



Section 3

Trust Fostered by “e-Relationships” that Assure Secure Internet Utilization

The comparison of seven countries conducted in chapter 2, section 2, proved that sense of security in Japan is low compared with the other ICT advanced countries. Even though the safety of Japan’s ICT infrastructure is quite high on a global scale, this does not seem to be linked with the sense of security of users. This section proposes strengthening trust (e-relationships) as the third challenge facing the revival of Japan in which the Internet is infused into our real lives and people have a sense of security.

1. Concerns of ICT utilization and reaction to concerns

(1) Three major concerns of citizens and companies

A. Concerns of citizens about ICT utilization

In view of the spread of concerns about using ICT among citizens we conducted an attitude survey⁴⁵ among individual users about concerns associated with ICT utilization for the purpose of gaining a clear picture of where the concerns of Japanese ICT users lie as well as considering solutions for eliminating such concerns.

For the survey, we classified the problems associated with ICT utilization into 10 categories: (1) privacy, (2) information security, (3) illegal/harmful contents, (4) information literacy, (5) geographical divide, (6) intellectual property, (7) e-commerce, (8) manners and social codes of conduct related to ICT utilization, (9) institutions and customs adapted to cyber society and (10) soundness of global environment and mental and physical health, and asked about concerns by presenting three typical cases in each category.

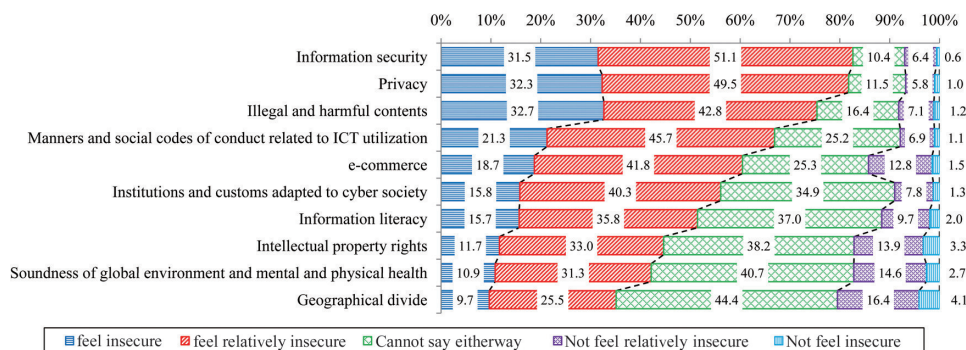
Figure 3-16 indicates whether or not people feel insecure about the 10 categories. The highest percentage of responses was for “feel insecure⁴⁶ about information security” at 82.6%, followed by “privacy” and “illegal/harmful contents”.

B. Concerns of companies about ICT utilization

We conducted an attitude survey⁴⁷ among companies about concerns associated with ICT utilization by presenting three typical issues for each of the 10 categories.

With regard to companies’ levels of concerns over ICT utilization (figure 3-17), the highest percentage of responses was for “feel insecure information security” (57.1%); nearly 60% of companies responded that they were concerned. “Privacy” and “illegal/harmful contents” were also cited frequently; nearly half of companies feel concerned. It was found that information security, privacy and illegal/harmful contents are the issues companies are most strongly concerned about, as in the case of individual users.

Figure 3-16 Citizens’ levels of concerns about 10 safety- and security-related categories

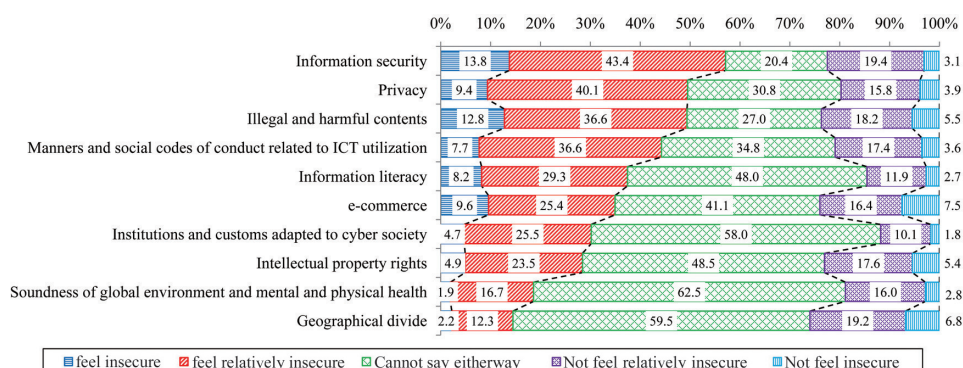


(Source) Survey on Safe and Secure ICT Utilization in an Ubiquitous Network Society (2009), Ministry of Internal Affairs and Communications

⁴⁵ We conducted a web-survey targeting Internet users nationwide in different age groups, which drew responses from 2000 people.

⁴⁶ Sum total of “feel insecure” and “feel relatively insecure”

⁴⁷ We conducted a mail survey targeting companies in different sectors nationwide, which drew response from 1106 companies.

Figure 3-17 Companies' levels of concerns over 10 safety-and security-related issues

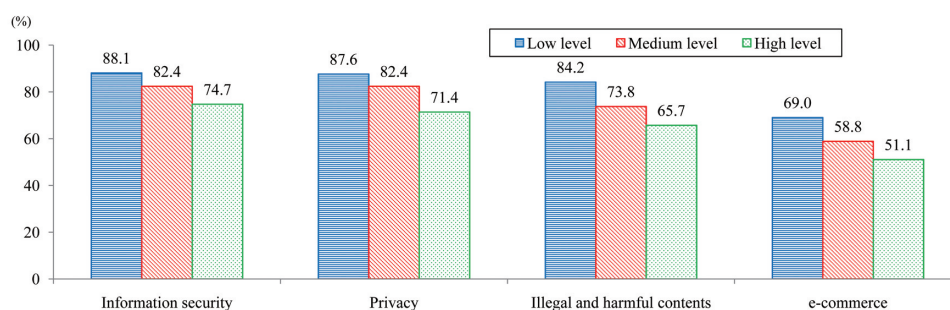
(Source) Survey on Safe and Secure ICT Utilization in an Ubiquitous Network Society (2009), Ministry of Internal Affairs and Communications

2. Enhancement of information utilization capability alleviates concerns

(1) Analysis of concerns among citizens by level of information utilization capability

We compared the concerns among citizens with their information utilization capability⁴⁸ in six categories (out of 10 categories) in which far more than half of respondents responded with either “feel insecure” or “feel relatively insecure”: specifically, information security, privacy, illegal/harmful contents, manners and social codes of conduct related to ICT utilization, e-commerce and institutions and customs adapted to cyber society (figure 3-18). With respect to the four categories, namely, information security, privacy, illegal/harmful contents and e-commerce, the higher the level of information utilization capability, the lower the percentage of concerned respondents.

Figure 3-19 shows the relationship between information utilization capability and concerns associated with manners and social codes of conduct related to ICT usage and institutions and customs adapted to cyber society. It indicates that even if information utilization capability is high, this does not necessarily serve to alleviate concerns and that concerns of the group with high capabilities are slightly higher than those of the group with medium capabilities. From this, when a issues, such as information security can be prevented by users individually an enhancement of information utilization capabilities is expected to reduce concerns. On the other hand, concerns over society as a whole, such as manners and institutions/customs, cannot be eliminated immediately by users' efforts, and enhancement of information utilization capabilities alone does not lead to a solution. Therefore, in addition to measures for

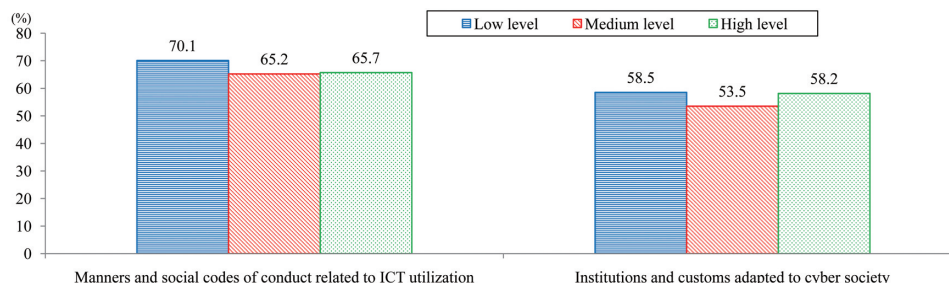
Figure 3-18 Extent of concerns among citizens by level of information utilization capability in four areas, including information security

(Source) Survey on Safe and Secure ICT Utilization in Ubiquitous Network Society (2009), Ministry of Internal Affairs and Communications

⁴⁸ As an index to directly measure information utilization capability, we chose to use the ability of users to handle PCs and the Internet. Specifically, we identified (1) those who are capable of PC- or the Internet troubleshooting and giving advice to others as having a high level of capability and (2) those who are

capable of troubleshooting or setting up devices with the help of instructions or advice as having medium level of capability and (3) those who can carry out typical operations, such as receiving and sending e-mails and browsing websites, but cannot set up devices as having a low level of capability.

Figure 3-19 Extent of concerns among citizens by level of information utilization capability in two areas (Manners and social codes of conduct related to ICT usage and institutions and customs adapted to cyber society)



(Source) Survey on Safe and Secure ICT Utilization in Ubiquitous Network Society (2009), Ministry of Internal Affairs and Communications

enhancing information utilization capabilities, these issues require other policy measures such as intervention by developing regulations/rules on an as-needed basis.

(2) Characteristics of concerns among companies by level of information utilization capability

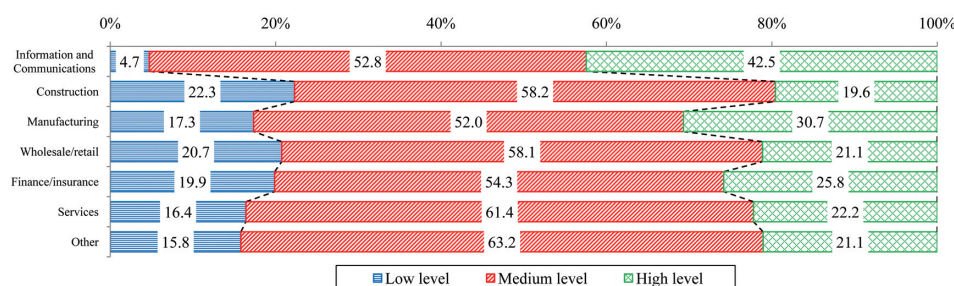
Simply installing an ICT system does not guarantee that the company will smoothly use it. It requires many employees with high ICT utilization capabilities. Thus, this analysis used the number of ICT utilization initiatives to develop and secure human resources concerning ICT system utilization⁴⁹ in each company as an index to measure the ICT utilization capabilities of companies as a whole. When looking at ICT utilization capability by business sector (figure 3-20), the percentage of companies with high capabilities is high in business sectors with advanced ICT utilization, such as information and communications, manufacturing, finance/insurance, and services sectors. On the other

hand, companies with low capabilities in construction and wholesale/retail account for more than 20%, and it is observed that initiatives to develop and secure human resources have not been implemented in these business sectors.

(3) Analysis of concerns among companies by level of ICT utilization capability

Let us now compare the extent of the three major concerns (information security, privacy and illegal/harmful contents) over which nearly half of companies were concerned with the number of ICT utilization initiatives to develop and secure human resources associated with ICT system utilization. Figure 3-21 shows the results and it demonstrates that the more initiatives, the fewer the concerns about ICT utilization.

Figure 3-20 Distribution of level of ICT utilization capability by business sector

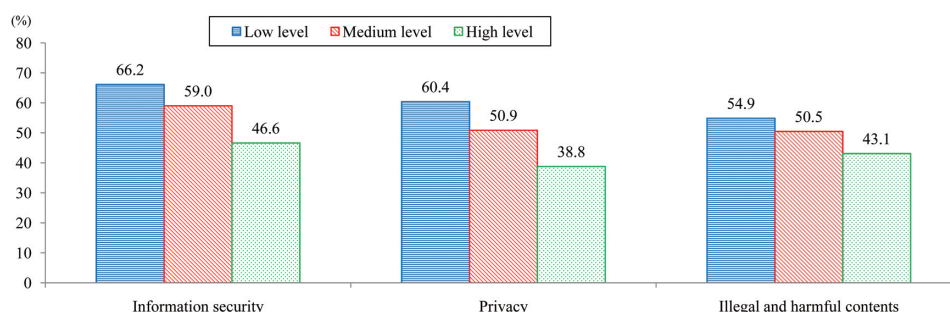


(Source) Survey on Safe and Secure ICT Utilization in Ubiquitous Network Society (2009), Ministry of Internal Affairs and Communications

⁴⁹ Among the following initiatives, a company having implemented two or more initiatives is identified as a company with high level ICT utilization capabilities, a company having implemented one of the initiatives is identified as a company with medium level ICT utilization capabilities, and a company having implemented no initiatives as low level. Initiatives: (1)

Enhancement of in-house training for employees, (2) Enhancing support for employees' self-learning opportunities outside the company, (3) recruiting new graduates as ICT experts (4) recruiting ICT experts mid-career, (5) hiring ICT experts on a temporary basis.

Figure 3-21 Extent of three major concerns among companies by level of ICT utilization capability



(Source) Survey on Safe and Secure ICT Utilization in Ubiquitous Network Society (2009), Ministry of Internal Affairs and Communications

3. e-Relationship society achieving a balance between virtual and real world

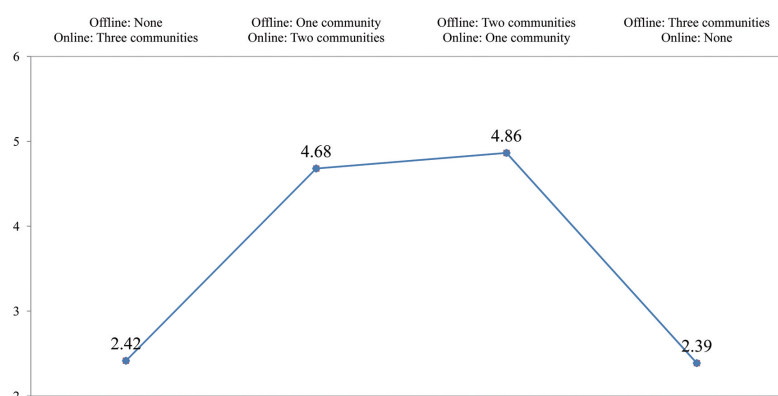
(1) Formulation of a “relationship strength” index reflecting participation in both an online community and in an offline community

There are a number of previous studies on social capital that analyze the relationship between economic growth and sense of security by measuring qualitative social capital, such as trust, norms of reciprocity, and networks, and by creating a social capital index. Using these studies as a reference, we regarded both online and offline communities as a type of social capital and

developed an index with quantified “relationship strength” of individuals generated from the difference in participation in the two types of community⁵⁰, thereby analyzing the relationship between relationship strength and the sense of insecurity about ICT utilization.

In order to find out the specific relationship between participation in offline and online communities and the newly developed relationship strength index, the respondents who participated in communities in the same number was extracted to graphically show the relationship between the difference in participation in communities and the relationship strength index. Since the largest number of people participate

Figure 3-22 “Relationship strength” by participation in communities (The total number of communities in which an individual participates: 3)



* The numerical figure shows the mean values of relationship strength of participants in each group

(Source) Survey on Safe and Secure ICT Utilization in an Ubiquitous Network Society (2009), Ministry of Internal Affairs and Communications

⁵⁰ The “relationship strength” index was based on the following three concepts: (1) Identification of the respondent’s sense of community (Identifying the respondent’s sense of community regarding both online and offline communities based on questions concerning two elements of social capital: trust and norms of reciprocity, (2) Expressing each community’s “strength of

bond” as a numerical value (The strength of bond for each community is expressed as a mean value of points awarded for the sense of community held by participants, (3) Expressing in numerical terms each individual’s relationship strength as an index (sum of the level of bonds in communities in which each respondent participates)

in three communities, we have extracted respondents who participate in three communities (figure 3-22). The result shows that those who participate in both online and offline communities in a balanced manner (those participating in two offline communities and one online community or those participating in one offline community and two offline communities) have higher relationship strength values than those who participate in either offline or online communities (those participating in three offline communities or those participating in three online communities)⁵¹.

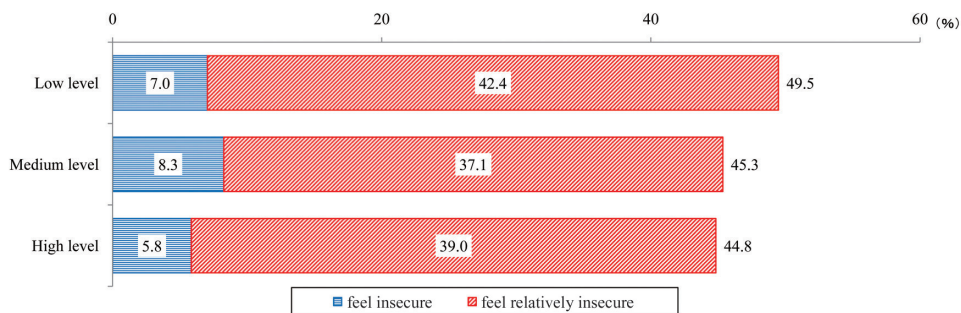
(2) Relationship strength and concerns about ICT utilization

Figure 3-23 shows the extent of sense of insecure about ICT utilization by relationship strength. The percentage of people who feel insecure about ICT utilization is 44.8% in the group with high relationship strength, 45.3% in the group with medium strength

and 49.5% in the group with low strength, indicating a slight tendency that the higher the relationship strength is, the lower the sense of insecure is.

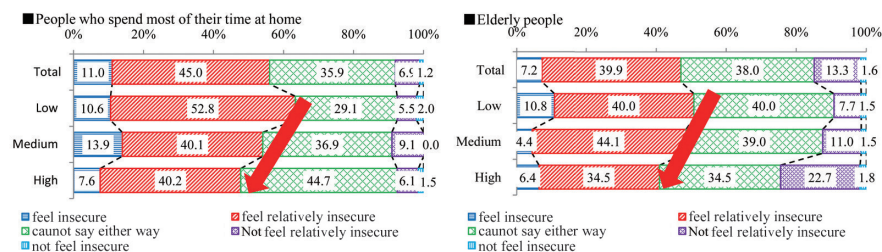
When looking at all users, the effect of an increase in relationship strength on the reduction of sense of insecure rather limited, but a greater effect of an increase in relationship strength on the reduction of concerns may be generated in some groups of users. Thus, we analyzed the relationship between relationship strength and concerns by user group⁵². The results show that there is a particularly prominent tendency among people who spend most of their time at home and elderly people that the higher their relationship strength is, the lower their sense of insecure is. Figure 3-24 shows the results. The percentage point difference for people who responded with “feel insecure” between the group with low relationship strength and the group with high relationship strength is 14.7 points for people who spend most of their time at home and

Figure 3-23 Sense of insecure by relationship strength



(Source) Survey on Safe and Secure ICT Utilization in an Ubiquitous Network Society (2009), Ministry of Internal Affairs and Communications

Figure 3-24 The extent of concerns by relationship strength level of people who spend most of their time at home and elderly people



(Source) Survey on Safe and Secure ICT Utilization in an Ubiquitous Network Society (2009), Ministry of Internal Affairs and Communications

⁵¹ The respondents participating in two, four, five and six communities also exhibit a mono-modal shape and it is found that people who achieve a balance between participation in online and offline communities have higher relationship strength.

⁵² The category people under age includes those other than housewives and househusbands under 20 years of age, the category young people includes students, part-time workers, unemployed people and others aged between 20 and 29 years,

the working category includes company executives/managers, self-employed people, specialists, and civil servants aged between 20 and 59 years, the category people who spend most of their time at home includes homemakers under the age of 60 years, part-time workers, unemployed people and others aged between 30 and 59 years, and the category elderly people includes those over 60 years of age.

11.9 points for elderly people.

Nearly half of users who spend most of their time at home and elderly people have low ICT utilization capabilities and they have an overwhelmingly high tendency to participate in no or only offline communities. Therefore, people who belong to these user groups have the potential to participate in online communities while increasing their ICT utilization capabilities and increase the relationship strength through a synergic effect of offline and online communities, thereby alleviating sense of insecure.

(3) Secure Internet society by adding “e-relationships” to local community and family relationships

The analysis results thus far have suggested that even users with insufficient ICT utilization capabilities can possibly alleviate their concerns about ICT utilization by achieving a balance between face-to face personal relations, such as offline communities, and human relations on the Internet, such as online communities.

The phenomenon of expanding electronically-connected relationships through an ICT network, such as the Internet and mobile phones, is sometimes called “e-relationships⁵³.” It is very important for “e-relationships” to connect to real communities by linking with local community and family relationships. ICT utilization is effective as an alternative to face-to-face exchanges but it is more effective if used to complement face-to-face exchanges. Japan’s revival faces the challenge of establishing e-relationships that are linked with local community and family relationships. ICT is nothing but a tool without a mind; it is we, the users, who have a mind. Then, how should we lead this new technology that is very convenient and useful but can be dangerous if misused? Society as a whole must make a concerted effort to lead ICT in a direction where effective utilization of e-relationships will bring back community bonds, which is the advantage of Japan, and people and companies can meet and help each other transcending boundaries of distance and time, thereby generating vitality.

⁵³ See the feature article “Age of e-Relationships,” Nihon Keizai Shimbun (January 1, 2004). Fujisawa-city envisions an

“e-Relationship City of Fujisawa”