# V Challenges Toward Achieving u-Japan

1-1 Safe and Secure ICT Use (ICT Security Incidents Experienced by Individuals and Companies)

◆ **From 80 to 90% of individual and corporate Internet users in Japan, the United States, and the Republic of Korea are victims of ICT security incidents.**

◆ **The most frequently occurred incident is "spam" for individuals and "virus infection" for companies.**

Figure 1: ICT security incidents experienced by PC Internet users
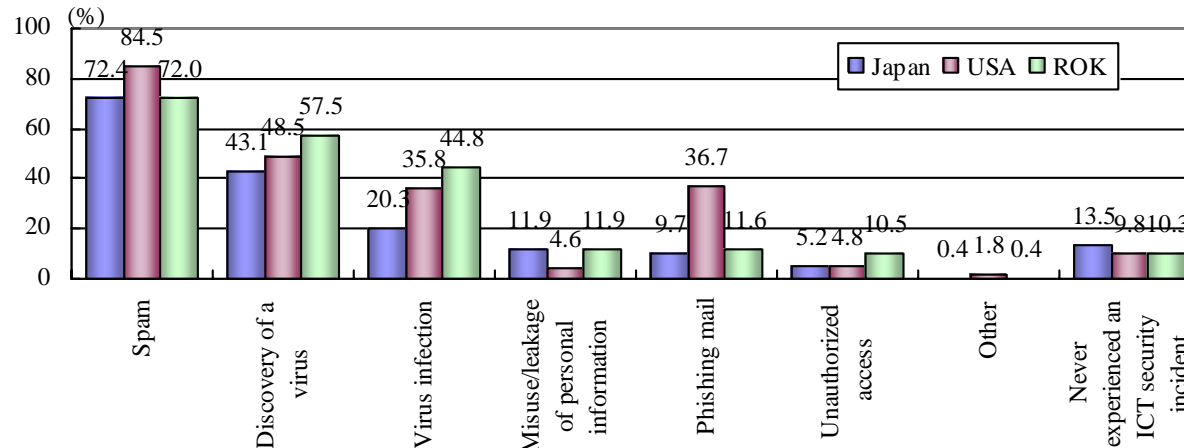
Source: "Survey on Networks and People's Lives" (Web Survey)

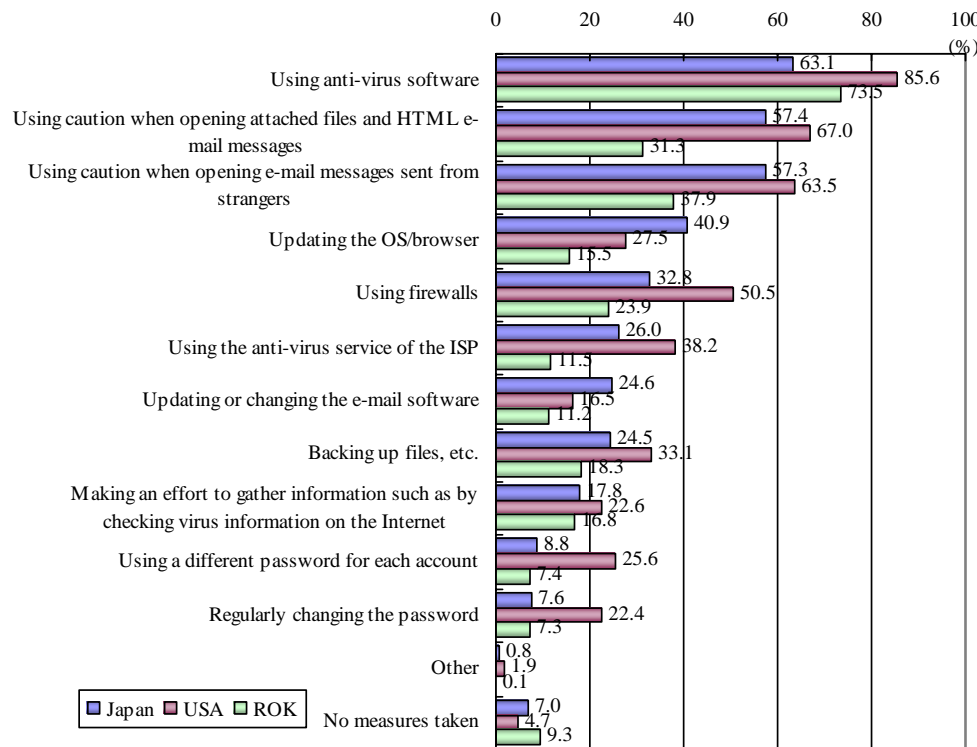**Figure 2: ICT security incidents experienced by companies**
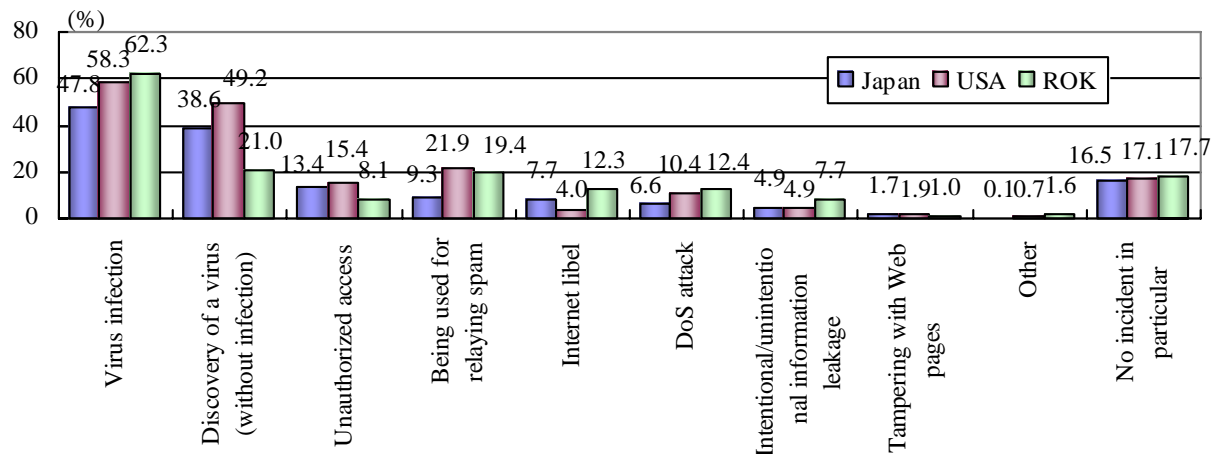
Source: "Survey on the Current Status of ICT Use by Companies" (Web Survey)

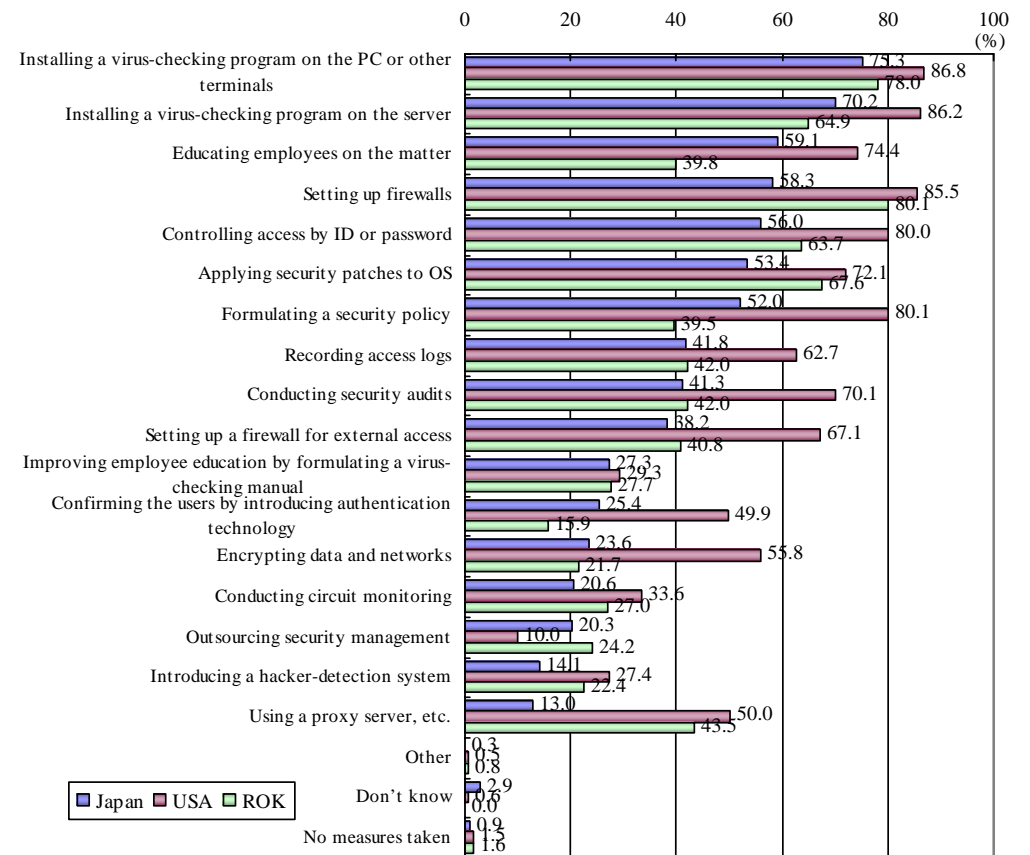## 1-2 Safe and Secure ICT Use (Virus/Unauthorized Access)

◆ **The anti-virus measure most frequently taken by individuals is the introduction of "anti-virus software." The same applies to the United States and the Republic of Korea. Overall, U.S. users are taking the strongest measures.**

◆ **The main ICT security measures taken by companies are "virus-checking programs," "employee education," and "firewalls." Overall, the U.S. companies are taking the strongest measures.**

Figure 1: Anti-virus measures and measures against unauthorized access taken by Internet users

Measure	Japan	USA	ROK
Using anti-virus software	63.1	85.6	73.5
Using caution when opening attached files and HTML e-mail messages	57.4	67.0	31.3
Using caution when opening e-mail messages sent from strangers	57.3	63.5	37.9
Updating the OS/browser	40.9	27.5	16.5
Using firewalls	32.8	50.5	23.9
Using the anti-virus service of the ISP	26.0	38.2	11.5
Updating or changing the e-mail software	24.6	16.5	11.2
Backing up files, etc.	24.5	33.1	18.3
Making an effort to gather information such as by checking virus information on the Internet	17.8	22.6	16.8
Using a different password for each account	8.8	25.6	7.4
Regularly changing the password	7.6	22.4	7.3
Other	0.8	1.9	0.1
No measures taken	7.0	4.7	9.3

Source: "Survey on Networks and People's Lives" (Web Survey)

Figure 2: IT security measures taken by companies

Measure	Japan	USA	ROK
Installing a virus-checking program on the PC or other terminals	75.3	86.8	78.0
Installing a virus-checking program on the server	70.2	86.2	64.9
Educating employees on the matter	59.1	74.4	39.8
Setting up firewalls	58.3	85.5	80.1
Controlling access by ID or password	56.0	80.0	63.7
Applying security patches to OS	53.4	72.1	67.6
Formulating a security policy	52.0	80.1	39.5
Recording access logs	41.8	62.7	42.0
Conducting security audits	41.3	70.1	42.0
Setting up a firewall for external access	38.2	67.1	40.8
Improving employee education by formulating a virus-checking manual	27.3	29.3	27.7
Confirming the users by introducing authentication technology	25.4	49.9	15.9
Encrypting data and networks	23.6	55.8	21.7
Conducting circuit monitoring	20.6	33.6	27.0
Outsourcing security management	20.3	24.2	10.0
Introducing a hacker-detection system	14.1	27.4	22.4
Using a proxy server, etc.	13.0	50.0	43.5
Other	0.3	0.8	
Don't know	2.9	0.0	
No measures taken	0.9	1.5	1.6

Source: "Survey on the Current Status of ICT Use by Companies" (Web Survey)

41

1-3 Safe and Secure ICT Use (Spam)

◆ **Indeed, 80% of PC users and 70% of mobile phone users have received spam in the past. The most common anti-spam measures taken by PC users was "using the device's built-in anti-spam tool, rejecting e-mails through the specified senders function, or accepting e-mails only from the specified senders function" and the one taken by most mobile phone users was "using a complicated e-mail address." In the United States and the Republic of Korea, mobile phone users were hardly taking any measures although PC users were taking measures.**

◆ **Phishing has grown into a social problem in the United States. Phishing incidents were also seen and caused problems in Japan last year.**

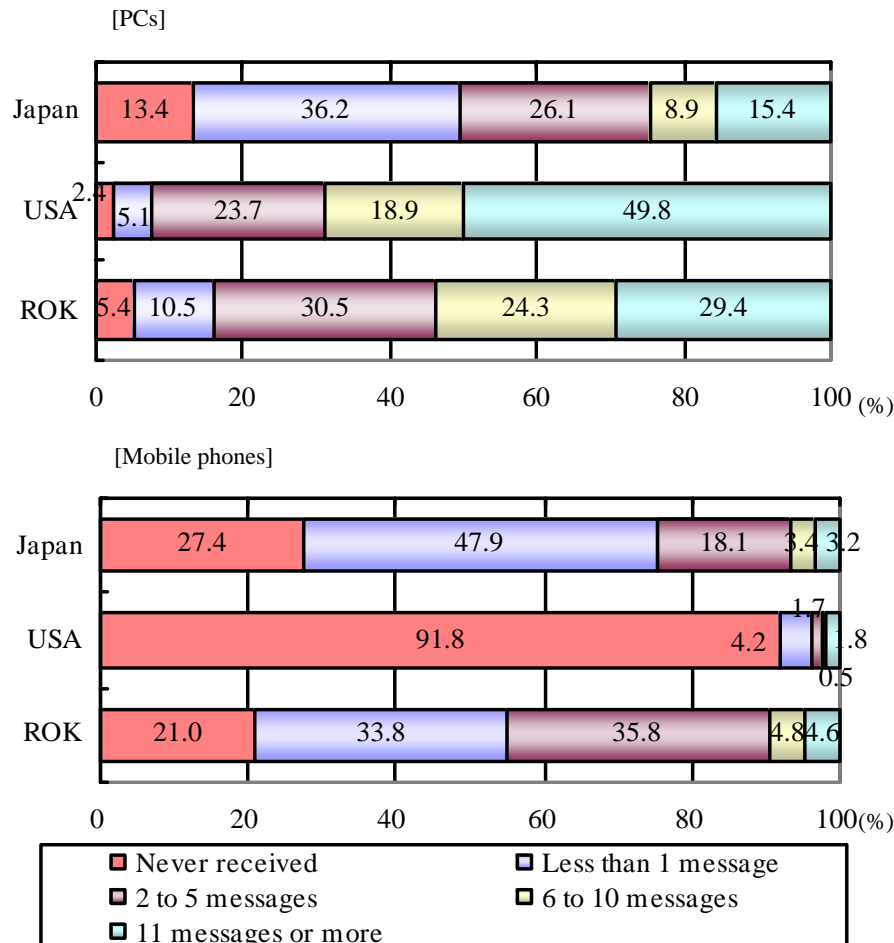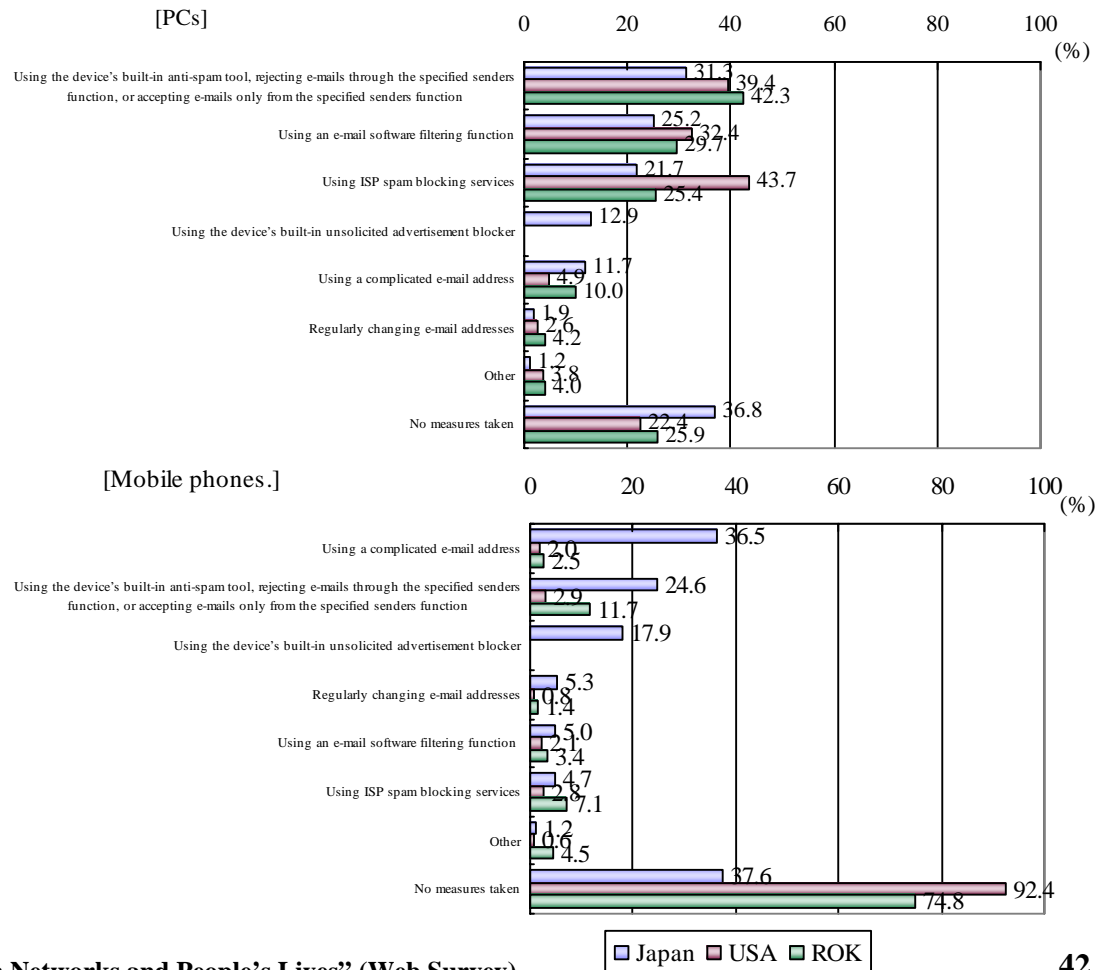## Figure 1: Number of spam messages received per day

[PCs]

	Never received	Less than 1 message	2 to 5 messages	6 to 10 messages	11 messages or more
Japan	13.4	36.2	26.1	8.9	15.4
USA	2.4 / 5.1	23.7	18.9		49.8
ROK	5.4	10.5	30.5	24.3	29.4

[Mobile phones]

	Never received	Less than 1 message	2 to 5 messages	6 to 10 messages	11 messages or more
Japan	27.4	47.9	18.1	3.4	3.2
USA	91.8	4.2	1.7	1.8	0.5
ROK	21.0	33.8	35.8	4.8	4.6

- ■ Never received
- □ Less than 1 message
- ■ 2 to 5 messages
- □ 6 to 10 messages
- ■ 11 messages or more

Figure 2: Implementation of anti-spam measures

[PCs]

Using the device's built-in anti-spam tool, rejecting e-mails through the specified senders function, or accepting e-mails only from the specified senders function — 31.3 / 39.4 / 42.3
Using an e-mail software filtering function — 25.2 / 32.4 / 29.7
Using ISP spam blocking services — 21.7 / 43.7 / 25.4
Using the device's built-in unsolicited advertisement blocker — 12.9
Using a complicated e-mail address — 11.7 / 4.9 / 10.0
Regularly changing e-mail addresses — 1.9 / 2.6 / 4.2
Other — 1.2 / 7.8 / 4.0
No measures taken — 36.8 / 22.4 / 25.9

[Mobile phones.]

Using a complicated e-mail address — 36.5 / 2.0 / 2.5
Using the device's built-in anti-spam tool, rejecting e-mails through the specified senders function, or accepting e-mails only from the specified senders function — 24.6 / 2.9 / 11.7
Using the device's built-in unsolicited advertisement blocker — 17.9
Regularly changing e-mail addresses — 5.3 / 1.4
Using an e-mail software filtering function — 5.0 / 2.1 / 3.4
Using ISP spam blocking services — 4.7 / 2.8 / 7.1
Other — 1.2 / 0.6 / 4.5
No measures taken — 87.6 / 92.4 / 74.8
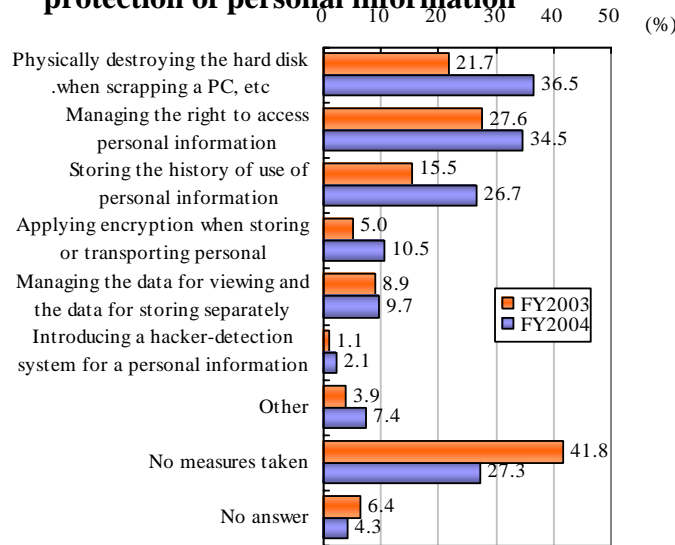
□ Japan □ USA □ ROK

Source: "Survey on Networks and People's Lives" (Web Survey)
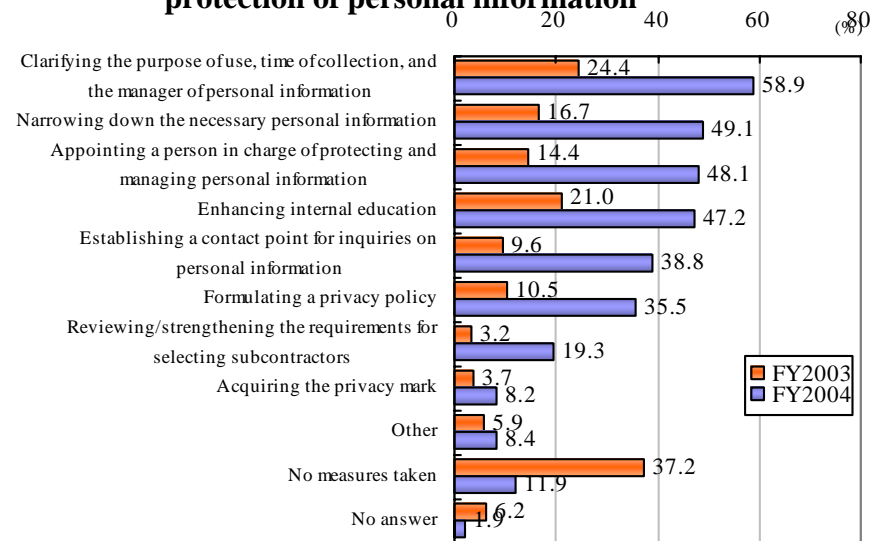
42

1-4 Safe and Secure ICT Use (Protection of Personal Information)

◆ **The Law Concerning the Protection of Personal Information came into force in April 2005. Companies' efforts for protecting personal information made progress.**

◆ **Recognition rate of spyware is low, and hardly any measures are taken against it.**

Figure 1: Technical and ICT systems-related measures for protection of personal information
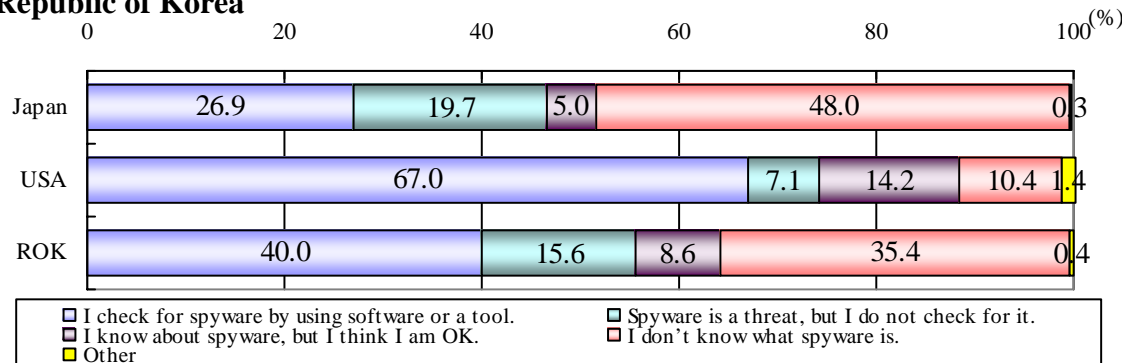
(%)

Measure	FY2003	FY2004
Physically destroying the hard disk when scrapping a PC, etc.	21.7	36.5
Managing the right to access personal information	27.6	34.5
Storing the history of use of personal information	15.5	26.7
Applying encryption when storing or transporting personal	5.0	10.5
Managing the data for viewing and the data for storing separately	8.9	9.7
Introducing a hacker-detection system for a personal information	1.1	2.1
Other	3.9	7.4
No measures taken	41.8	27.3
No answer	6.4	4.3

Figure 2: Organizational/institutional measures for protection of personal information

(%)

Measure	FY2003	FY2004
Clarifying the purpose of use, time of collection, and the manager of personal information	24.4	58.9
Narrowing down the necessary personal information	16.7	49.1
Appointing a person in charge of protecting and managing personal information	14.4	48.1
Enhancing internal education	21.0	47.2
Establishing a contact point for inquiries on personal information	9.6	38.8
Formulating a privacy policy	10.5	35.5
Reviewing/strengthening the requirements for selecting subcontractors	3.2	19.3
Acquiring the privacy mark	3.7	8.2
Other	5.9	8.4
No measures taken	37.2	11.9
No answer	6.2	1.9

Source for Figures 1 and 2: "Survey on the Status Trend of Information Security"

Figure 3: Comparison of anti-spyware measures in Japan, the United States, and the Republic of Korea

(%)

Country	I check for spyware by using software or a tool.	Spyware is a threat, but I do not check for it.	I know about spyware, but I think I am OK.	I don't know what spyware is.	Other
Japan	26.9	19.7	5.0	48.0	0.3
USA	67.0	7.1	14.2	10.4	1.4
ROK	40.0	15.6	8.6	35.4	0.4

☐ I check for spyware by using software or a tool. ☐ Spyware is a threat, but I do not check for it.
☐ I know about spyware, but I think I am OK. ☐ I don't know what spyware is.
☐ Other

Source: "Survey on Networks and People's Lives" (Web Survey)

1-5 Safe and Secure ICT Use (Challenges Toward a Ubiquitous Network Society)

◆ **The priority challenges toward a ubiquitous network society include the vulnerability of ICT networks, illegal business practices using networks, copyright protection of digital assets, the regional gaps in advanced services, and convenience of e-government.**

◆ **Japan is carefully promoting the construction of a ubiquitous network society, while the United States is seeing a considerable number of people opposing the construction, and the Republic of Korea is actively promoting it.**

◆ **Many people in Japan, the United States, and the Republic of Korea indicate the need for both institutional/technical measures in advance and the self-responsibility of the users in dealing with the negative effects of a ubiquitous network society. The awareness of self-responsibility is relatively high in the United States.**

Figure 1: Priority challenges toward a ubiquitous network society
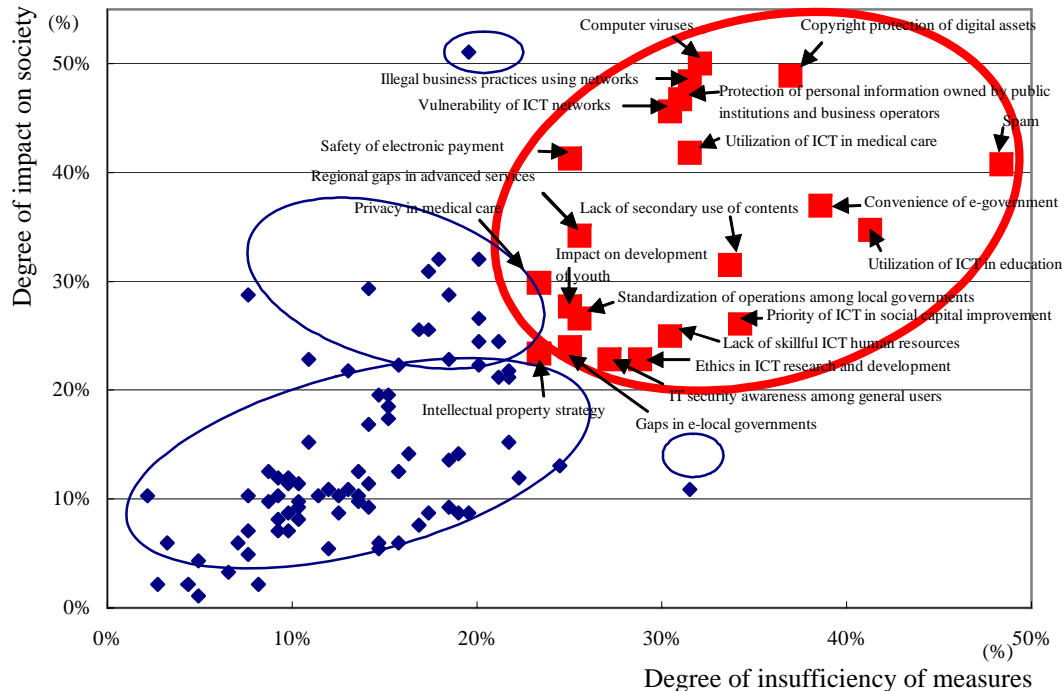
Produced from materials from the "Policy Roundtable for Realizing a Ubiquitous Network Society"

Figure 2: Approval/disapproval for construction of a ubiquitous network society

□ Positive effects are overwhelmingly large, so the construction should be actively promoted.

■ Positive effects are larger, but the construction should be promoted carefully, taking the necessary time to prevent negative effects.

□ Negative effects are larger, so the construction should not be promoted.

□ Don't know.
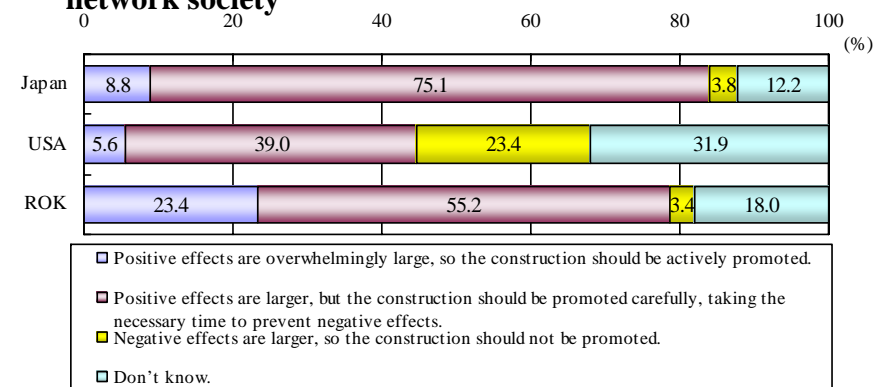
Figure 3: Opinions on measures against the negative effects of a ubiquitous network society

□ It will be sufficient to take ex-post measures whenever a problem arises.

■ While the government and companies need to take institutional/technical measures in advance in order to prevent negative effects, the responsibility that users take for themselves is also indispensable.

□ The government and companies need to take ex ante complete institutional/technical measures in order to prevent negative effects, and should avoid relying on user responsibility as much as possible.
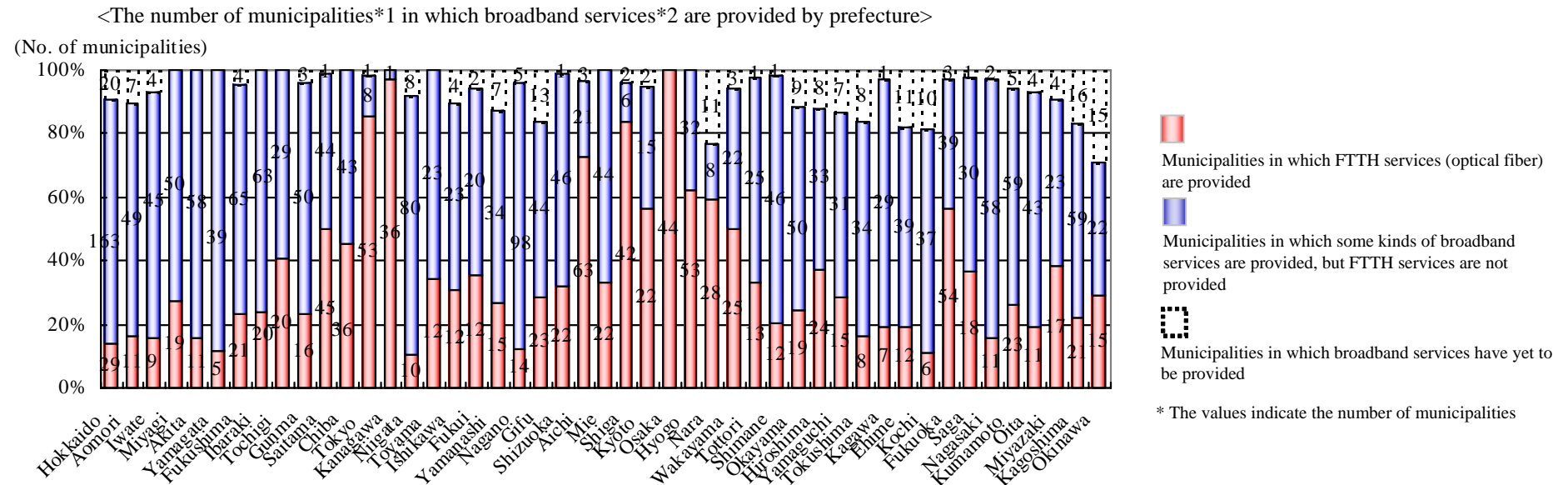
□ Don't know.

Source for Figures 2 and 3: "Survey on Networks and People's Lives" (Web Survey)

2. Digital Divide

◆ **There are regional gaps in the availability of broadband services. The gaps are particularly large for FTTH.**

Figure 1: Diffusion of broadband services (as of the end of March 2005)

<The number of municipalities*1 in which broadband services*2 are provided by prefecture>

(No. of municipalities)

Municipalities in which FTTH services (optical fiber) are provided

Municipalities in which some kinds of broadband services are provided, but FTTH services are not provided

Municipalities in which broadband services have yet to be provided

* The values indicate the number of municipalities

Figure 2: Diffusion of broadband services by population of the municipality (as of the end of March 2005)

<Diffusion of FTTH services>

<Diffusion of ADSL services>

<Diffusion of cable Internet>

■ Already available □ Not yet available
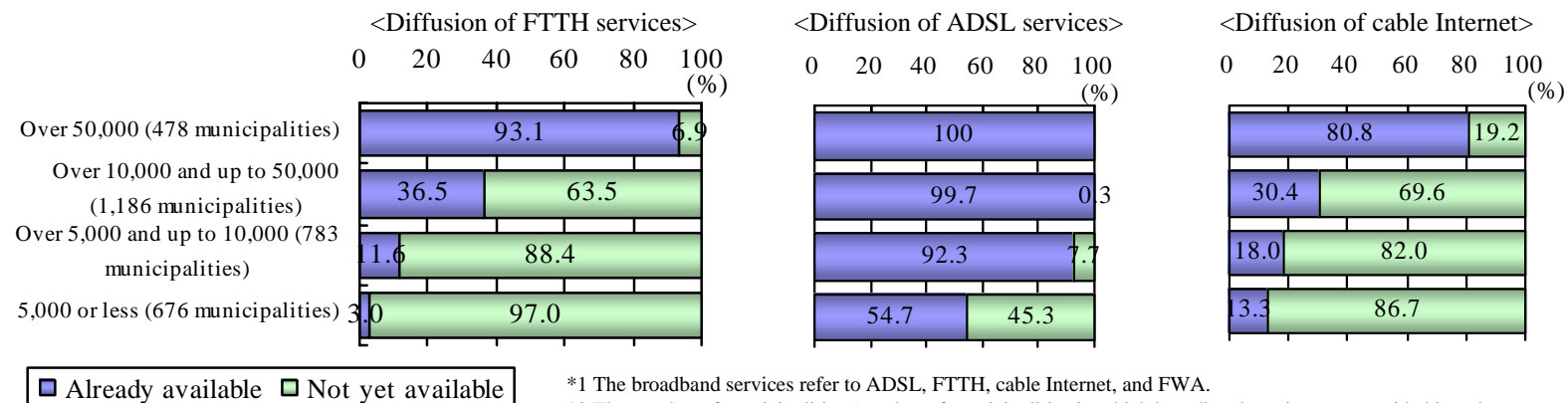
*1 The broadband services refer to ADSL, FTTH, cable Internet, and FWA.
*2 The number of municipalities (number of municipalities in which broadband services are provided in at least part of the territory) was calculated by the MIC based on the information published on service providers' Websites, etc.
*3 The number of municipalities in Japan is based on the number as of April 1, 2004.

45

3 Backbone Circuit

◆ **The Internet traffic surged in line with the progress of broadband. However, there is hardly any traffic data available.**

◆ **The MIC conducted an aggregation and trial calculation of traffic data with the cooperation of seven ISPs. As a result, it estimated the total traffic of broadband subscribers to be over 300 Gbps (133 Gbps [traffic of the broadband subscribers of the seven ISPs] divided by 0.411 [total market shares of the seven ISPs]).**

◆ **The traffic exchanges on the Internet are concentrated in Tokyo. Since this gives rise to vulnerability against cyber attacks and large-scale disasters, decentralization of traffic exchanges will be a future task.**

Figure 1: Traffic by type of subscribers (transition in the average monthly traffic from September to November 2004; Gbps)

	In*	Out*
Broadband (DSL, FTTH) subscribers of seven ISPs	98.1 → 108.3 → 116.0	118.1 → 124.9 → 133.0
Other (dial-up, dedicated line, data center) subscribers of four ISPs	14.0 → 15.0 → 16.2	13.6 → 14.9 → 15.6

* "In" indicates the traffic coming in from subscribers to the seven (or four) ISPs (uploading), while "Out" indicates the traffic going out from the seven (or four) ISPs to subscribers (downloading).

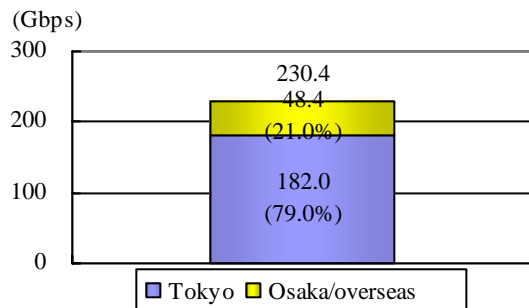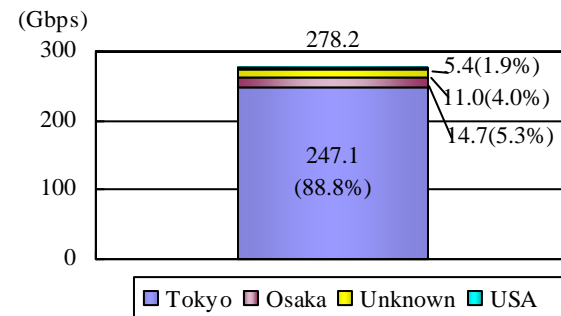**Figure 2: Circuit capacity of 14 major ISPs for IX exchanges (February 2004)**

(Gbps)

230.4
48.4
(21.0%)
182.0
(79.0%)

□ Tokyo □ Osaka/overseas

Figure 3: Circuit capacity of 14 major ISPs for private peering (February 2004)

(Gbps)

278.2
5.4(1.9%)
11.0(4.0%)
14.7(5.3%)
247.1
(88.8%)

□ Tokyo □ Osaka □ Unknown □ USA

46

<Reference> ICT Policy Toward Achieving u-Japan
◆ **The measures shown below should be taken to realize u-Japan.**

Development of ubiquitous networks

Developing seamless access environment for both fixed networks and mobile networks
(Release of radio spectrum, fixed and mobile convergence, integration between communications and broadcasting, etc.)

Nationwide establishment broadband infrastructure
(Elimination of the digital divides, provision of local information, digital broadcasting, competition policy, etc.)

Networking real objects
(RFID tags, sensor networks, intelligent home appliances, ITS, ubiquitous terminals, etc.)

Developing infrastructure for network collaboration
(Platforms, interoperability, high reliability, e-commerce, etc.)

Advanced Usage of ICT

Sophisticated social system reform by ICT
(Social/management innovations, institutional reforms, e-government/e-local governments, etc.)

Promoting creation, trading, and use of contents
(Distribution/payment, digital archives, contents creation, soft power, etc.)

Promoting universal designs
(Agent technology, user interface, information accessibility, etc.)

ICT human resource development
(Human resources development, promotion of joint ventures, educational reform, citizen participation, etc.)

[Major Objective of u-Japan]

To become a leading ICT nation by 2010

(Front-runner)

Upgrading to a more enabling environment

Sorting out/clarifying challenges concerning the "shadows"
(Sorting out of the "shadows" into 100 challenges in ten fields to clarify the whole picture)

Promoting the "21 Strategies for ICT's Safety and Security"
(Extraction of 21 priority issues and presentation of the countermeasures)

Addressing the surfacing of important issues
(Extraction of the surfacing of important issues for the future)

Establishing the Ubiquitous Network Society Charter
(Sorting out the basic principles and common awareness, and sending them out to the world as a charter)

International/technology strategies

International strategies
(Asia Broadband Program, elimination of international digital divides)

Technology strategies
(R&D in the priority areas for safe and secure ICT, strategic promotion of standardization, promotion of innovations toward sustainable development)