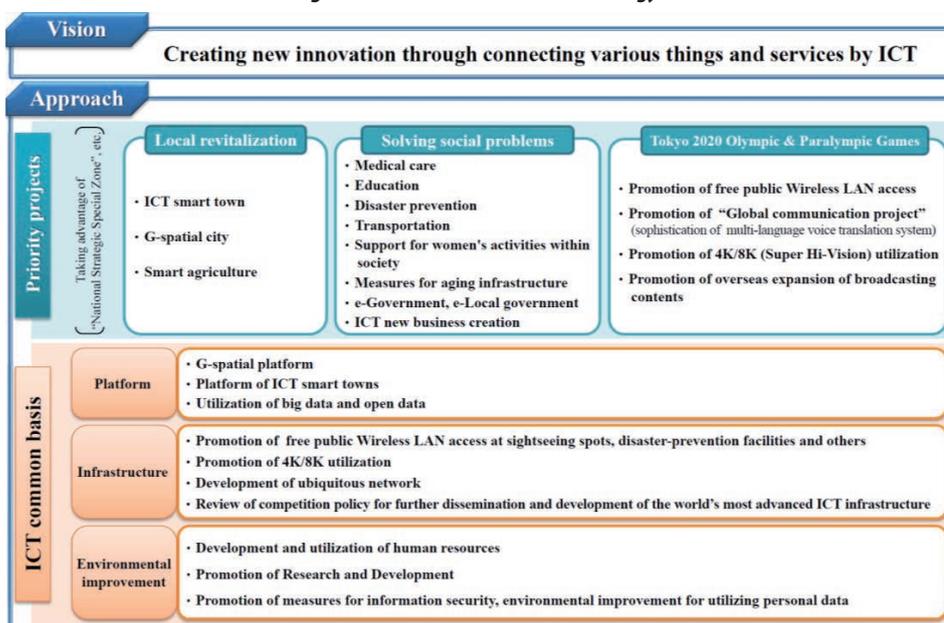
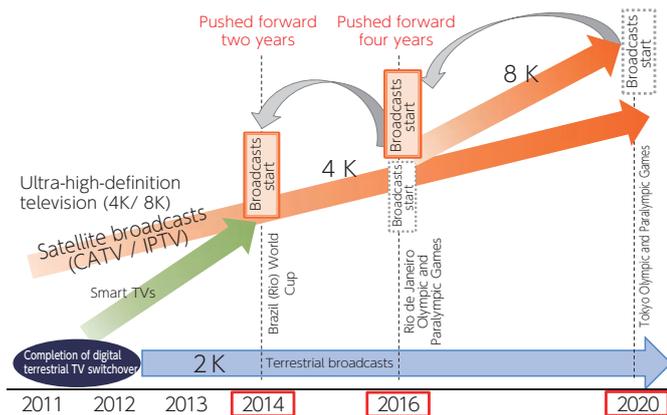


Figure 2-1-2-4 Roadmap for BROADCASTING services development



ICT infrastructure, and the arrangement of other conditions for ICT development such as R&D, the development and utilization of ICT personnel, and the actualization of information security measures.

(3) Looking ahead to 2020

The government is bolstering its ICT initiatives looking ahead to 2020, as seen above. The context for these efforts is the 2020 Tokyo Olympic and Paralympic Games, which are anticipated to attract huge numbers of domestic and international visitors to Tokyo, one of the largest cities in the world. As such, the Games are ex-

pected to be an enormous opportunity to showcase Japan's culture and the state of Japan's ICT to the world.

ICT is an essential part of the infrastructure that supports large events like the Olympics and Paralympics. Test 4K broadcasts started in June 2014 as a first step toward 4K and 8K ultra-high-definition television that can feature image resolutions with far more detail than today's current full HDTV. Test 8K broadcasts are slated for 2016. Joint public-private efforts for 8K broadcasts, in conjunction with smart TVs, are in progress, with the Olympics and other upcoming events in mind (Figure 2-1-2-4).

Section 2 The Paradigm Structural Shift in the ICT Industry

1. Global structural changes in the ICT industry

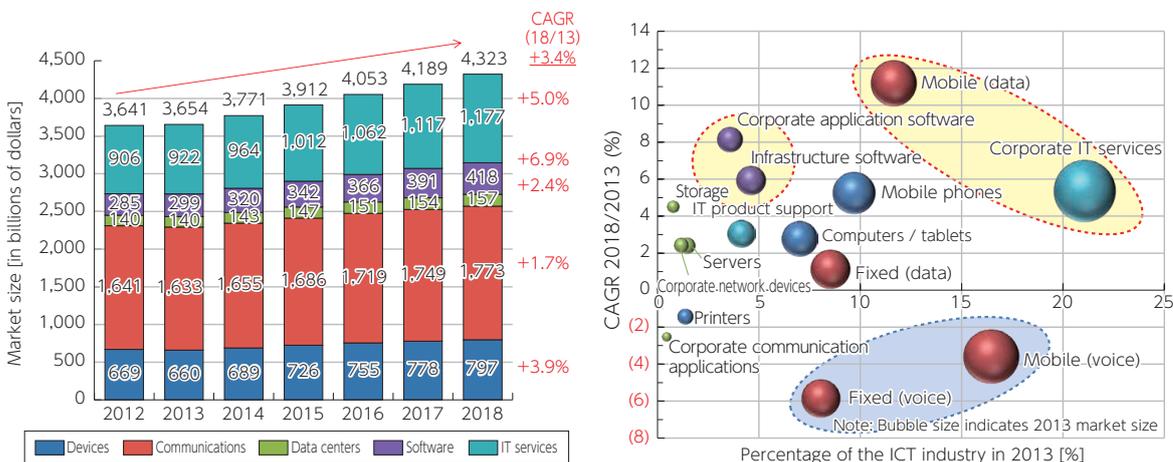
(1) ICT industry's global market

The total global ICT market, as measured by user (individual and corporation) expenditures, was 3.6 trillion dollars in 2012 and is forecast to grow at an average annual rate of 3.4 percent, reaching 4.3 trillion dollars in 2018. Mobile data communications is pegged to be the fastest growing sector, at over 10 percent, while corporate IT services, already the largest market segment,

are predicted to rise at a pace of over 5 percent. Negative growth, on the other hand, is predicted for mobile voice communications and fixed voice communications, which are currently large market segments, as the global shift in the communications layer from voice to data is anticipated to continue.

Looking regionally, the North American market dominates on size, particularly as it accounts for more than

Figure 2-2-1-1 Predictions of the global ICT market size and growth rates



(Source) Prepared by MIC from "Gartner Market Databook, 1Q14 Update," Ken Newbury et al., Gartner (Mar. 24, 2014)

40 percent of the global market in the three areas of corporate IT services, software, and data centers. The communications and device markets in the Asia Pacific region are huge and are expected to grow at 5.4

percent, by virtue of the enormous populations in China, India, and the ASEAN region. Similarly, the data center market in the Asia Pacific region is tabbed to expand at a remarkable 5.7 percent rate (Figure 2-2-1-1).

2. Japan's position in the ICT market and global market trends

(1) Movements among leading ICT players

Tracking the financial results of leading ICT businesses in 2013 clearly shows that the application layer continues to see favorable results. Domestic communications carriers have enjoyed increased revenue sustained by the rise in smartphone users and the accompanying boost in data communications charges. Furthermore, SoftBank, which has pushed its overseas expansion with the purchase of the U.S. carrier Sprint, posted consolidated earnings in excess of 6 trillion yen and has taken the lead among Japan's three mobile carriers in operating profits as well, due to the profit contributions after taking a controlling interest in GungHo Online Entertainment. Most device makers saw a large jump in profits, thanks in part to the effect of Abenomics, and the overall trend points to a recovery (Figure 2-2-2-1).

(2) KFS in a globalizing ICT industry

The Key Factors for Success (KFS) described below were selected after an analysis of historical transitions, overseas expansion developments, and contextual factors at leading global corporations.

The first success factor nearly all leading globally developed corporations have in common is aggressive overseas expansion and pursuit of economies of scale against the backdrop of a globalizing ICT industry. Mar-

ket globalization is sometimes perceived negatively, as the number of competitors typically increases and commoditization advances. Nevertheless, corporations that aggressively push overseas expansion are the ones that have secured a presence in today's global ICT market. They do so by moving into new high-growth markets and effectively incorporating a global environment into their operations: for example, leveraging overseas development and manufacturing resources.

Another characteristic of the ICT market is the incredible speed of market transformations, which have been especially striking in the device layer, where the leading products have been completely supplanted in just 10 years. It is extremely vital for corporations to gauge these changes as early as possible as well as to make prompt decisions on what business domains to select and focus on and secure sufficient scale in order to align their own business ventures with market developments.

The third KFS is the importance of personnel and technology to ensure international competitiveness. Corporations need the right personnel and technology so they can continually develop new products and value-added services that fit the changing market landscape.

Figure 2-2-2-1 Financial results of leading ICT players (FY 2013)

Overseas corporations*1*2							Japanese corporations*1						
Application layer	Company	Sales		Operating profit			Application layer	Company	Sales		Operating profit		
		[In ¥100s of millions]	Year-on-year change	[In ¥100s of millions]	Year-on-year change	Operating profit ratio			[In ¥100s of millions]	Year-on-year change	[In ¥100s of millions]	Year-on-year change	Operating profit ratio
	Amazon	76,760	21.9%	768	10.2%	1.0%		Rakuten *Account for 2013	5,186	29.5%	902	80.3%	17.4%
	Google	61,680	19.2%	14,399	9.5%	23.3%		Yahoo	3,863	12.6%	1,974	5.9%	51.1%
	Facebook	8,116	54.7%	2,891	421.2%	35.6%		DeNA	1,813	-10.4%	532	-30.8%	29.3%
Communications	AT&T	132,743	1.0%	31,424	134.5%	23.7%		GREE	990	-14.1%	289	-29.3%	29.2%
	Verizon	124,287	4.1%	32,959	142.9%	26.5%		mixi	122	-3.8%	5	-81.3%	-3.9%
ICT services	Microsoft	65,418	9.5%	21,937	2.8%	33.5%		GungHo *Account for 2013	1,631	631.5%	912	981.2%	55.9%
	IBM	102,843	-4.6%	50,009	-3.6%	48.6%		NTT consolidated	109,252	2.1%	12,137	1.0%	11.1%
	Oracle *Account for 2013	27,791	2.8%	10,155	1.7%	36.5%		NTT DoCoMo	44,612	-0.2%	8,192	-2.1%	18.4%
	SAP	23,959	3.7%	7,816	5.7%	32.6%		KDDI	43,336	18.3%	6,632	29.4%	15.3%
Communication equipment	Huawei	40,586	8.5%	4,946	41.0%	12.2%		SoftBank	66,667	108.2%	10,854	35.8%	16.3%
	Ericsson	35,834	-0.2%	2,812	70.6%	7.8%		NTT Data	13,438	3.2%	626	-27.0%	4.7%
	Cisco *Account for 2013	50,114	5.5%	11,543	11.2%	23.0%		Hitachi	96,162	6.4%	5,328	26.3%	5.5%
Handsets	Apple	176,208	9.2%	15,779	14.0%	9.0%		Mitsubishi Electric	40,544	13.7%	2,352	54.6%	5.8%
	Samsung	224,119	13.7%	36,049	26.7%	16.1%		Fujitsu	47,624	8.7%	1,426	61.5%	3.0%
	Nokia	18,018	-17.5%	736	190.0 billion increase	4.1%		NEC	30,431	-0.9%	1,062	-7.4%	3.5%
	BlackBerry *Account for 2013	7,024	-38.5%	-7,385	611.2 billion decrease	-		Sony	77,673	14.3%	265	-88.3%	0.3%
	HTC	7,099	-29.6%	-139	79.6 billion decrease	-2.0%		Panasonic	77,365	5.9%	3,051	89.6%	3.9%
							Toshiba	65,025	13.5%	2,908	47.0%	4.5%	
							Sharp	29,272	18.1%	1,086	254.8 billion increase	3.7%	

*1. Figures for overseas corporations, as a rule, are for the January – December 2013 period, and figures for Japanese corporations, as a rule, are taken for the April 2013 – March 2014 period. Arrows in bold represent year-on-year changes of more than +30 percent or sales profits, sales losses, or operating losses of more than ¥100 billion. Horizontal arrows represent changes within +1 percent.
 *2. Figures for overseas corporations were converted to yen with the following conversion rates (the rates at the end of December 2013): 1 U.S. dollar = ¥103.10, 1 Euro = ¥141.77, 1 KRW = ¥0.0980, 1 Taiwan dollar = ¥3.490, 1 Chinese Yuan = ¥16.98, 1 SEK = ¥15.76.
 *3. Figures for electronics manufacturers include revenue from businesses other than mobile handsets, as the figures were taken from each company's consolidated financial statements.

(Source) Prepared from each company's financial statements

Section 3 Directions to Boost International Competitiveness in Japan's ICT Industry

1. Current state of and challenges for Japan's international competitiveness

(1) Assessment of Japan's international competitiveness

Although Japan placed eighth in the world in 2005 in an annual ICT competitiveness ranking by the World Economic Forum (WEF), we have languished between 15th and 20th in more recent years, placing 16th in 2014, as Western European states and Singapore have dominated the top positions (Figure 2-3-1-1).

(2) Strengths and weaknesses of Japan's ICT industry

A survey conducted by MIC asked Japanese ICT corporations about their strengths and weaknesses pertaining to global expansion. In general, many corporations viewed "functionality and quality," "technological and R&D capabilities," "product development capabilities," and "enhanced customer support services" as strengths while acknowledging "price competitiveness," "localization proficiency," "speed of decision making," and "procurement capabilities and speed" as weaknesses.

One notable difference between corporations in the application layer and those in other layers was seen in the "speed of decision making." Application layer corporations ranked this factor around the middle in both the strength and weakness rankings, but a decidedly large number of corporations in the ICT services layer and the communications and device layers recognized it as a weakness. Another pronounced tendency was in "price competitiveness," which all layers viewed as somewhat of a weakness, but many more device layer corporations, over 60 percent, saw it as a weakness.

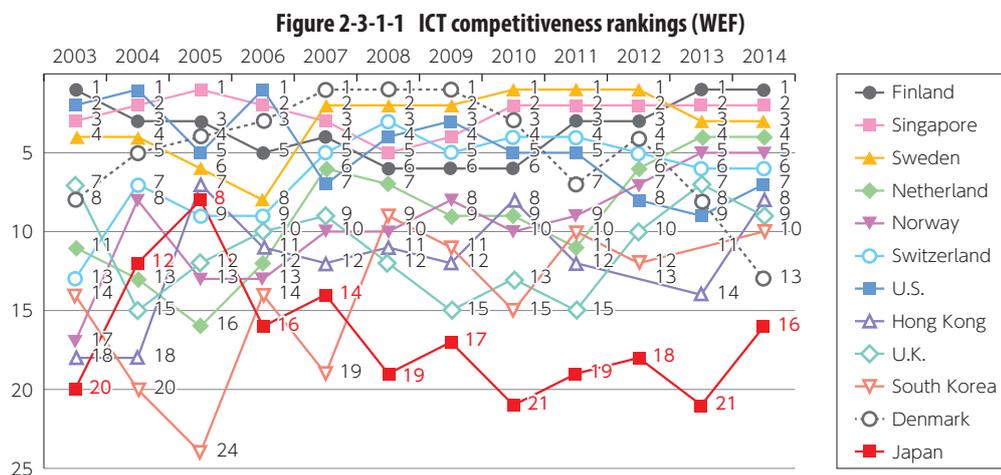
Another interesting result was "functionality and quality of products and services," because the lower the layer the more likely this factor was considered to be a strength, while only device layer corporations felt "brand power" to be a strength. This is believed to be a representation of the high quality and reliability of our manufacturing industry (Figure 2-3-1-2).

(3) Directions among ICT corporations

Currently, just over 20 percent of Japanese software corporations have expanded overseas, while just under 40 percent in the S/ier and information services sector and communications sector have done the same. At the same time, the overseas expansion percentage is around 60 percent in the ICT device, electrical device, and precision device industries. Thus, manufacturers were more likely to be actively expanding overseas, while the majority of corporations in all layers generally expand overseas by setting up local subsidiaries (Figure 2-3-1-3).

When the same corporations were asked about their highest current priority country or region, China and the United States took the top-two spots, the same as in the last survey, well ahead of India in third place and the ASEAN nations of Thailand, Vietnam, Singapore, and Indonesia filling out the next four spots. When asked about the country or region with the most future promise however, India, which was third in the previous survey, came in on top, with Vietnam in third place, Brazil in fourth, and Myanmar in fifth. This demonstrates a preference for the Asia Pacific region, which is expected to see solid future growth (Figure 2-3-1-4).

When asked about their overseas expansion prospects, about 30 percent of corporations said they will boost exports and some said they expect to also increase direct investment in overseas corporations, largely investing within their own industry sector. As in the last survey, corporations who said they will increase overseas expansion were asked about their outlooks for domestic investment and domestic hiring. Just under 40 percent said they expect to increase domestic investment and over 30 percent said they expect to increase domestic hiring. Thus, many corporations indicated that they will boost domestic investment and domestic hiring in tandem with pushing forward with overseas expansion (Figure 2-3-1-5).



(Source) Prepared by MIC from "The Global Information Technology Report," WEF

Figure 2-3-1-2 Strengths and weaknesses of Japan's ICT industry

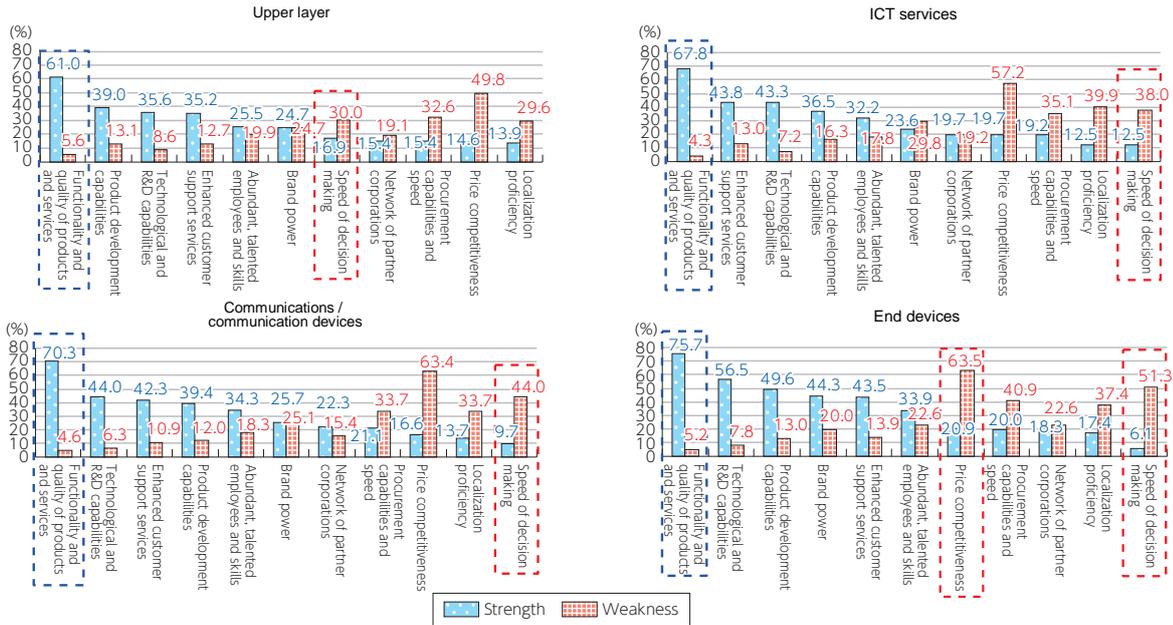
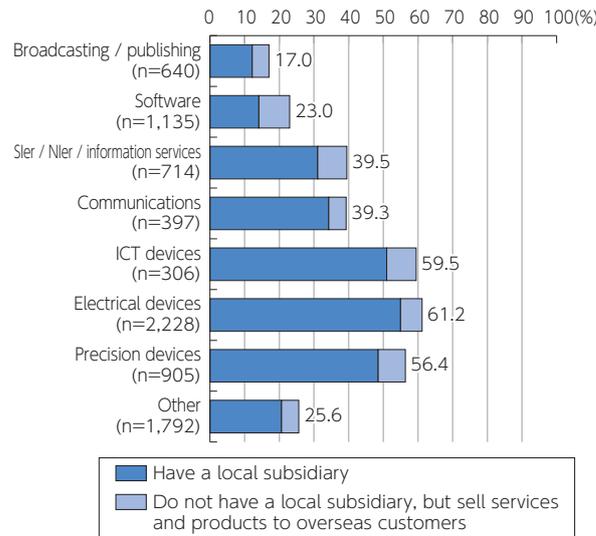
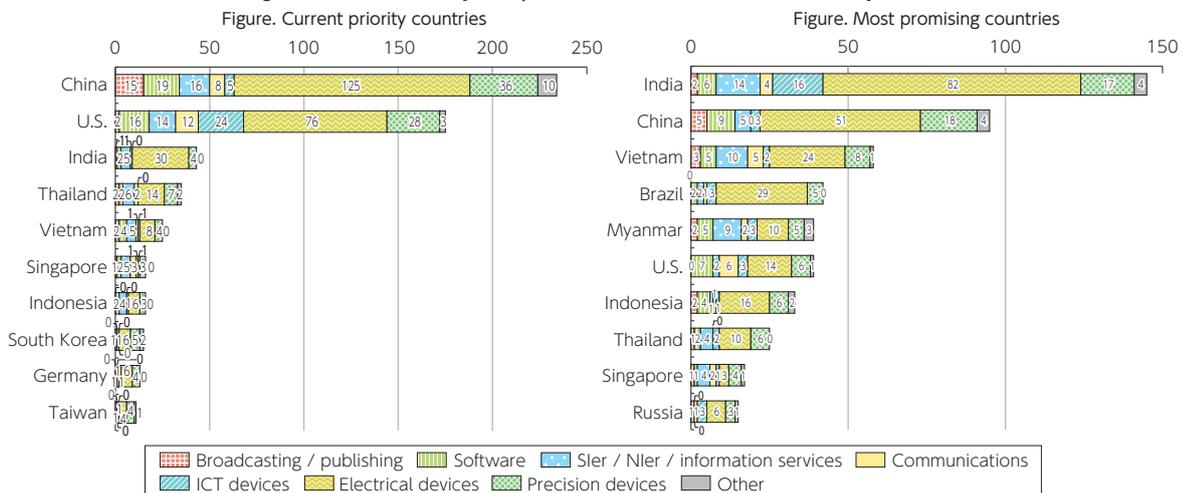


Figure 2-3-1-3 Current state of overseas expansion by ICT industry sector



(Source) "Study Report on Globalization Strategies for the ICT Industry: Success Factors and Future Directions," MIC (2014)

Figure 2-3-1-4 Current priority countries and countries with future promise

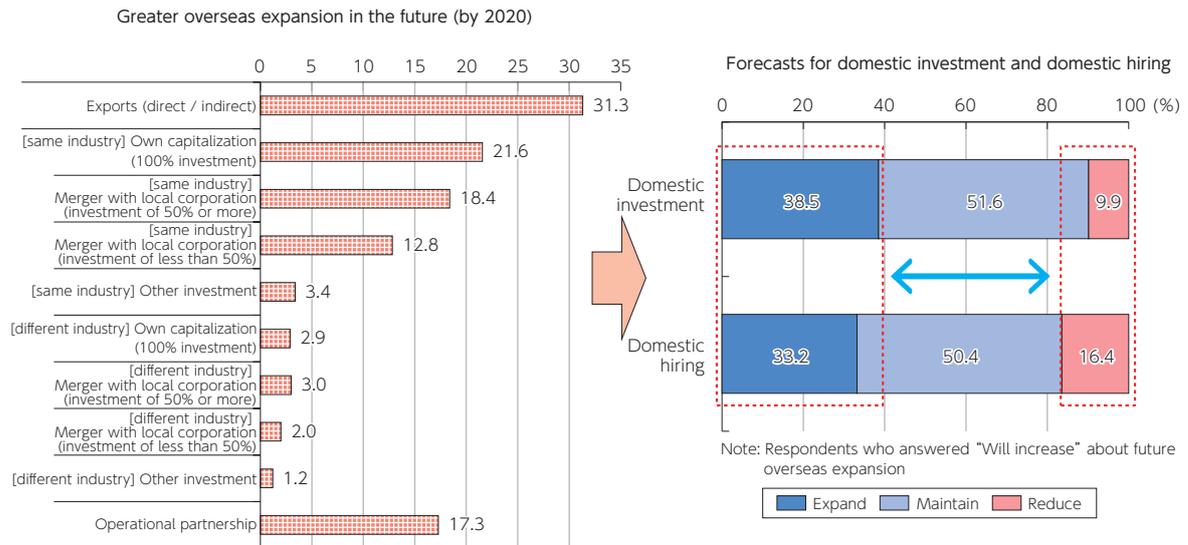


(Source) "Study Report on Globalization Strategies for the ICT Industry: Success Factors and Future Directions," MIC (2014)

When asked about the priority areas for overseas expansion and boosting international competitiveness, Japan's ICT corporations rated the ASEAN region the highest for smart towns / cities, smart infrastructure, food and agriculture, medicine / health / healthcare, disaster management, and other ICT application fields. The ASEAN region also rated the most likely destination for fixed broadband. On the other hand, hopes were

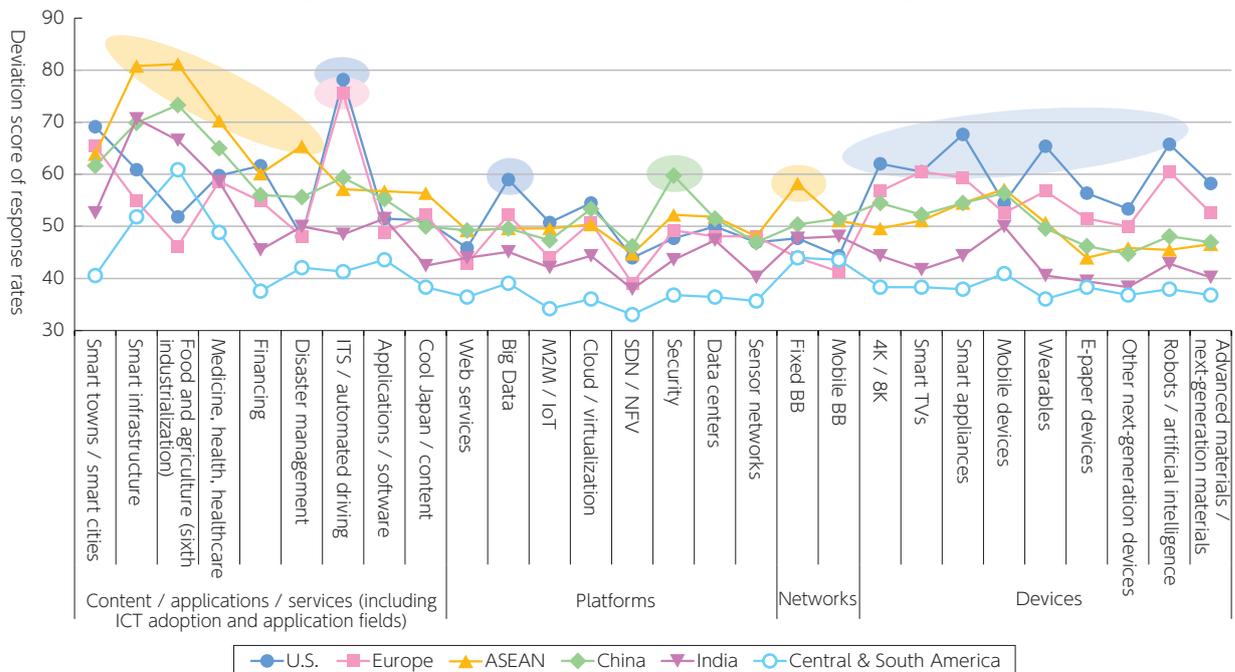
high for the United States in 4K / 8K, smart TVs, smart appliances, wearables / robots, and other next-generation device fields. Expectations were also remarkably high for ITS / automated driving in the United States and Europe. The hopes for ITS / automated driving, led by connected cars, which will be described later, signal prosperous times for the automotive industry (Figure 2-3-1-6).

Figure 2-3-1-5 Outlooks for domestic investment and domestic hiring (among respondents who said they will increase overseas expansion)



(Source) "Study Report on Globalization Strategies for the ICT Industry: Success Factors and Future Directions," MIC (2014)

Figure 2-3-1-6 Directions in overseas expansion by ICT sector (by region)



(Source) "Study Report on Globalization Strategies for the ICT Industry: Success Factors and Future Directions," MIC (2014)

2. Infrastructure expansion and other joint public-private efforts to boost international competitiveness

(1) Growing worldwide demand for infrastructure

Global demand for infrastructure, particularly in the ASEAN region and other emerging nations, has been fueled by rapid urbanization and economic growth. Using the sales of the top 225 contractors as a proxy for the global infrastructure-demand market, the market has been growing year by year, topping 1.3 trillion dollars in 2012. Out-of-country contracts (contracts tended in one country that were awarded to a contractor based in another country) accounted for about 510 billion dollars of this total.

It is important for Japanese corporations in the infrastructure industry to diversify their business ventures in order to progress beyond just exporting equipment. The aim of such diversification should be to win contracts for turnkey systems including the design, construction, operation, and management of infrastructure that supports these exports and to expand business investments in the local area. Additionally, connecting this investment to establishing advance bases for Japanese corporations and bolstering supply chains in the host country opens the way to capturing related sales in the local market. Therefore, compound benefits can be expected to be generated in addition to the original infrastructure orders.

(2) Round-Table Conference on ICT International Competitiveness Enhancement and International Expansion

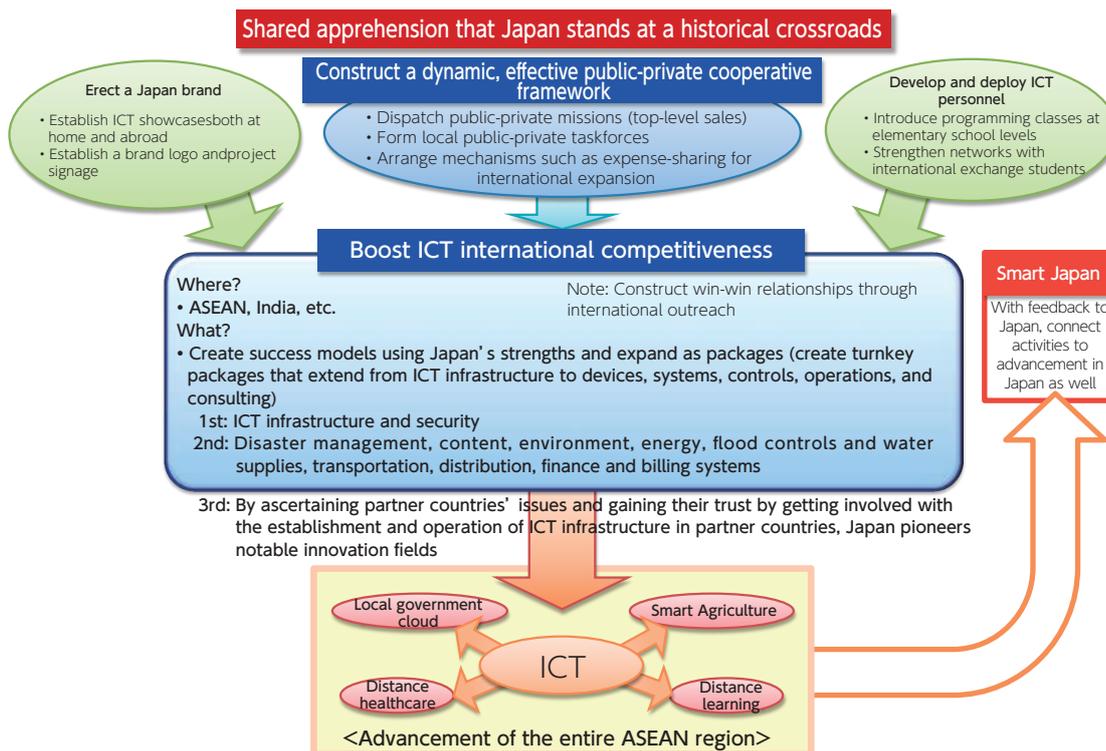
MIC launched the Round-Table Conference on ICT

International Competitiveness Enhancement and International Expansion in December 2013 with the objective of applying ICT to simultaneously drive economic growth in Japan and contribute to the international community as well as to resolve global issues the world is facing and public issues that individual countries are dealing with. The Round-Table held multiple gatherings and working groups and listened to passionate arguments by experts from universities and the private sector. In June 2014, the Round-Table released its final report, Initiative for ICT International Competitiveness Enhancement and International Expansion (Figure 2-3-2-1).

The report states that all stakeholders should share a sense of urgency that Japan stands at a historical crossroads as far as sustainable growth and development are concerned. The report's vision for 2020 set its goals (1) to be a knowledge-driven and information-driven nation (Smart Japan) that strategically applies world-leading knowledge and information, blending real and virtual modalities, in all industrial sectors and social and economic activities and (2) to vigorously stimulate Japan's ICT international expansion under a dynamic and effective public-private cooperative framework, with a strategic perspective on what to compete in (sectors), where to compete (markets), and who to compete with (competitors), and to tie this expansion to greater international competitiveness in ICT.

The basic approach for the strategic plan consists of

Figure 2-3-2-1 Time axis for the Initiative for ICT International Competitiveness Enhancement and International Expansion





four parts: (1) put forward “three-in-one” ICT-driven solutions for the public issues Japan is dealing with, the global issues the world is facing, and the individual issues partner countries are tackling; (2) propose application packages that encompass infrastructure, disaster management, content, medical care, education, resources, e-government, and financing as comprehensive solutions for partner countries’ issues; (3) devise new architectures centered on the keywords of safety, security, and hospitality; and (4) work in partnership with industry, government, and academia to construct an all-Japan framework.

The report also lists specific policies that should be pursued: (1) establishment of conditions that encourage business ventures—i.e., construction of a Japanese-originated global expansion model and establishment of ICT showcases both at home and abroad to pave the way to

erecting a Japan brand; (2) development and deployment of ICT personnel—i.e., introduction of programming classes at elementary school levels and strengthening networks with international exchange students; (3) enhancement and extension of technology diplomacy—i.e., international expansion that makes sharp distinctions between existing technology and systems and promising technologies and strategic promotion of standardization that stresses exit strategies; and (4) construction of a public-private all-Japan framework—i.e., dispatching public-private missions (top-level sales), construction of local public-private taskforces in countries targeted for expansion, and arrangement of mechanisms such as expense-sharing for international expansion. As a numerical target, the report aims to reach overseas sales in the ICT field of 17.5 trillion yen—about five times the amount of 2012 sales—by 2020.