

Chapter 2

Development of ICT Use and Application

Part 1

Section 1 Proliferation of ICT Use and Application into Every Aspect of Life

In this section, we verify how, and to what extent, ICT use and application has penetrated the daily lives of individuals as well as the activities of enterprises and public organizations, particularly in the time period since 2000.

Additionally, we provide a general overview of how the recent proliferation of smartphones is changing the way ICT is used and applied.

1. Advancement of ICT use and application in the daily lives of individuals

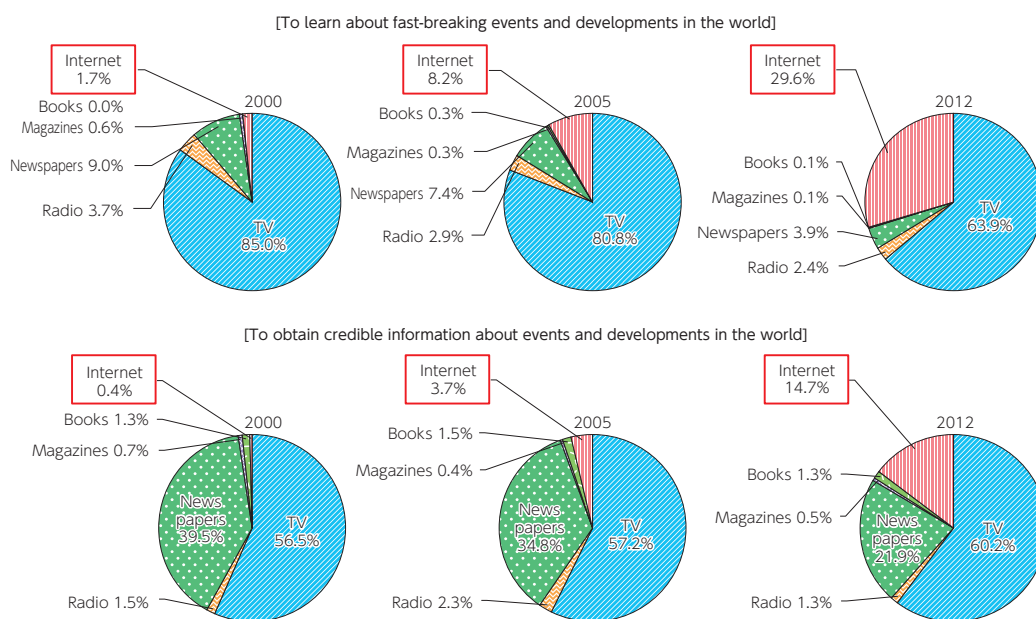
(1) Advancement of ICT use and application in information gathering activities

As seen in Chapter 1, the Internet, which first became commercially available in Japan in 1993, quickly spread to individual homes, especially after 2000, changing many aspects of people's lifestyles. One of these changes was the establishment of the Internet as an information source. The sources of information about events in the world were previously limited to media channels like television, radio, newspapers, and magazines, but today the Internet is one of the leading sources for this kind of information. For example, the percentage of people who named the Internet as their most frequently used media channel "to learn about fast-breaking events and developments in the world" in 2000 was a mere 1.7 percent, but this percentage climbed to 8.2 percent in 2005 and had reached nearly 30 percent by 2012. Similarly, the

percentage of people who named the Internet as their most frequently used media channel "to obtain credible information about events and developments in the world" in 2000 was a scant 0.4 percent, but this percentage rose to 3.7 percent in 2005 and had approached 15 percent by 2012 (Figure 2-1-1-1).

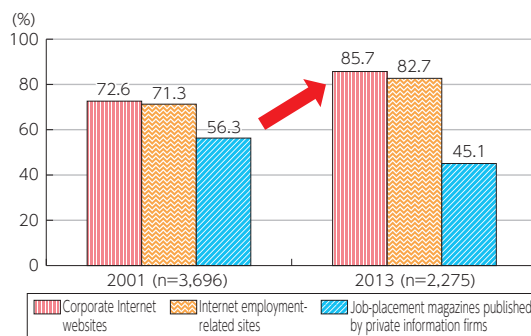
The Internet is firmly entrenched as an information source for job searches as well. In a survey given to new hires in 2001, the percentage of people who named "Internet employment-related sites" as an information source for job searches had already topped 70 percent. In the same survey in 2013, this percentage had risen about 10 points, while conversely the number of people who named "job-placement magazines published by private information firms" fell by about 10 percentage points (Figure 2-1-1-2).

Figure 2-1-1-1 Transitions in most frequently used media channels (by purpose)



(Source) Prepared from the 2000 and 2005 survey reports on "Japanese Information Behavior," Yoshiaki Hashimoto Laboratory, Graduate School of Interdisciplinary Information Studies, University of Tokyo and the "Japanese Information Behavior 2012" survey report by the Yoshiaki Hashimoto Laboratory, Graduate School of Interdisciplinary Information Studies, University of Tokyo and the Institute for Information and Communications Policy, MIC

Figure 2-1-1-2 Changes in information sources used for job searches by new hires



(Source) Prepared from the 2001 and 2013 editions of "Attitudes on Working among New Hires," Japan Productivity Center

2. Advancement of ICT use and application among public organizations

(1) Educational institutions

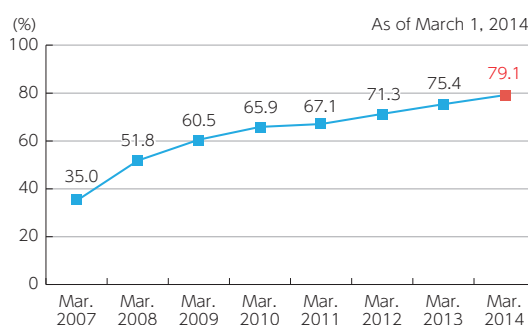
Educational institutions, medical institutions, and administrative organizations, in addition to private enterprises, have moved ahead with ICT use and application. For example, the percentage of public schools (elementary, middle, and high schools) with ultra-high-speed Internet connections jumped from 35 percent in 2007 to close to 80 percent in 2014 (Figure 2-1-2-1). And the percentage of normal classrooms with in-school LAN installations rose sharply from 44 percent in 2005 to 85.6 percent in 2014 (Figure 2-1-2-2).

(2) Administrative organizations

With the growth of the Internet, various applications

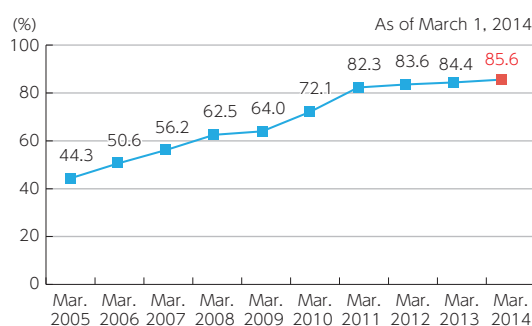
and other procedures at the central and local government levels have been converted to electronic formats. Administrative procedures at the central government level, in particular, have moved online in recent years based on 2008's Action Plan to Expand Online Use. Tracking the online usage rates of administrative procedures in the six priority procedure fields as specified in the Plan from 2008 through to 2013 finds that online usage rates have risen in all six fields and that online usage rates for import/export and port procedures and for registering industrial property rights is close to 100 percent. Furthermore, vehicle registration online usage rates have shot up by almost 60 percentage points over the FY 2008 to FY 2013 period (Figure 2-1-2-3).

Figure 2-1-2-1 Transitions in the percentage of public schools (elementary, middle, and high) with ultra-high-speed Internet connections



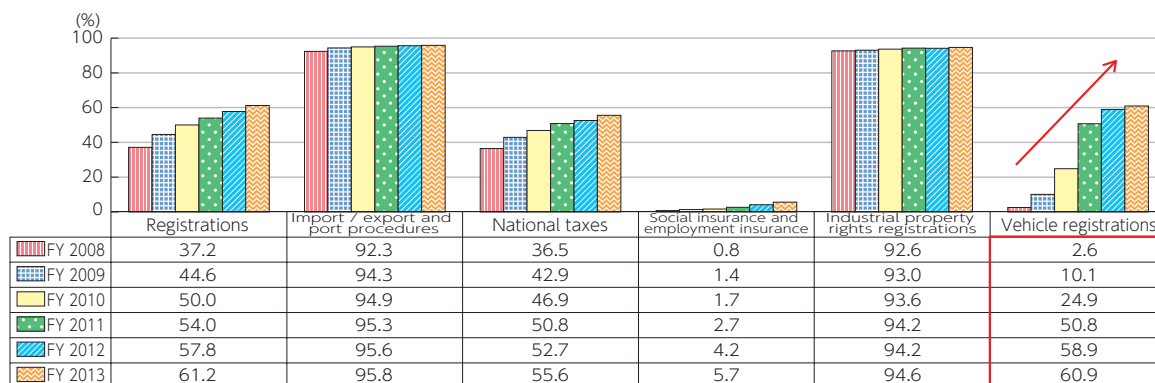
(Source) "Survey on the State of ICT Usage in Education at Schools," Ministry of Education, Culture, Sports, Science and Technology

Figure 2-1-2-2 Transitions in the percentage of normal classrooms at public schools (elementary, middle, and high) with in-school LAN installations



(Source) "Survey on the State of ICT Usage in Education at Schools," Ministry of Education, Culture, Sports, Science and Technology

Figure 2-1-2-3 Transitions in online usage rates in the priority procedure fields



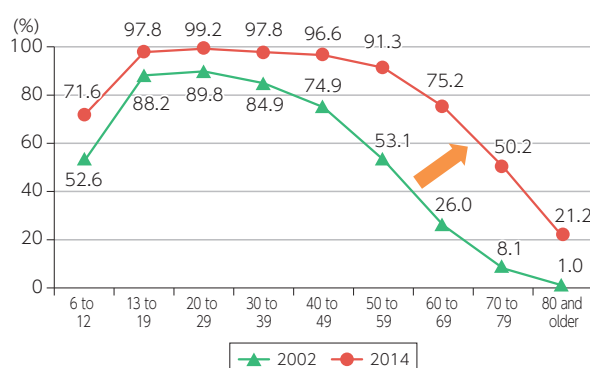
(Source) Prepared from "Current State of Online Administrative Procedures," MIC

Section 2 Growth of ICT Use and Application across Generational Lines

ICT use and application is spreading across generational boundaries. For example, comparing Internet usage rates by age group between 2002 and 2014 shows that usage rates have ascended in all age groups, but that the percentage increase has been particularly pronounced among seniors 60 and older (Figure 2-2-1-1). Similarly, comparing Internet shopping rates by the age

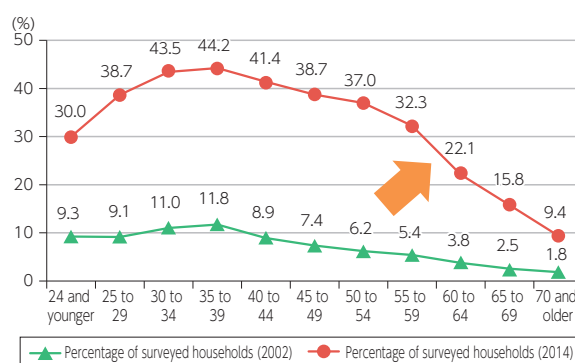
of the head of the household again finds that rates have risen in all age groups, but that the percentage increase has been larger in senior households (Figure 2-2-1-2). So while the expansion of ICT use and application is a phenomenon common to all age groups, detailed examinations reveal certain tendencies by age group.

Figure 2-2-1-1 Increase in Internet usage rates (by age group)



(Source) Prepared from "Communications Usage Trend Survey," MIC

Figure 2-2-1-2 Internet shopping rates by household head's age group (households of two or more, 2002 and 2014)



(Source) Prepared from "Results of the Survey on Household Consumption Conditions," MIC

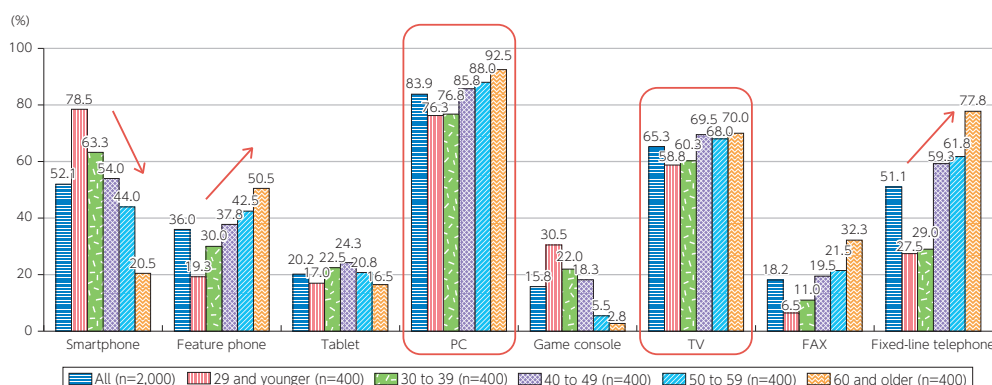
1. State of ICT device usage

First, let's look at differences in ICT device usage between age groups. When we asked people about the ICT devices they use (ICT devices used for personal use in the last one month), large differences in usage rates between age groups were seen for smartphones, feature phones, and fixed-line telephones. Large differences were not seen, however, between age groups in the usage rates of televisions and computers.

In general, the younger the age group, the higher the smartphone usage rate. The usage rate of smartphones

among people under 30 was nearly 80 percent, whereas the same rate was around 20 percent among people 60 and older. Conversely, the older the age group, the higher the feature phone usage rate. Just over half of people 60 and older use feature phones. Like feature phones, the older the age group, the higher the fixed-line telephone usage rate. Where the fixed-line telephone usage rate among people 60 and older remains around 80 percent, it has fallen below 30 percent among people under 40 (Figure 2-2-1-3).

Figure 2-2-1-3 ICT device usage (by age group)



(Source) "Study Report on People's Attitudes toward New ICT Services and Technologies that resolve Social Issues," MIC (2015)

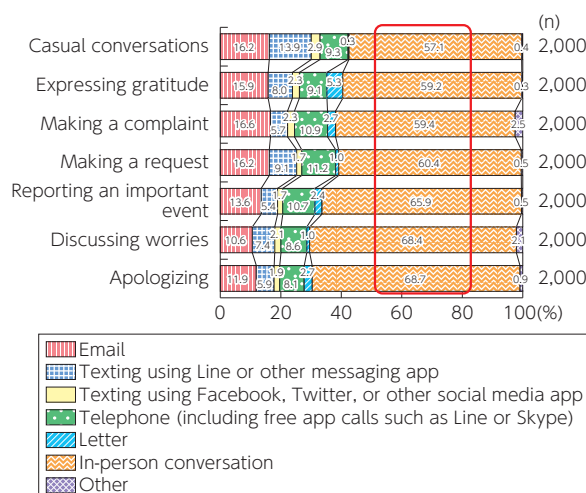
2. Means of communication

Next, we asked people what means of communication they used most often when communicating one-to-one with close friends and acquaintances. Questions were asked about specific situations that were presented to the monitors, such as "casual conversations" and "reporting an important event." The most common means of communication, averaging from just under 60 percent to just under 70 percent across all age groups, was "in-person conversation" for all situations. This result demonstrates that, despite the proliferation of email, message-

ing apps, and other ICT services, the most widespread means of communication with close friends and acquaintances is talking face to face (Figure 2-2-2-1).

By situation, the "in-person conversation" response rate was lowest for "casual conversations" (57.1 percent) and highest for "discussing worries" (68.4 percent) and "apologizing" (68.7 percent). This indicates that a large percentage of people convey messages face to face in serious situations.

Figure 2-2-2-1 Means of communication with close friends and acquaintances (by situation)



(Source) "Study Report on People's Attitudes toward New ICT Services and Technologies that Resolve Social Issues," MIC (2015)

Section 3 Spread of ICT Use and Application on a Global Scale

The progress of ICT use and application is definitely not a phenomenon limited Japan and other developed countries; ICT use and application is advancing around the world. For example, mobile phones have spread throughout African nations ahead of electricity, water, and other infrastructure and they are starting to revolu-

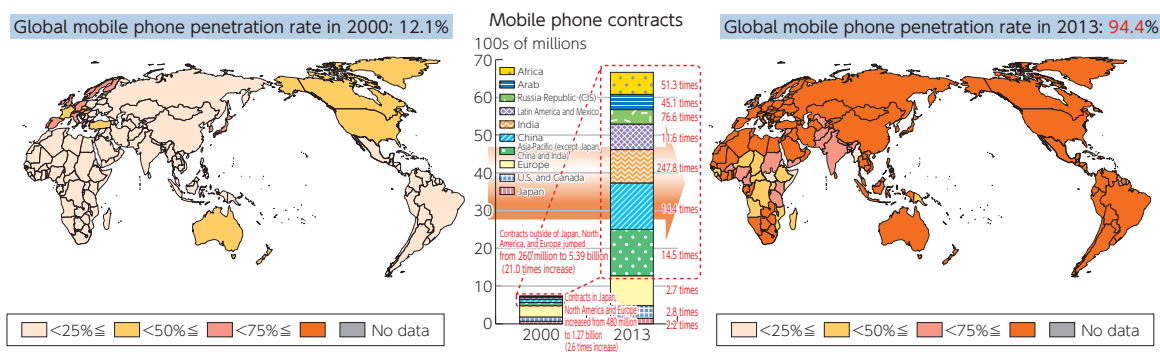
tionize those countries' lifestyles and industries. Internet penetration rates have also progressed rapidly in the last 10 years or so, extending into ASEAN and other middle-income countries. The use of smartphones and social media is soaring in these countries as well.

1. Worldwide proliferation of mobile phones

The use of mobile phones has spread worldwide, including in African and other low-income countries, in advance of electricity, water, and other infrastructure. The growing use of mobile phones in African and other countries is revolutionizing industries and improving lifestyles in many areas, such as finance and medical care. These sudden social and economic transformations driven by mobile-phone proliferation have been called the "mobile revolution."

The global penetration rate of mobile phones was 12.1 percent in 2000. Although the penetration rate was over 75 percent in Japan, South Korea, and some European countries, most countries, especially emerging nations, had a penetration rate of under 25 percent. By 2013, however, the global penetration rate of mobile phones had hit 94.4 percent. In just over a decade, the growth of mobile phones had exploded around the world (Figure 2-3-1-1).

Figure 2-3-1-1 Transitions in the global penetration rate of mobile phones



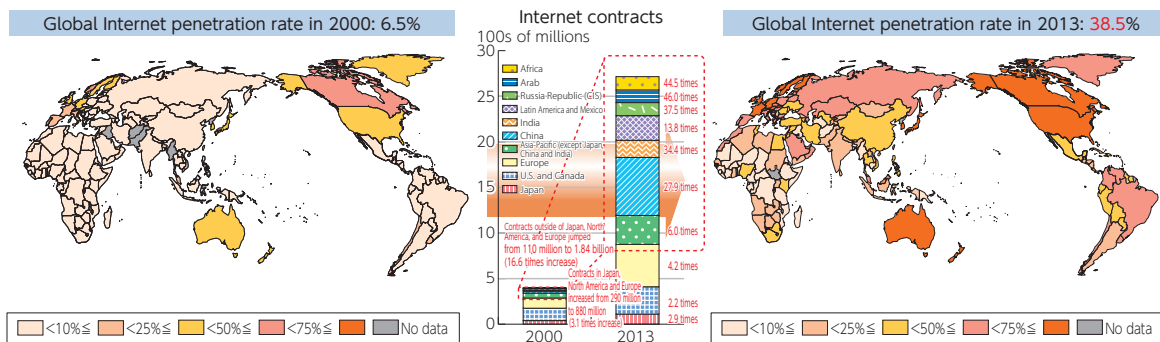
(Source) Prepared from ITU World Telecommunication/ICT Indicators 2014 data

2. Rapid proliferation of the Internet

The global Internet penetration rate in 2000 was 6.5 percent. The Internet penetration rate was less than 10 percent in more than half of the world's nations. By 2013, however, the Internet penetration rate had reached 38.5 percent. Over this period, Internet subscriptions

had increased an average of 3.1 times in Japan, the United States, Canada, and Europe, while they had increased an average of 14.9 times in all other countries (Figure 2-3-2-1).

Figure 2-3-2-1 Transitions in the global Internet penetration rate



(Source) Prepared from ITU World Telecommunication/ICT Indicators 2014 data