PR Materials for Overseas Press

Information and Communications in Japan 2004

Feature: Building a Ubiquitous Network Society That Spreads Throughout the World

July 2004

Ministry of Public Management, Home Affairs, Posts and Telecommunications

Outline of *Information and Communications in Japan 2004*

Characteristics of *Information and Communications in Japan 2004*

- An analysis is made of the current status in Japan of realization of a ubiquitous network that allows all users to access and exchange information of any kind freely at any time, from anywhere, and from any appliance through the use of broadband and mobile access as well as intelligent home appliances and RFID tags that can access networks.
- Also, the current status of Internet access by “anyone, at any time, from anywhere” and the expectations for ubiquitous network services in the future are analyzed and explained.
- In addition, issues that must be addressed for the realization of a ubiquitous network society in the future such as ensuring the security of information and bridging the digital divide and the impact of markets related to a ubiquitous network on the economy are analyzed.

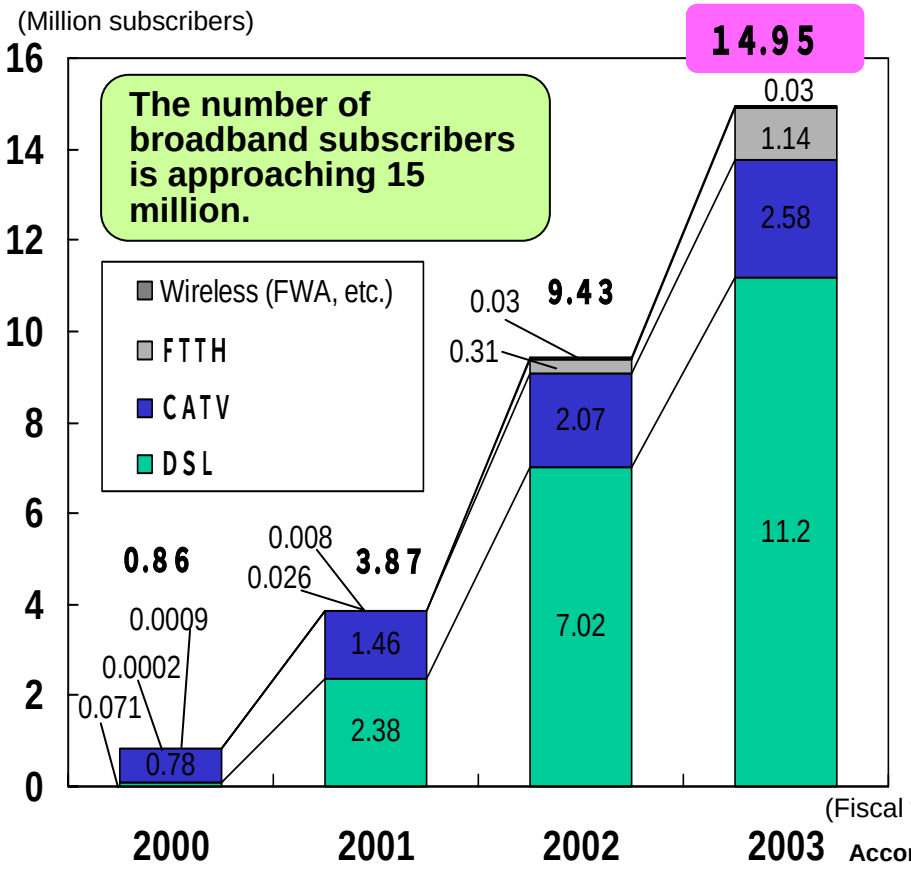
Contents of *Information and Communications in Japan 2004*

1. Current Status of Networks

(1) Broadband Is Expanding Rapidly

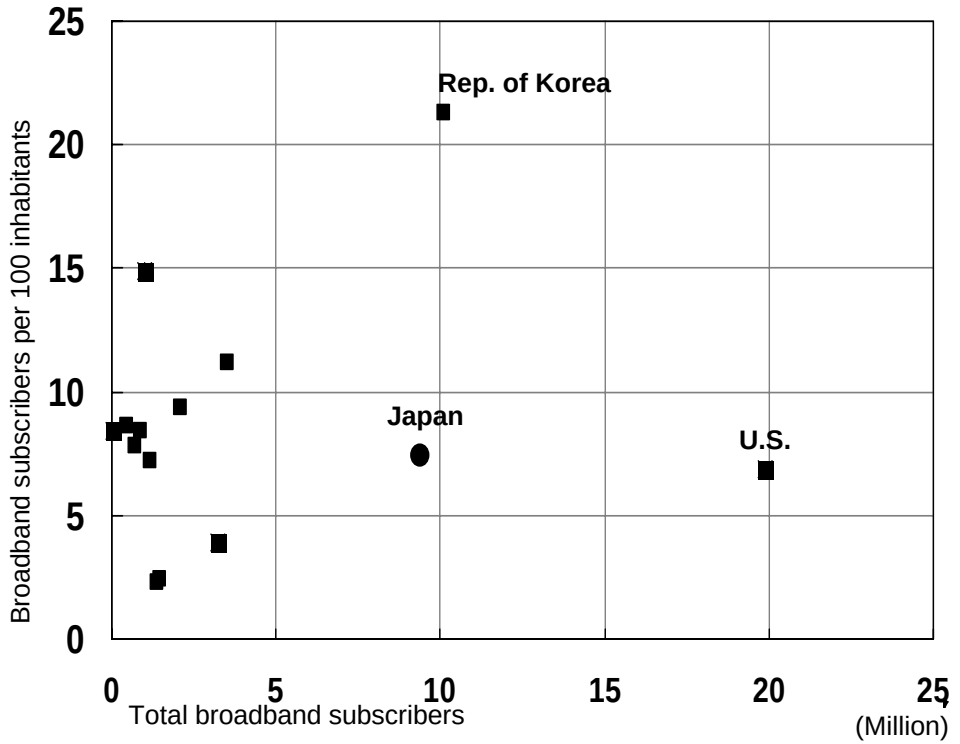
- ◇ **The number of broadband subscribers is approaching 15 million (Figure 1)**
- ◇ **Japan has the third largest number of broadband subscribers in the world. Per capita, Japan is the ninth in the world (Figure 2).**

Figure 1. Number of Broadband Subscribers (end of Fiscal 2003)



According to MPHPT investigations

Figure 2. International Comparison of Total Broadband Subscribers and Subscribers per 100 Inhabitants (2002)

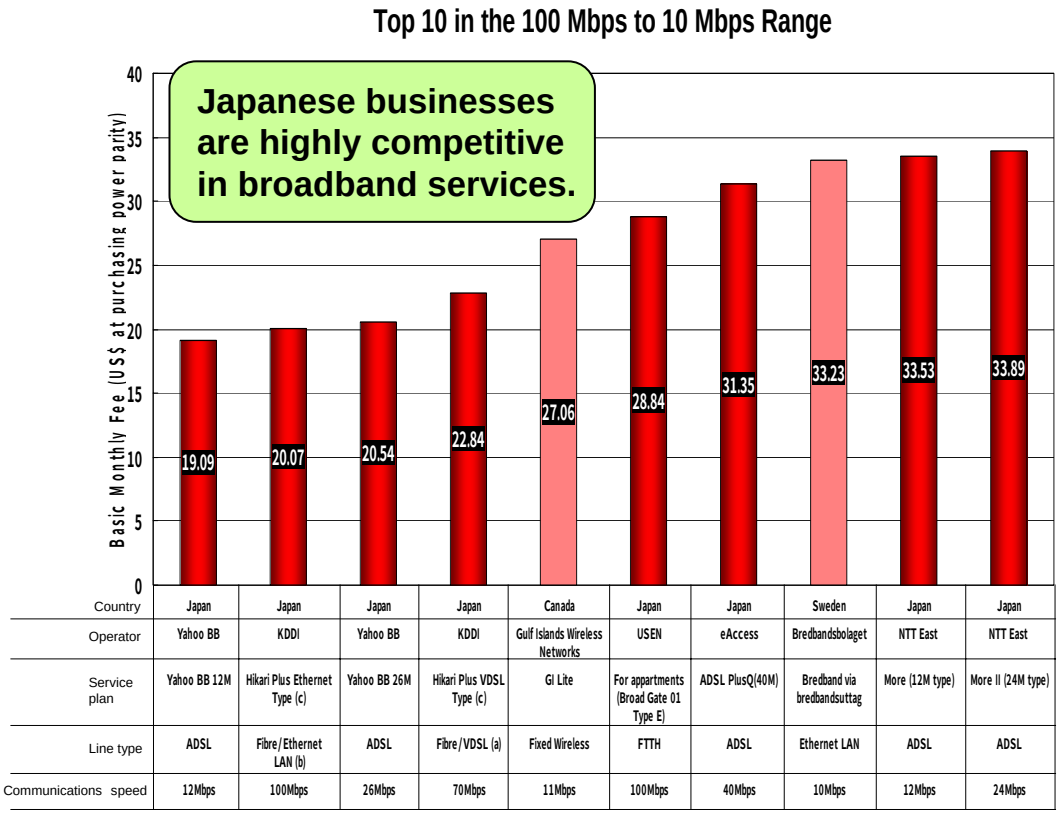


Produced by the MPHPT based on ITU documents

(2) Japan's Broadband Services Are the World's Least Expensive, and Highest Speed

- ◇ **Japan's broadband services are so inexpensive monthly and high speed that of the top 10 broadband services provided by businesses in OECD countries, eight are offered by Japanese companies (Figure 1).**
- ◇ **A comparison of costs per 100 kbps also reveals that Japan has the world's lowest cost broadband services (Figure 2).**

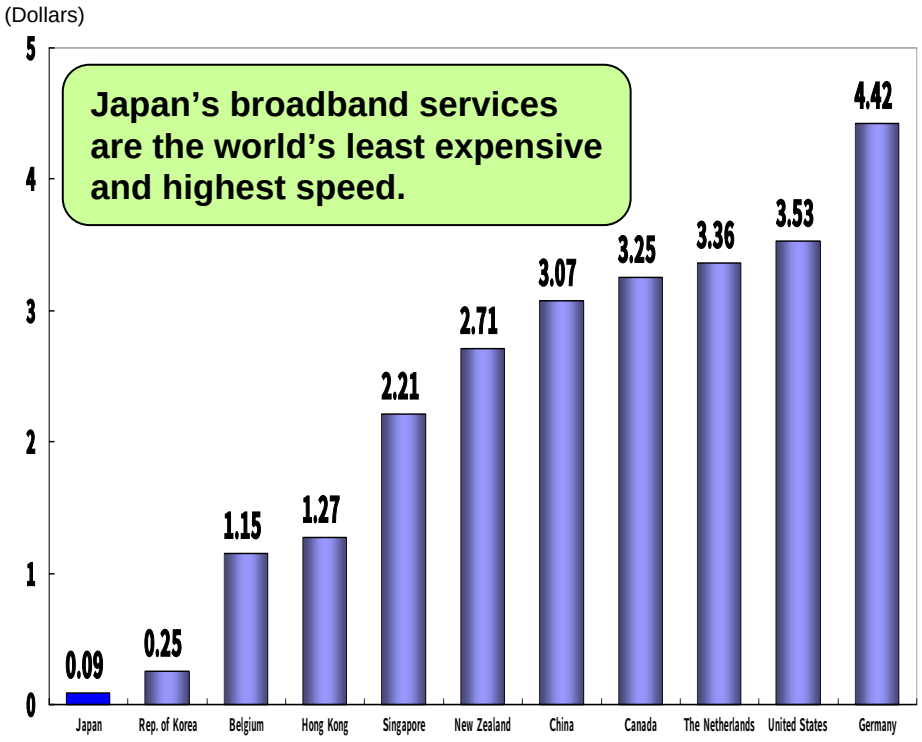
Figure 1. Comparison of Broadband Fees by Service in OECD Countries (October 2003)



Country	Japan	Japan	Japan	Japan	Canada	Japan	Japan	Sweden	Japan	Japan
Operator	Yahoo BB	KDDI	Yahoo BB	KDDI	Gulf Islands Wireless Networks	USEN	eAccess	Bredbandsbolaget	NTT East	NTT East
Service plan	Yahoo BB 12M	Hikari Plus Ethernet Type (c)	Yahoo BB 26M	Hikari Plus VDSL Type (c)	GI Lite	For appartments (Broad Gate 01 Type E)	ADSL PlusQ(40M)	Bredband via bredbandsuttag	More (12M type)	More II (24M type)
Line type	ADSL	Fibre/Ethernet LAN (b)	ADSL	Fibre/VDSL (a)	Fixed Wireless	FTTH	ADSL	Ethernet LAN	ADSL	ADSL
Communications speed	12Mbps	100Mbps	26Mbps	70Mbps	11Mbps	100Mbps	40Mbps	10Mbps	12Mbps	24Mbps

Produced based on OECD documents

Figure 2. International Comparison of Broadband Fees per 100 kbps (July 2003)



Note: Comparison of fees per 100 kbps

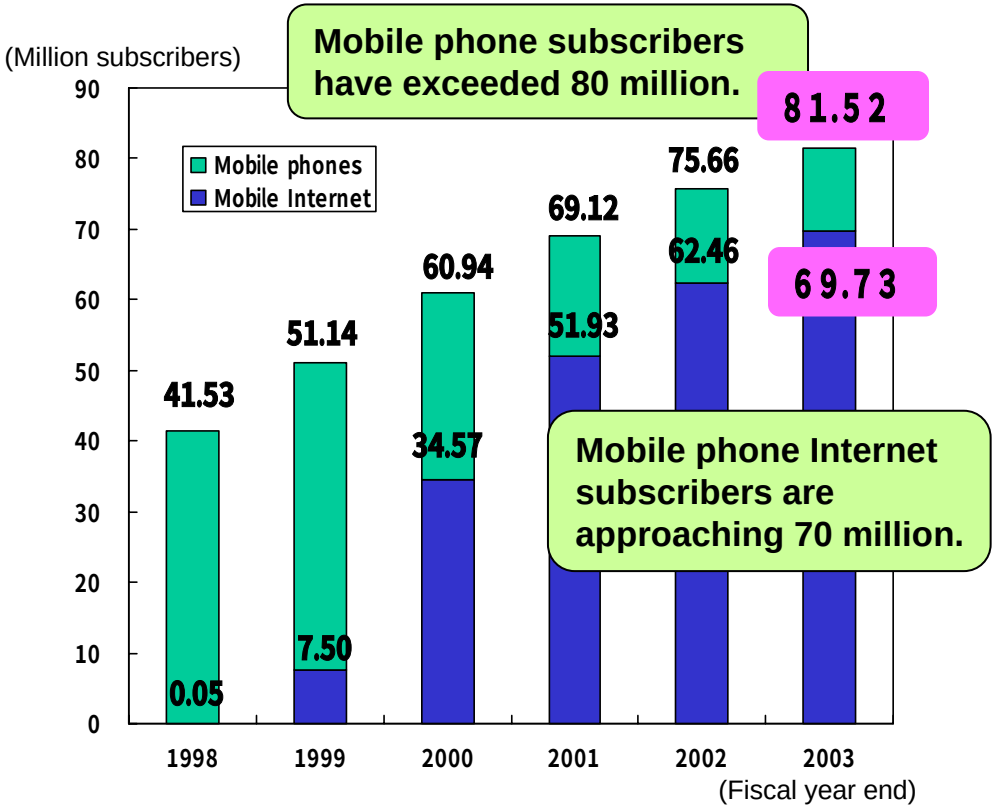
Produced based on ITU documents

(3) Japan Leads the World in Mobile Internet Access

◇ **The number of mobile phone subscribers has exceeded 80 million and the number of mobile phone Internet subscribers is approaching 70 million (Figure 1).**

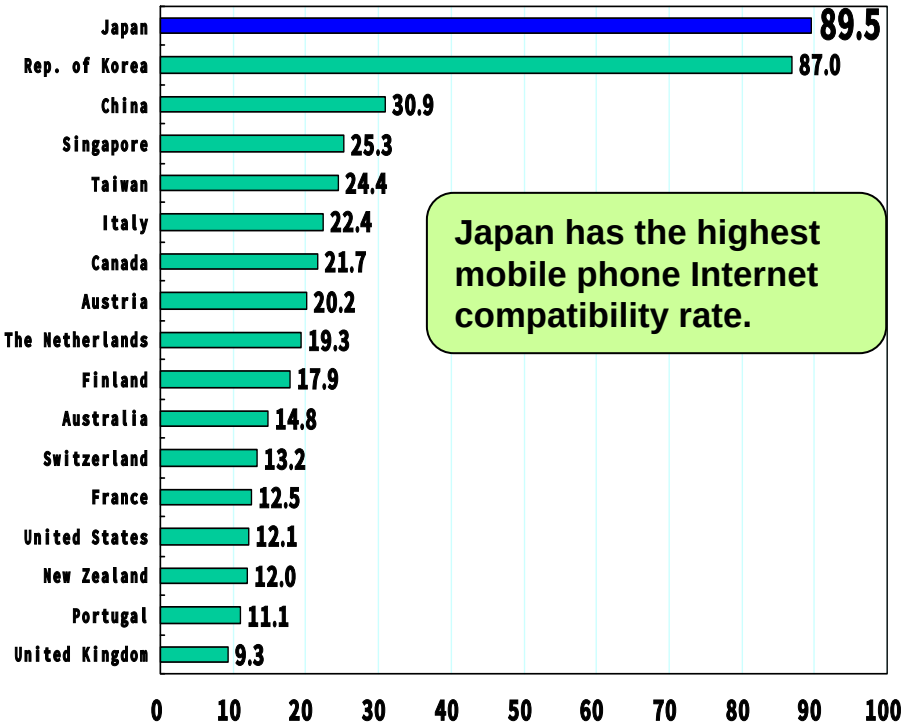
◇ **Japan's mobile Internet compatibility rate (89.5%) is the highest in the world (Figure 2).**

Figure 1. Number of Mobile Phone Subscribers and Number of Mobile Phone Internet Subscribers (end of fiscal 2003)



According to MPHPT investigations

Figure 2. Mobile Phone Internet Compatibility Rates* in Leading Countries (September 2003)



* Percentage of mobile phone subscribers that include mobile phone Internet access.

Produced from "3G Mobile" documents

(4) Mobile Terminals Are Also Advancing Rapidly

◇ The number of third-generation mobile phone subscribers has grown rapidly to 16.69 million in less than two and a half years (since the start of services in October 2001) (Figure 1).

◇ The number of mobile phone with digital camera subscribers is 47.86 million, exceeding 60% of all mobile phone subscribers (Figure 2).

Figure 1. Number of Third-Generation Mobile Phone Subscribers (end of Fiscal 2003)

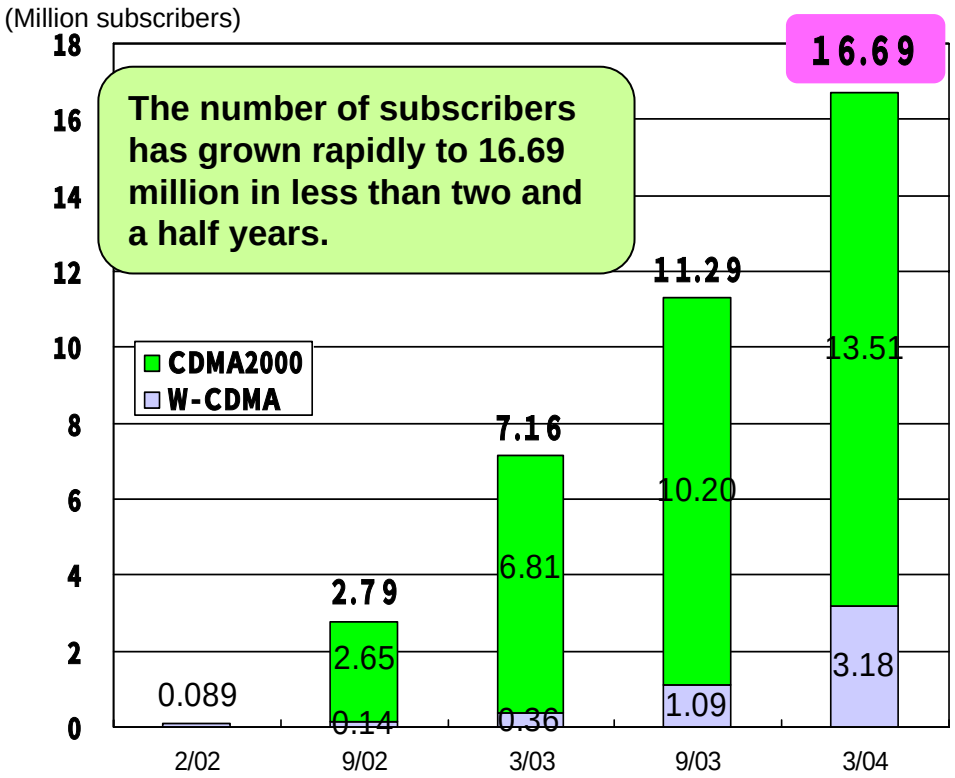
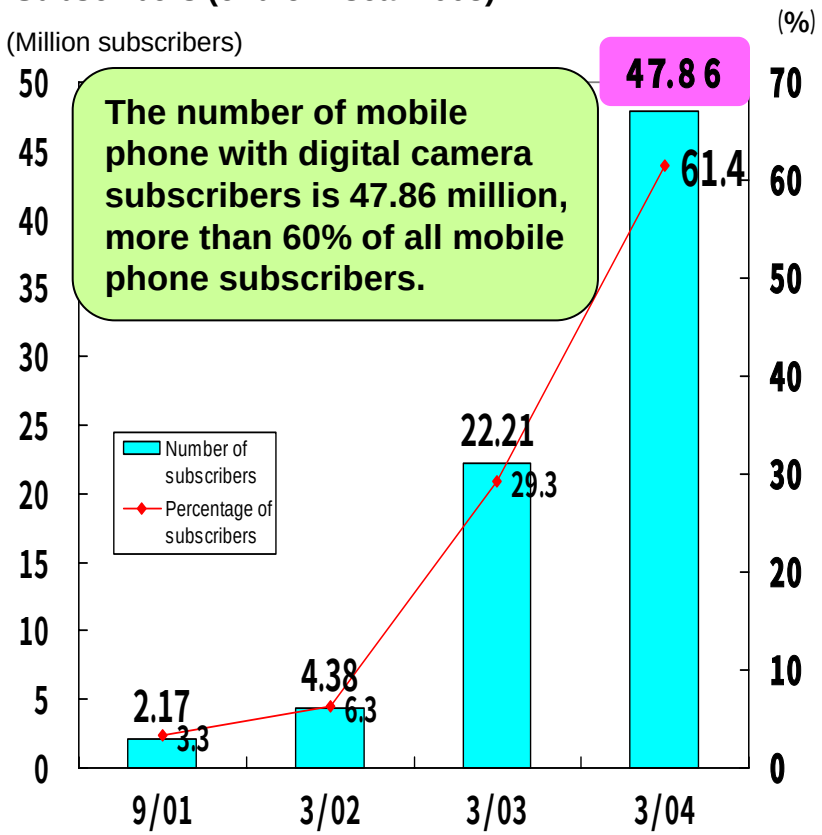


Figure 2. Number of Mobile Phone with Digital Camera Subscribers (end of fiscal 2003)



* Total number of NTT DoCoMo, KDDI, and Vodafone subscribers.

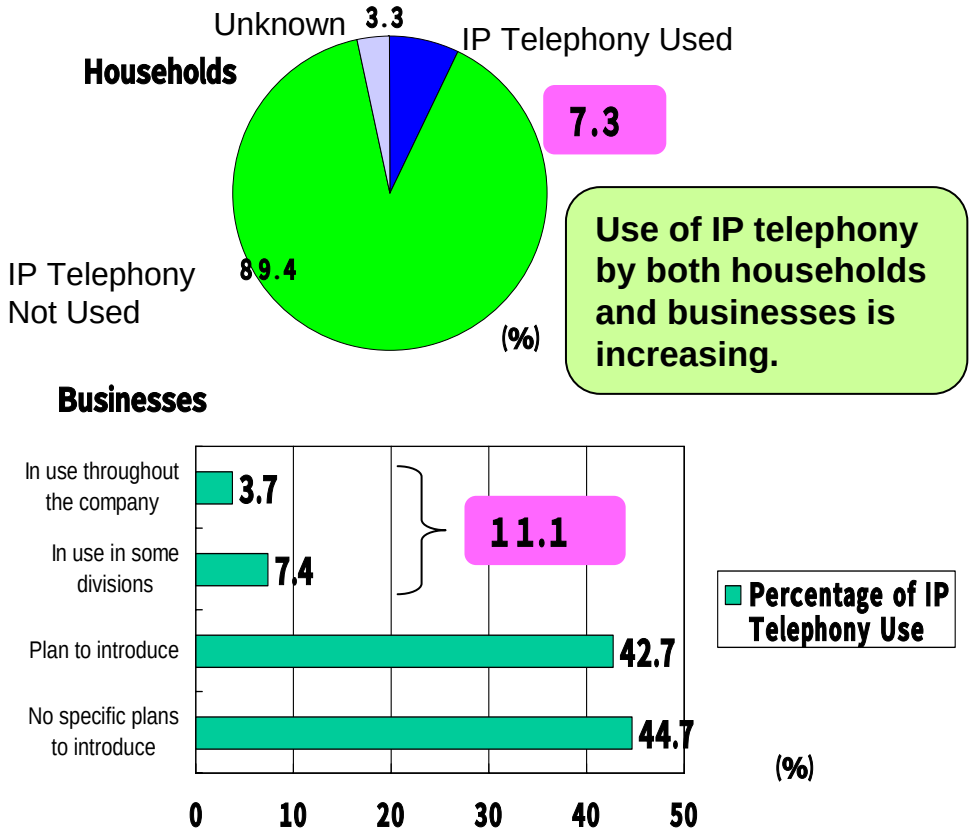
Produced based on Telecommunications Carriers Association Documents

Source: Survey of the Current Status and Issues of Networks

(5) IP Telephone and Hot Spots Are Steadily Increasing

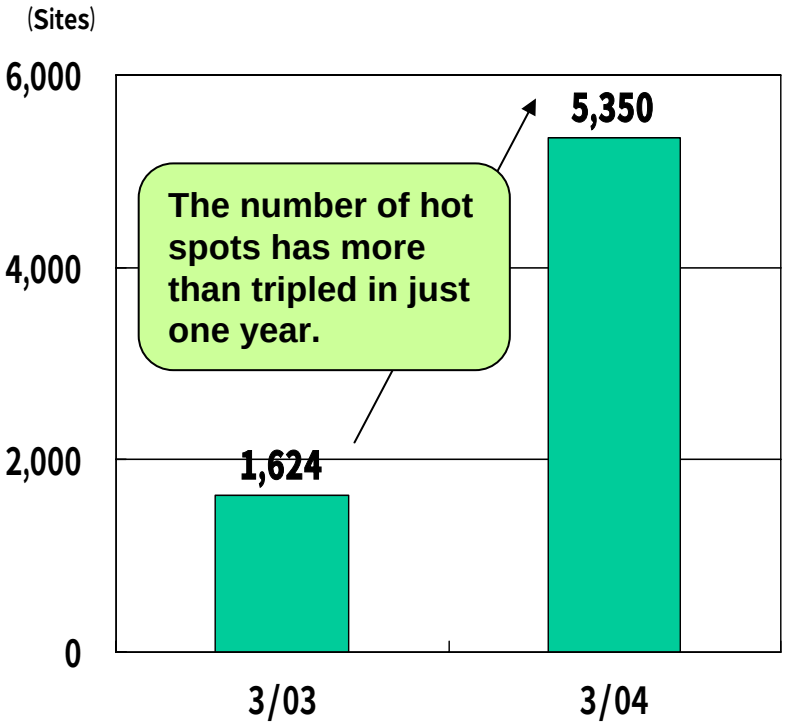
- ◇ **IP telephony has been introduced by 7.3% of households and 11.1% of businesses (Figure 1).**
- ◇ **The number of hot spots has more than tripled in just one year (Figure 2).**

Figure 1. Introduction of IP Telephony (end of 2003)



Source: Survey of Communications Usage Trend Survey in 2003, MPHPT

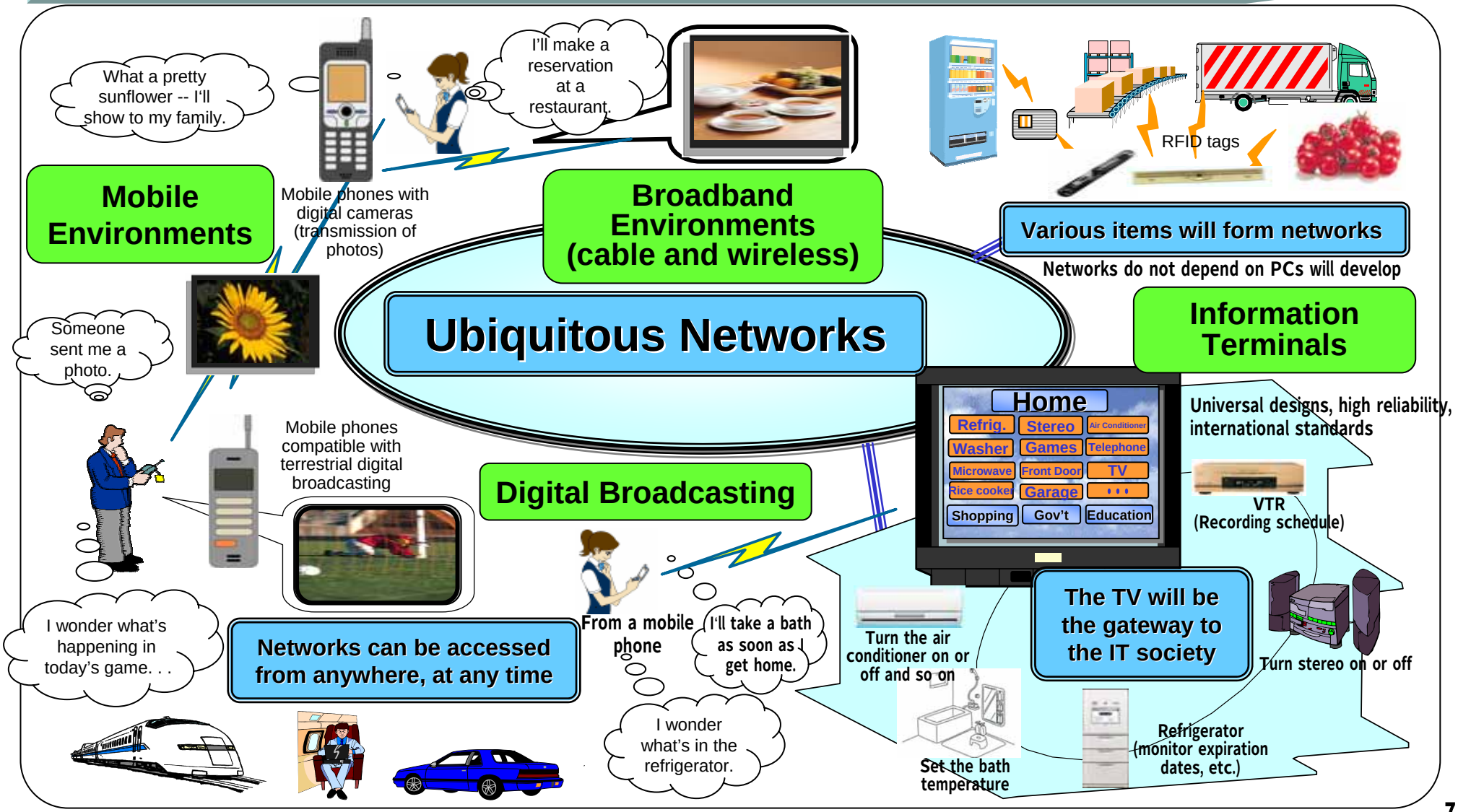
Figure 2. Change in Number of Hot Spots (end of fiscal 2003)



Source: Survey of the Current Status and Issues of Networks

(6) Ubiquitous Networks: Networks That Anyone Can Use Any Time From Anywhere and from Any Appliance

Advances in broadband, mobile services, digital broadcasting, and information terminals will give rise to a virtuous cycle and will lead to the development of ubiquitous networks.

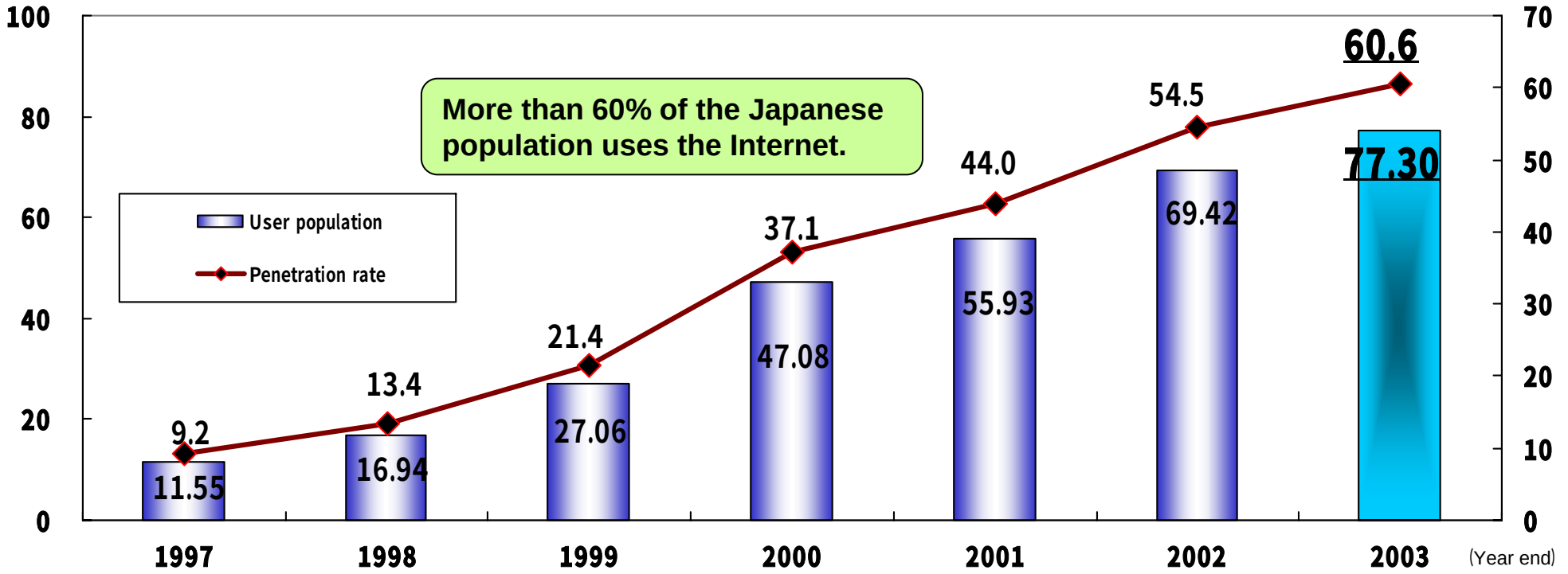


2. Expectations of Users

(1) The Internet Penetration Rate Has Exceeded 60%

The number of Internet users in Japan is 77.3 million, exceeding 60% of the population for the first time.

Transitions in the Internet User Population and Penetration Rate



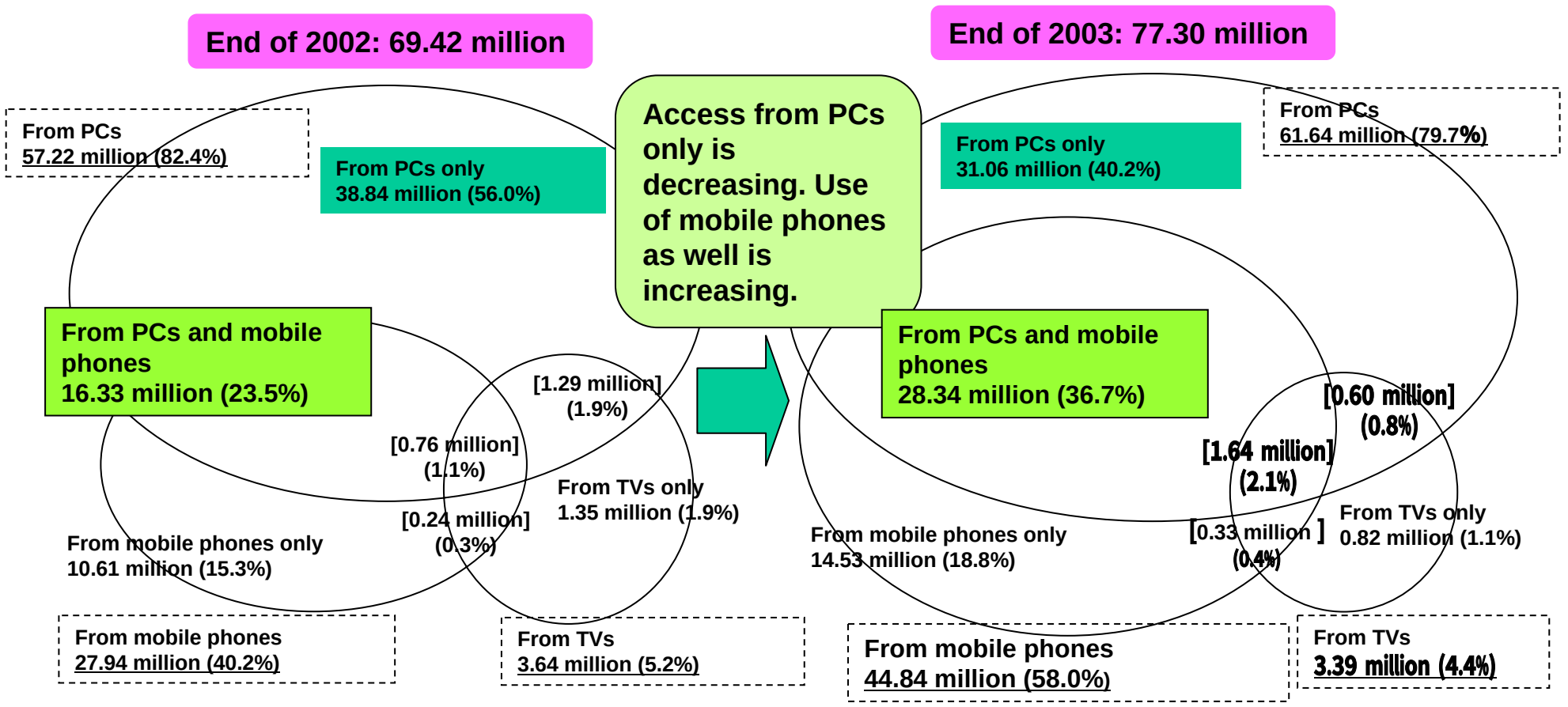
Source: Communications Usage Trend Survey, MPHPT

Notes:
1. The above population of Internet users, includes persons who use one or more of a PC, mobile phone, PHS, mobile information terminal, game machine, or television, etc. to use the Internet.
2. The percentage of Internet users at the end of 2003 (60.6%) was calculated by dividing the estimated number of Internet users of 77.30 million (from this survey) by the total population at the end of 2003 of 127.52 million (from the Japan's Projected Future Population (medium variant) by the National Institute of Population and Social Security Research).
3. Figures for 1997 to 2002 were taken from White Paper: *Information and Communications in Japan* (White Paper: *Communications in Japan* up to 2000).
4. In these estimates, the subject age group is expanding each year because of the increase in users who are senior citizens or elementary and junior high school age, so simple comparisons with data from 2000 and earlier are not possible (until the end of 1999, the age range was 15 to 69, at the end of 2000 it was 15 to 79, and since the end of 2001 it has been age 6 and up).

(2) Access to the Internet at Any Time, from Anywhere

Internet access from PCs only is decreasing. There is a growing tendency for users to access the Internet from various appliance.

Number and Percentage of Internet Users by Type of Terminal



Notes:
1. The "mobile phones" category includes mobile phones, PHSs, and PDAs; the "TVs" category includes TVs and game machines.
2. Figures in brackets are the number of person falling in ellipses; figures in parentheses are the percentage ratio to all the Internet users age 6 and up.

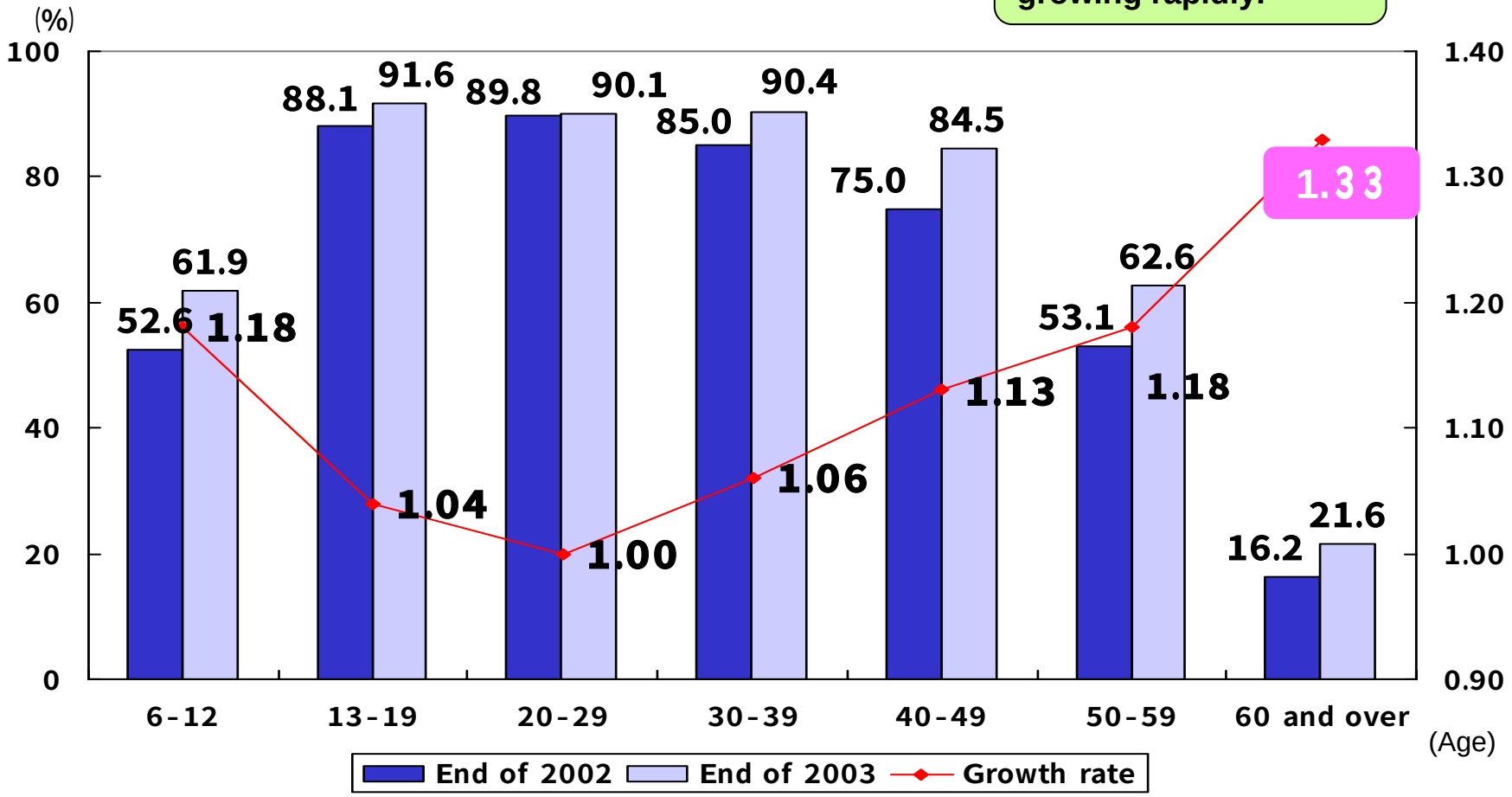
Source: Communications Usage Trend Survey, MPHPT

(3) Access to the Internet by Everyone

The fastest growth in Internet usage is seen in the 60 and older age group.

Internet Usage Rates and Growth Rates by Age Group

Use by the senior is growing rapidly.



Source: Communications Usage Trend Survey, MPHPT

(4) Trends in Internet Usage

Internet usage in all scenes of daily life is increasing.

Internet Usage in Day-to-Day Activities

Time using the Internet

Percent in graph: Ratio of the Internet usage time in a certain lifestyle scene.

Internet usage is increasing at all times and in all lifestyle scenes.

Internet Usage Applications (percentages of applications mentioned up to the second rank)

Rank	Getting ready for work, school, etc.	In transit	At school or work	Housework	Resting at home	Leisure, etc.
1st	Send/receive e-mail 67.3%	Send/receive e-mail 75.0%	Send/receive e-mail 63.2%	Send/receive e-mail 62.5%	Send/receive e-mail 54.6%	Send/receive e-mail 59.8%
2nd	Weather forecasts 25.6%	Transportation, time table, maps 24.6%	Search engines 33.4%	News, etc. 17.4%	Prize contests, free items application 20.5%	Transportation, time table, maps 20.4%
3rd	News, etc. 24.4%	News, etc. 21.1%	News, etc. 28.4%	Prize contests, free items application 11.9%	Search engines 15.9%	Weather forecasts 19.3%

Source: Survey of Personal Activities in a Ubiquitous Network Society

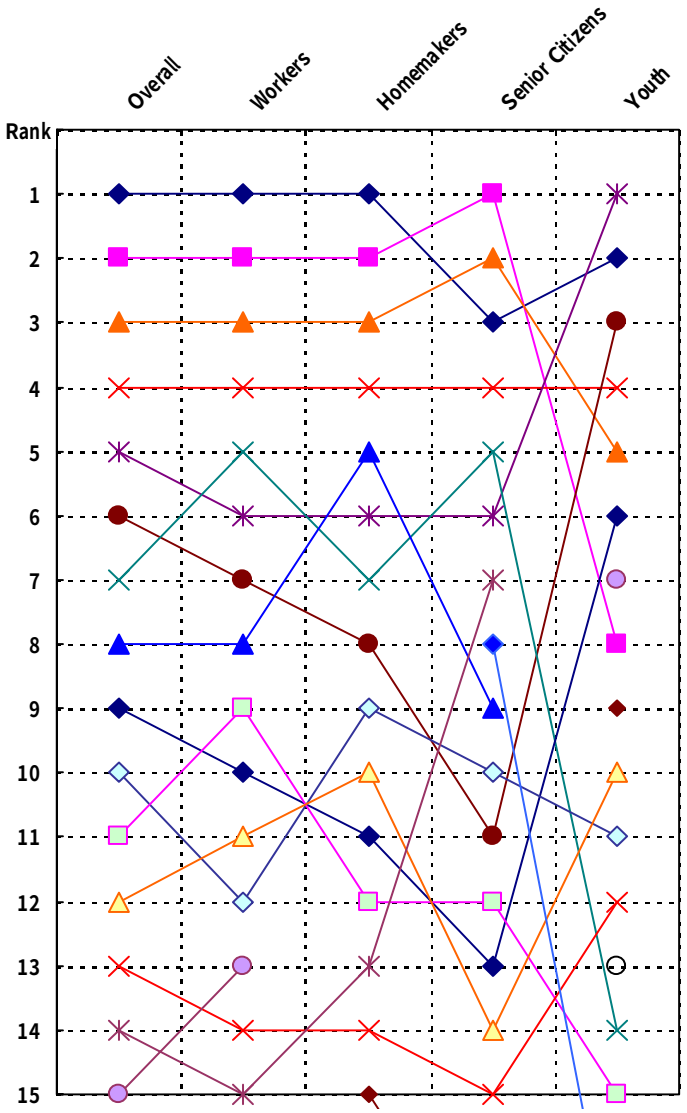
(5) Intent to Use Ubiquitous Network Services

The intent to use ubiquitous network services that provide a sense of security is high.

Intent to Use Ubiquitous Network Services

The intent to use ubiquitous network services that provide a sense of security is high.

1. Notice to self in case of danger to important persons or objects (family, parents, house, car, etc.) (87.2%)
2. Reductions in diagnosis or waiting time through the use of electronic medical charts by doctors to record medical information (83.7%)
3. Receive treatment from medical specialists in a remote location at a nearby hospital in the event of a medical emergency (83.0%)
4. Monitor one's house when not at home and send notice automatically to self or a security company in case of a problem (81.0%)
5. Check where lost items (such as a wallet or an umbrella) are by simply attaching a low-cost sticker (80.5%)
6. Enter movie theaters and concert halls and pass through toll gates, station turnstile, and parking garage gates effortlessly by simply holding up an IC card or mobile phone (79.2%)
7. Ablity to obtain administrative services such as issue of certificates of residence or seal impressions, make filings for tax return, and vote in elections securely via the Internet (78.6%)
8. Monitor young children, seniors living alone, and pets who are out of sight (such as at nursery school or home alone) (75.5%)
9. Enjoy overseas travel by using a mobile phone with search functions for tourism sites, automatic translation functions, guide information, and support by TV phone functions (74.0%)
10. Identify different types of medicines simply by bringing a mobile phone, etc. nearby and display warnings concerning combinations of different medicines, preventing misuse and side effects (73.4%)
11. Safer and more comfortable driving supported by functions incorporated into the vehicle including advanced navigation functions and automated controls (73.1%)
12. Purchase products with a sense of security by obtaining safety and other information by using a mobile phone to read a chip or bar code attached to the products (73.0%)
13. Remotely operate electronic appliances (such as an air conditioner, a hot water heater, and a rice cooker) from outside the home using simply commands on a mobile phone or other device (70.9%)
14. Obtain information concerning safe routes such as ramps and elevators and provide notice to nearby facilities in the event of an emergency so the senior and the disable can go out with a sense of security (70.0%)
15. Use the same settings on a shared or borrowed PC as on one's own PC by using an IC card (68.5%)
16. Obtain advertisements, discount coupons, and other infomration from shops when going out (walking or driving in a car) by registering in advance (67.6%)
17. Automatically collect health data through the use of electronic appliance in day-to-day activities, have it assessed remotely by specialists, and when necessary conduct health consultations (66.0%)
18. Watch television on a mobile phone or other device while outside the home(59.0%)

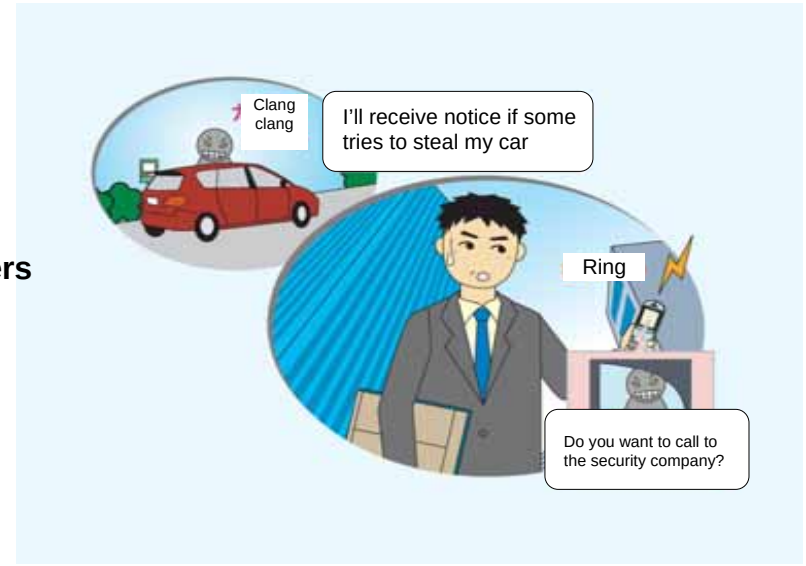


Source: Survey of Personal Activities in a Ubiquitous Network Society

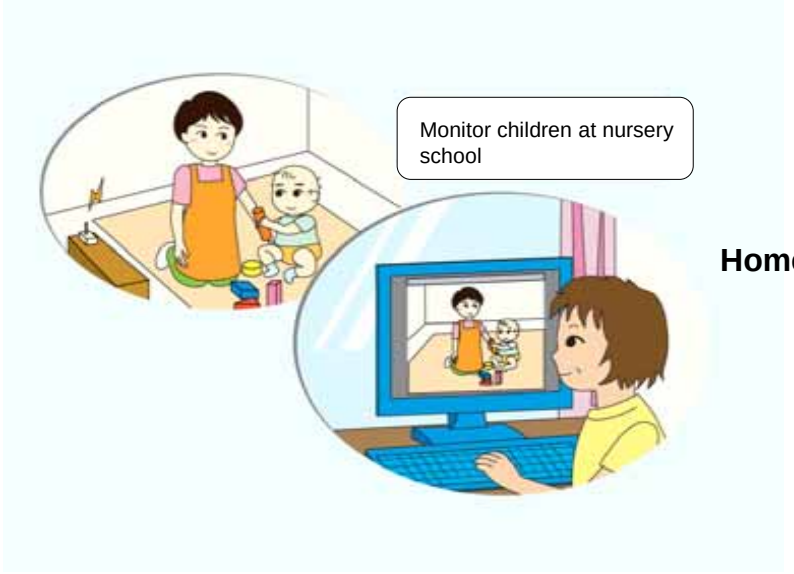
(5) Intent to Use Ubiquitous Network Services (continued)

Image of Expected Ubiquitous Network Services by User Characteristics

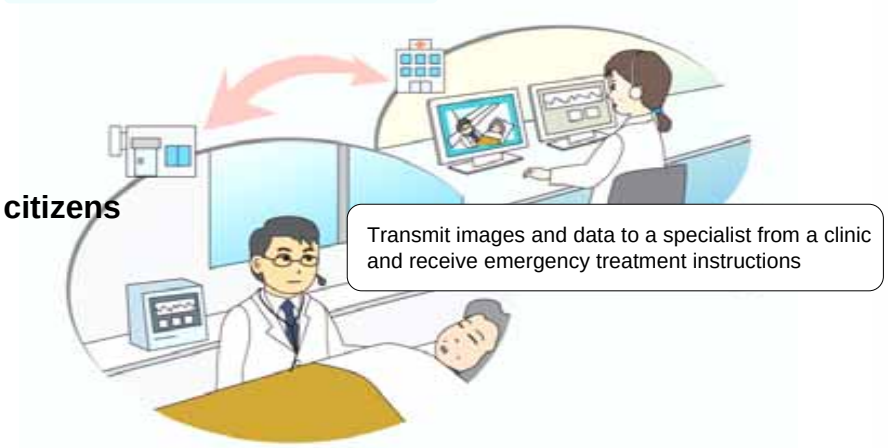
Workers



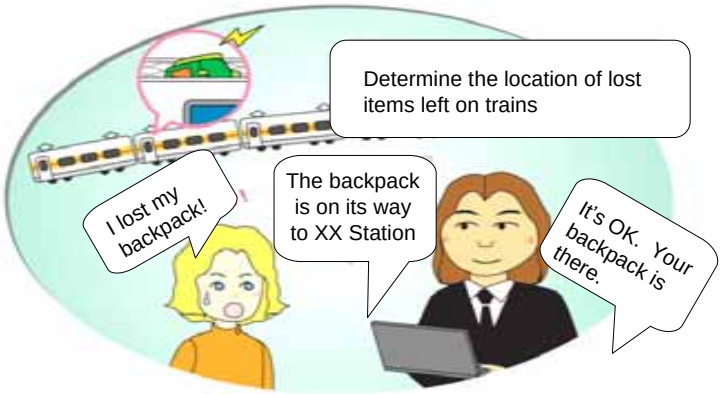
Homemakers



Senior citizens



Youth



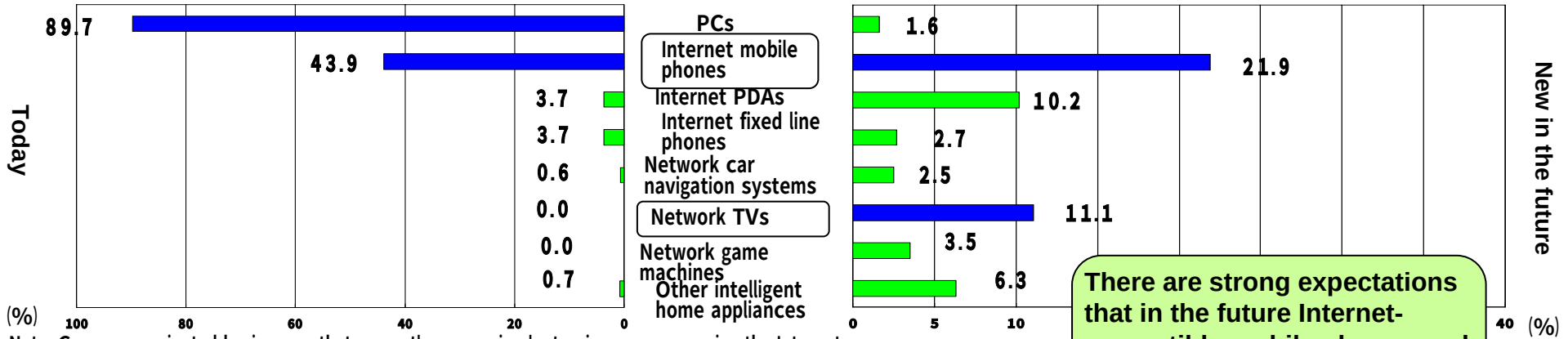
Source: Survey of Personal Activities in a Ubiquitous Network Society

3. Expectations of Business in Use of Ubiquitous Networks

(1) Devices and Terminals for use in Electronic Commerce and Sales Promotion Activities Using the Internet

Today PCs and mobile phones that are compatible with the Internet are commonly used, but there are expectations for network-compatible televisions in the future.

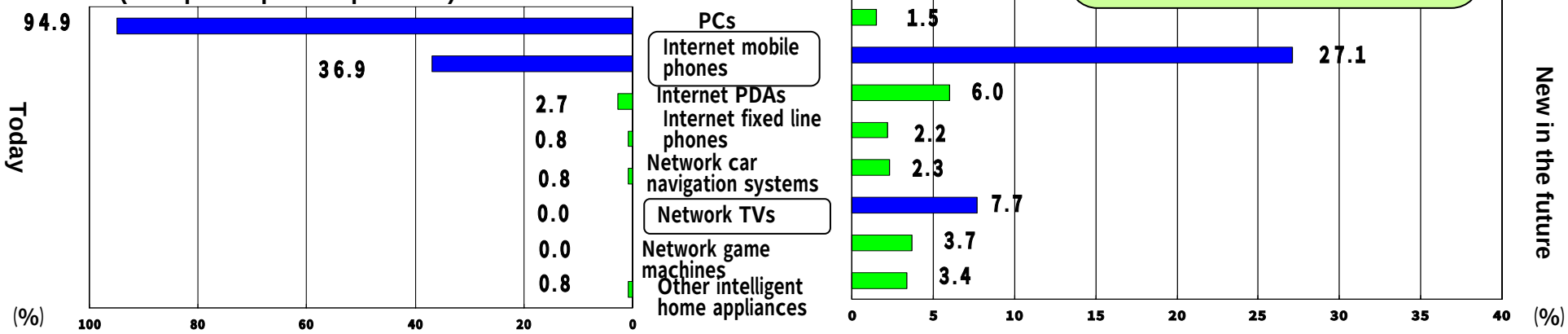
Figure 1. Devices and Terminals Used for Electronic Commerce Using the Internet (multiple responses possible)



Note: Consumer-oriented businesses that currently engage in electronic commerce using the Internet

There are strong expectations that in the future Internet-compatible mobile phones and network-compatible televisions will be used.

Figure 2. Devices and Terminals Used for Sales Promotion Activities Using the Internet (multiple responses possible)



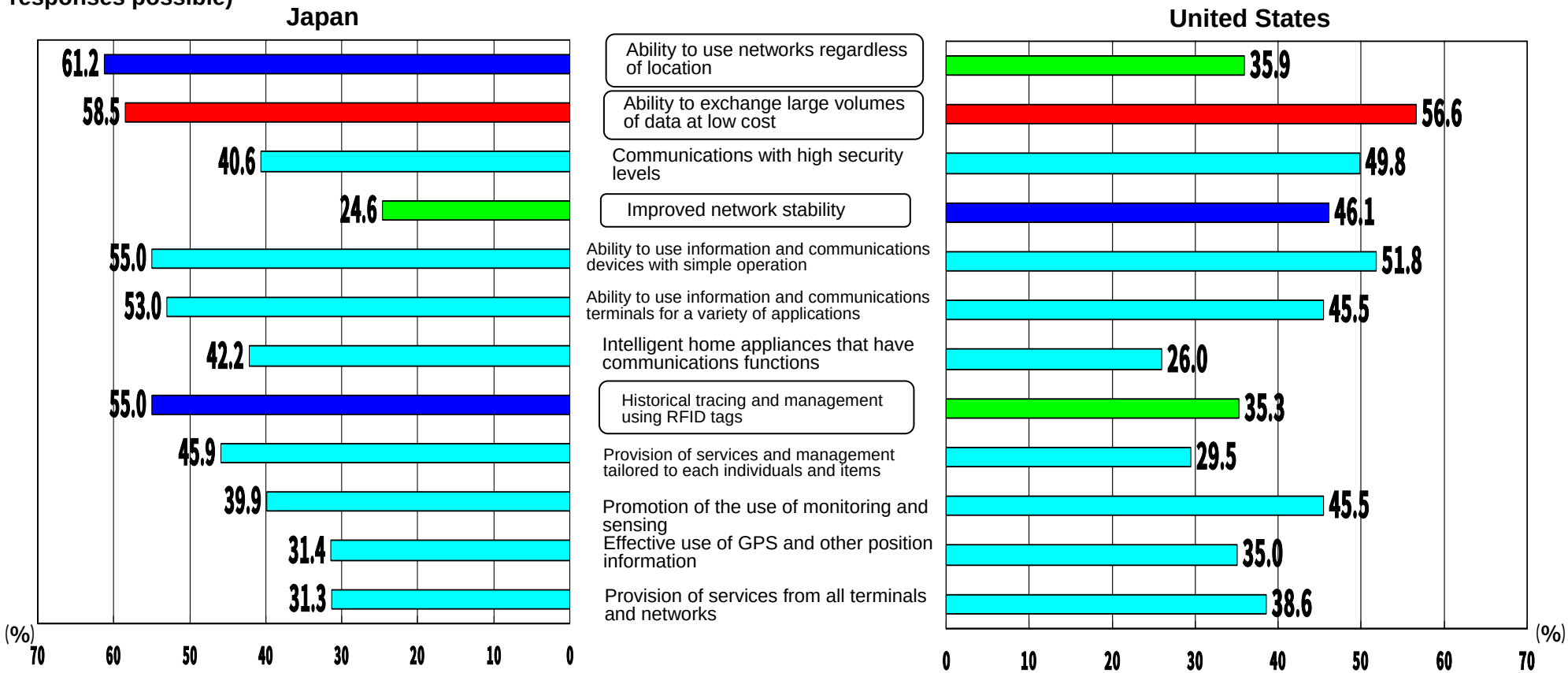
Note: Consumer-oriented businesses that currently engage in sales promotion activities using the Internet

Source: Survey of Ubiquitous Network Usage Trend by Businesses

(2) Merits of Ubiquitous Networks that will have an Impact on Business and Differences in Awareness in Japan and the United States

- ◇ **There are many businesses in Japan and the U.S. that believe an impact of ubiquitous networks on business will be the “ability to exchange large volumes of data at low cost.”**
- ◇ **Compared to in the U.S., in Japan there is a stronger awareness of the “ability to use networks regardless of location” and “ability to trace and manage historical data using RFID tags.”**
- ◇ **In the U.S., there is a higher awareness of “improved network stability.”**

Merits of Ubiquitous Networks That Will Have an Impact on Business and Comparison of Awareness in Japan and the U.S. (multiple responses possible)



Note: Comparison of percentages in companies engaged in business-to-business commerce

Source : Survey of Ubiquitous Network Usage Trend by Businesses

4. Realization of a Ubiquitous Network Society and Issues

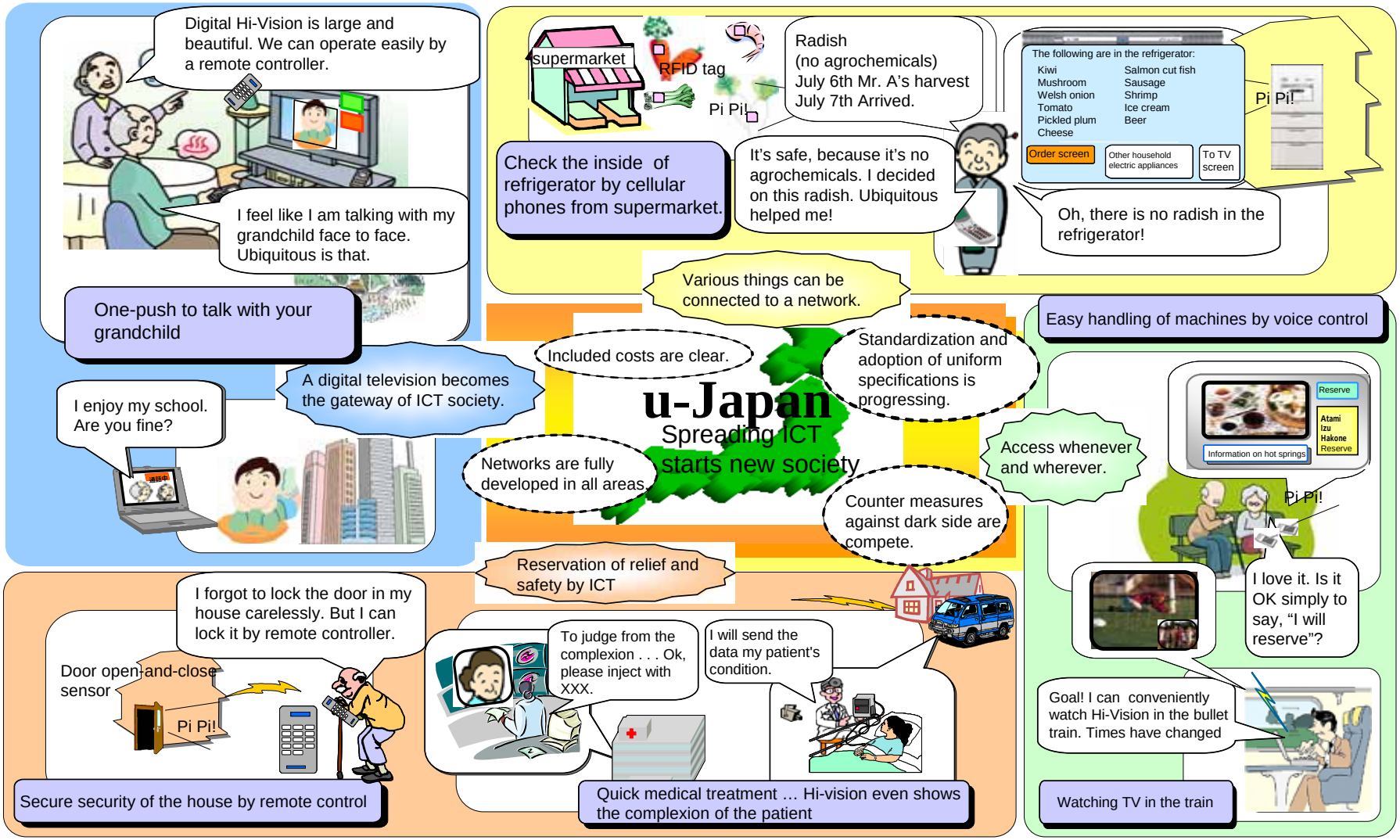
(1) Benefits from the Realization of a Ubiquitous Network Society

The realization of a ubiquitous network will bring about an "energetic," "worry-free," "convenient," and "exciting" society.

Characteristics of a Ubiquitous Network Society	Examples	Examples of Benefits			
		Energetic	Worry-free	Convenient	Exciting
Devices not previously used as information terminals will be made into terminals	• Intelligent home appliances, furniture, houses	• Measure, transmit, and store health data using home appliances	• Monitor the house while out and lock doors using a mobile phone	• Remote operation of home appliances such as confirming refrigerator contents using a mobile phone	• Use a TV for video conferencing with grandchildren at a remote location
Portable terminals that can be used without awareness	• Wearable information terminals	• Collect and store data such as respiration and heart rates while exercising	• Convey information on surroundings to the socially handicapped to ensure safety	• Obtain maps and other information while traveling	• Receive and enjoy music and movies at any time
Networks that can be used without an awareness of connecting	• RFID tags for personal certification. Transmission of personal information and location data	• Identify patients and obtain data without errors to prevent medical accidents	• Ensure security by identifying people entering home and offices	• Operate devices by voice without manual input and access networks	• Issue electronic tickets for concerts, etc. based on personal certification
Further expansion of broadband such as FTTH and 3G mobile phones	• Fixed line and wireless broadband networks	• Centrally manage health image data to allow access from anywhere	• Use high-quality video to convey treatment instructions to ambulance crews	• Participate in video conferences while outside the office	• Watch TV broadcasts on a mobile phone while moving outside
Digitalization of information not previously available in digital format	• Transmission of information concerning specific items and location data	• Detect medicines and prevent errors concerning dosages, combinations, etc.	• Use historical data concerning foods to ensure safety	• Attach low-cost RFID tags to items to find them if they are lost	• Devices identify display items in museums and provide explanations

Source: Survey of Personal Activities in a Ubiquitous Network Society

(2) Ubiquitous Network Society Image in 2010 (u-Japan)



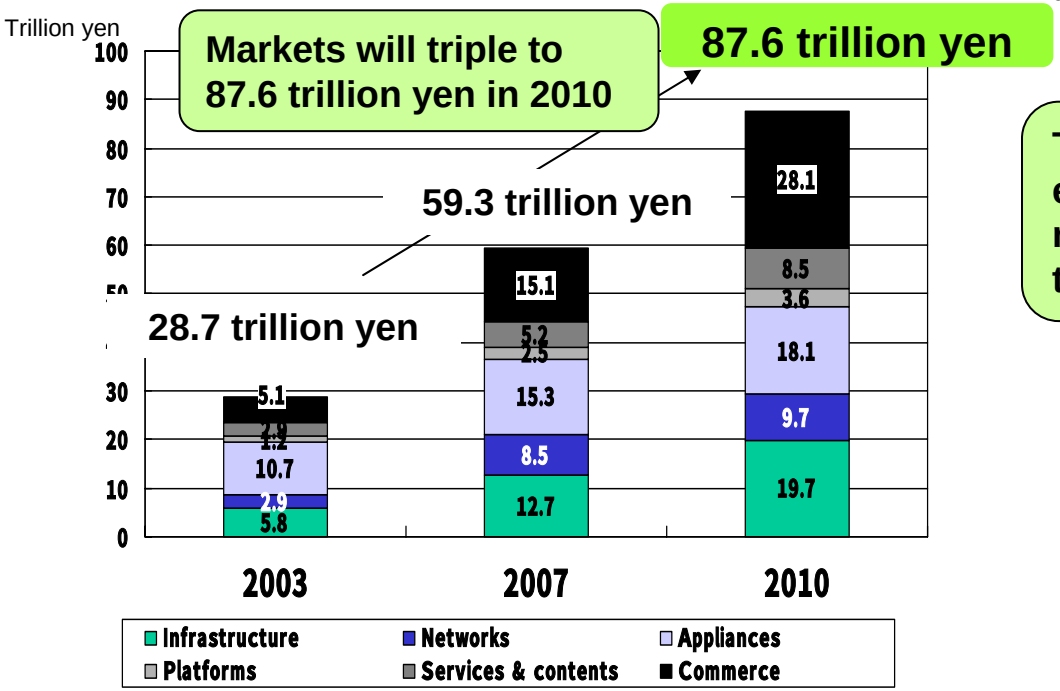
Source: Policy Roundtable for Ubiquitous Network Society

(3) Ripple Effect of Ubiquitous Network Related Markets on the Economy

◇ **Ubiquitous network related markets will reach 87.6 trillion yen in 2010. The cumulative value in the eight years from 2003 will be 449.1 trillion yen (Figure 1).**

◇ **The ripple effect of ubiquitous network related markets will be 120.5 trillion yen in 2010. The cumulative value in the eight years from 2003 will be 611.1 trillion yen (Figure 2).**

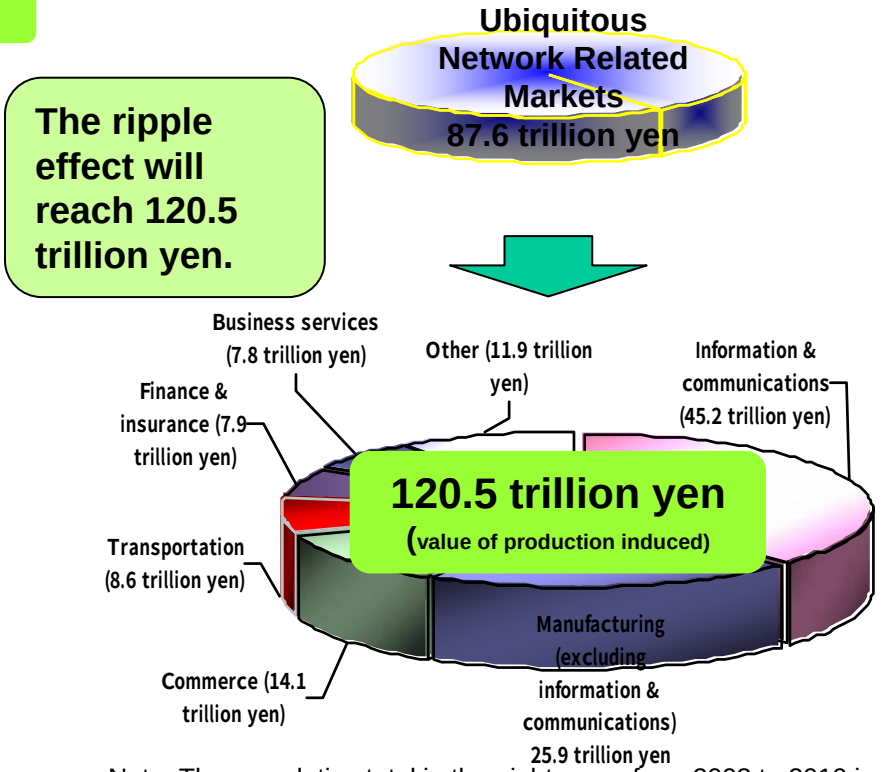
Figure 1. Estimated Scale of Future Ubiquitous Network Related Markets



Note: The ubiquitous network related markets referred to here is the total of: (1) infrastructure markets; (2) network markets; (3) appliance markets; (4) platform markets; (5) services and contents markets; and (6) B-to-C (business to consumer) electronic commerce markets and cashless commerce markets using RFID tags and non-contact IC cards.

Note: The cumulative total in the eight years from 2003 to 2010 is 449.1 trillion yen.

Figure 2. Ripple Effect of Ubiquitous Network Related Markets on the economy (value of production induced in all industries by ubiquitous network related markets)



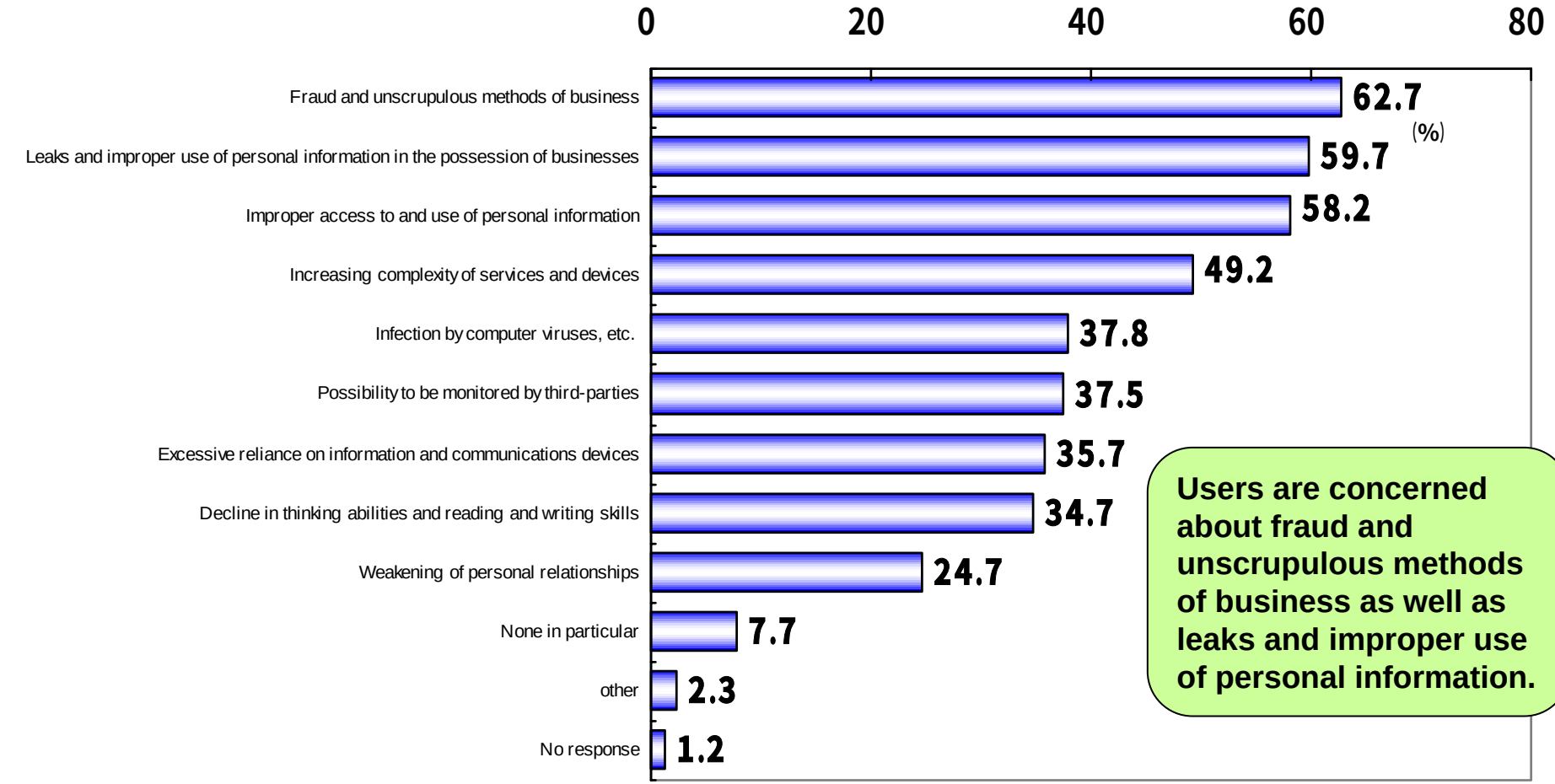
Note: The cumulative total in the eight years from 2003 to 2010 is 611.1 trillion yen.

Source: Survey on Economic Analysis of IT

(4) Concerns of Individuals relating to a Ubiquitous Network Society

Many users are concerned about fraud and unscrupulous methods of business as well as leaks and improper use of personal information.

Concerns Relating to the Use of Ubiquitous Network Services (multiple responses possible)



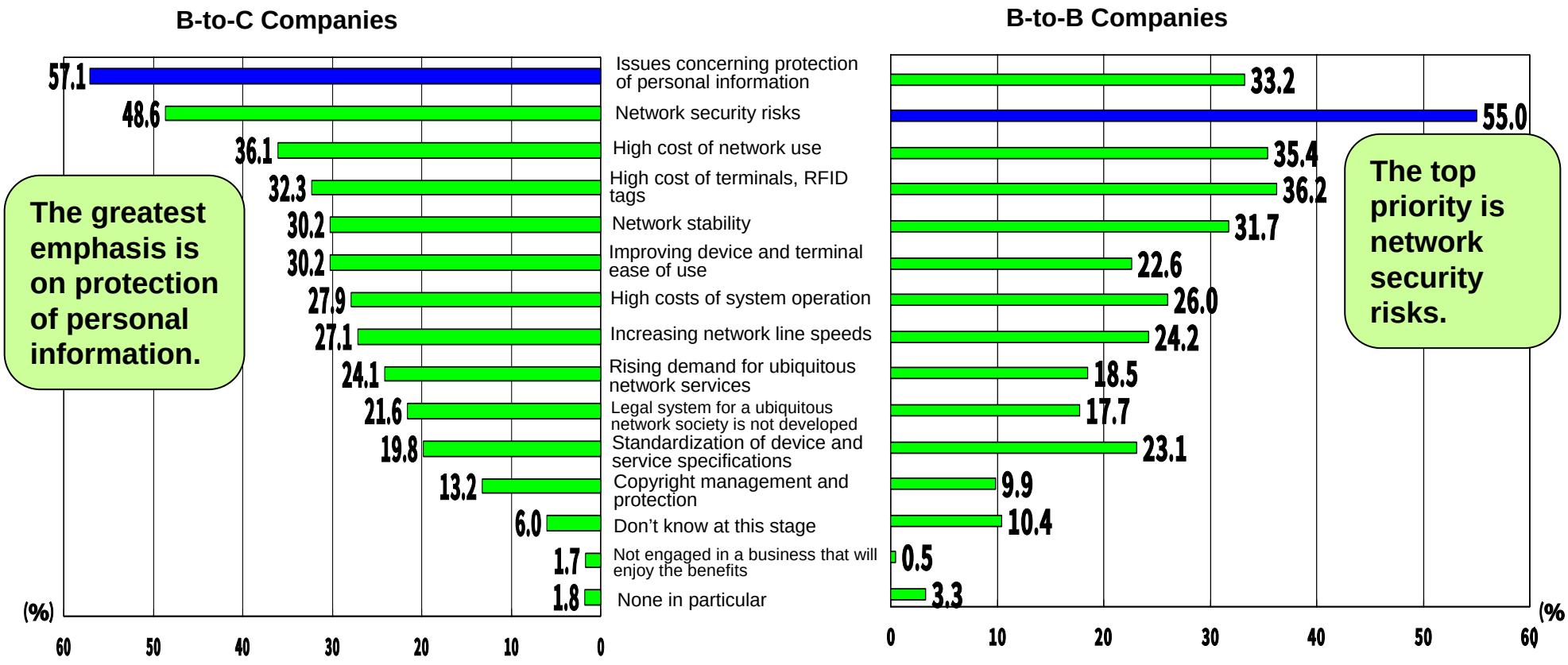
Users are concerned about fraud and unscrupulous methods of business as well as leaks and improper use of personal information.

Source: Survey of Personal Activities in a Ubiquitous Network Society

(5) Issues Concerning Businesses Towards the Realization of a Ubiquitous Network Society

- ◇ **Consumer-oriented companies place the greatest priority on “issues concerning protection of personal information.”**
- ◇ **In contrast, business-oriented companies are most concerned about “network security risks.”**

Issues that Need to be Resolved for Businesses to Enjoy the Benefits of a Ubiquitous Network Society



Source: Survey of Ubiquitous Network Usage Trend by Businesses

(6) Measures Taken by Individuals to Prevent Leaks of Personal Information

- ◇ **More than 70% of individuals do not take any measures to prevent leaks of personal information (Figure 1).**
- ◇ **The most common measure to protect personal information is not listing personal information on BBSs (Figure 2).**

Figure 1. Percentage of Individuals Taking Measures to Protect Personal Information

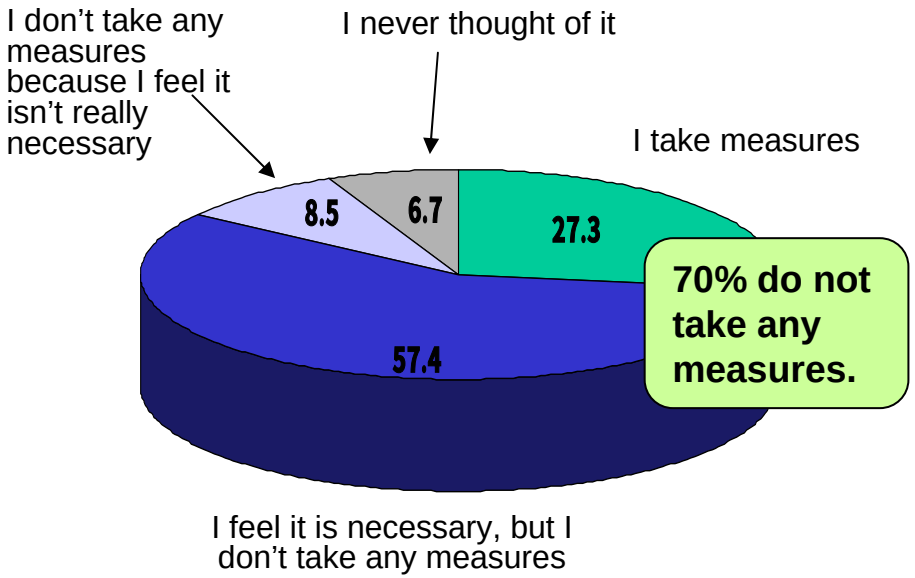
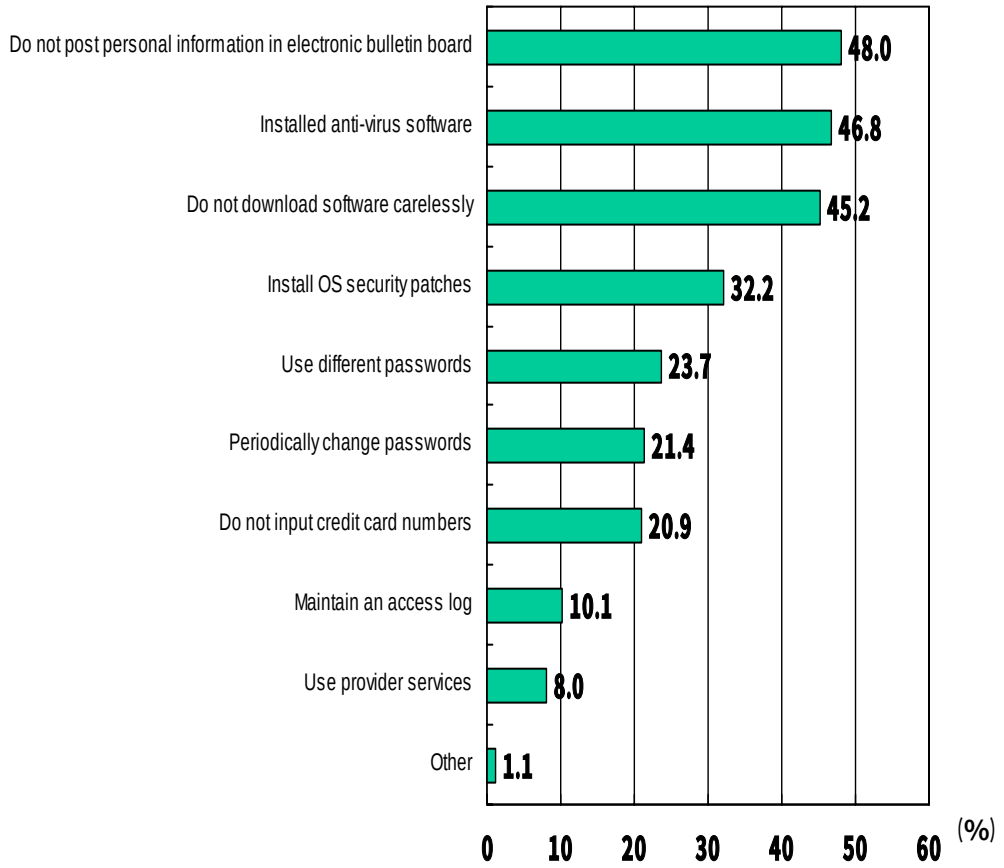


Figure 2. Measures Taken to Protect Personal Information (multiple responses possible)



Source: Survey of Personal Activities in a Ubiquitous Network Society

(7) Measures Taken by Businesses to Prevent Leaks of Personal Information

Many Companies do not take any measures in organizational, structural and technological areas (Figures 1 and 2).

Figure 1. Organizational and Structural Measures to Protect Personal Information (multiple responses possible)

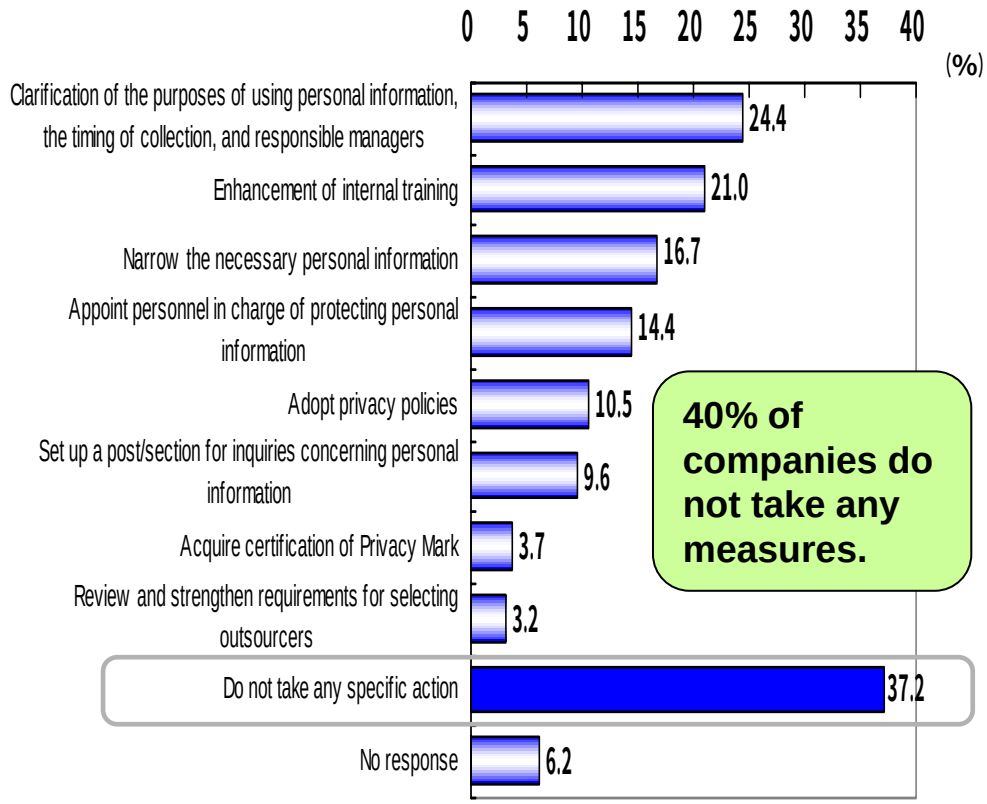
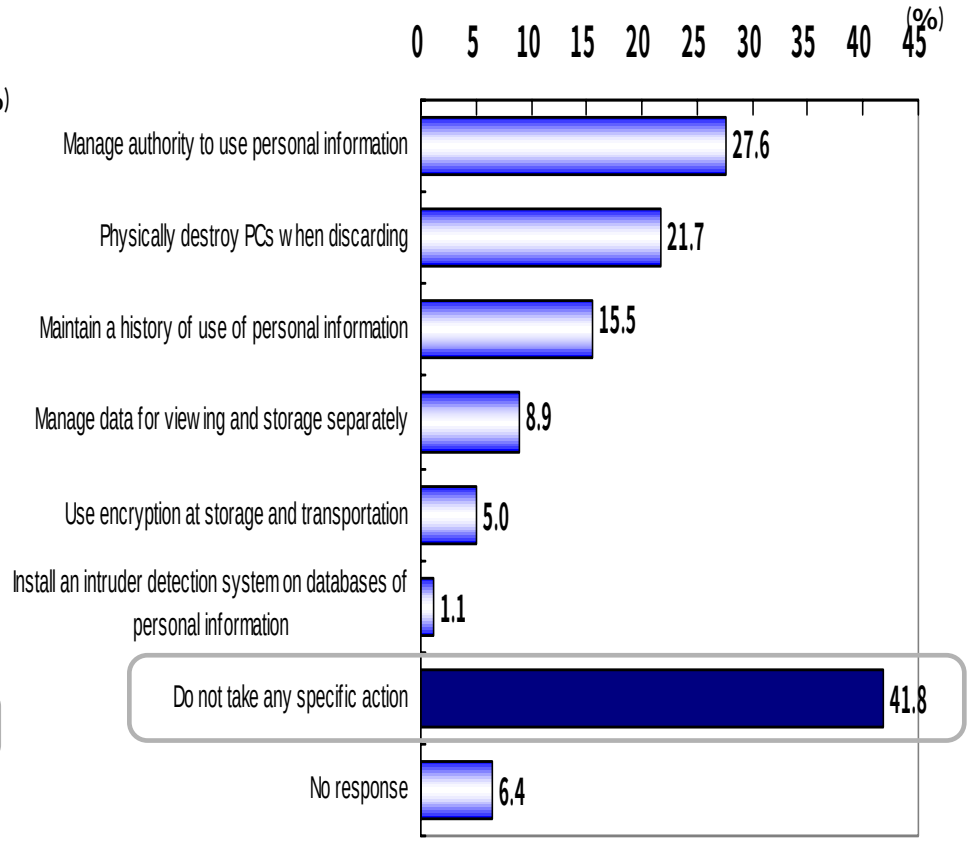


Figure 2. Information System and Technological Measures to Protect Personal Information(multiple responses possible)



Source: Survey of Information Security Measures

(8) Personal Manners in a Ubiquitous Network Society

◇ **High percentages of users mention “spam mail” and “talking on a mobile phone in a public place” as conduct that should be avoided (Figure 1).**

◇ **A high percentage of users mention “personal awareness and responsibility” as important for improving manners.**

Figure 1. Conduct that Should be Avoided when using Information and Communications Networks and Services (multiple responses possible)

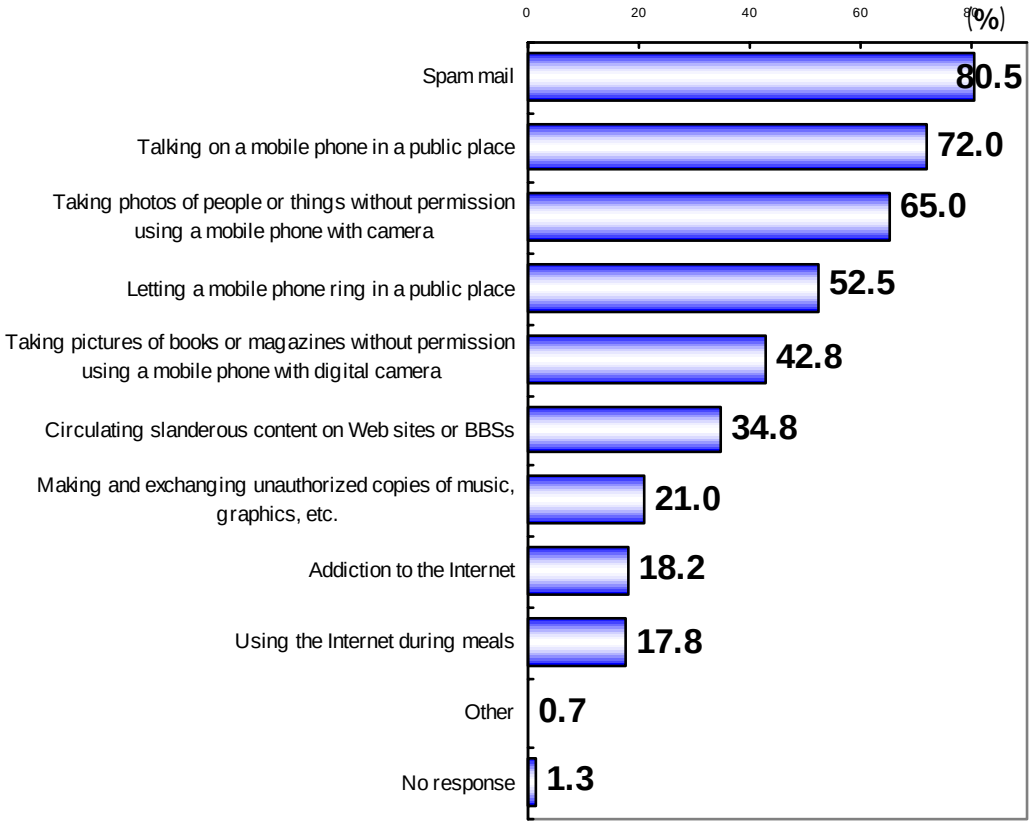
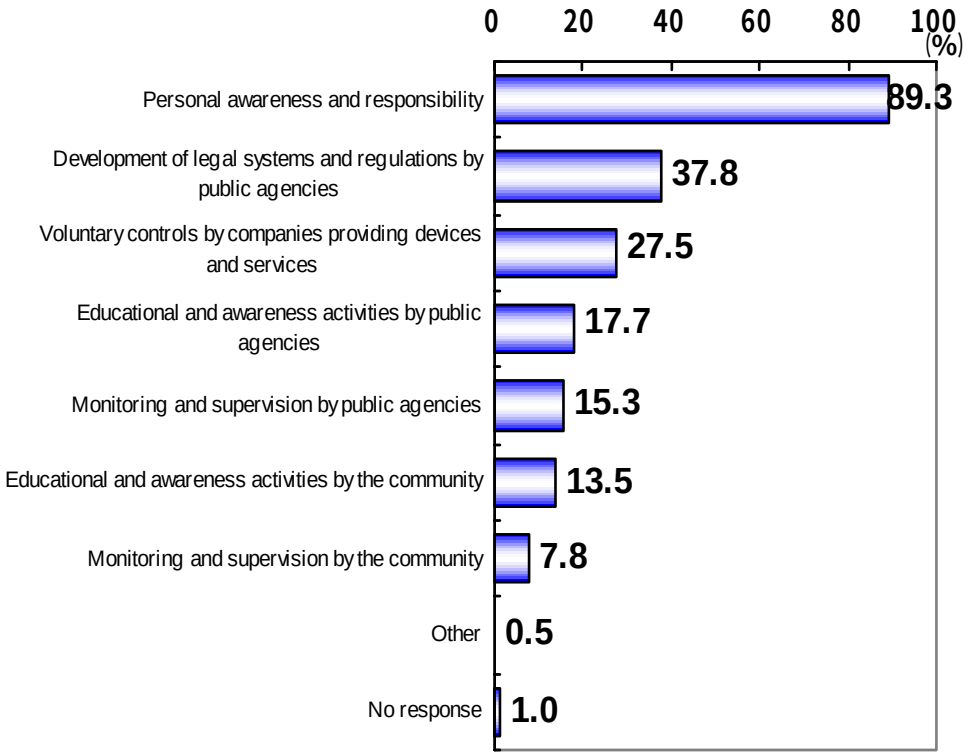


Figure 2. Matters Important for Improving Use of Information and Communications Networks and Services (multiple responses possible)

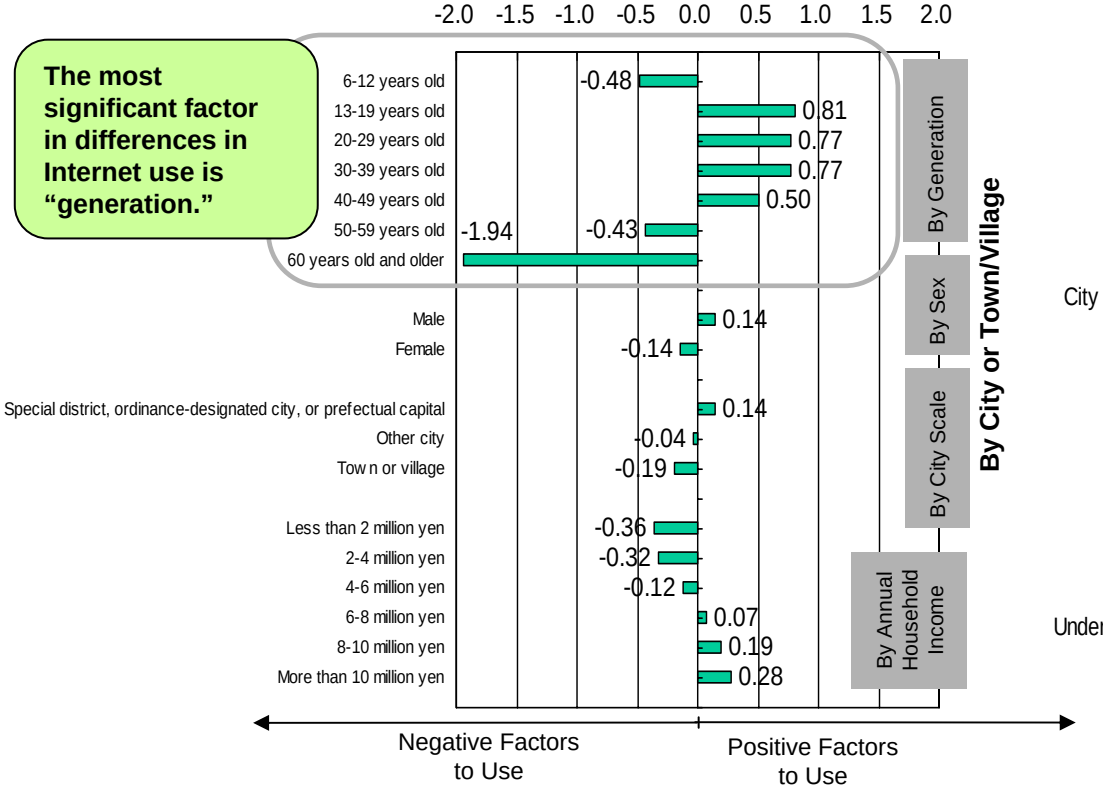


Source: Survey of Personal Activities in a Ubiquitous Network Society

(9) Bridging the Digital Divide

- ◇ **The most significant factor in differences in Internet use is “generation” (Figure 1).**
- ◇ **There is still a regional disparity in the spread of broadband services (Figure 2).**

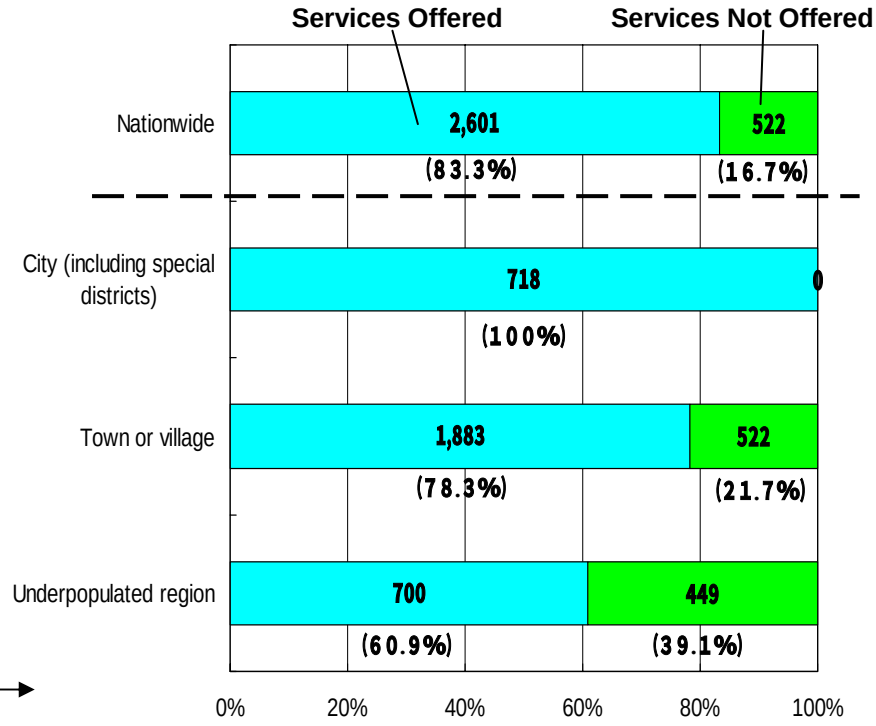
Figure 1. Analysis of Factors in the Disparity in Internet Use (end of 2003)



Source: Communications Usage Trend Survey in 2003, MPHPT

Note: In order to determine the scale of impact from each characteristic on use or non-use, type II quantification analysis was performed. The larger the absolute value relating to each characteristic, the greater the impact of that characteristic on use or non-use.

Figure 2. Spread of Broadband Services (end of fiscal 2003)



Based on MPHPT investigations

Notes:
1. Total of cities, towns, and villages where at least one broadband service (ADSL, FTTH, cable Internet, or FWA) is offered in at least one part of the territory.
2. Underpopulated regions refers to those towns and villages publicly designated under the Law on Special Measures to Promote the Independence of Depopulated Areas.

(10) The Ubiquitous Network Society is Expanding Throughout the World

- ◇ **The MPHPT formulated the Asia Broadband Program jointly with the cabinet office and other involved ministries in March of 2003.**
- ◇ **Interest in the ubiquitous network society was heightened at the World Summit on the Information Society (WSIS) held in Geneva, Switzerland, in December of 2003.**
- ◇ **Standardization of ubiquitous network technology is progressing and network services that originated in Japan are spreading throughout the world.**

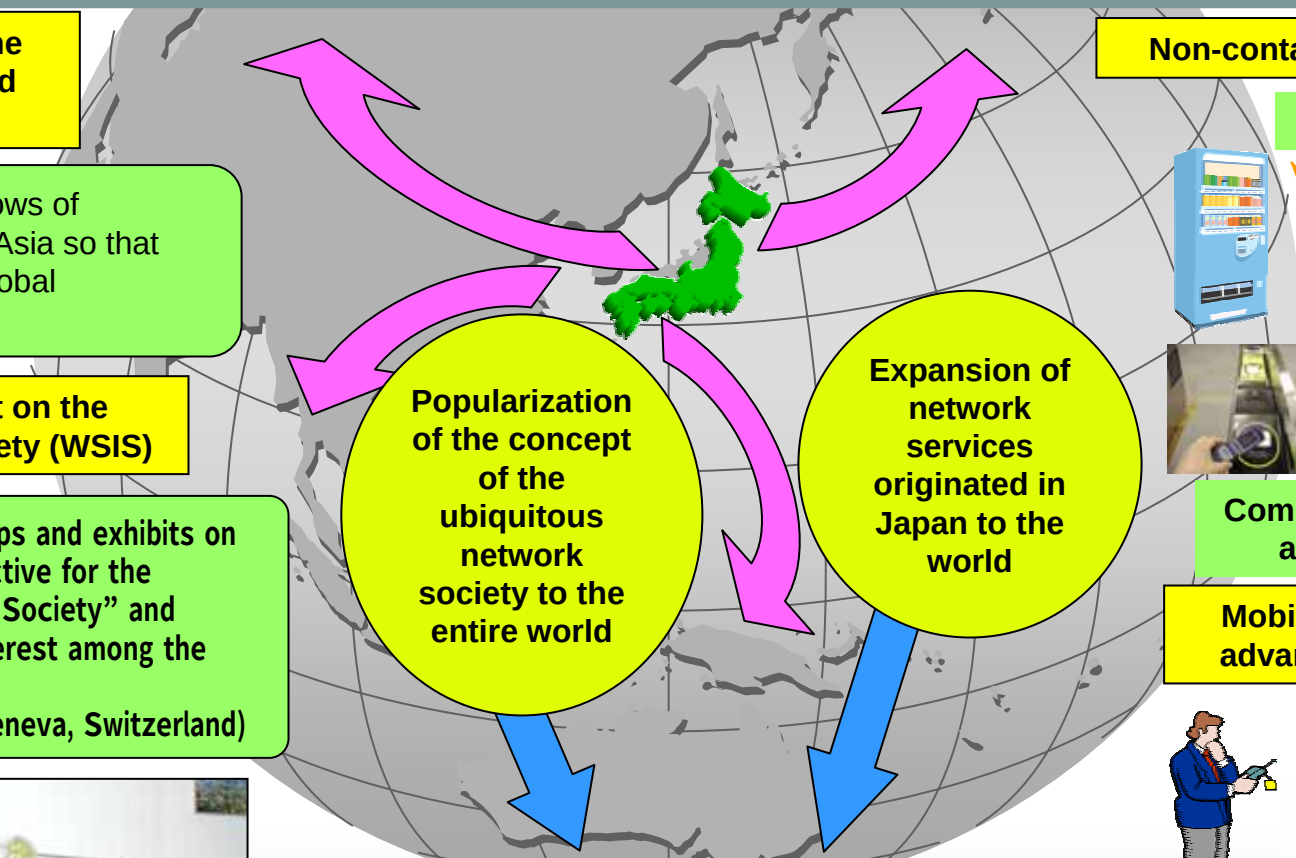
Promotion of the Asia Broadband Program

Asians energize flows of information within Asia so that Asia becomes a global information hub.

World Summit on the Information Society (WSIS)

Japan held workshops and exhibits on the theme "Perspective for the Ubiquitous Network Society" and generated much interest among the summit participants. (December 2003, Geneva, Switzerland)

Display of items with RFID tags (fruit, medicine bottles, etc.)



Popularization of the concept of the ubiquitous network society to the entire world

Expansion of network services originated in Japan to the world

The ubiquitous network expands throughout the world.

Non-contact IC cards

Small payments

Commuter passes and tickets

Mobile phones with advanced functions

TV phones