

Current Status and Future Outlook for Japan's ICT Policies

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Director-General for International and Technology
Policy Coordination
Ministry of Internal Affairs and Communications

Masataka Kawauchi

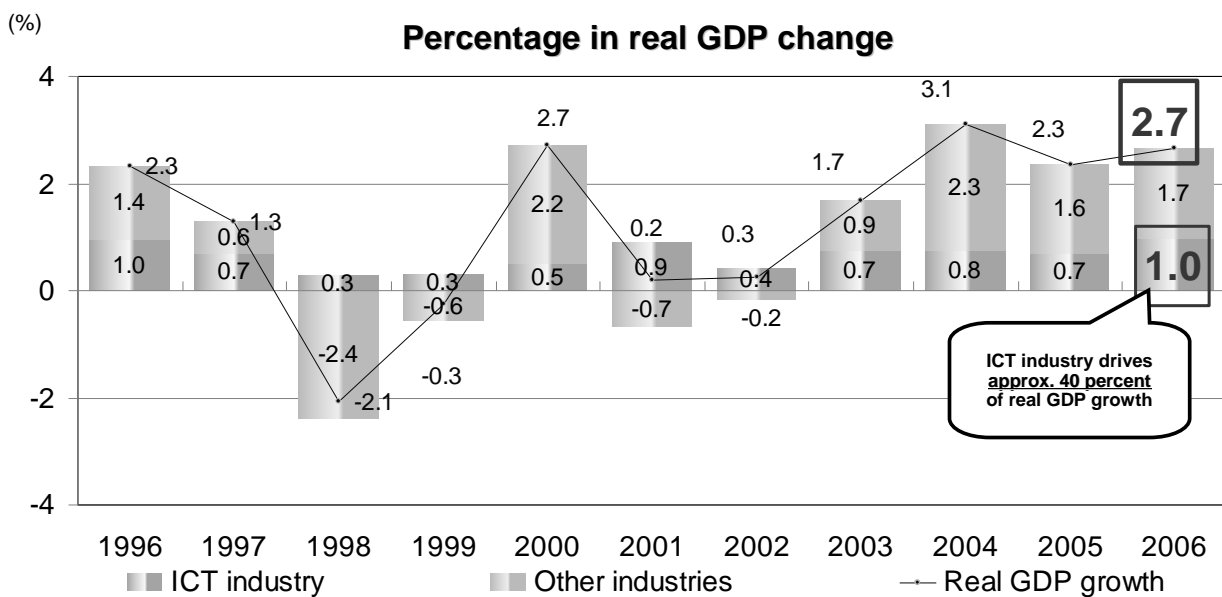
Agenda

- 1. Situation Surrounding ICT in Japan**
- 2. Efforts in Wireless Communications**
- 3. Efforts in NGN**
- 4. Efforts in Home Networks and Cyber Security**
- 5. Future Outlook for ICT Policies**

1. Situation Surrounding ICT in Japan

Relationship between Economic Growth and ICT

ICT industry accounts for such a large percentage of change in real GDP that it can play a role as the growth engine.



(Source) Information and Communications in Japan 2008

Actively leveraging ICT is an effective way to drive economic growth

International Comparison of ICT Infrastructures

Internet fixed-rate prices as of February 2000

- 1 Geneva
- 2 Paris
- 3 New York
- 4 London
- 5 **Tokyo**
- 6 Dusseldorf

(Source) MIC "Survey on telecommunication service rates difference between Japan and other countries" (Comparison among 6 cities)

Broadband prices

End of fiscal 2002

April 2006

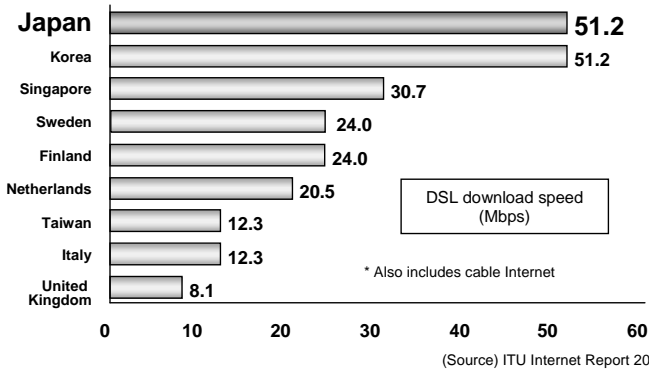
- 1 Japan
- 2 Korea
- 3 Belgium
- 4 Hong Kong
- 5 Taiwan
- 6 New Zealand
- 7 Singapore

- 1 Japan
- 2 Korea
- 3 Netherlands
- 4 Sweden
- 5 Singapore
- 6 Italy
- 7 Taiwan

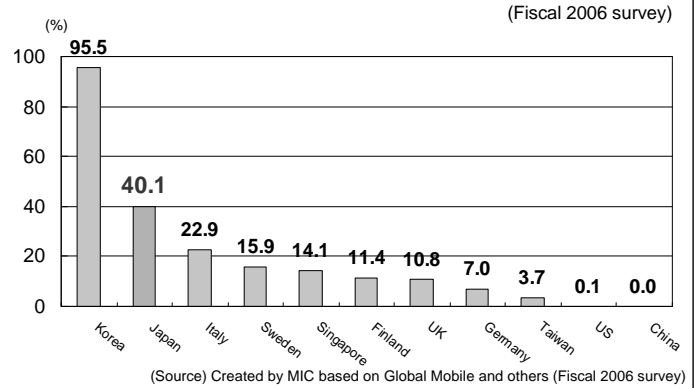
* Comparison of the prices per 100 kbps based on the DSL and cable Internet speed/price plans in each country.

(Source) 2002: Survey conducted by the ITU, a specialist agency of the United Nations
2006: ITU Internet Report 2006

Broadband speed (April 2006)



Percentage of 3G mobile phone subscribers

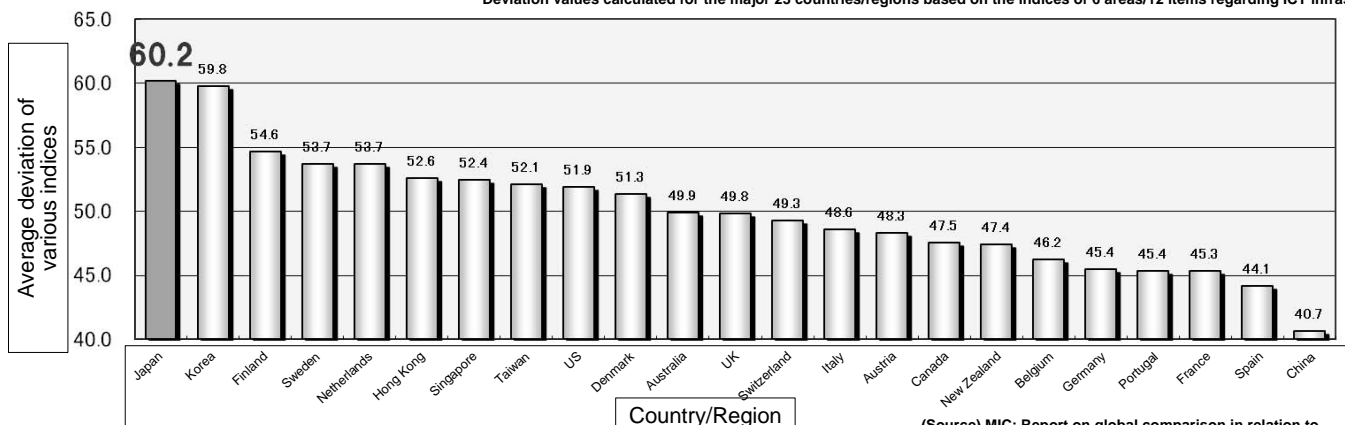


Global Rankings related to ICT Infrastructure

◇ Japan comes first among 23 countries/regions in overall ranking

Rank	Country/Region	Average Deviation	Rank	Country/Region	Average Deviation
1	Japan	60.2	13	Switzerland	49.3
2	Korea	59.8	14	Italy	48.6
3	Finland	54.6	15	Austria	48.3
4	Sweden	53.7	16	Canada	47.5
5	Netherlands	53.7	17	New Zealand	47.4
6	Hong Kong	52.6	18	Belgium	46.2
7	Singapore	52.4	19	Germany	45.4
8	Taiwan	52.1	20	Portugal	45.4
9	United States	51.9	21	France	45.3
10	Denmark	51.3	22	Spain	44.1
11	Australia	49.9	23	China	40.7
12	United Kingdom	49.8			

* Deviation values calculated for the major 23 countries/regions based on the indices of 6 areas/12 items regarding ICT infrastructure

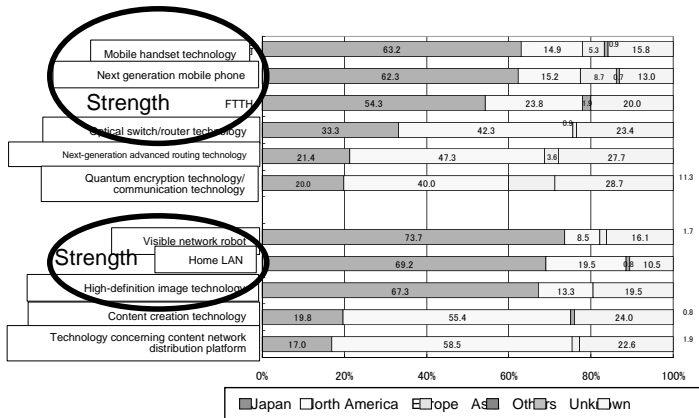


(Source) MIC: Report on global comparison in relation to Japan's ICT infrastructure (March 2008)

Japan's Technological Strengths

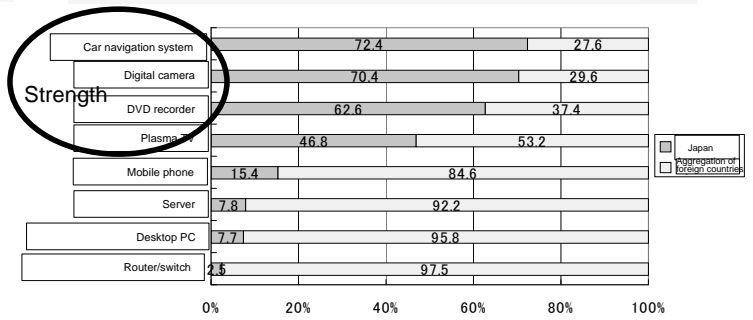
- Japan has a competitive edge for mobile handsets, FTTH (fiber-optic networks), and information home appliances.

ICT Advantage Evaluation by Experts

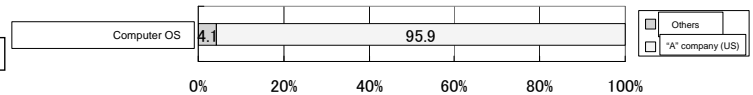


(Source) "The survey on the trend of a ubiquitous society"

Share by Japanese companies



Market Share of Computer Operating Systems

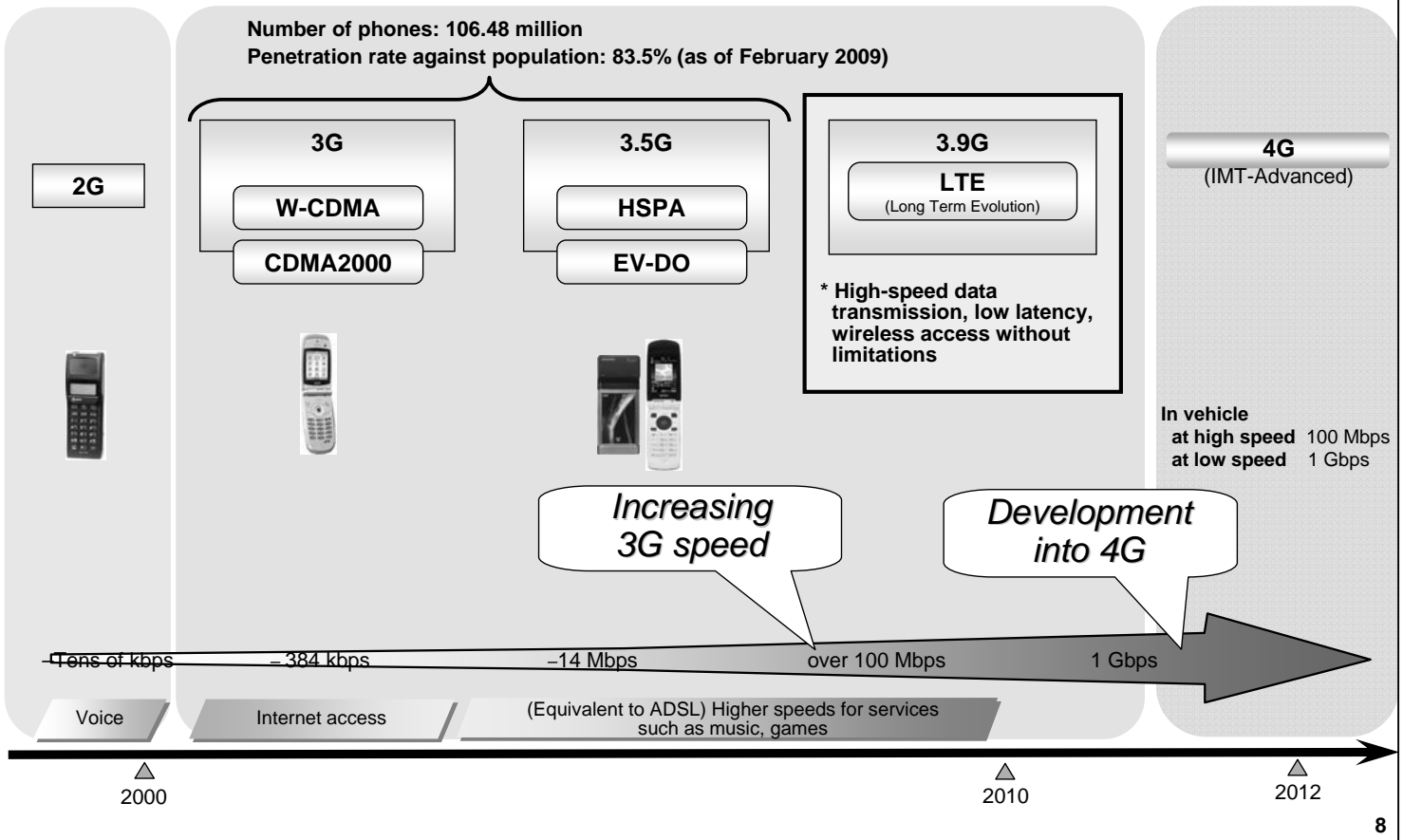


(Source) "2006 white paper, Information and Communications in Japan", etc.

2. Efforts in Wireless Communications

Developments in the Enhancement of 3G Mobile Communication Systems

Number of phones: 106.48 million
 Penetration rate against population: 83.5% (as of February 2009)



Impact/Effects on Society and the Economy

(1) New services

- (examples)
- High-definition video uploads
 - Educational video streaming
 - Connecting home appliances through large-volume data transmission
 - Distribution of large-sized signage information
 - Remote medical care using medical image transmissions

(2) Shift to new systems

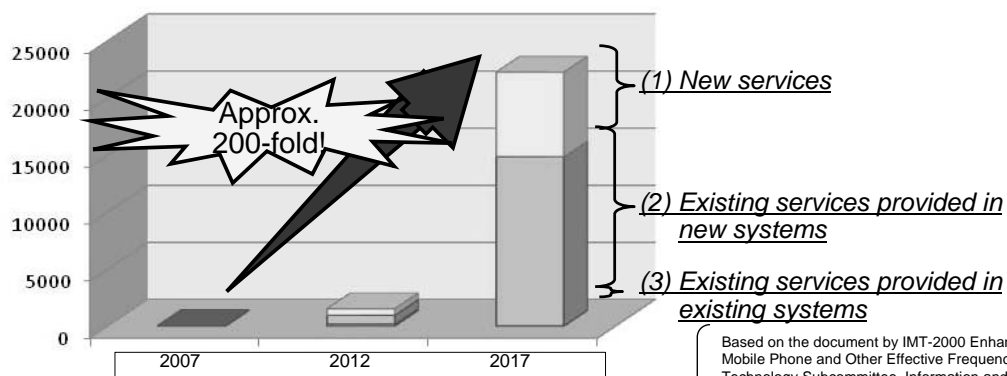
- 2010: 3.9G services to start
- 2012: 25% expected to be 3.9G
- 2017: 90% expected to be 3.9G (based on transition from 2G to 3G)

(3) Large-sized contents

- (example) Video streaming
- 3.5G: 384 Kbps (au "Lismo Video", etc.)
 - 3.9G (2012): 4 Mbps (HD video with high compression rate)
 - 3.9G (2017): 8 Mbps (Video with high-definition quality)

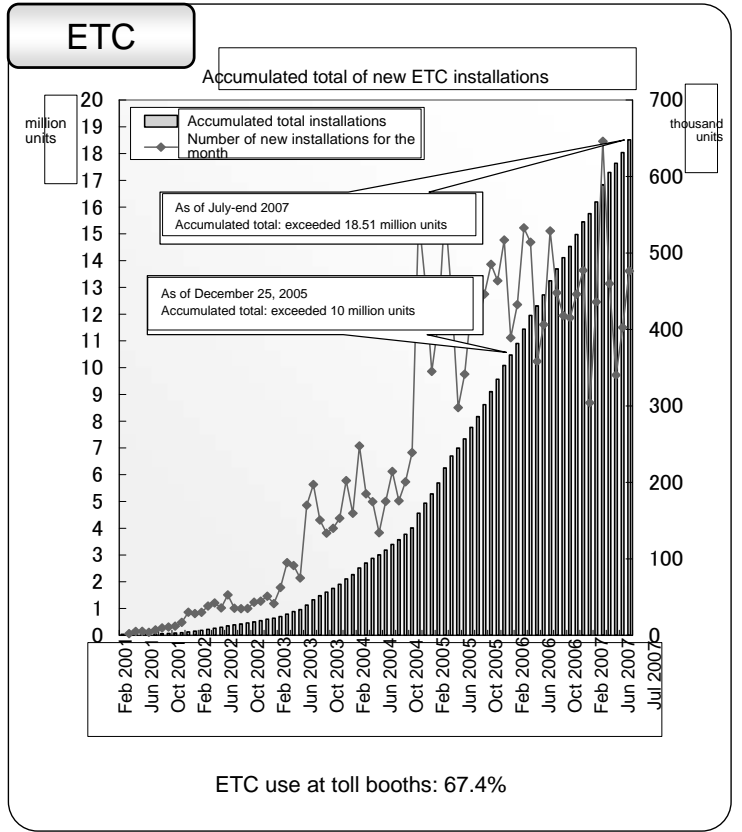
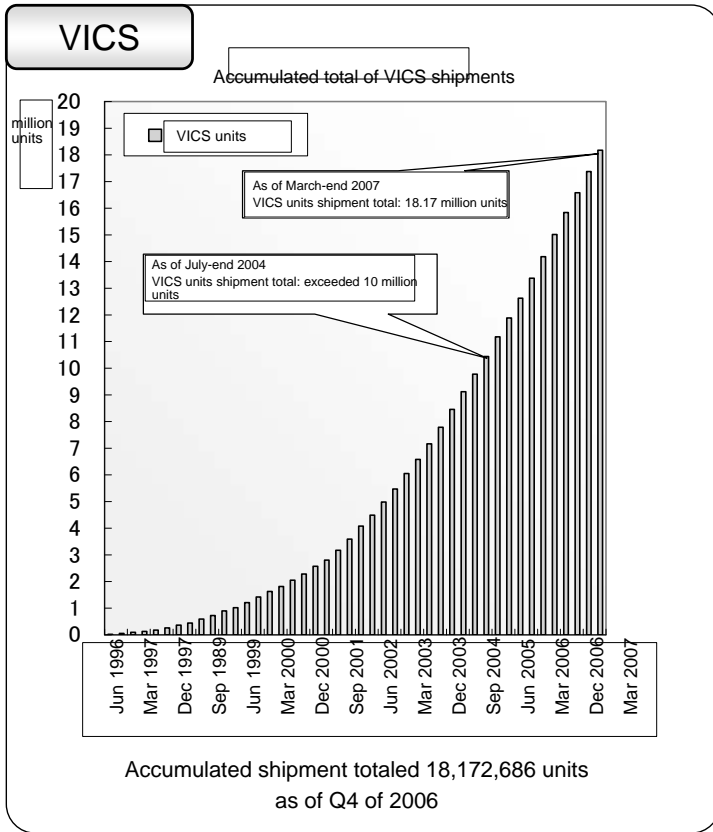
- Mobile traffic to increase roughly 200-fold in the next 10 years
- In addition to new services, traffic for existing services will also increase dramatically

Mobile traffic estimates (traffic in 2007 = 100)



Based on the document by IMT-2000 Enhancement Work Group, Committee on Mobile Phone and Other Effective Frequency Uses, Information Communication Technology Subcommittee, Information and Communications Council (8th meeting).

ITS Penetration in Japan (VICS and ETC)



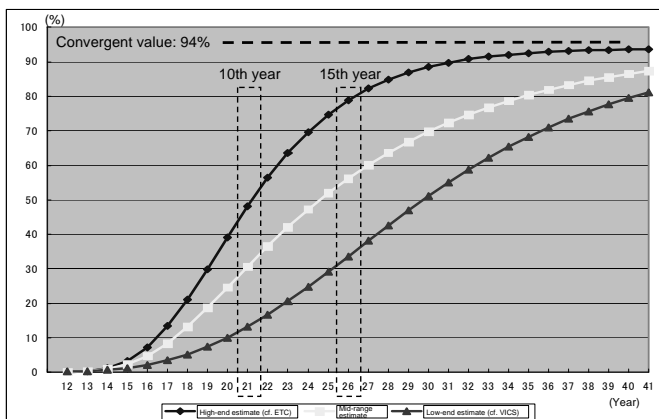
* In addition to the above, some luxury cars have millimeter wave anti-collision radars as part of their standard equipment

Penetration Rate/Market Size Forecast for Wireless ITS Systems

Introduction/penetration scenario

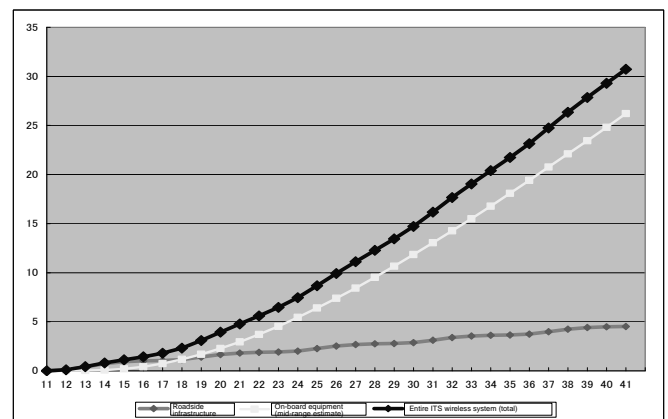
Introduction of wireless systems using the 700 MHz band is expected to start around 2012, beginning with onboard systems in high-end luxury cars. Early introduction to popular models, such as small-sized cars, is considered to be effective in boosting the overall penetration rate. As for roadside equipment, introduction is expected to initially start from locations with a high rate of traffic accidents and then spread out to other areas.

Penetration forecast



ITS Wireless System Penetration Rate	10th year	15th year	20th year	30th year
High-end estimate (cf. ETC)	48.1%	78.9%	89.8%	93.7%
Mid-range estimate	30.6%	56.3%	72.4%	87.4%
Low-end estimate (cf. VICS)	13.1%	33.6%	54.9%	81.2%

Market size forecast

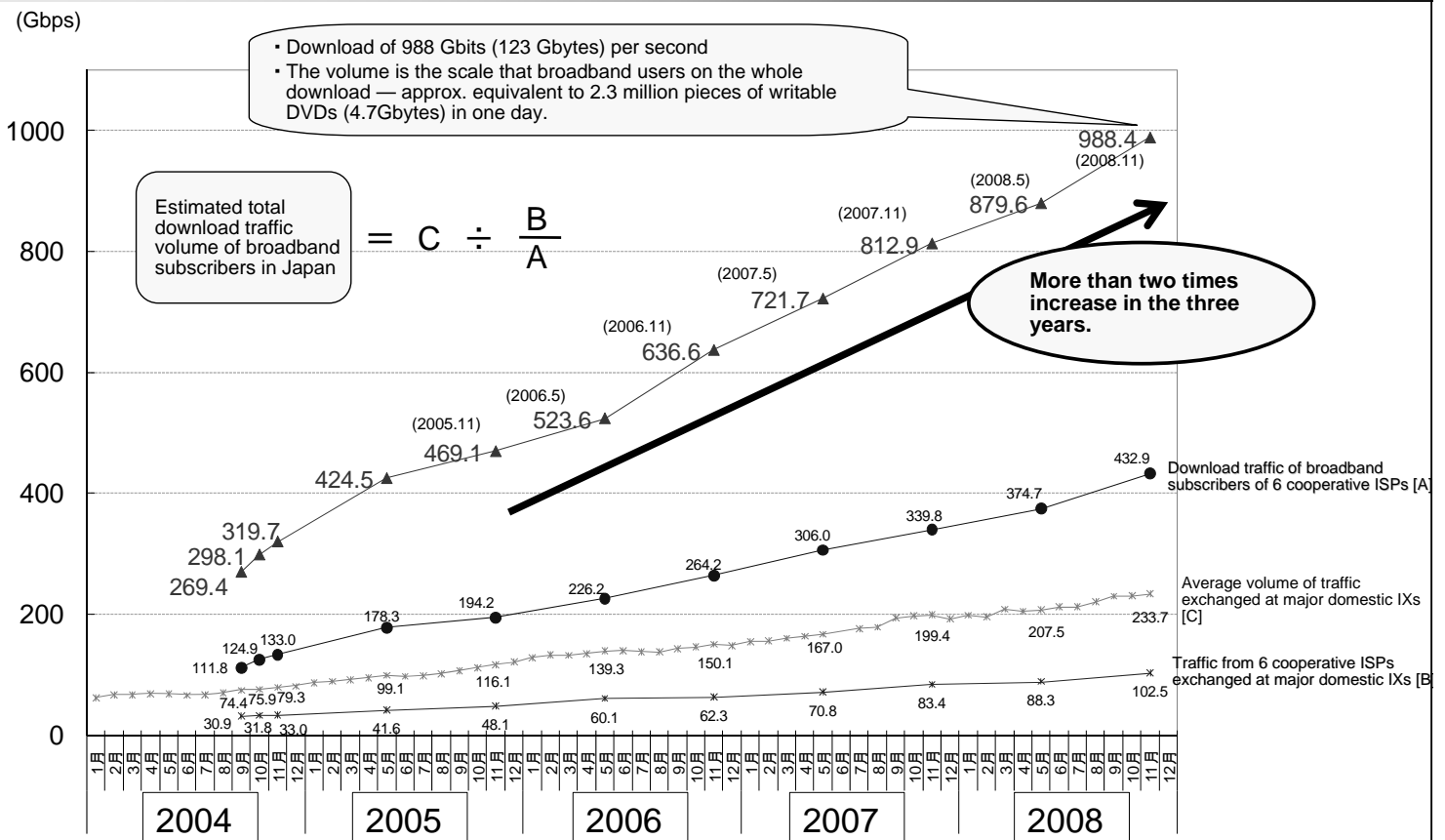


Total market size (in billion yens)	10th year	15th year	20th year	30th year
On-board equipment (mid-range) estimate	29,527	73,995	130,479	262,053
Roadside infrastructure	18,159	25,234	31,257	45,154
Total	47,687	99,229	161,736	307,207

* Calculation based on number of installations and assumed prices

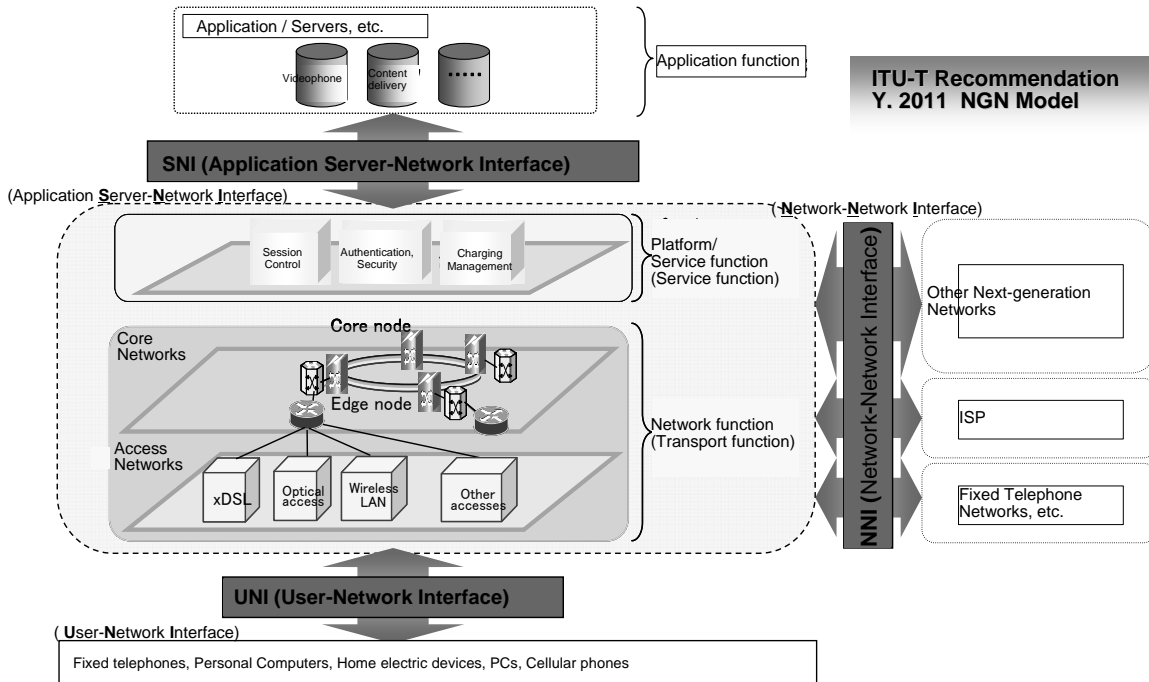
3. Efforts in NGN

Sharp Increase in Traffic (Broadband)



What is the Next Generation Network (NGN)?

- All packet type networks for next generation. Enable wide-ranging distribution of not only voice but also images, data and other multimedia services based on IP (Internet Protocol).
- The basic concept is that high reliability of telephone networks is compatible with flexibility of the Internet. Telecommunications carriers in each country plan to build the NGNs.
- Segmentation into network infrastructure (transport function) and service infrastructure (service function) enables performance enhancement for each function and deployment of various services.



Movement for IP Integrated Networks such as NGNs in Japan

[Telephone Network]

- High quality, Voice oriented, Circuit switching
 - Carriers operate networks as social infrastructures.
- (Quality assurance, High performance, Opaque network)

Difficulty in Renewal of Exchanges (High cost)

- Improvement of efficiency by IP integration

Migration

[IP Integrated Networks such as NGNs]

- Quality assurance, Reliability
- Securing security
- Openness

[Internet]

- Various services (Best effort, Low cost), Packet exchange
- Distributed open network (Simple and transparent network)

New services, such as IPTV, ASP/SaaS, FMC

- Combining for revenue enhancement

Movement of Telecommunications Carriers

NTT East and NTT West

- End of March 2008 NGN commercial services launched (in certain areas of Tokyo, Osaka, and some others).
- 2010 Expect 20 million contracts of optical access subscribers.

(Source) Report from Study Group on Sophistication of Essential Communications (May 2008)

4. Efforts in Home Networks and Cyber Security

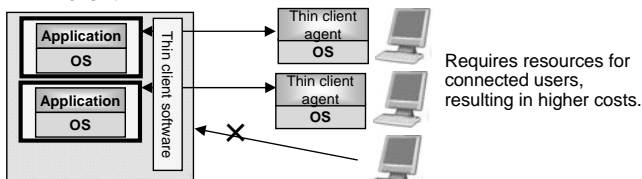
Efforts in Home Networks (Promotion of Teleworking)

1. Current status of teleworking in Japan

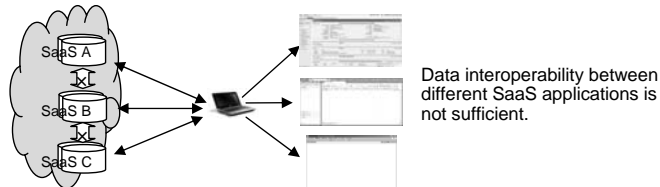
- Teleworking population has reached 25.21 million, 38.9% of the total workforce.
- Factors such as advancements in ICT, raised awareness of the work-life balance, better work efficiency, and contribution to the environment are expected to further drive the increase in teleworking.

2. Requirements and challenges of teleworking

- A network environment that can reproduce your workplace environment anywhere
- Security that allows safe use of workplace files
- Thin client



• SaaS

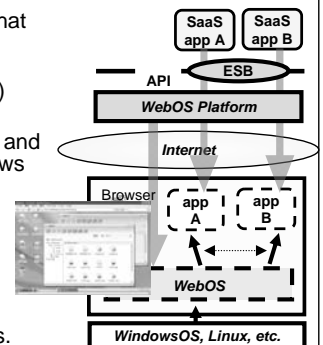


3. NTT Communications' efforts towards a solution

The ultimate in server-side computing that supports any network or terminal

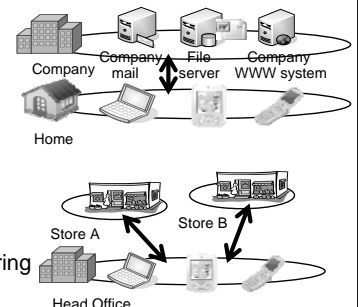
- Concept of WebOS technology (right)
Creates an environment enabling integrated use of various applications and a desktop with a similar feel to Windows

This will be combined with elemental technologies such as multi-element authentication and virtual network technology to undergo trial from spring 2009 to resolve various technical issues.



4. Future potential for teleworking technologies

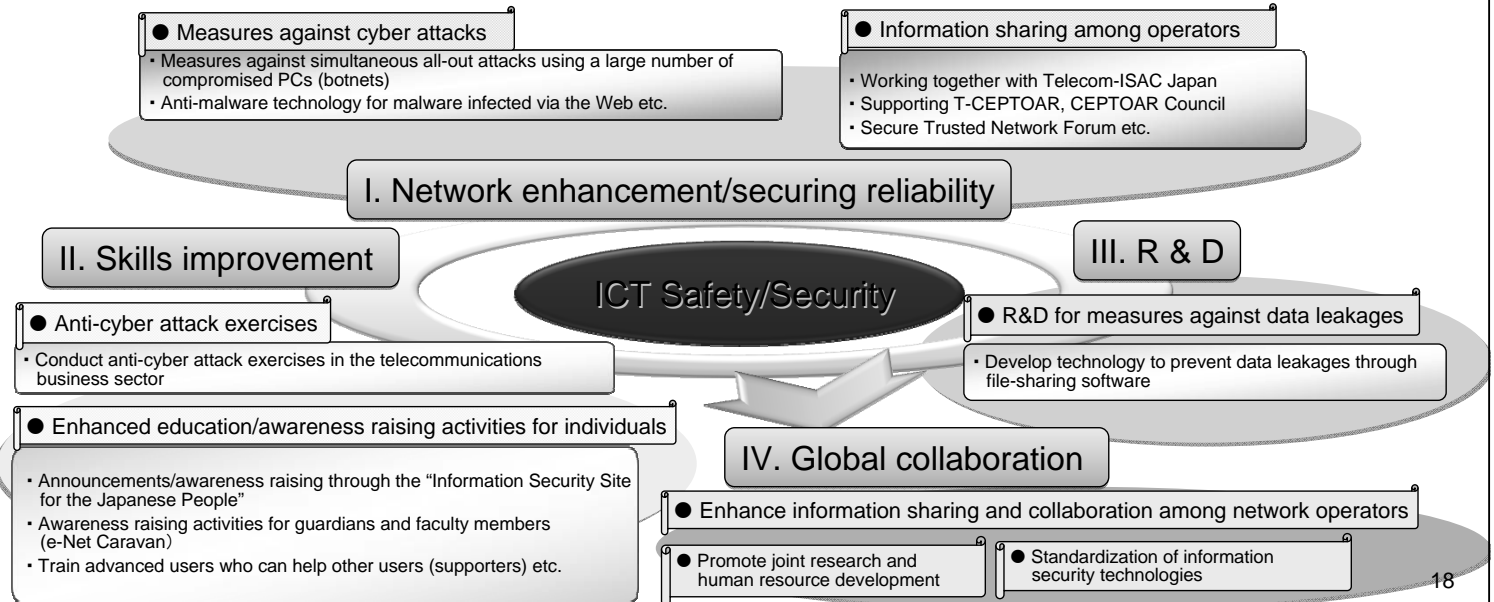
- As a measure against pandemics
 - Provides a work-at-home environment
 - Information communication with employees
 - Accurate information collection
- Global offshore development
 - Real-time information collection/analysis
 - Information communication/sharing
 - Global deployment



Realizing Safety/Security in Information Communications (ICT)(1)

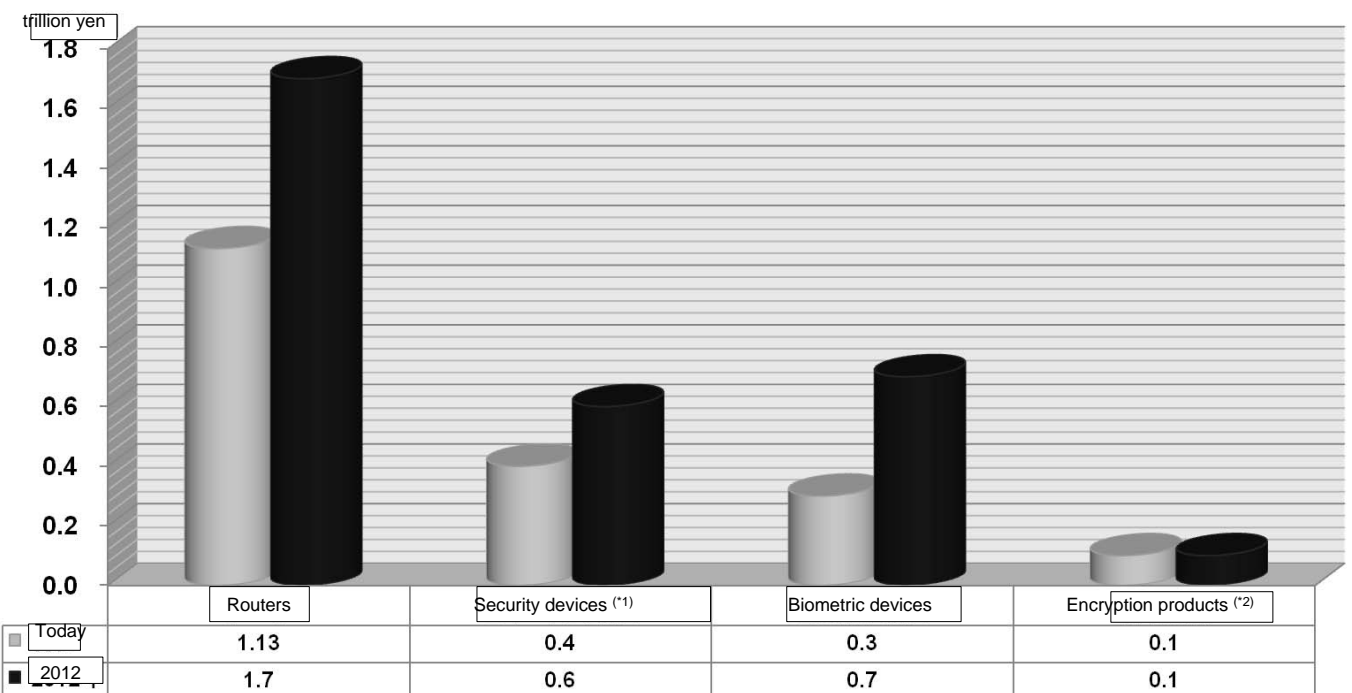
Enhancement of information security measures

- In order to deal with the more sophisticated and more complex information security threats that come with the rapid diffusion of new ICT technologies and changes in the user environment, enhancement to information security measures are being promoted comprehensively from three aspects: “Networks,” “People,” and “Technological development.”
- In addition, by deploying the results achieved globally, safety and security in ICT can be realized on a global scale.



Realizing Safety/Security in Information Communications (ICT)(2)

Current and forecasted global market size of the information security sector



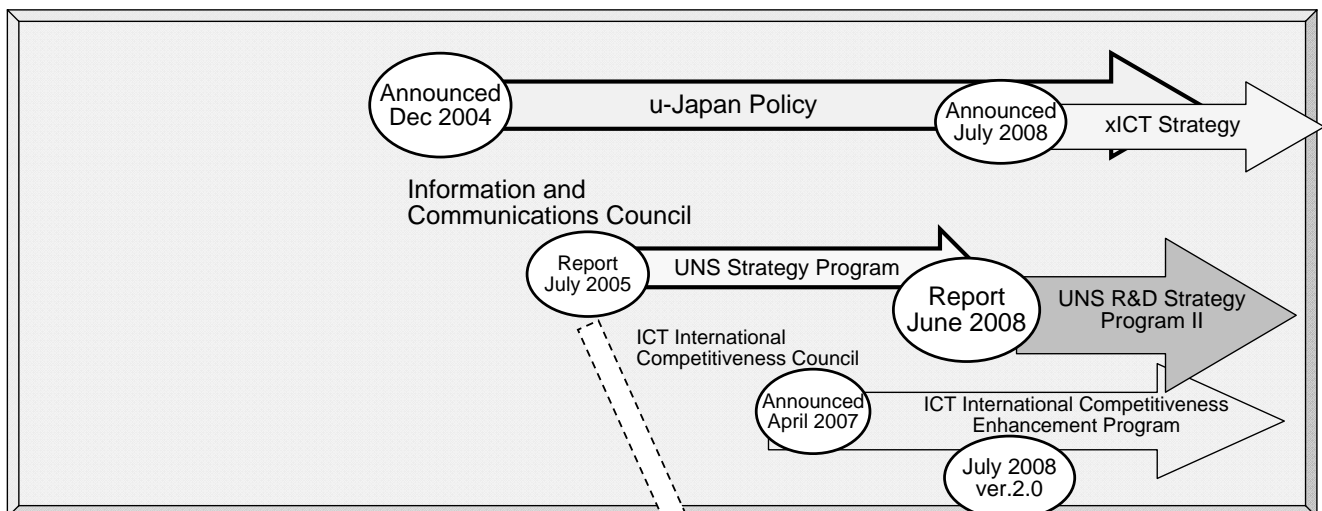
(*) Includes firewall devices, Intrusion Detection Systems (IDS), and Intrusion Prevention Systems (IPS).
 (**) Includes encrypted mail, encrypted Web/browser, data/file encryption software/encryption devices.

5. Future Outlook for ICT Policies

Policy Trends Surrounding ICT Research and Development

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
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● Ministry of Internal Affairs and Communications (MIC)



○ National Institute of Information and Communications Technology (NICT)

CRL	NICT Mid-Term Plan (First)	NICT Mid-Term Plan (Second)
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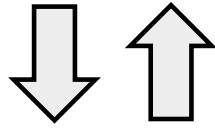
Standardization Bodies in Japan

<International>

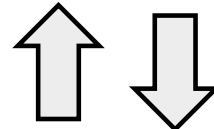
International Std. bodies / fora



down-stream



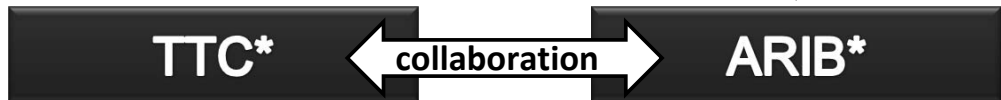
up-stream



down-stream

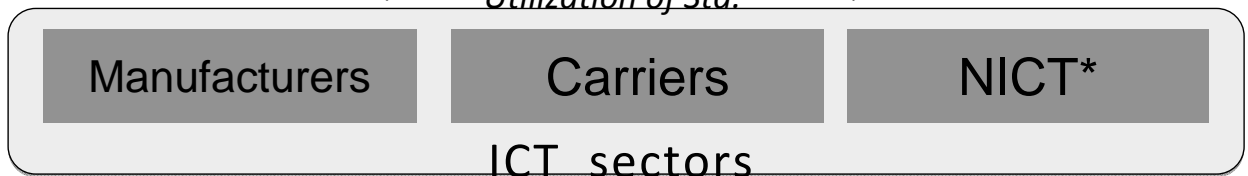
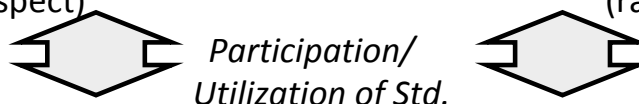
<Japan>

National Std. bodies



(network aspect)

(radio aspect)



(*Note) TTC: Telecommunication Technology Committee
 ARIB: Association of Radio Industries and Businesses
 NICT: National Institute of Information and Communications Technology

Issues and Strategies Supporting International Standardization in Japan

Issues Concerning International Standardization in Japan

Strategic Standardization

It is necessary that industry, academia, and government collaborate to conduct standardization integrated with R&D and intellectual property strategies.

Reinforcing Regional Cooperation

It is necessary that the Asia-Pacific region collaborate to advance international standardization.

Fostering Human Resources

There are many chairs/vice-chairs from Japan working in ITU but there is a shortage of young and middle-level personnel.

For Japan to participate in strategic standardization activities while reinforcing human resource development and regional collaboration, the ICT Standardization & Intellectual Property Promotion Center that plays a central role is needed.

Draw an ICT International Standardization Strategy Map

- Industry, academia & government collect and share the latest information on international standardization
- Analyze & organize standards developments

Draw an ICT Patent Map

- Assess patent positions
- Discover undeveloped R&D fields
- Make prior responses to intellectual property issues

Make ICT International Standardization Promotion Guidelines

- Introduce examples of international standardization
- Enlighten managers about international standardization activities

Conduct ICT Standardization Projects

Teams of industry, academia & government conduct demonstration experiments and international standardization respond to international standardization

Establish a Standardization Experts Program

A program for fostering upcoming personnel using standardization experts at universities and research agencies

ICT Standardization & Intellectual Property Promotion Center

Support Corporate Standardization Activities

- Subsidize expenses for travel to standardization conferences
- Use of the latest information
- Use of personnel development policies
- Project organization

Reinforce Collaboration in the Asia-Pacific Region

- Joint research through collaboration in Asia
- Promotion of project planning & proposals
- Human resource development in Asia

Thank you for your attention



総務省

Ministry of Internal Affairs and Communications

