

“2011 White Paper Information and Communications in Japan”

<Outline>

September, 2011
Ministry of Internal Affairs and Communications, Japan

Unofficial translation

Overview of White Paper

Chapter 1 Information and Communications in the Aftermath of the Great East Japan Earthquake

Chapter 2 Special Theme: Towards the Realization of a Symbiotic Network Society

Proposes an approach through which the ever-increasing presence of ICT in people's lives will contribute to a "society which includes everyone" by promoting mutual support and revitalizing community ties

Section 1: How has ICT Changed Japanese People's Lifestyles?

Examines the ICT infrastructure, changes in the service environment, and attendant changes in lifestyles over the past decade

Section 2: Response to Emerging Challenges

Examines the challenges that still must be dealt with in order to expand ICT use further and achieve an abundant ICT society that reflects user viewpoints

Section 3: What Can Be Achieved Through the Realization of a Symbiotic Network Society

Examines the impact of social media on networks of mutual support, and proposes a "Symbiotic Network Society" as a model for the next step in ICT-society evolution

Chapter 3 Current State of ICT and Policy Outlook

Section 4: Current State of ICT

Presents the latest data illustrating the current state of ICT in Japan, primarily consisting of approved statistics and business statistics surveys implemented by the Ministry of Internal Affairs and Communications in FY2010

Section 5: Outlook for Information and Communications Policies

Outlines the latest policy outlook for the information and communications sector in FY2010, focusing primarily on Ministry of Internal Affairs and Communications initiatives

(Ref.) "Symbiotic Network Society"

A society in which all citizens have access to the benefits of ICT, helping to drive improvements in the quality of life

Tremendous damage to ICT infrastructure

Communications	Landline phones	Up to one million lines out of service in the NTT East region *Approximately 2.7 million subscribers in the Tohoku region
	Cellular and PHS service	Up to 29,000 base stations (operated by 5 carriers) stopped transmitting/receiving *Approximately 137,500 Number of base stations in the Tohoku and Kanto regions
	Immediately after the disaster, network congestion occurred and carriers imposed restrictions	
Broadcasting	Up to 120 television stations went off the air in the Tohoku and Kanto regions	
Postal services	Up to 583 post offices closed in the 3 most hard-hit prefectures	*Total of post offices in the 3 prefectures is 1,103

Role played by ICT media

Diversification of information distribution methods

Examples: Broadcasters running programs simultaneously on the Internet / Public organizations' use of social media for information and communications

Grassroots information and communications

Examples: Provisional emergency broadcasters / Assorted disaster relief projects coordinated by citizens' groups

Information disseminated immediately after disaster struck

Example: Real-time information and communications employing social media

Information extracted and consolidated for dissemination

Examples: Appearance of "matome" (summary) sites / Dissemination of disaster updates for the information-challenged

Examples of challenges

Developing a highly disaster-resistant ICT infrastructure

The majority of the diverse efforts implemented using ICT require a working ICT infrastructure and/or stable supply of electricity for their potential to be realized.

Two-way digital/analog information conversion

A great deal of analog information (on paper) regarding the safety and whereabouts of victims was converted to digital form and shared. However, there was insufficient conversion of digital information to analog form for the benefit of those unable to use the Internet.

Chain e-mails and fraudulent e-mails, etc., pertaining to the disaster

Misinformation regarding the Great East Japan Earthquake was spread via chain e-mails, mini-blogs, etc.

Widespread publicizing of information and communications initiatives

A great number of new information and communications initiatives were launched, but it cannot be said that these were widely publicized and implemented effectively.

Chapter 2 Special Theme: "Towards the Realization of a Symbiotic Network Society"

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Section 1

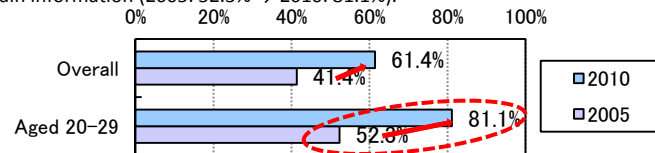
- It has been 10 years since the "broadband-driven IT renaissance" was declared in the 2001 White Paper on Information and Communications in Japan. The ICT environment has undergone drastic change. The lifestyles of the people of Japan have been altered in all manner of ways by the realization of an always-connected environment through the Internet.

Over the past decade, the ICT infrastructure has become **progressively richer (through broadband utilization) and more personalized (through mobile internet utilization)**.

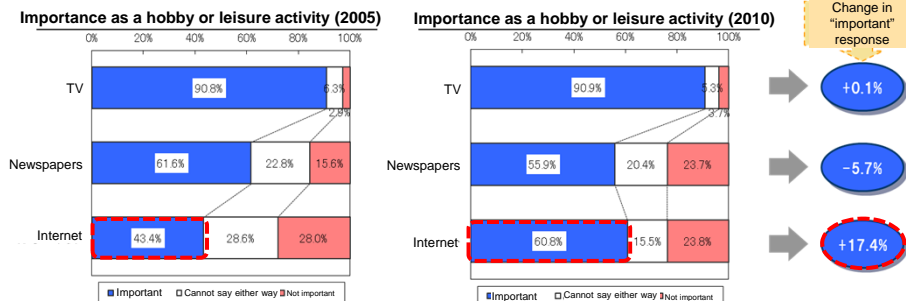
- Broadband rate: 2000: 6.9% → 2010: 77.9%
- Mobile Internet rate: 2002: 40.2% → 2010: 83.3%
- Mobile broadband rate: 2001: 0.1% → 2010: 98.8%

An increasing number of people regard the Internet as a key part of their daily lives.

- Over five years, there has been a 28.8% increase in the percentage of people aged 20-29 who use the Internet to obtain information (2005: 52.3% → 2010: 81.1%).



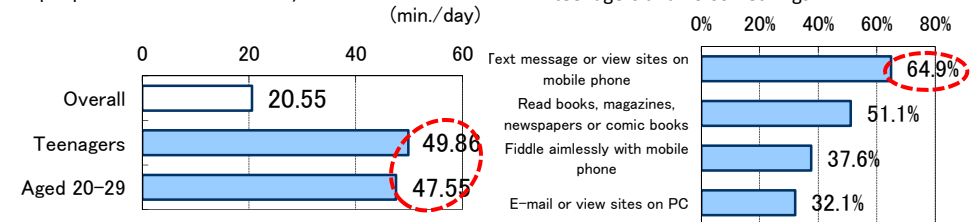
- As a popular hobby or leisure-time activity, the Internet (60.8%) has surpassed newspapers (55.9%) and is second only to television (90.9%).



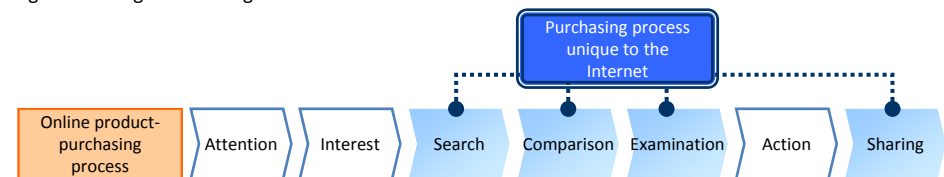
- 95.8% of students at four-year universities access job-search websites.

Lifestyles are changing, and the Internet is becoming ever more integral to them.

- People in their teens and 20s make frequent use of mobile phones for communication, through text messaging, etc. (average of approx. 50 min./day among people in their teens and 20s)
- Many (64.9%) watch TV and text message or view websites on their mobile phones at the same time. "Multi-tasking" is the norm among teenagers and 20-somethings.



- Teenagers have a strong desire for connectedness, expressing fondness for the sense of "constant connection with friends and acquaintances"
- A purchasing process unique to Internet shopping has developed, with nearly half of online shoppers finding goods through search engines.



Section 2

- The advancement of ICT utilization continues to face persistent challenges, including "safety and security," "the digital divide," and "users in local areas," which will require ongoing countermeasures.

- Many ICT users (46.0%) have anxieties about Internet use, such as protection of privacy, while safety and security continue to be key challenges.
- The Internet utilization rate stands at 78.2%. However, the digital divide persists, with **lower rates among the elderly** (70-79 age group: 39.2%) **and low-income people** (those earning under ¥2 million/year: 63.1%)
- The ICT utilization rate in local areas is stagnant at 27.4%, with a stark gap between local governments that have implemented ICT development projects and those that have not. → (Of those implementing projects, 75.8% say these projects are "effective." However, among those not yet implementing projects, 61.9% "could not say" whether such programs are effective or not.)

Section 3

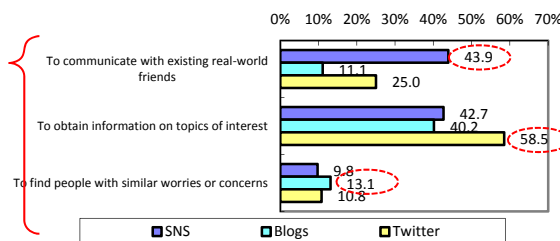
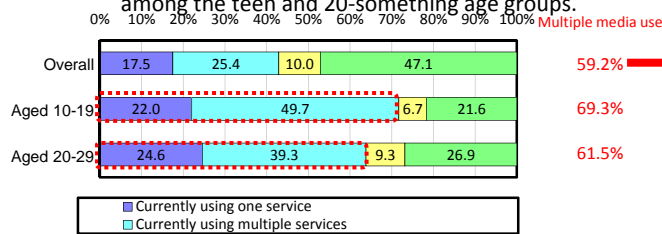
- Social media have great potential in the effort to realize a broadly inclusive society in which people support one another. However, there are negative aspects such as the threat of personal information leakage, and effective countermeasures are required.
- Nonetheless, hopes are high for the achievement of a Symbiotic Network Society in which the utilization of social media and other ICT realizes a lifestyle of fully integrated ICT bringing benefits to a broad segment of society.

Utilization of social media **is being led by the teens and 20s age segment.**

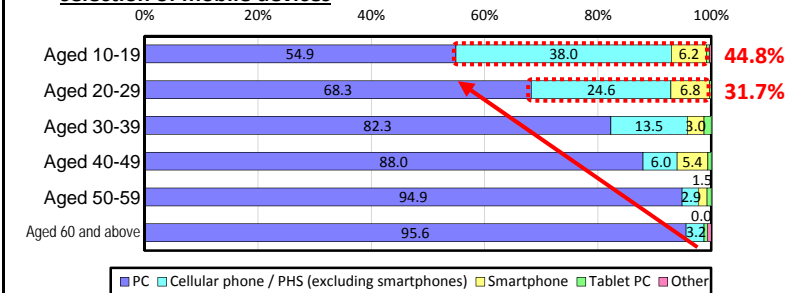
59.2% of all users **access multiple media**, such as SNS and blogs, **choosing the appropriate medium for their objectives.**

- Both overall use and use of multiple media are high among the teen and 20-something age groups.

- SNS, blogs, or Twitter are selected depending on needs.

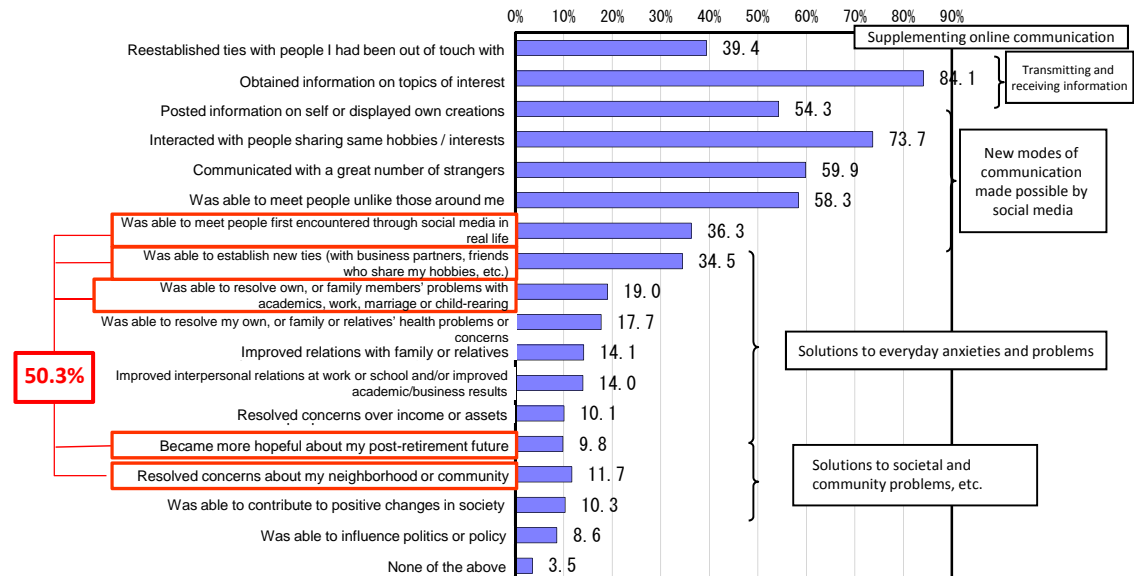
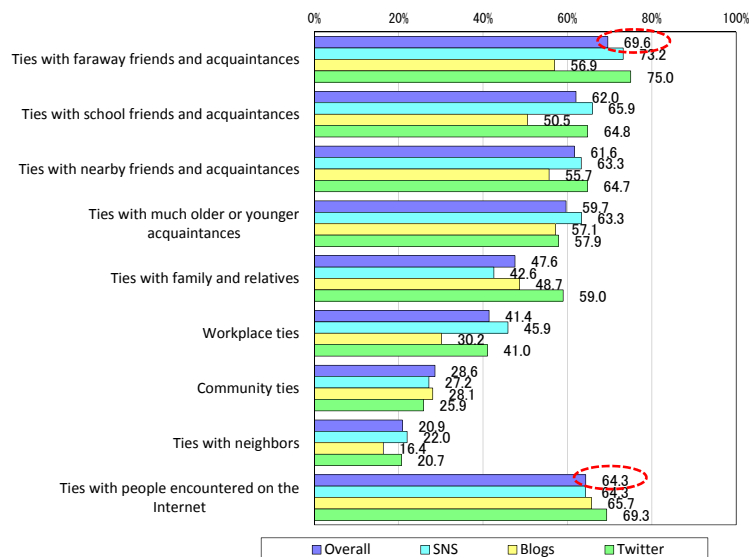


Teens and 20-somethings use media during slivers of free time, regardless of their location. Their use patterns are characterized by selection of mobile devices



Social media **provide a vehicle for cooperation and collaboration**, helping to **strengthen ties** and acting as an effective tool for **resolving everyday anxieties and problems.**

- 69.6% say social media have helped them strengthen ties with friends and acquaintances far away
- Around half (50.3%) of users say social media have helped them develop new ties, or have contributed to solutions to personal, family or community problems.
- Nearly an equal number, 64.3%, say they have developed ties with people they first met online



**“2011 White Paper
Information and Communications in Japan”
Essential Data**

Unofficial translation

1. Chapter 1 Information and Communications in the Aftermath of the Great East Japan Earthquake

1-1 Information and Communications in the Aftermath of the Great East Japan Earthquake (1) ----P. 4

- Damage to telecommunications caused by the Great East Japan Earthquake
- Telecommunications congestion in the aftermath of the Great East Japan Earthquake

1-2 Information and Communications in the Aftermath of the Great East Japan Earthquake (2) ----P. 5

- Establishment of community broadcasters and provisional emergency broadcasters in Iwate, Miyagi, Fukushima and Ibaraki prefectures
- Key media and information sources for supply of disaster information (Kanto)
- Change in number of local government Twitter followers in disaster-hit areas
- Change in number of mass media Twitter followers in disaster-hit areas

2. Chapter 2 Points Regarding Special Theme (Featured Topic)

2-1 Thematic makeup of Special Theme ----P. 7

2-2 Points in Section 1 ----P. 8

2-3 Points in Section 2 ----P. 9

2-4 Points in Section 3 ----P. 10

3. Section 1 How has ICT Changed Japanese People's Lifestyles?

3-1 Rapidly advancing infrastructure development and a lagging service penetration / utilization rate ----P. 12

- Rate of overall ICT advancement and rankings by field and indicator

3-2 ICT infrastructure environment has become richer and more personalized over the last 10 years ----P. 13

- Change in number of broadband subscriptions
- Change in percentage of people accessing the Internet using mobile devices
- Change in number of subscriptions to 2nd- and 3rd-generation mobile communications systems

- Change in number of digital terrestrial broadcast-compatible receivers shipped
- Change in number of satellite broadcast and cable TV subscriptions

3-3 Increase in number of people perceiving the Internet as important in a wide variety of situations ----P. 14

- Perception of importance of TV and Internet by age group
- Evolution of information sources used for job hunting and career advancement
- Evolution of perceived importance of ICT as a hobby or leisure-time activity

3-4 Lifestyle changes as a result of the evolving ICT infrastructure environment ----P. 15

- Change in length of time spent reading or writing mobile phone text messages
- Modes of interpersonal interaction by age group
- A different purchasing process used for Internet shopping
- Internet shopping behavior patterns
- Percentage of people who multi-task while watching TV

4. Section 2 Response to Emerging Challenges

4-1 Allaying ICT-related anxiety entails boosting not only ability to utilize information, but also understanding of security issues ----P. 17

- Anxieties occasioned by Internet use
- Levels of understanding of security issues and levels of anxiety by degree of ability to utilize information (among Net users overall)
- Analysis of anxiety levels and understanding of security issues by user segment (by age)

4-2 Parents play a major role in the advancement of children's ICT competency ----P. 18

- Children's ability to utilize information
- Anxieties surrounding children's ICT environment
- Children's and parents' ability to use information effectively
- Household rules about the Internet

4-3 Precisely targeted measures tailored to the needs of specific segments of society are needed to overcome the digital divide ----P. 19

- Internet utilization rates
- Changes and predictions for household composition
- Revitalization of “ties” achieved through the Internet
- Challenges regarding Internet utilization

4-4 ICT infrastructure penetration is centered on the mobile sector in developing countries ----P. 20

- Comparison of Internet-using population makeup by income level
- Correlation between landline and mobile phone penetration rates (changes since 1985)
- Correlation between fee levels and broadband penetration rates (2009)
- Internet utilization rates and social network utilization levels

4-5 Promotion of local ICT utilization faces challenges in terms of fees, human resources and expertise and infrastructure ----P. 21

- Status of implementation of basic ICT services
- Status of implementation of programs utilizing ICT
- Challenges facing local ICT utilization
- Approach to overcoming challenges facing local ICT utilization

4-6 In addition to resolution of financial and ICT human resources issues, establishing wide-ranging partnerships is also essential ----P. 22

- Local government fiscal indicators and comprehensive indicators
- Local government ICT human resources initiatives and comprehensive indicators
- Collaboration with NPOs in the ICT sector and comprehensive indicators
- Status of informatization NPO establishment (by city population rating)
- Fiscal scale of informatization NPOs
- Percentage of NPOs with regular salaried staff

5. Section 3 The Potential of a Symbiotic Network Society

5-1 Utilization of social media is being led by the younger generation ----P. 24

- Number of current and former social media users (by age)
- Types of social media currently in use
- Types of social media currently in use (by gender)
- Types of social media currently in use (by age group)
- Main types of devices used to access social media (by age group)

5-2 Social media provide a vehicle for cooperation and collaboration and help to resolve various problems ----P. 25

- Reasons for using social media
- Results achieved through utilization of social media

5-3 Expectations for ICT’s role in formation and revitalization of “ties,” resolution of anxieties, contribution to mutual support, and inclusion of diverse segments of society ----P. 26

- Strengthening of ties through utilization of social media
- Results achieved through utilization of social media
- Correlation between frequency of community interaction via social media and resolution of everyday anxieties and issues

5-4 Steps must be taken to address user anxieties over personal information ----P. 27

- Anxieties experienced by users of social media
- Use of real names, etc. (by type of social media)
- Overall degree of online disclosure of personal information (by age group)

6. [Ref.] Chapter 3 Economic analysis of the ICT sector

6-1 Japan’s ICT industry’s contribution to economic growth ----P. 29

- Japan’s ICT industry’s share of nominal domestic production
- Change in contribution of the ICT industry to the growth rate of Japan’s GDP

6-2 The ICT industry has a major knock-on economic impact on all other industries ---P. 30

- Change in amount of added value stimulated
- Change in number of jobs stimulated

1. Chapter 1

Information and Communications in the Aftermath of the Great East Japan Earthquake

1-1 Information and Communications in the Aftermath of the Great East Japan Earthquake (1)

4

- With regards to telecommunications, up to one million landlines went out of service in the NTT East region, while up to 29,000 cellular / PHS base stations (operated by 5 carriers) stopped transmitting/receiving (number of base stations in the Tohoku and Kanto regions is approximately 137,500)
- With regards to congestion, restrictions up to 70% - 95% in scope were imposed on mobile telephone calls. Packets faced much milder congestion, with only a temporary 30% restriction imposed by NTT DoCoMo and none by other carriers.

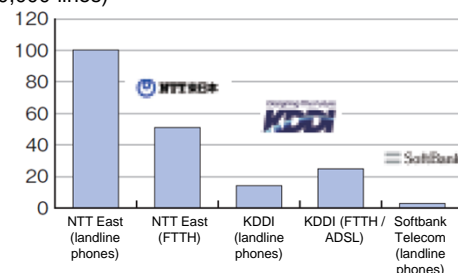
Telecommunications damage resulting from the Great East Japan Earthquake

Fixed-line telecommunications

Damage

- A total of approx. 1.9 million lines were damaged.
- All carriers had restored service by April except for in certain areas.

(Max. number of damaged lines)
(10,000 lines)

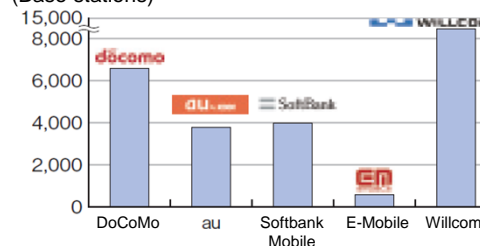


Mobile telecommunications

Damage

- Up to 29,000 base stations stopped transmitting/receiving
- All carriers had restored service by April (except in some NTT DoCoMo, KDDI and Softbank Mobile service areas)

(Max. number of out-of-service base stations)
(Base stations)



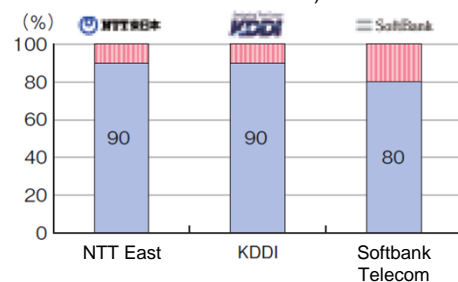
Telecommunications congestion resulting from the Great East Japan Earthquake

Fixed-line telecommunications

Congestion

- All carriers imposed up to 80%-90% restrictions on landlines.

(Max. transmission restrictions values)

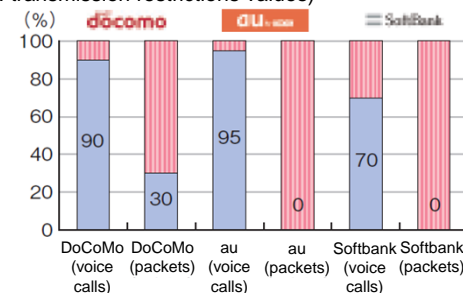


Mobile telecommunications

Congestion

- Restrictions up to 70% - 95% in scope were imposed on mobile telephone calls by all carriers (*).
- Packets faced much milder congestion, with no restrictions or relatively minor restrictions.

(Max. transmission restrictions values)



1-2 Information and Communications in the Aftermath of the Great East Japan Earthquake (2)

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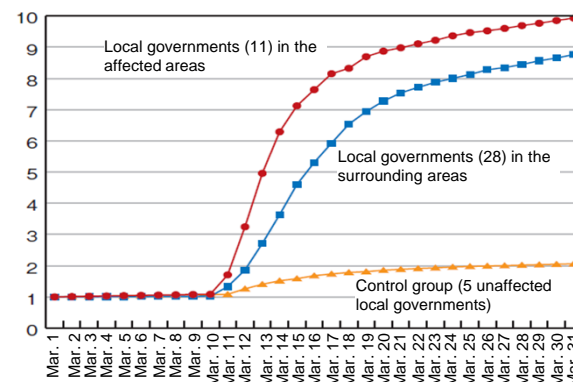
- Provisional emergency broadcasters (FM radio stations) providing residents with disaster updates were established in 24 cities and towns in the Tohoku and northern Kanto regions.
- Television was perceived as an important source of information on the disaster (in the Kanto region).
- There was a dramatic rise in the dissemination of information using social media by local governments in the affected areas and mass media outlets.

Establishment of community broadcasters and provisional emergency broadcasters in Iwate, Miyagi, Fukushima and Ibaraki prefectures

(As of June 8, 2011)

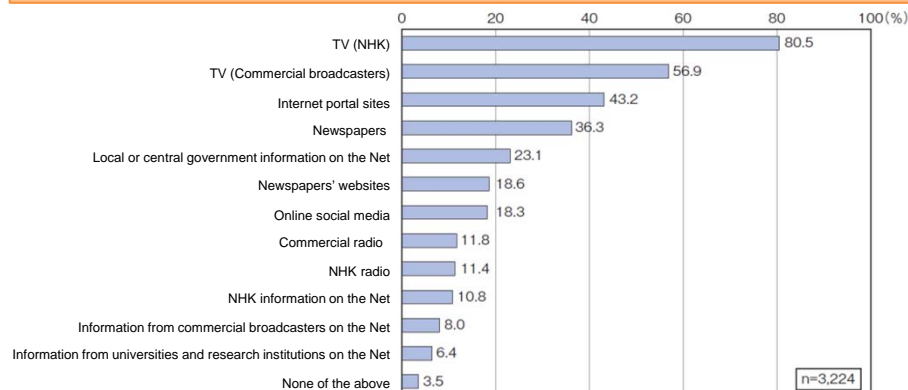
-Number of pre-existing community broadcasters	----- 21
Number continuing to function as community broadcasters	-- 11
Number converted to provisional emergency broadcasters after the disaster	-- 10
-Number of provisional emergency broadcasters newly established after the disaster	----- 16
Total	37

Change in number of local government Twitter followers in the affected areas



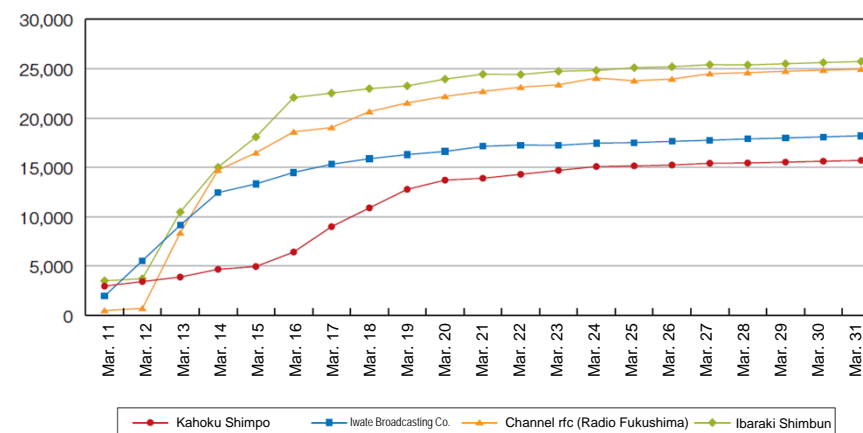
Comparison when "1" is the number of followers on March 1, 2011

Media and information sources perceived as important providers of disaster information (Kanto) (multiple answers)



*Based on a survey of Internet users aged 20-59 residing in the Kanto region, conducted on March 19-20, 2011 by the Nomura Research Institute
 *The "Internet" category includes accessing of the Internet by mobile phone
 *Internet portal sites" includes Yahoo!, Google, etc., but does not include the websites of newspapers, broadcasters, etc.
 *Internet social media" includes Twitter, mixi, Facebook, etc.

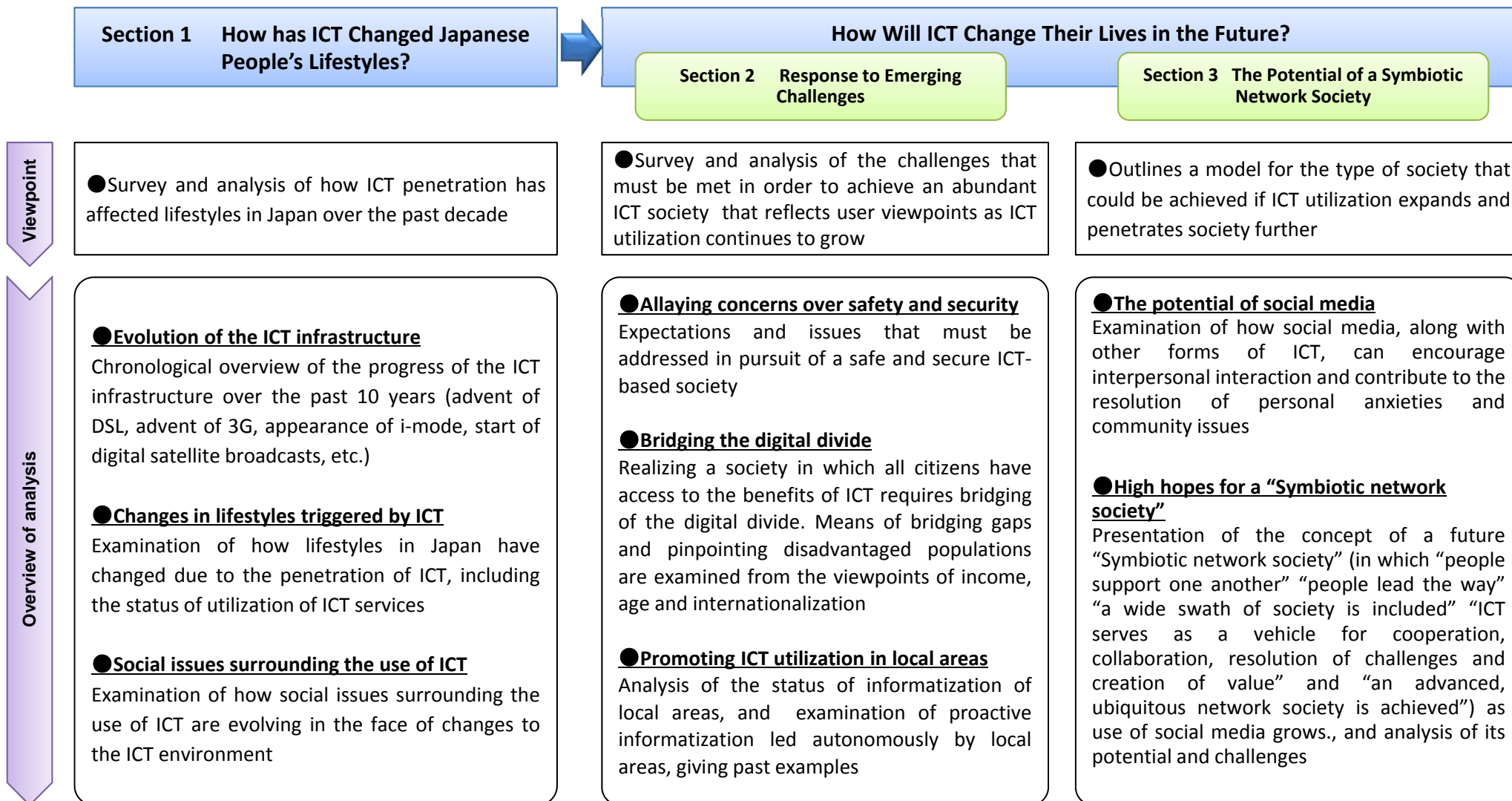
Change in number of mass media Twitter followers in the affected areas



2. Chapter 2 Points Regarding Special Theme (Featured Topic)

“Towards the Realization of a Symbiotic Network Society”

Looking back on the past 10 years, how has ICT changed people’s lifestyles in Japan, and how is it expected to do so in the future?



Analysis of how ICT penetration has affected lifestyles in Japan over the past decade

(1) Rapidly advancing infrastructure development and a lagging service penetration / utilization rate (P12)

- In Japan, while essential broadband infrastructure has made progress, service penetration and utilization rates lag behind.
- However, examining the specifics of infrastructure (penetration), we find that mobile broadband penetration (#3 ranking) and fixed broadband fees (#9) are relatively high on a global scale.
- In terms of utilization, individuals (ranked #12) and corporations (#7) have high rates compared to government (#23), which lags behind.

(2) ICT infrastructure environment has become richer and more personalized over the last 10 years (P13)

- Adoption of broadband has progressed rapidly thanks to the spread of DSL and cable Internet. Service has become faster, higher capacity and progressively richer in content as users convert to FTTH.
- The percentage of people who access the Internet using mobile devices has risen to 83.8% (compared to 40.2% in 2002), and the Internet environment is becoming progressively more personalized.
Meanwhile, content is progressively richer, with nearly all users switching to 3G (third-generation) mobile phones (98.8% of all subscriptions).
- Broadcasting is shifting to digital, with analog TV broadcasts being replaced by digital terrestrial broadcasts. With a greater number of channels through satellite or cable, viewers can select from an ever wider range of content.

(3) Increase in number of people perceiving the Internet as important in a wide variety of situations (P14)

- An increasing number of people perceive the Internet as a vital means of obtaining information. In the 20-29 age group in particular, the percentage has risen 28.8% in five years (52.3% in 2005 → 81.1% in 2010).
- 95.8% of students at four-year universities access job-search websites, indicating that the Internet is an indispensable tool for job hunting.
- As a popular hobby or leisure-time activity, the Internet (60.8%) has surpassed newspapers (55.9%) and is second only to television (90.9%).

(4) Lifestyle changes as a result of the evolving ICT infrastructure environment (P15)

- People aged 10-29 make frequent use of mobile phones for communication, through e-mail, etc. (average of approx. 50 min./day among people aged 10-29). Teenagers have a strong desire for connectedness, expressing fondness for the sense of “constant connection with friends and acquaintances”
- A purchasing process unique to Internet shopping has developed, which often follows a pattern of Search → Comparison of multiple sites → Examination based on user feedback, etc. → Purchase
- Many (64.9%) watch TV and text message or view websites on their mobile phones at the same time. "Multi-tasking" is the norm among those aged 10-29.

An analysis of the challenges that still must be dealt with in order to expand ICT use further and achieve an abundant ICT society that reflects user viewpoints, focusing on safety and security, the digital divide, and local areas

Safety and security

(1) Allaying ICT-related anxiety entails boosting not only ability to utilize information, but also understanding of security (P17)

- Many ICT users (46.0%) have anxieties about Internet use and safety and security continue to be key challenges.
- Allaying ICT-related anxiety entails **boosting not only ability to utilize information, but also understanding of security**. In particular, those in their 60s and 70s have relatively low ability to utilize information and understanding of security, and correspondingly high levels of anxiety.

(2) Parents play a major role in the advancement of children's ICT utilization (P18)

- As children grow older, their ability to utilize information grows, and at the same time they grow increasingly concerned over protection of privacy, viruses and other online threats. However, their anxiety levels are low compared to those of their parents.
- Parents have a strong influence on their children's ICT use**, with a tendency for parents with strong ability to utilize information to have children with strong ability as well.
- However, there are **discrepancies between parents' and children's perceptions of the ICT environment**, including household rules governing Internet use, etc. Among parents who responded that their household had rules in place, 27.2% of the children of these parents responded that there were "no rules."

The digital divide

(3) Precisely targeted measures tailored to the needs of specific segments of society are needed to overcome the digital divide in Japan (P19)

- The Internet utilization rate in Japan stands at 78.2%**, with the elderly and low-income people being the most prominent digital "have-nots". As the Internet becomes ever more indispensable for people's lifestyles, there is a need to consider ways to include all members of society.
- The Internet supplements social relations to a recognizable degree, with around 70% of participants in online communities** responding that **the Internet had revived ties with others**.
- Affordability** and **user-friendly devices (for the elderly)** are at the top of the wish list among digital have-nots.

(4) ICT infrastructure penetration is centered on the mobile sector in developing countries (P20)

- Around 60% of Internet users live in high-income countries (comprising 16% of the total population), and there is a persistent digital divide.**
- In contrast to developed countries, ICT infrastructure development **is centered on mobile devices in developing nations**. However, **fees for broadband and other ICT infrastructure are high**, standing in the way of increased penetration and utilization.
- There are countries outside the developed world where SNS utilization is on the rise. A picture is emerging of progress in ICT utilization centered around mobile devices and SNS.**

Local areas

(5) Promotion of local ICT utilization faces challenges in terms of fees, human resources, expertise and infrastructure (P21)

- The majority of local governments provide information through websites or other basic ICT, but **resident services employing ICT are offered only in a stagnant 27.4% of the total. Cost, human resources, expertise and infrastructure all present challenges.**
- There are major gaps in perception of ICT between those entities utilizing ICT and those not doing so. (Of those implementing ICT projects, 75.8% say these projects are "effective." However, among those not yet implementing projects, 61.9% "could not say" whether such programs are effective or not.) To promote utilization, it is essential both to find solutions to challenges and to provide clear illustrations of benefits.

(6) In addition to resolution of financial and ICT human resources issues, establishing wide-ranging partnerships is also essential (P22)

- Local governments' utilization of ICT is dependent on the district's fiscal health and access to competent human resources. **The disparity between levels of ICT utilization in local areas is a concern.**
- More ICT progress is made when NPOs lend a hand.** However, most informatization NPOs are concentrated in cities, and local areas are weak in terms of both fiscal health and organizational structure. **There is a strong need for broad-based, inter-regional partnerships.**

Proposals for the kind of society that could be achieved with broader use of ICT throughout society, based on an analysis of social media

(1) Utilization of social media is being led by the younger generation (P24)

- **Approximately 60%** of social media users **access multiple media**. A majority use SNS, blogs, or Twitter.
- **Both overall use and use of multiple media are high among young people** (among users, rate of multiple media use is 69.3% among the 10-19 age group and 61.5% among the 20-29 age group).
- While males and the young tend to have high rates of use in general, blogs are accessed more by female users than male. Rates of use are growing in all age groups (among elderly (60 years and older) social media users, 59.5% use SNS and 55.1% access blogs*). *Percentages are out of elderly social media users, who account for 22.3% of the elderly population
- **Social media utilization is led by teens and 20-somethings who use media during slivers of free time, regardless of their location, via mobile devices. (45.1% of the 10-19 age group and 31.7% of the 20-29 age group primarily use mobile devices.)**

(2) Social media provide a vehicle for cooperation and collaboration and help to resolve various problems (P25)

- Users **make use of different types of social media for different purposes, achieving diverse results**. For example, SNS are frequently used to interact with existing acquaintances (43.9% of SNS users), whereas blogs may be used to resolve everyday anxieties and issues (13.1% of blog users).
- Social media **provide a vehicle for cooperation and collaboration and help to resolve various everyday problems, anxieties, and social and community issues**. For example, some use social media to contact those with whom they work or volunteer, or who share similar concerns, and a great many (50.3%) have achieved results such as finding a business partner, resolving their own or their family's academic, employment, child-rearing, or health issues, or resolving neighborhood or community problems.

(3) Expectations for ICT's role in formation and revitalization of "ties," resolution of anxieties, contribution to mutual support, and inclusion of diverse segments of society (P26)

- In the midst of weakening family and community ties, social media **is effective both at strengthening existing relationships and establishing new ones**. (Example: 69.6% of people who communicate with faraway acquaintances via social media say it has strengthened their ties.)
- **A great number of social media users (36.8%) have resolved issues and anxieties** regarding academics, employment, child-rearing, health, etc. **The greater the frequency of interaction, the greater the likelihood of resolving issues.**
- Social media are being used to **strengthen ties, resolve issues and anxieties, and facilitate mutual support among people. The creation of networks of mutual support among those in risk of isolation is expected to lead to a broadly inclusive social framework.**

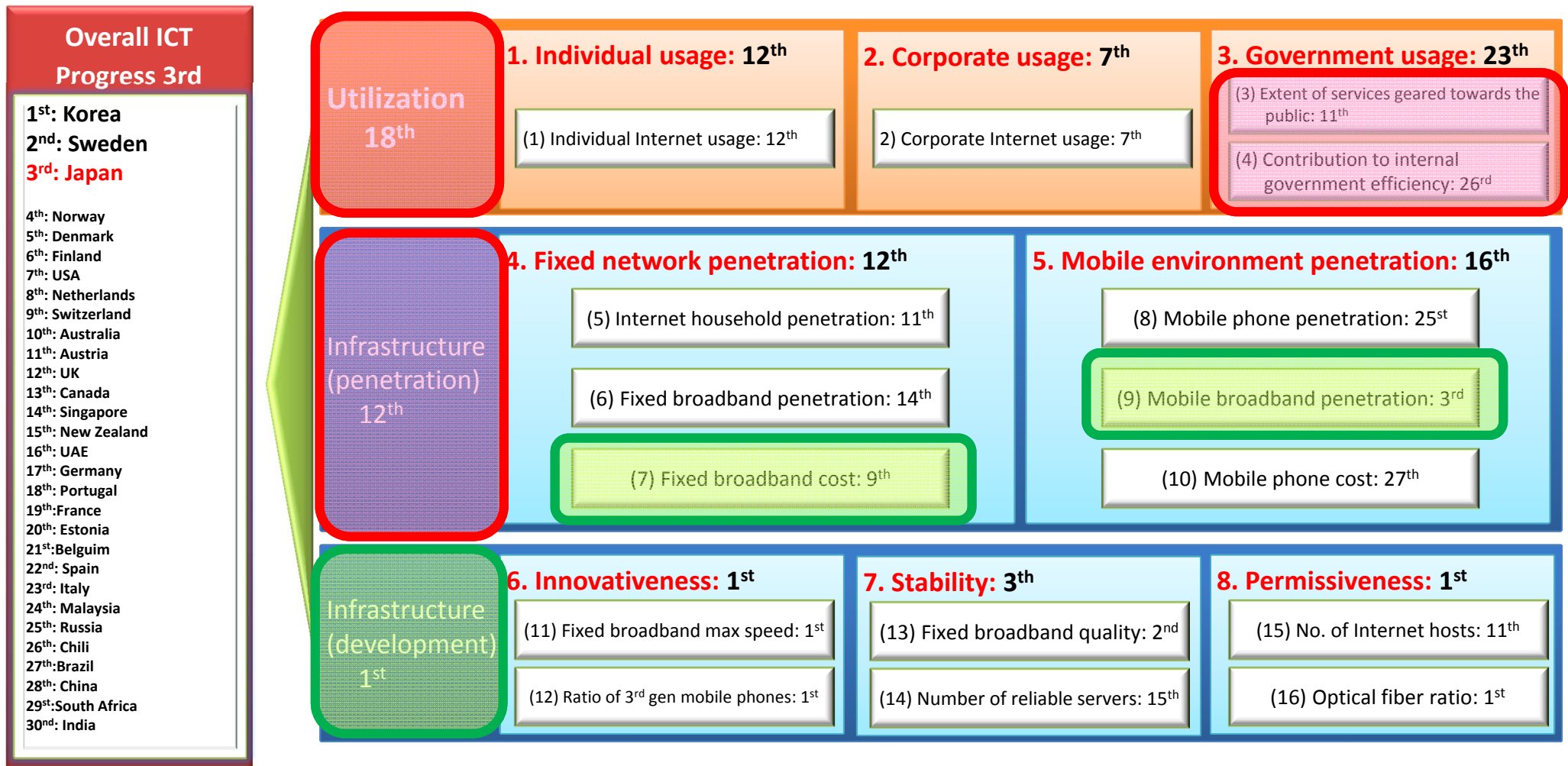
(4) Steps must be taken to address user anxieties over personal information (P27)

- Users express anxiety over the threat of personal information leakage (86.5% of blog users) and invasion of privacy (73.4% of blog users), and effective countermeasures are required.

3. Section 1

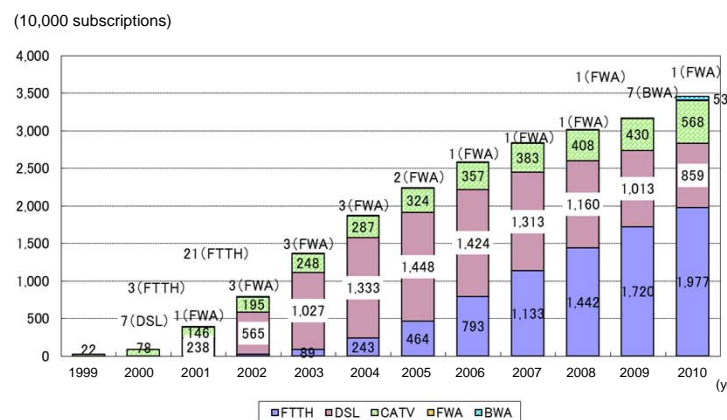
How has ICT Changed Japanese People's Lifestyles?

- In Japan, while essential broadband infrastructure has made progress, service penetration and utilization rates lag behind.
- However, examining the specifics of infrastructure (penetration), we find that the ranking of mobile broadband penetration (#3 ranking) and fixed broadband fees (#9) are relatively high on a global scale.
- In terms of utilization, individuals (ranked #12) and corporations (#7) have high rates compared to government (#23), which lags behind.

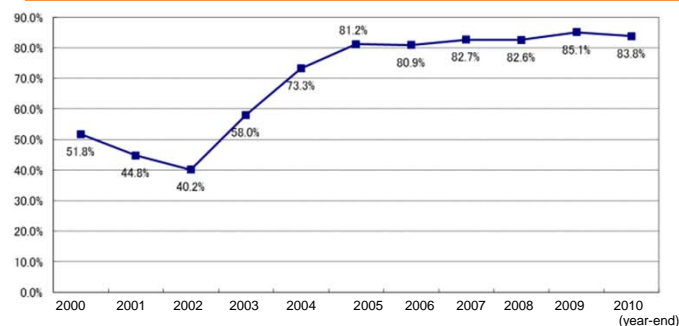


- Adoption of broadband has progressed rapidly thanks to the spread of DSL and cable Internet. Service has become faster, higher capacity and progressively richer in content as users convert to FTTH.
- The percentage of people who access the Internet using mobile devices has risen to 83.8% (compared to 40.2% in 2002), and the Internet environment is becoming progressively more personalized. Meanwhile, content is progressively richer, with nearly all users switching to 3G (third-generation) mobile phones (98.8% of all subscriptions).
- Broadcasting is shifting to digital, with analog TV broadcasts being replaced by digital terrestrial broadcasts. With a greater number of channels through satellite or cable, viewers can select from an ever wider range of content.

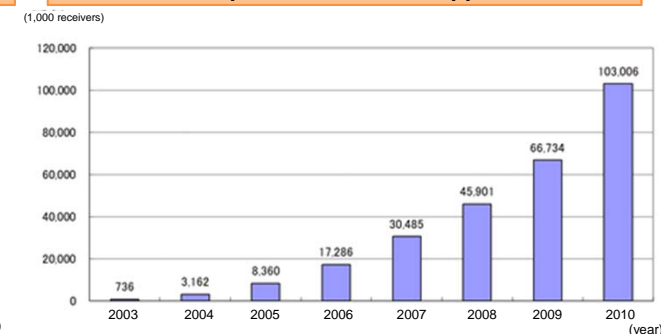
Change in number of broadband subscriptions



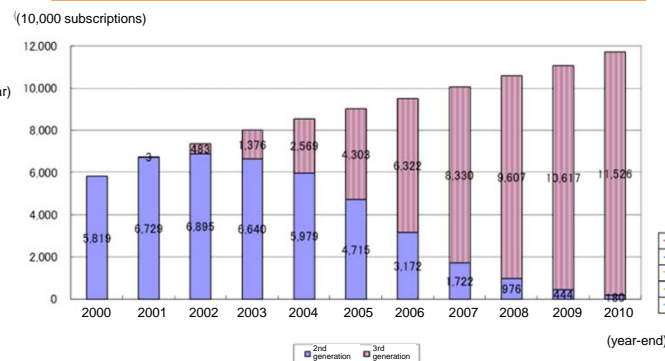
Change in percentage of people accessing the Internet using mobile devices



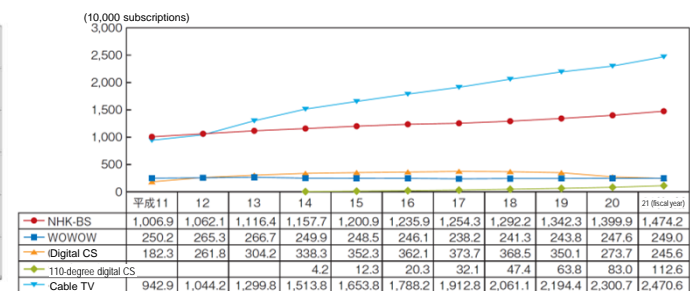
Change in number of digital terrestrial broadcast-compatible receivers shipped



Change in number of subscriptions to 2nd- and 3rd-generation mobile communications systems



Change in number of satellite broadcast and cable TV subscriptions

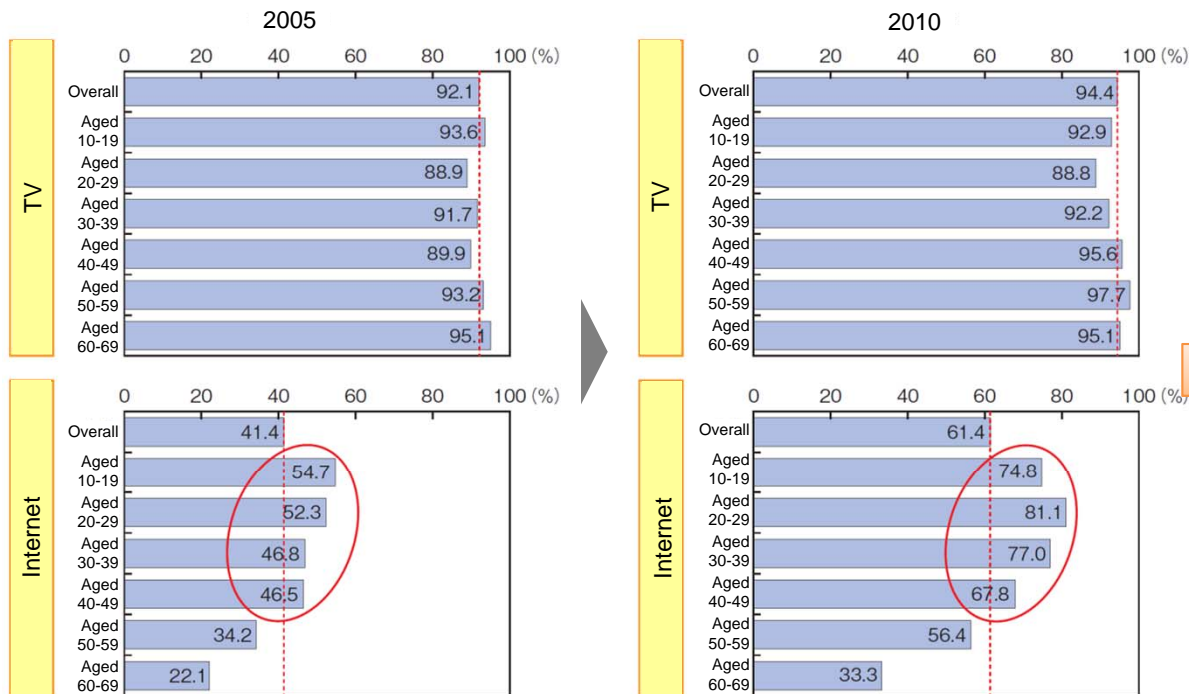


3-3 Increase in number of people perceiving the Internet as important in a wide variety of situations

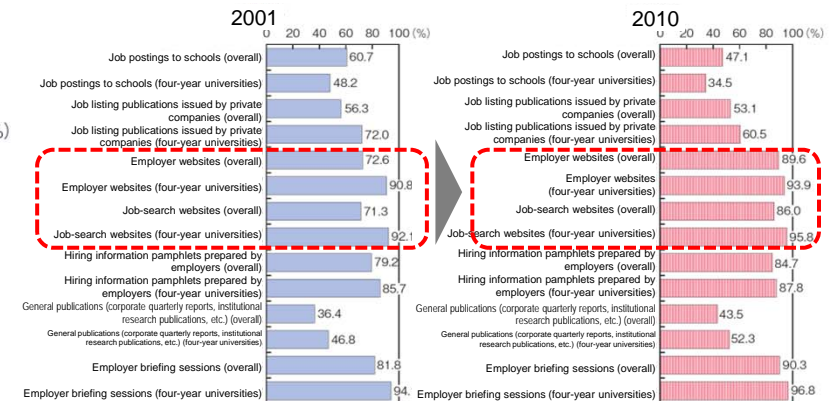
14

- An increasing number of people perceive the Internet as a vital means of obtaining information. In the 20-29 age group in particular, the percentage has risen 28.8% in five years (52.3% in 2005 → 81.1% in 2010).
- 95.8% of students at four-year universities access job-search websites, indicating that the Internet is an indispensable tool for job hunting.
- As a popular hobby or leisure-time activity, the Internet (60.8%) has surpassed newspapers (55.9%) and is second only to television (90.9%).

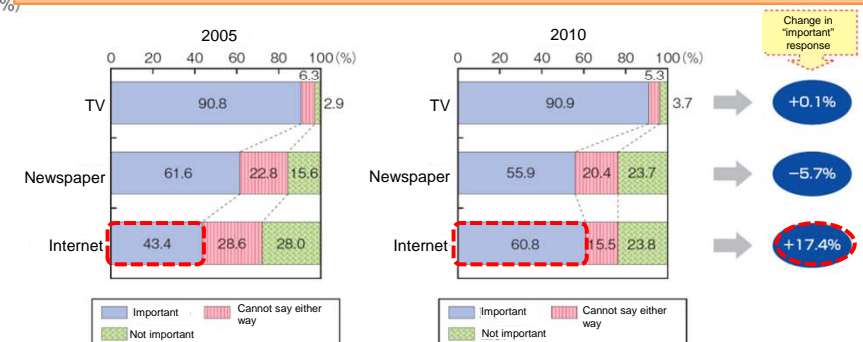
Perception of importance of TV and Internet by age group



Evolution of information sources used for job hunting and career advancement



Evolution of perceived importance of ICT as a hobby or leisure-time activity

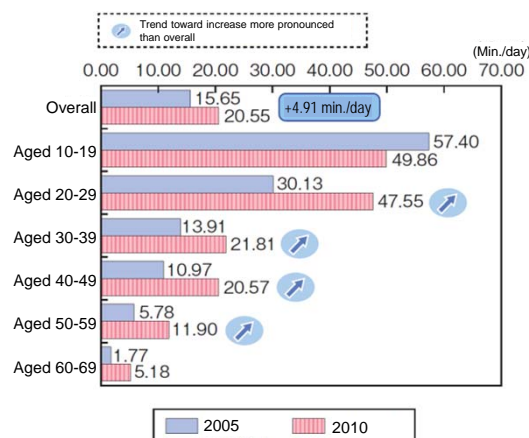


3-4 Lifestyle changes as a result of the evolving ICT infrastructure environment

15

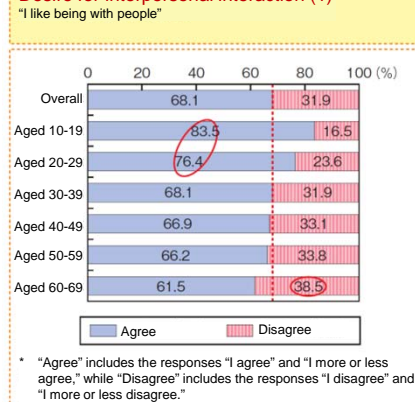
- People aged 10-29 make frequent use of mobile phones for communication, through e-mail, etc. (average of approx. 50 min./day among people aged 10-29). Teenagers have a strong desire for connectedness, expressing fondness for the sense of “constant connection with friends and acquaintances”
- A purchasing process unique to Internet shopping has developed, which often follows a pattern of Search → Comparison of multiple sites → Examination based on user feedback, etc. → Purchase
- Many (64.9%) watch TV and text message or view websites on their mobile phones at the same time. "Multi-tasking" is the norm among those aged 10-29.

Change in length of time spent reading or writing mobile phone text messages

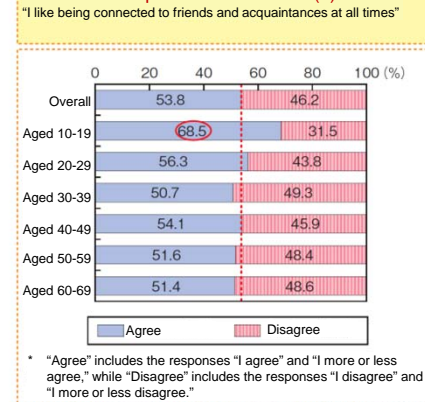


Desire for interpersonal interaction by age group

Desire for interpersonal interaction (1)
"I like being with people"



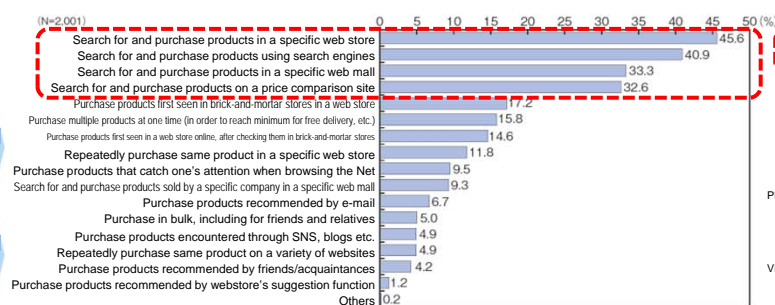
Desire for interpersonal interaction (2)
"I like being connected to friends and acquaintances at all times"



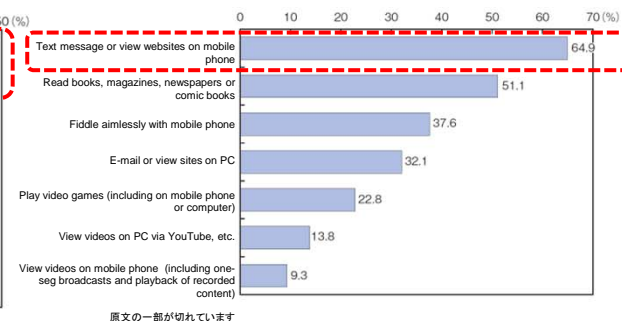
A different purchasing process used for Internet shopping



Internet shopping behavior patterns



Percentage of people who multi-task while watching TV



4. Section 2

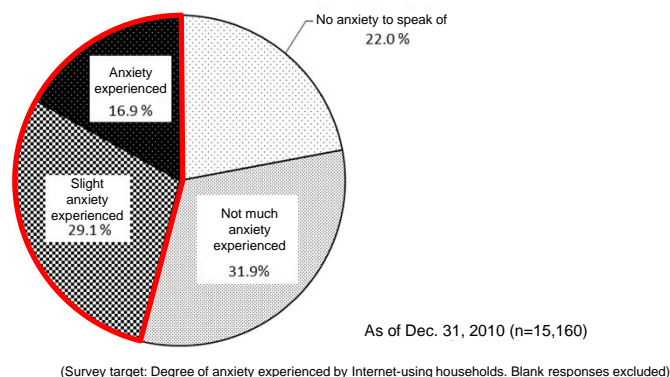
Response to Emerging Challenges

4-1 Allaying ICT-related anxiety entails boosting not only ability to utilize information, but also understanding of security issues

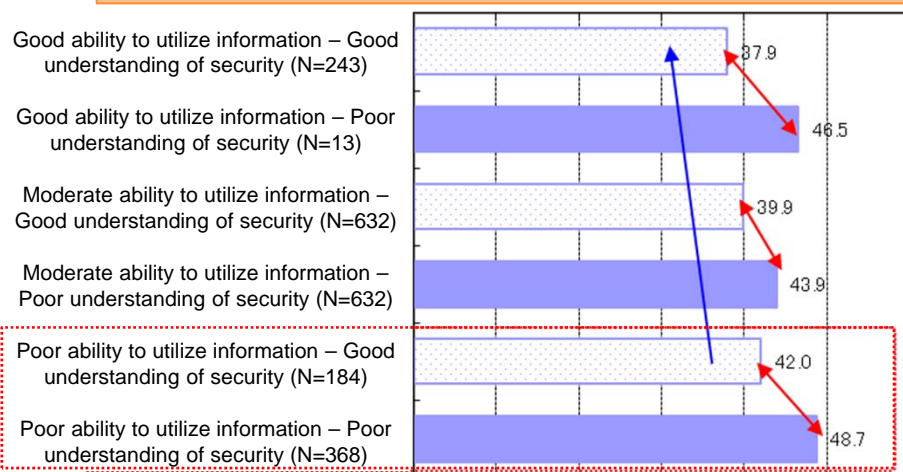
17

- Many ICT users (46.0%) have anxieties about Internet use, while safety and security continue to be key challenges.
- Allaying ICT-related anxiety entails boosting not only ability to utilize information, but also understanding of security. In particular, those in their 60s and 70s have relatively low ability to utilize information and understanding of security, and correspondingly high levels of anxiety.

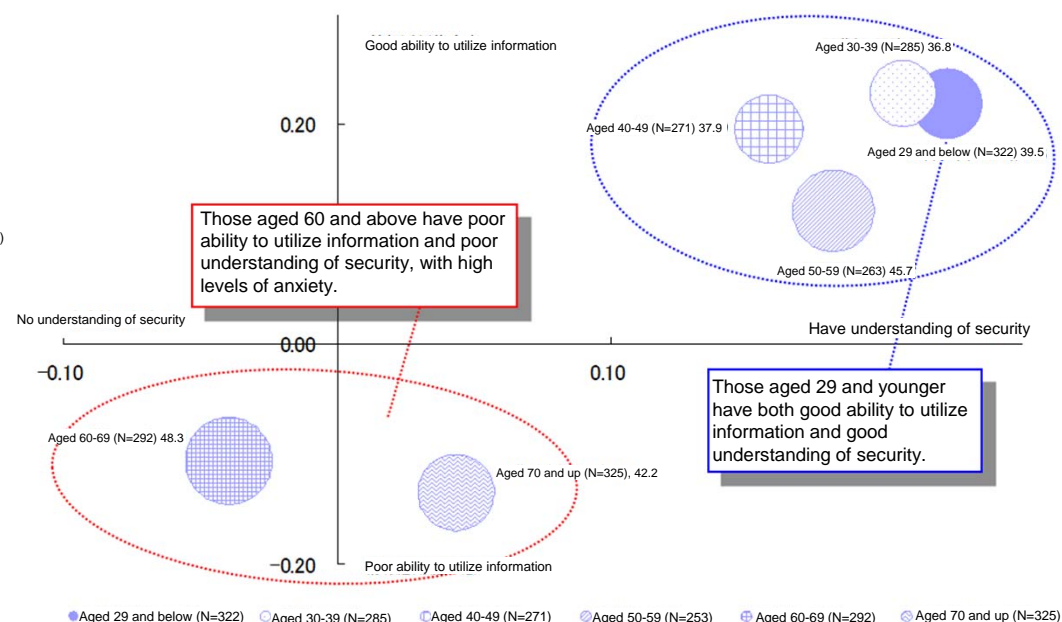
Degree of Anxiety occasioned by Internet use



Levels of understanding of security issues and levels of anxiety by degree of ability to utilize information (among Net users overall)



Analysis of anxiety levels and understanding of security issues by user segment (by age)

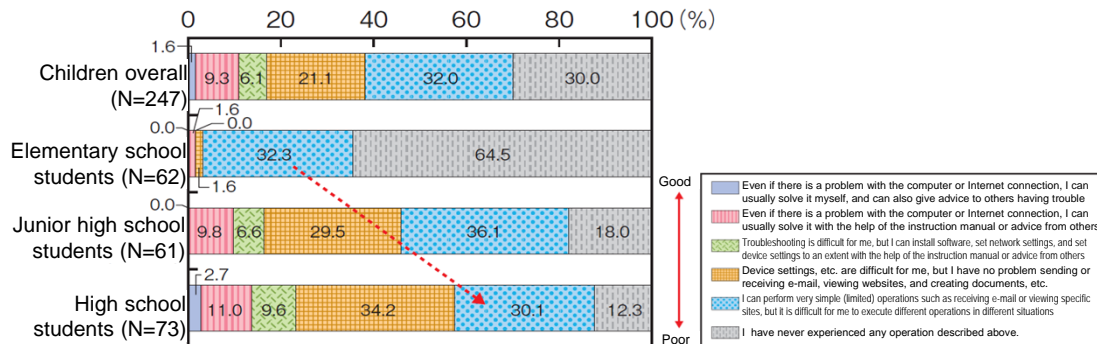


4-2 Parents play a major role in the advancement of children's ICT competency

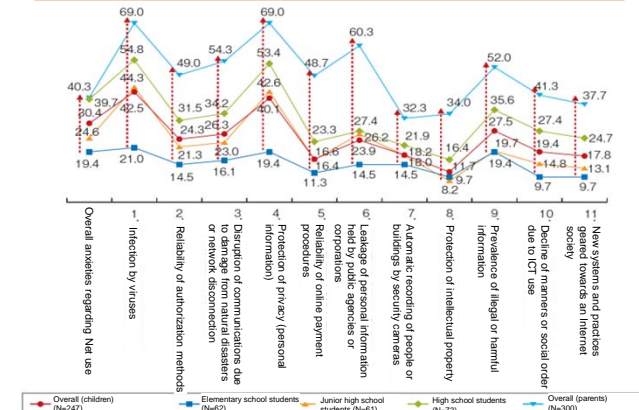
18

- As children grow older, their ability to utilize information grows, and at the same time they grow increasingly concerned over protection of privacy, viruses and other online threats. However, their anxiety levels are low compared to those of their parents.
- Parents have a strong influence on their children's ICT use, with a tendency for parents with strong ability to utilize information to have children with strong ability as well.
- However, there are discrepancies between parents' and children's perceptions of the ICT environment, including household rules governing Internet use, etc. Among parents who responded that their household had rules in place, 27.2% of the children of these parents responded that there were "no rules."

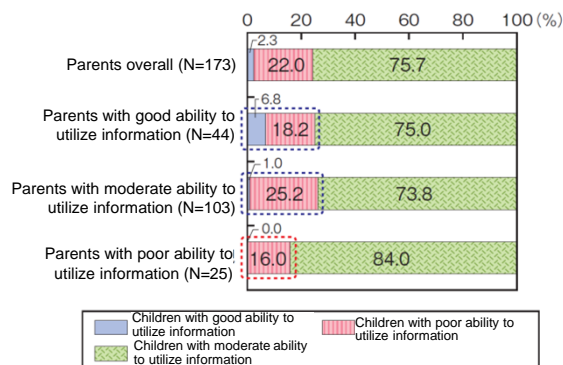
Children's ability to utilize information



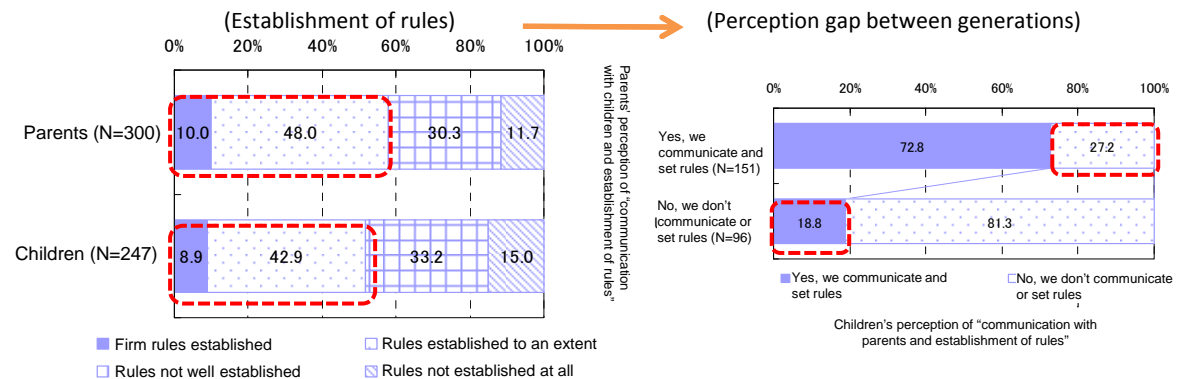
Anxieties surrounding children's ICT environment



Children's and parents' ability to use information effectively



Household rules about the Internet

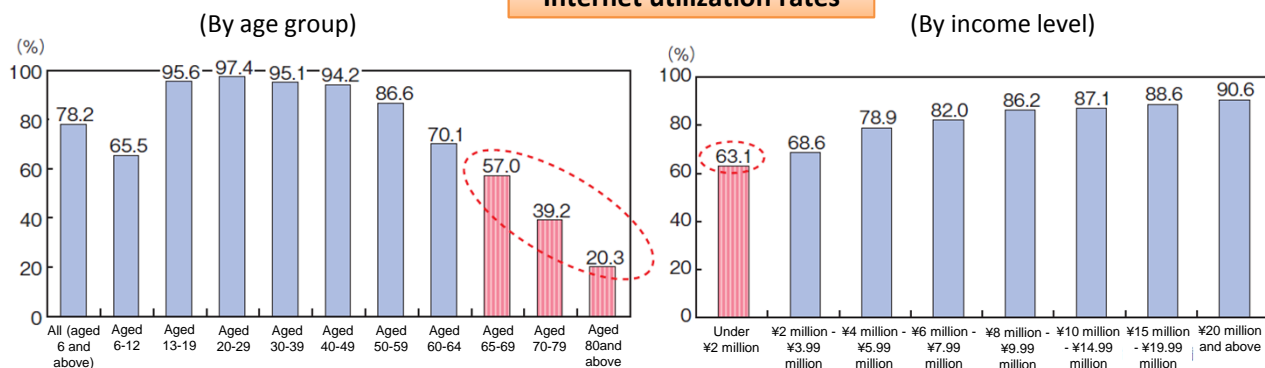


4-3 Precisely targeted measures tailored to the needs of specific segments of society are needed to overcome the digital divide in Japan

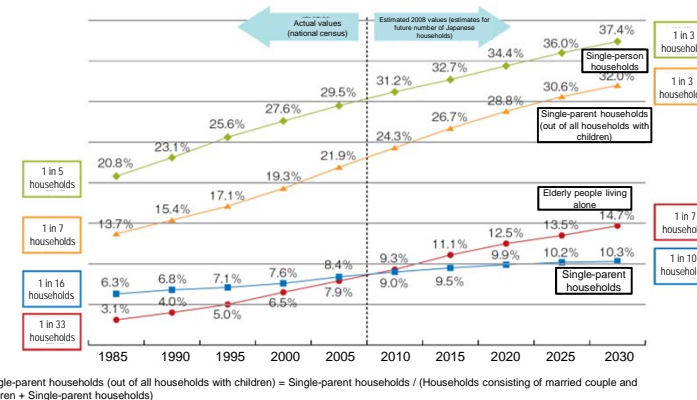
19

- The Internet utilization rate in Japan stands at 78.2%, with the elderly and low-income people being the most prominent digital "have-nots". As the Internet becomes ever more indispensable for people's lifestyles, there is a need to consider ways to include all members of society.
- The Internet supplements social relations to a recognizable degree, with around 70% of participants in online communities responding that the Internet had revived ties with others.
- Affordability and user-friendly devices (for the elderly) are at the top of the wish list among digital have-nots.

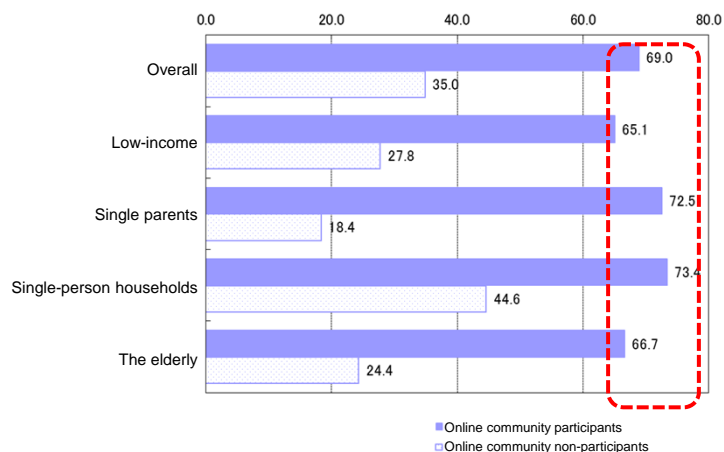
Internet utilization rates



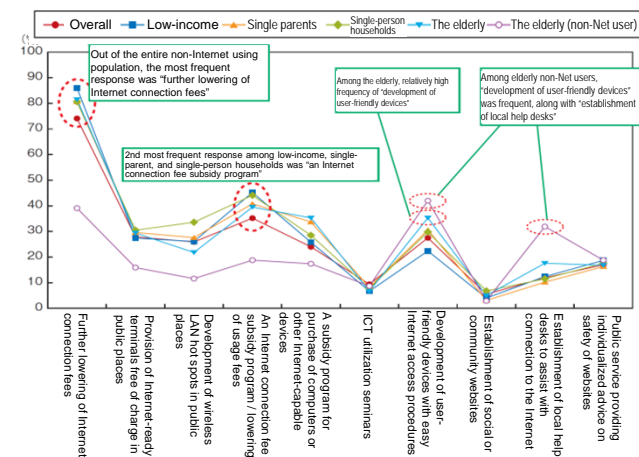
Changes and predictions for household composition



Revitalization of ties achieved through the Internet



Challenges regarding Internet utilization

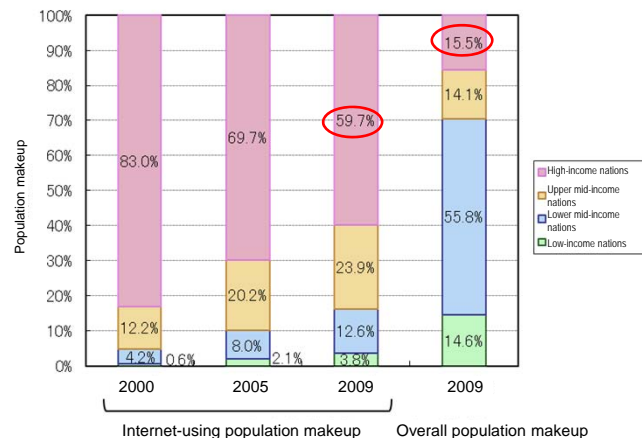


4-4 ICT infrastructure penetration is centered on the mobile sector in developing countries

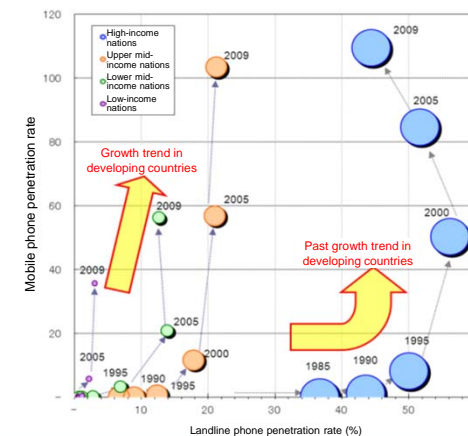
20

- Around 60% of Internet users live in high-income countries (comprising 16% of the total population), and there is a persistent digital divide.
- In contrast to developed countries, ICT infrastructure development is centered on mobile devices in developing nations. However, fees for broadband and other ICT infrastructure are high, standing in the way of increased penetration and utilization.
- There are countries outside the developed world where SNS utilization is on the rise. A picture is emerging of progress in ICT utilization centered around mobile devices and SNS.

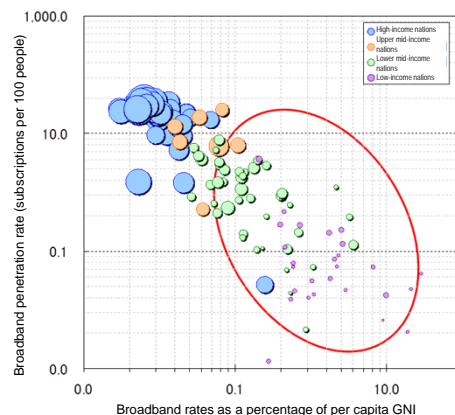
Comparison of Internet-using population makeup by income level



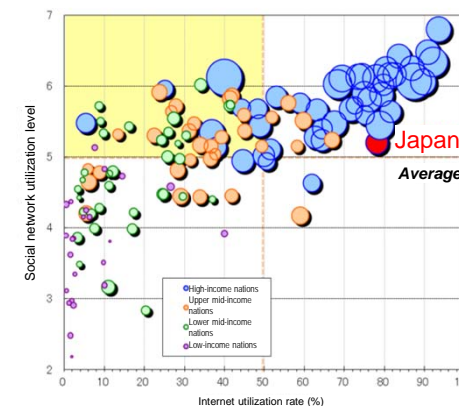
Correlation between landline and mobile phone penetration rates (changes since 1985)



Correlation between fee levels and broadband penetration rates (2009)



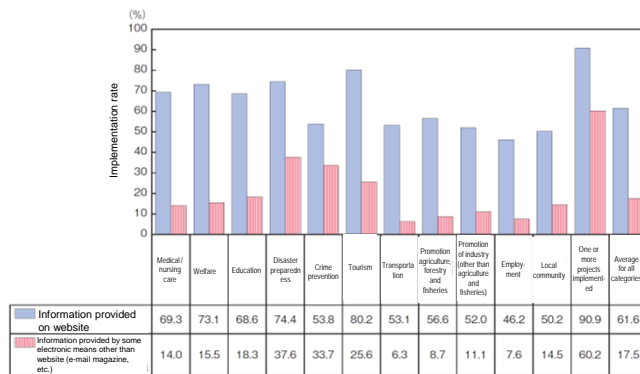
Internet utilization rates and social network utilization levels



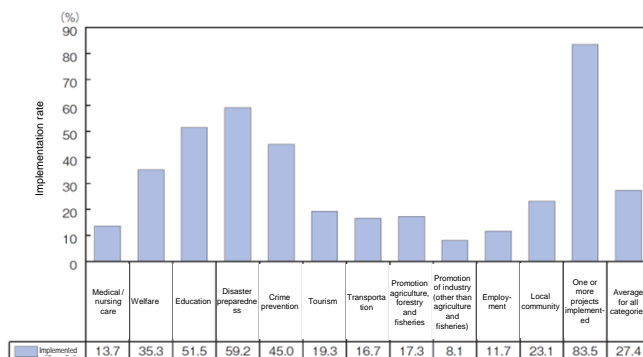
4-5 Promotion of local ICT utilization faces challenges in terms of fees, human resources , expertise and infrastructure

- The majority of local governments provide information through websites or other basic ICT, but resident services employing ICT are offered only in a stagnant 27.4% of the total. Cost, human resources, expertise and infrastructure all present challenges.
- There are major gaps in perception of ICT between those entities utilizing ICT and those not doing so. (Of those implementing ICT projects, 75.8% say these projects are "effective." However, among those not yet implementing projects, 61.9% "could not say" whether such programs are effective or not.) To promote utilization, it is essential both to find solutions to challenges and to provide clear illustrations of benefits.

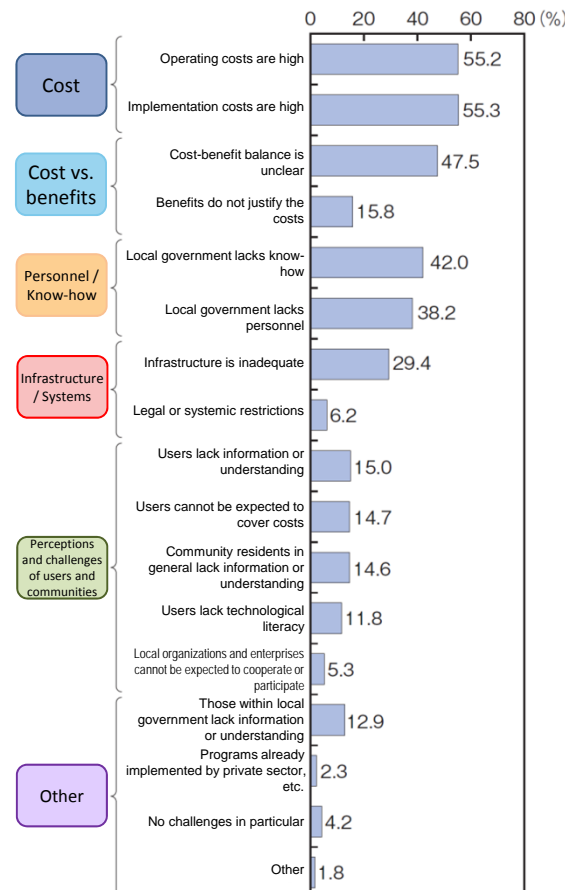
Status of implementation of basic ICT services



Status of implementation of programs utilizing ICT



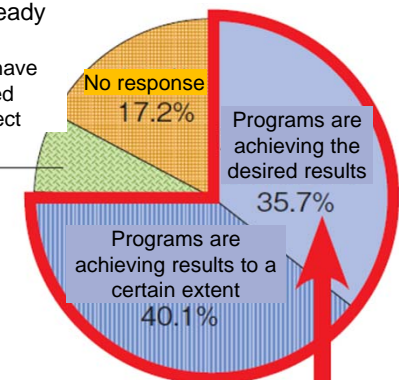
Challenges facing local ICT utilization



Approach to overcoming challenges facing local ICT utilization

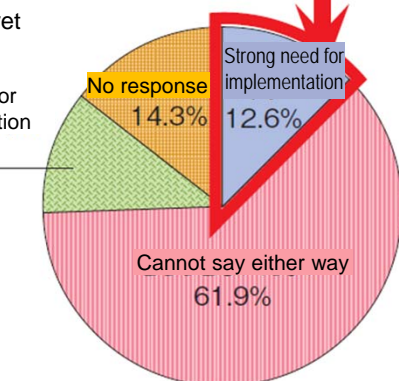
ICT programs already implemented

Programs have not achieved desired effect
7.0%



ICT programs not yet implemented

Little need for implementation
11.2%

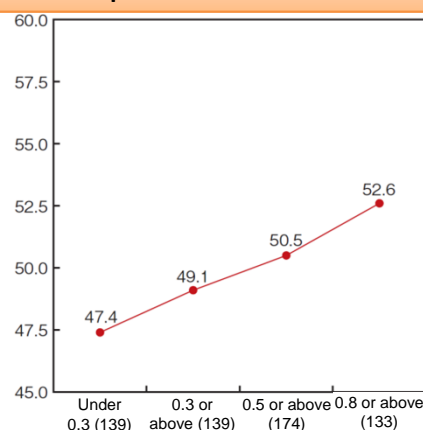


4-6 In addition to resolution of financial and ICT human resources issues, establishing wide-ranging partnerships is also essential

22

- Local governments' utilization of ICT is dependent on the district's fiscal health and access to competent human resources. The disparity between levels of ICT utilization in local areas is a concern.
- More ICT progress is made when NPOs lend a hand. However, most informatization NPOs are concentrated in cities, and local areas are weak in terms of both fiscal health and organizational structure. There is a strong need for broad-based, inter-regional partnerships.

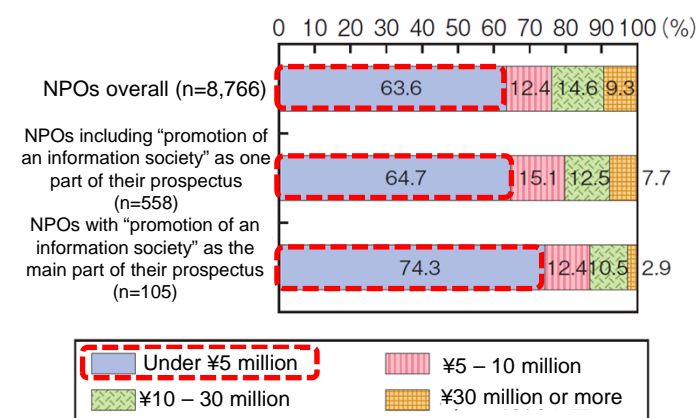
Local government fiscal indicators and comprehensive indicators



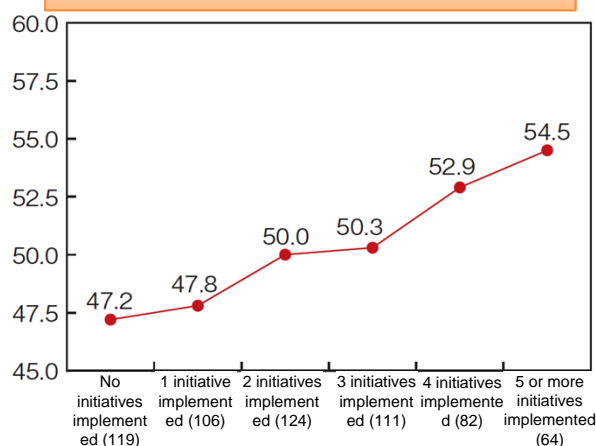
Collaboration with NPOs in the ICT sector and comprehensive indicators

	Yes (38 local governments)	No (568 local governments)
Collaboration between local government and ICT promotion NPOs in the ICT sector?	56.1	49.6

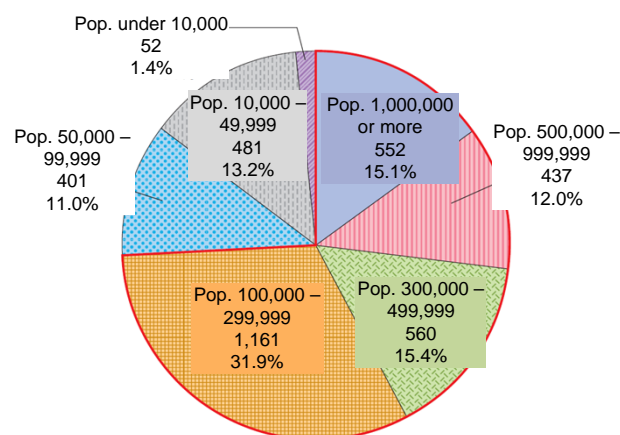
Fiscal scale of informatization NPOs



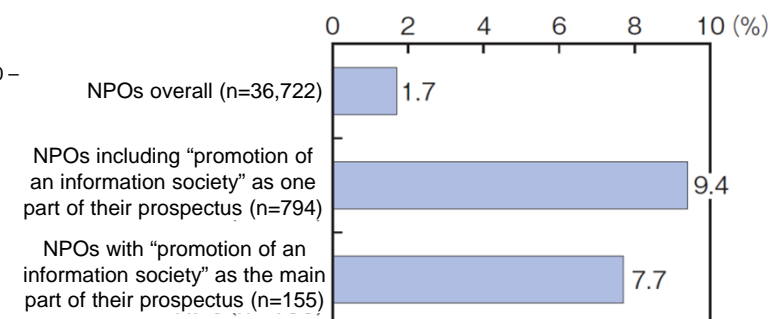
Local government ICT human resources initiatives and comprehensive indicators



Status of informatization NPO establishment (by city population rating)



Percentage of NPOs with regular salaried staff



5. Section 3 The Potential of a Symbiotic Network Society

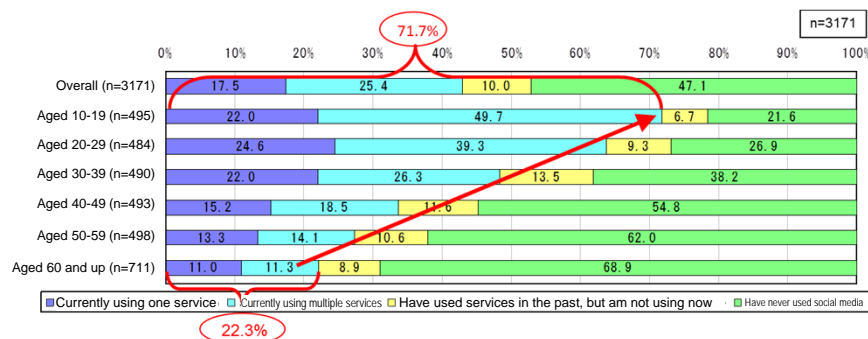
5-1 Utilization of social media is being led by the younger generation

24

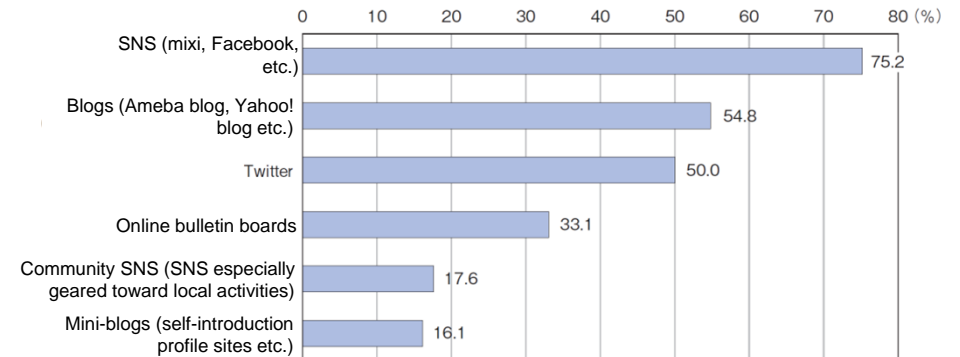
- Approximately 60% of social media users access multiple media. A majority use SNS, blogs, and Twitter.
- Both overall use and use of multiple media are high among young people.
- While males and the young tend to have high rates of use, blogs are accessed more by female users than male. Rates of use are growing in all age groups.
- Social media utilization is led by teens and 20-somethings who use media during slivers of free time, regardless of their location, via mobile devices.

Approximately 60% of social media users access multiple media.
Both overall use and use of multiple media are high among young people

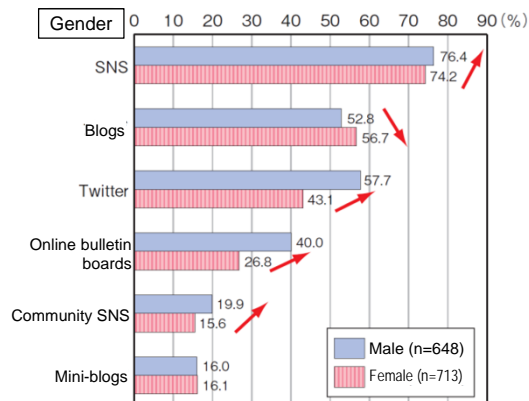
(Among users, rate of multiple media use is 69.3% among the 10-19 age group and 61.5% among the 20-29 age group).



The majority use SNS, blogs, or Twitter

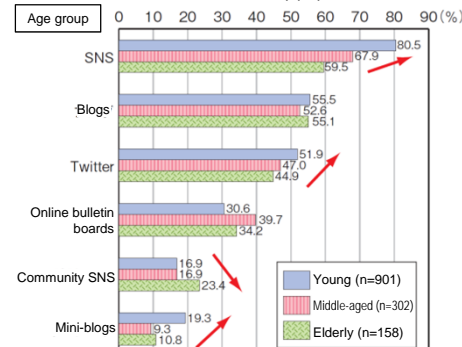


While males and the young tend to have high rates of use in general, blogs are accessed more by female users than male



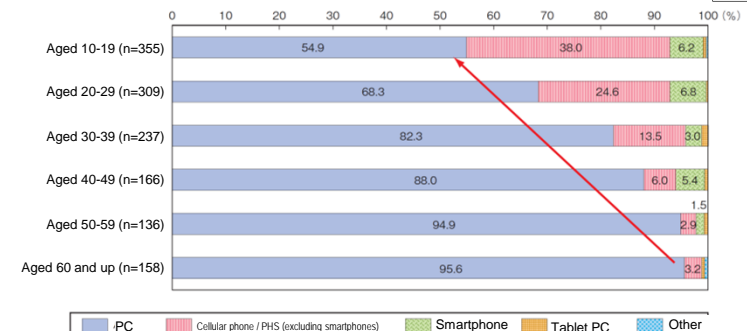
SNS and Twitter, etc. are favored by the younger generation, and bulletin boards by the middle-aged. Blogs are used regardless of age group

(Among elderly (60 years and older) social media users, 59.5% use SNS and 55.1% access blogs*). *Percentages are out of elderly social media users, who account for 22.3% of the elderly population



Tendency for young users to use primarily mobile devices such as cell phones and smart phones

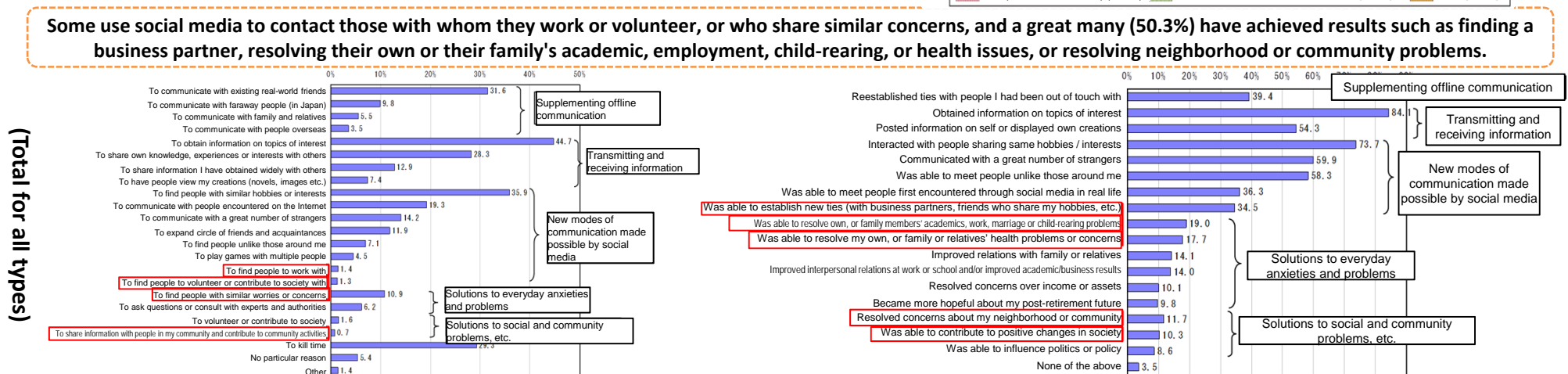
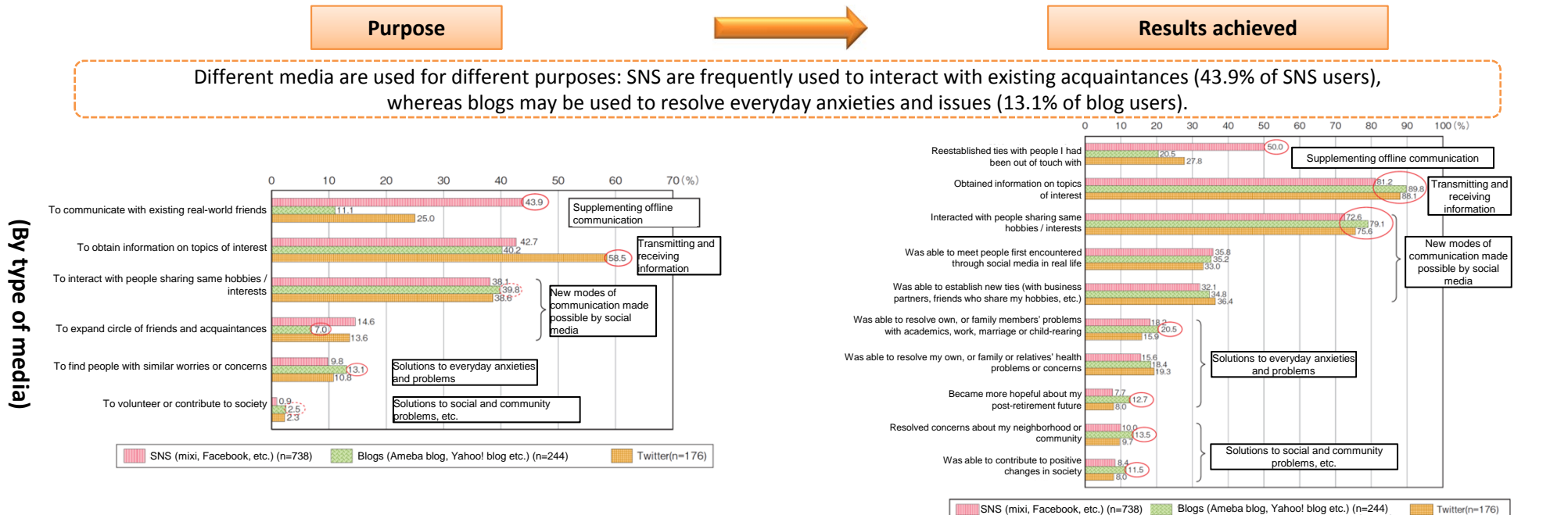
(45.1% of the 10-19 age group and 31.7% of the 20-29 age group primarily use mobile devices.)



5-2 Social media provide a vehicle for cooperation and collaboration and help to resolve various problems

25

- Users make use of different types of social media for different purposes, achieving diverse results.
- Social media provide a vehicle for cooperation and collaboration and help to resolve a wide range of issues.

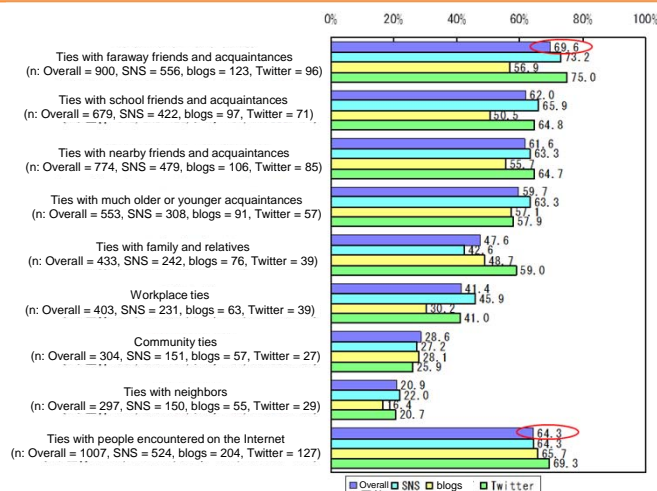


5-3 Expectations for ICT's role in formation and revitalization of "ties," resolution of anxieties, contribution to mutual support, and inclusion of diverse segments of society

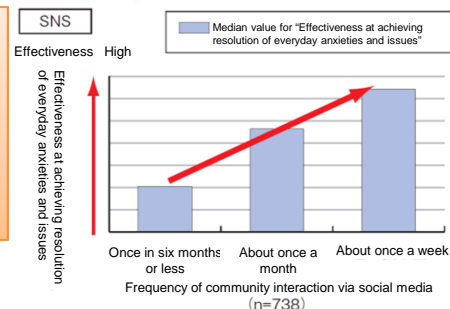
26

- In the midst of weakening family and community ties, social media is effective both at strengthening existing relationships and establishing new ones. (Example: 69.6% of people who communicate with faraway acquaintances via social media say it has strengthened their ties.)
- A great number of social media users (36.8%) have resolved issues and anxieties regarding academics, employment, child-rearing, health, etc. The greater the frequency of interaction, the greater the likelihood of resolving issues.
- Social media are being used to strengthen ties, resolve issues and anxieties, and facilitate mutual support among people. The creation of networks of mutual support among those in risk of isolation is expected to lead to a broadly inclusive social framework.

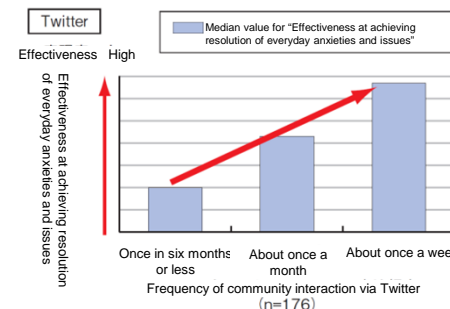
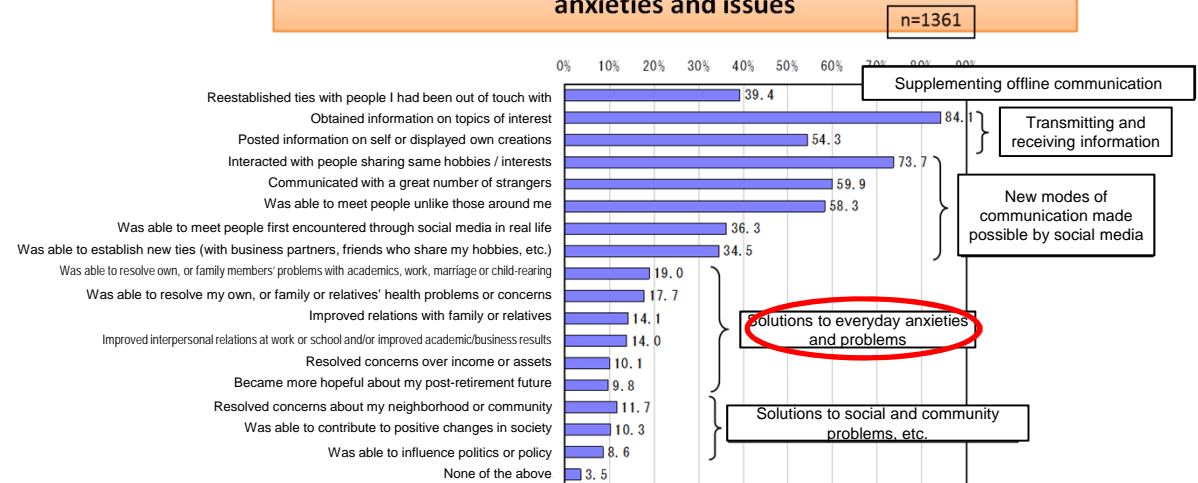
Strengthening of ties through utilization of social media



Correlation between frequency of community interaction via social media and resolution of everyday anxieties and issues



Social media are an effective means of resolution of everyday anxieties and issues

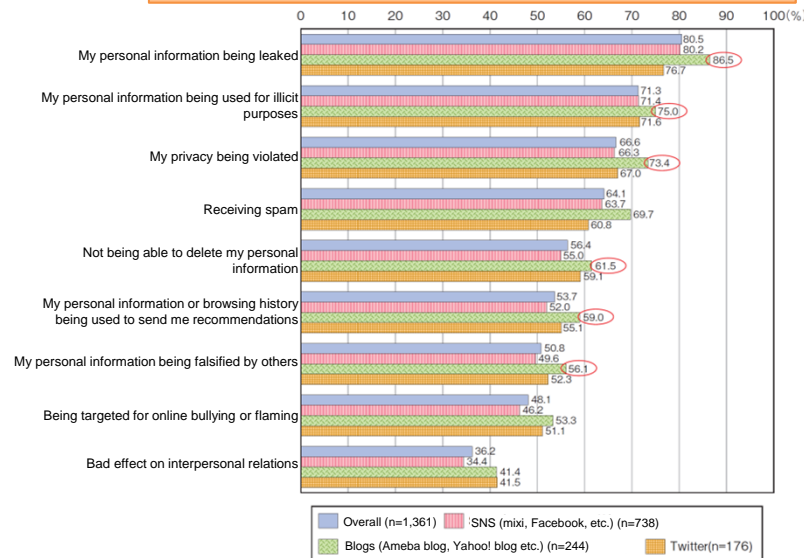


5-4 Steps must be taken to address user anxieties over personal information

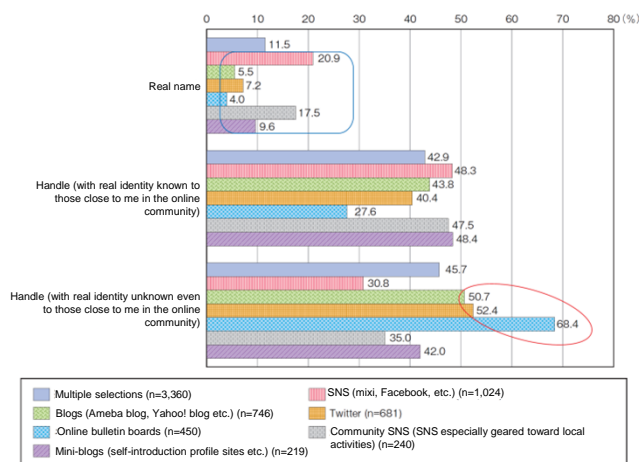
27

- Users express anxiety over the threat of personal information leakage (86.5% of blog users) and invasion of privacy (73.4% of blog users), and effective countermeasures are required.

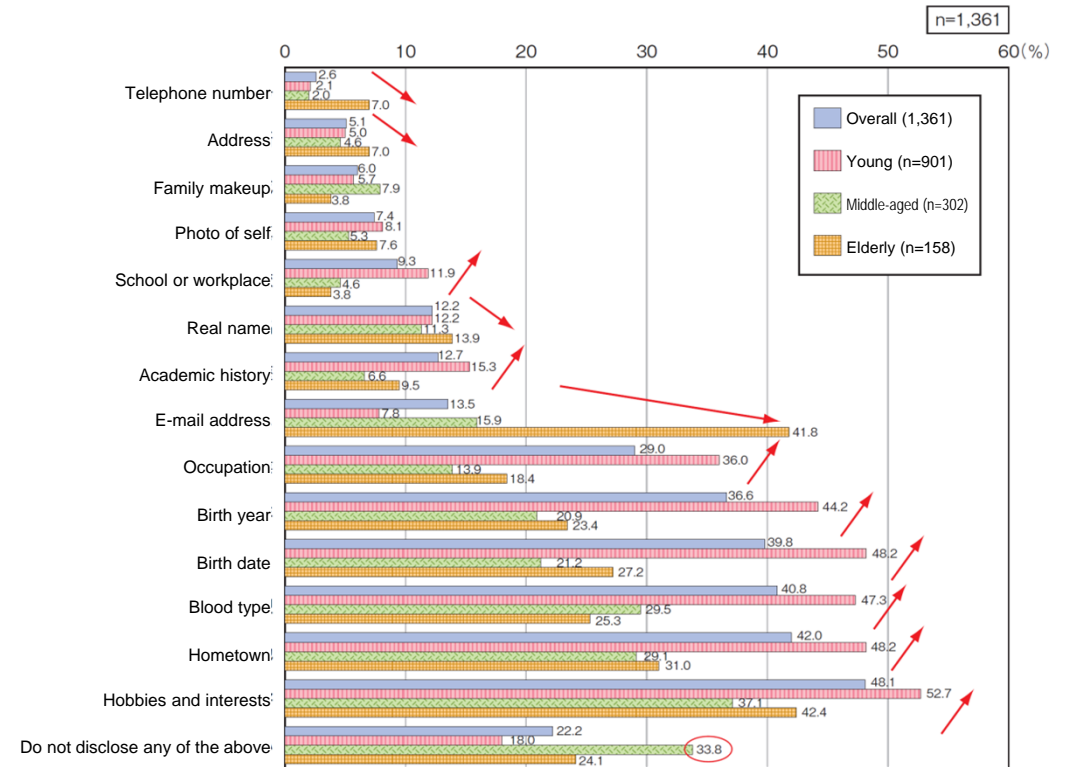
Anxieties experienced by users of social media



Use of real names, etc. (by type of social media)



Overall degree of online disclosure of personal information (by age group)



6. [Ref.] Chapter 3

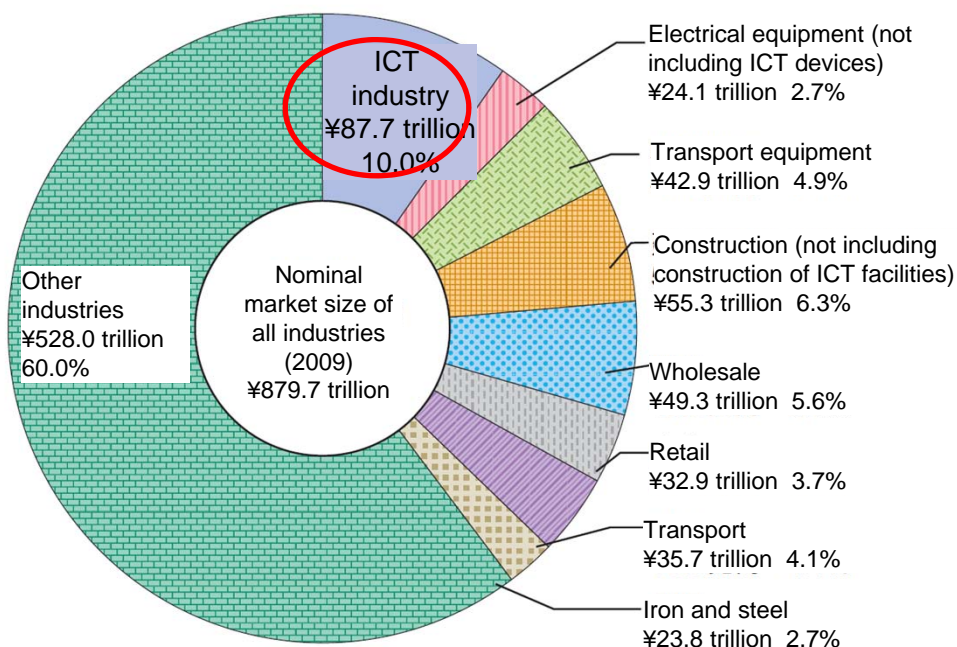
Economic analysis of the ICT sector

6-1 Japan's ICT industry's contribution to economic growth

29

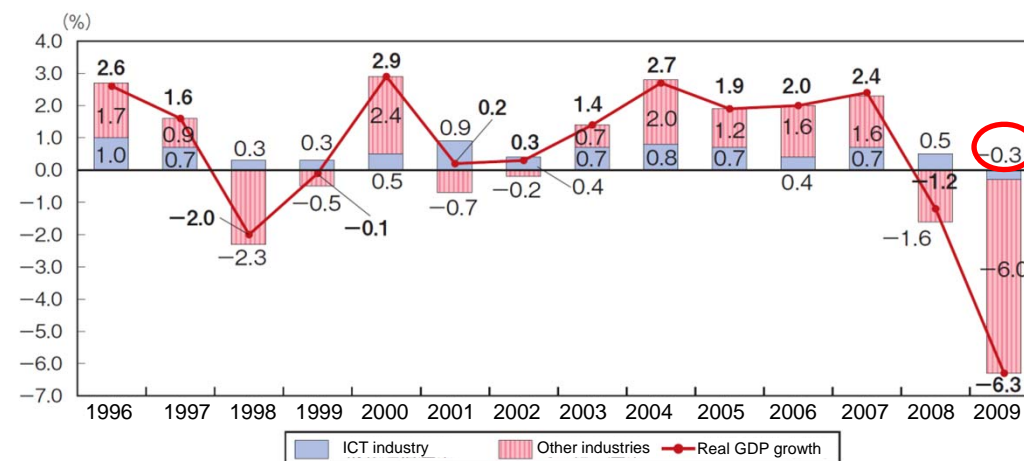
- The ICT industry accounts for approximately 10% of the market for all industries (¥87.7 trillion)
- The year-on-year growth rate of Japan's GDP in 2009 was -6.3%. The degree of contribution of the ICT industry was -0.3%.

Japan's ICT industry's share of nominal domestic production



Change in contribution of the ICT industry to the growth rate of Japan's GDP

First negative growth for the ICT industry since 1996

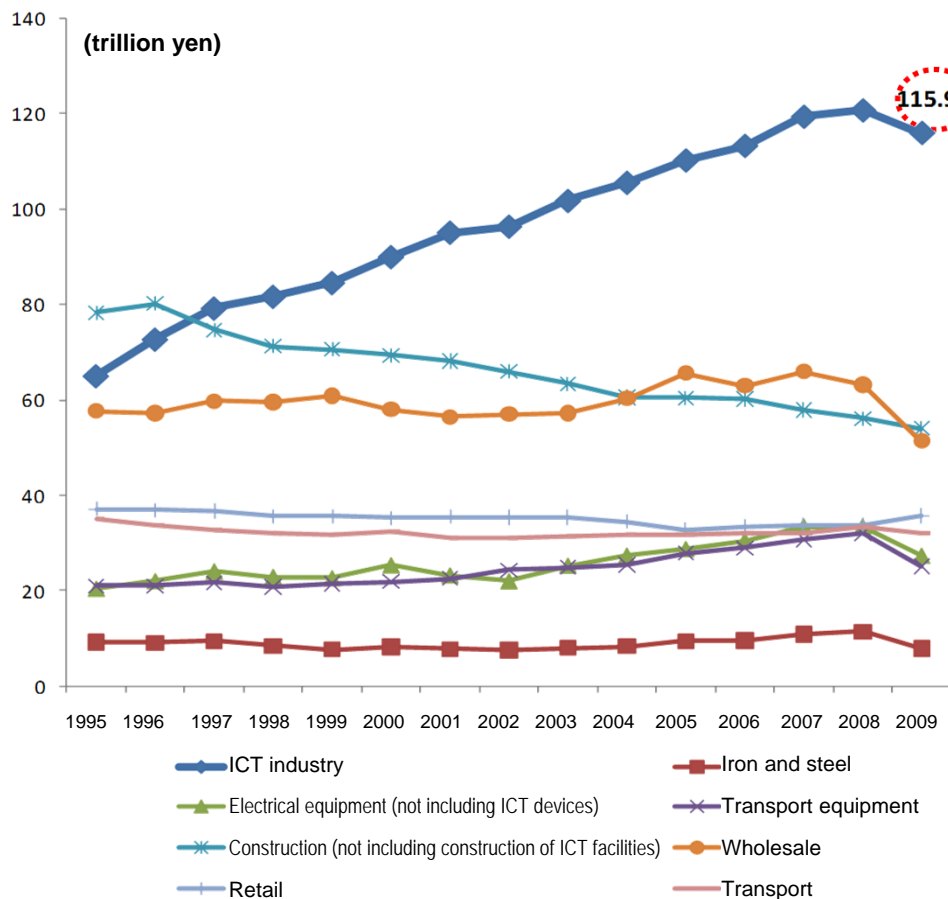


6-2 The ICT industry has a major knock-on economic impact on all other industries

30

- The amount of added value the ICT industry stimulates for other industries is the greatest of any industry, at ¥115.9 trillion (2009).
- The number of jobs stimulated by the ICT industry was 7.115 million in 2009. This puts the industry on a par with the retail and construction industries.

Change in amount of added value stimulated



Change in number of jobs stimulated

