**2014 Digital Opportunity Survey for Individuals and Households**

**REPORT SUMMARY**

 **Report commissioned by:** The National Development Council

 **Report conducted by:** The Statinc Corporation

***November, 2014***

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## 1. Introduction

The first wave of global territorial and power redistribution was triggered by the industrial revolution, when the use of manual production evolved into machinery production; in recent years, however, the rapid development of Information and Communication Technologies (ICTs) has set off a second, digital revolution. Not only does the development of ICTs and related facilities drive the upgrade of industries and evolution of services, it also embodies a nation’s competitiveness.

A major characteristic of ICT development progress is digital divide, or cyber lag, which means the inequality among demographic groups or regions in digital access and digitization. Effective solutions to digital divide, a problem tackled earnestly by governments worldwide, involve infrastructure improvement and providing different population groups with equal access to ICT skills and knowledge.

In today's society, public usage of digital technologies includes providing fair access to resources for people from different social, psychological and cultural backgrounds, in addition to environmental readiness. Thus, the examination of the digital divide transitioned from exploring the differences between varying groups that caused the gap and the reasons behind those differences to pondering how best to apply ICTs from a socially inclusive perspective. Greater emphasis is placed on building a society with universal coverage, and reflects on creating *digital opportunities for all* by eliminating the digital divide due to uneven distribution of ICTs and unequal access.

In accordance with the aforementioned, the National Development Council conducts annual personal/household surveys on digital opportunities with a long term emphasis on empowerment, integration, and elimination to understand more on public digital opportunities. The results will serve as references for future policies on nurturing digital care.

The objectives of this research are to examine and analyze digital opportunity at an individual/household level; identify the differences in information access opportunities, information literacy, and ability based on different social and economic positions, characteristics, and family backgrounds; in addition, the objective is to determine if such differences affect the livelihoods and employment of individuals. The survey results are also compared with international indicators to comprehensively understand the development of digital opportunities in Taiwan.

## 2. Research Methods

The 2014 Digital Opportunity Survey for Individuals and Households (“2014 Digital Opportunity Survey”) was compiled by conducting an in-depth telephone survey from July 14, 2014 to August 29, 2014 which encompassed residential telephone users in the metropolitan areas of Taiwan Province, Taipei City, New Taipei City, Taichung City, Tainan City, Kaohsiung City and Kinmen County, and Lienchiang County. Only citizens of the Republic of China (Taiwan) aged 12 and over in typical households were selected as survey subjects.

A total of 13,262 valid samples were obtained from the telephone survey. Configured samples and actual interviews in all cities and counties are shown in Table 1.

Table 1. Configured Samples and Actual Interviews for Digital Opportunity in 2014

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Cities and Counties  | Number of People Aged 12 and Over  | Margin of error  | Configured Sample Size  | Sample Size of Actual Interviews  |
| Total  | 20,910,512 | ±0.85% | 13,200 | 13,262 |
| New Taipei City  | 3,548,502 | ±4.00% | 600 | 611 |
| Taipei City  | 2,397,111 | ±4.00% | 600 | 600 |
| Taichung City  | 2,394,230 | ±4.00% | 600 | 603 |
| Tainan City  | 1,696,075 | ±4.00% | 600 | 600 |
| Kaohsiung City  | 2,504,155 | ±4.00% | 600 | 602 |
| Yilan County  | 413,503 | ±4.00% | 600 | 600 |
| Keelung City  | 342,193 | ±4.00% | 600 | 600 |
| Taoyuan County  | 1,803,707 | ±4.00% | 600 | 600 |
| Hsinchu County  | 461,630 | ±4.00% | 600 | 605 |
| Hsinchu City  | 369,287 | ±4.00% | 600 | 601 |
| Miaoli County  | 503,679 | ±4.00% | 600 | 602 |
| Changhua County  | 1,153,206 | ±4.00% | 600 | 610 |
| Nantou County  | 467,828 | ±4.00% | 600 | 600 |
| Yunlin County  | 638,078 | ±4.00% | 600 | 602 |
| Chiayi County  | 482,526 | ±3.99% | 600 | 607 |
| Chiayi City  | 240,877 | ±4.00% | 600 | 600 |
| Pingtung County  | 774,661 | ±3.99% | 600 | 601 |
| Penghu County  | 91,910 | ±4.00% | 600 | 610 |
| Hualien County  | 300,671 | ±4.00% | 600 | 605 |
| Taitung County  | 202,594 | ±4.00% | 600 | 603 |
| Kinmen County  | 112,942 | ±3.99% | 600 | 600 |
| Lienchiang County  | 11,147 | ±3.89% | 600 | 600 |

Source: Department of Household Registration, M.O.I., and Monthly Bulletin of Interior Statistics - population of single individuals at the end of June, 2014.

To obtain the opinions of people aged 12 and over in Taiwan, sample data had to be weighted to conform to the matrix structure. This survey was weighted based on the age and gender of people 12 years old and over in counties and cities released by the M.O.I. by the end of June, 2014. After adjustment of weightings, the verification of the representative sample (the chi-square () test of goodness of fit) shows that the structure of the sample data is consistent with the matrix structure with no significant differences.

## 3. Research Framework and Survey Items

The survey indicators in the 2014 Digital Opportunity Survey include three main aspects: empowerment, integration, and elimination. Empowerment involves the investigation of ready access to IT equipment and usage (information access) and personal background (Table 2). Integration is observing how users apply the Internet to educational activities, participation in social activities, economic activities, civic participation, and health promotion (Table 3). Elimination is the identification of negative effects of a society with easy access to information from the perspectives of personal crises and the violation of interests (Table 4). In addition, in order to observe the digital opportunities of non-Internet users, the empowerment, integration, and elimination of non-Internet users are included as survey indicators (Table 5).

Table 2. 2014 Digital Opportunity Survey Framework – Empowerment

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Main Aspect**  | **Sub-aspect**  | **Indicator Level**  | **Indicator Item**  | **Corresponding Question**  |
| Empowerment  | Environmental readiness  | Affordability of internet and communication equipment | Affordable rate of mobile internet costs  | How much did you pay for your mobile phone and internet access last month?  |
| Information access  | Device ownership  | Computers/internet devices ownership ratio  | What devices with internet access do you currently own?  |
| Computer Equipment-person ratio for households  | How many family members do you stay with, including yourself (excluding those who work or study outside)?  |
| How many computers are there in your household (including desktop computers, laptops, and tablets)? |
| Ratio of mobile devices owned  | What devices with internet access do you currently own?  |
| Number of smartphones owned  | How many smartphones do you currently own?  |
| Connection quality  | Broadband usage  | What form of internet access is your household using (connection method)?  |
| Wireless broadband usage  | What form of internet access is your household using (connection method)?  |
| Household connection speed satisfaction  | Are you satisfied with your connection speed at home?  |

Table 2. 2014 Digital Opportunity Survey Framework – Empowerment *(Continued)*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Main Aspect**  | **Sub-aspect**  | **Indicator Level**  | **Indicator Item**  | **Corresponding Question**  |
| Empowerment  | Information access  | Status of IT equipment used recently  | Computer usage  | Have you used a computer before (not necessarily used at home)?  |
| Internet usage  | Have you used a computer, mobile phone, TV, Wii, Xbox, or other IT equipment to access the internet before?  |
| Do you have an internet connection in your home?  |
| Wireless internet usage  | Do you use wireless or mobile internet? (via Wi-Fi, WiMAX, etc.) 3G |
| How do you access wireless or mobile internet? (via Wi-Fi, WiMAX, etc.) 3G |
| Extent of information access  | History and degree of internet use  | How many years have you been using the internet?  |
| What are your reasons for using the internet in the past three years?  | Why did you only start using the internet within the past three years?  |
| Basic skills and capabilities  | Language proficiency for browsing of websites  | Browsing foreign language websites  | Do you usually browse foreign websites?  |
| Basic computer skills  | Internet operating skills  | Do you know how to do the following?  |
| E-mail operating skills  | Do you know how to do the following?  |
| Word processing software operating skills  | Do you know how to do the following?  |
| Personal background and resources  | Information support resources  | Information agent  | Is there any family member, who is staying with you, that can assist you to access the internet to obtain information or services?  |
| Personal interaction network  | Degree of social interaction involvement  | How often do you use instant messaging software or social networking sites after work or school?  |

Table 3. 2014 Digital Opportunity Survey Framework – Integration

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Main Aspect**  | **Sub-aspect**  | **Indicator Level**  | **Indicator Item**  | **Corresponding Question**  |
| Integration  | Participation in learning activities  | Two-way interactive learning  | Interactive distance learning  | Have you engaged in the following activities in the past year? |
| One-way learning  | Online video course usage  | Have you engaged in the following activities in the past year? |
| Online information search  | Have you engaged in the following activities in the past year? |

Table 3. 2014 Digital Opportunity Survey Framework – Integration (Continued 1)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Main Aspect**  | **Sub-aspect**  | **Indicator Level**  | **Indicator Item**  | **Corresponding Question**  |
| Integration  | Participation in social activities  | Web 2.0 interaction and sharing  | Use of instant messengers | Have you used any instant messaging software or social networking websites in the past year? |
| Use of social networking websites | Have you used any instant messaging software or social networking websites in the past year? |
| Have you participated in any online discussion forums in the past year? |
| Applications for Arts and cultural activities  | Search for Arts information | Have you searched for information on the following in the past year? (may select multiple; individual prompts) |
| Entertainment applications  | Participation in recreational activities | Have you accessed any online media or played online games in the past year? (may select multiple) |
| Applications for everyday life  | Search for lifestyle information | Have you searched for information on the following in the past year? (may select multiple; individual prompts) |
| Economic activity  | E-commerce  | Online price search | Have you used the internet to search for product information or compare prices in the past year? |
| Online financial services | Have you used the internet to search for or handle personal finances (e.g., deposits, transfers, payments, stock trading, etc.) within the past year? |
| Online shopping experience | Approximately how many times have you shopped online in the past year? |
| Most frequently used shopping platform | Which shopping site did you frequent most in the past year? (may select up to 3 options) |
| Most frequently used method of payment | Which is your most frequently used method of payment for online shopping? |
| Amount spent on online shopping | How much money have you spent on online shopping in the past year? |
| Employment/Entrepreneurship  | Experiences of searching for employment information online | Have you used the internet to search for employment information or send your resume in the past year? |
| Internet entrepreneurship | Have you sold or auctioned any products online? |
| Integration  | Civic participation  | Involvement in online civic participation  | Use of political-related online forums | Have you posted your opinions on current politics, society, or public policies online in the past year? |
| Have you posted your opinions on current politics, society, or public policies on government websites, government forums, or government social networks in the past year? |
| Participation in social activities through online mobilization | Have you participated in any social activities through online mobilization in the past year? |

Table 3. 2014 Digital Opportunity Survey Framework – Integration *(Continued)*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Main Aspect**  | **Sub-aspect**  | **Indicator Level**  | **Indicator Item**  | **Corresponding Question**  |
| Integration  | Civic participation  | Usage of e-government resources  | Search for public government information  | Have you searched for information, policies, or official announcements through government websites within the past year?  |
| E-government application services  | Have you used “online applications”, including forms, transcript applications or online tax filing through government websites in the past year?  |
| Health promotion  | Searching for health education and knowledge  | Online search for health education knowledge  | Have you searched for information on the following in the past year? (may select multiple; individual prompts)  |
| Online health advisory services  | Have you searched for information on the following in the past year? (may select multiple; individual prompts)  |
| Searching for medical information  | Searching for information on doctors online  | Have you searched for information on the following in the past year? (may select multiple; individual prompts)  |
| Scheduling appointments online  | Have you used the internet to schedule an appointment in the past year?  |

Table 4. 2014 Digital Opportunity Survey Framework – Elimination

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Main Aspect**  | **Sub-aspect**  | **Indicator Level**  | **Indicator Item**  | **Corresponding Question**  |
| Elimination  | Personal crisis  | Internet anxiety  | Degree of internet anxiety | How long does it take for you to become anxious when you do not use the internet, become worried that someone cannot get in touch with you, or that you might miss out on certain information?  |
| Deterioration of physical fitness  | Deterioration of physical fitness | Do you think that your health has deteriorated as a result of using the internet?  |
| Deterioration of social skills  | Deterioration of social skills | Do you think that your face-to-face interaction skills have deteriorated as a result of using the internet?  |
| Damage of trust  | Degree of trust in online friends | Do you think you can trust your online friends?  |
| Violation of rights and interests  | Personal data privacy  | Data breach | Have you experienced a breach of privacy of any online personal information in the past year?  |
| Frequency of receiving junk mail | Do you think that the amount of junk email you receive is increasing?  |
| Violation of rights and interests  | Computer viruses | Has your computer been infected with any viruses from using the internet in the past year?  |
| Internet fraud | Have you fallen prey to any internet fraud in the past year?  |
| Cyber bullying  | Experience of online verbal abuse or being affronted | Have you been verbally abused by others on the internet in the past year?  |

Table 5. 2014 Digital Opportunity Survey Framework – Non-Internet Users

| **Main Aspect**  | **Sub-aspect**  | **Corresponding Question**  |
| --- | --- | --- |
| Empowerment  | Information support  | Is there any family member, who is staying with you, that can assist you to access the internet to obtain information or services? |
| Willingness to use  | Do you intend to learn or strengthen your computing skills in the future? |
| Likely choice of learning  | Which computer functions would you want to learn about? |
| Individual socioeconomic background  | What is your highest educational level (including present studies)? |
| Are you currently employed? Which industry are you in? |
| What is your designation? |
| How much is your average monthly income? |
| Integration  | Participation in social activities  | Have you conducted the following activities through the internet with the help of your family in the past year? |
| Participation in learning activities  |
| Economic activity  |
| Civic participation  |
| Health promotion  |
| Elimination  | Obstacles to ready access  | What are your reasons for not using the Internet? |

## 4. Summary of Research Results

### 4.1. Overview

##### 4.1.1. Empowerment

“Empowerment” is the foremost aspect of Taiwan's digital opportunity indicator framework. The public must possess ready access to information and devices in order to stay up-to-date with the modern Information Age. Only then can we discuss how to create more opportunities and the risks involved.

The survey indicates that 87.2% of households own computers and 85.1% of households have access to the internet (Figure 1). On average, each household has 2.6 computers. The person-computer ratio is 0.76(computers per capita).

Note: Sample size of people aged 12 and over = 13,262

Figure 1. Computer ownership and internet access at the household level

For ROC nationals aged 12 and over with ready access to information, 80.7% have used computers before, and 78.0% have experience in using the internet. (Figure 2)

Note: Sample size of people aged 12 and over = 13,262

Figure 2. Computer and internet usage at the individual level

By observing the number of years whereby users aged 12 and over have ever accessed the internet, we discovered that 0.9% of the public have been using the internet for less than 1 year, 7.9% of the public between 1 and 3 years, 14.4% of the public between 3 and 5 years, 32.5% of the public between 5 and 10 years, and 41.1% for more than 10 years. Overall, the average number of years whereby users in Taiwan have had access to the internet is 10.9.

91.5% of internet users have used wireless or mobile internet, and 41.2% of wireless internet users have in turn used free Wi-Fi provided by the government. (Figure 3)

Note: Sample size of internet users (aged 12 and over) = 10,344; sample size of wireless internet users = 9,466

Figure 3. Use of wireless internet by internet users

Among the types of devices used for wireless or mobile internet access, smartphones are the most frequently used (94.6%), followed by tablets (53.6%) and laptops (40.0%). (Figure 4)

Note: Sample size of wireless network users aged 12 and over = 9,466

Figure 4. Mobile devices used for wireless internet access

With regard to the degree of exposure to international information, 48.6% of Taiwan internet users aged 12 and over browse foreign websites, and 51.4% browse domestic websites, indicating that Taiwan internet users use the internet predominantly to obtain domestic information. (Figure 5)

Note: Sample size of internet users aged 12 and over = 10,344

Figure 5. Proportion of internet users who browse foreign websites

With regard to the basic skills and capabilities of Taiwan internet users aged 12 and over, 90.1% can connect to the internet independently through any device; 89.8% can send and receive email independently; and 78.9% can operate word processing software. (Figure 6)

Note: Sample size of internet users aged 12 and over = 10,344

Figure 6. Basic skills and capabilities of internet users

##### 4.1.2. Integration

Integration is mainly involves the learning activities, social activities, economic activities, civic participation, and health promotion activities in the past year. These five aspects of participation are used to observe the possible impacts that ready access to ICT can have on improving or enhancing quality of life.

**Participation in learning activities** statistics show that 89.6% of internet users search for information and knowledge through the internet, 31.4% learn from online courses or materials, and 9.6% engage in two-way interactive learning.

**Social activity participation** focused on Web 2.0 interactive sharing, including the use of instant messaging and social networks, participating in entertainment activities (online media and games), arts and cultural activities, and application of information search in daily life. The survey shows that in the past year, 87.6% of internet users searched for lifestyle information on the internet, followed by instant messaging (83.8%) and social networking (81.4%); 67.0% of internet users searched for information related to arts; 48.5% participated in online media; 37.5% played online games; while online discussion forums had the lowest participation rate, accounting for just 23.9%. (Figure 7)

Note: Sample size of internet users aged 12 and over = 10,344

Figure 7. Social activity participation of internet users

**Economic activity participation** focuses on e-commerce, employment, and entrepreneurial activity. According to the survey results, participation in economic activities by internet users mainly comprised of making price comparisons and online shopping (Figure 8). Online shoppers shopped an average of 10 times a year; annual spending ranges from NT$1,001 to NT$5,000, and the average amount spent annually is NT$14,739.

Note: Sample size of internet users aged 12 and over = 10,344

Figure 8. Participation in economic activities by internet users

Cash on Delivery is the most popular online payment method, favored by 33.4% of the e-shoppers, followed by Cash on Pickup at Convenience Stores (27.8%) and Cash Payments at Convenience Stores (24.7%). None of the other methods account for more than 10% of total respondents, as shown in Figure 9.

Sample size: 6,279.

Figure 9 Payment Methods Most Favored by Online Shoppers (in a 12-month period)

**Civic participation** focuses on the participation of online social movements and the use of e-government resources. The survey results show that in the past year, 46.2% of internet users searched for public government information online, 32.4% applied for a service online, 7.2% participated in social activities through online mobilization, 23.7% published an opinion on public policy online, and 6.4% published opinions on public policy on a government related site. (Figure 10)

Note: Subjects surveyed for the analysis of experiences in publishing opinions on public policy, and publishing opinions on public policy on government related sites, are online forum users aged 12 and over (sample size = 2,329); the subjects analyzed for the remaining 3 indicators are internet users aged 12 and over (sample size = 10,344)

Figure 10. Civic participation of internet users

**Health promotion** focuses on searching for health education and medical information. The former includes online health education knowledge and health advisory services, while the latter refers to registering for an appointment and searching for physician information online. The survey revealed that 69.7% of internet users have searched for health education knowledge in the past year, 37.7% have registered for an appointment online, 29.4% have searched for physician information, and only 25.6% have used online health advisory services. (Figure 11)

Note: Sample size of internet users aged 12 and over = 10,344

Figure 11. Health promotion participation of internet users

##### 4.1.3. Exclusion

Exclusion is mainly explores whether the use of ICT causes personal crises or violates rights and interests.

**Personal crises** include “internet addiction”, “deterioration of various abilities”, and “internet trust”. The survey revealed that 23.6% of the people feel anxious and worried when they have not accessed the internet for one day or longer. This reveals that when the internet is a personal source of information, a medium for interpersonal communication, and/or the main channel for entertainment, the problem of internet addiction warrants even greater attention. (Figure 12)

Note: Sample size of internet users aged 12 and over = 10,344

Figure 12. Internet users who feel anxious or worried after not using the internet

Moreover, excessive reliance on the internet or technological equipment may cause the deterioration of certain abilities of internet users. The survey revealed that approximately 9.7% of internet users perceived a decline in social skills due to the internet, and 30.0% of internet users have worse health conditions due to internet use. (Figure 13)

Note: Sample size of internet users aged 12 and over = 10,344

Figure 13. Perceived decline in abilities caused by excessive Internet use

In terms of making friends online, the survey revealed that 9.8% of internet users believe that friends they meet online are trustworthy, 68.6% of internet users do not trust them, and 15.3% of internet users believe the judgment depends on the actual interaction. (Figure 14)

Note: Sample size of internet users aged 12 and over = 10,344

Figure 14. Percentage of internet users that trust online friends

Violation of rights and interests consists of two main aspects: privacy violation and equipment violation. The former includes the breach of personal information and frequency of spam, whereas the latter includes computer viruses, internet fraud, and cyber bullying.

The survey revealed that 63.7% of users think that junk email has increased, 32.1% of internet users have caught a virus from the internet in the past year, 19.6% of internet users have experienced a breach of personal data, 4.0% have experienced cyber bullying in the past year, and 3.1% of internet users experienced internet fraud. (Figure 15)

Note: Sample size of internet users aged 12 and over = 10,344

Figure 15. Violation of rights and interests of internet users

### 4.2 Overview of Digital Opportunity by Category

##### 4.2.1 Gender Differences in Digital Opportunity

###### (1) Empowerment

Gender has been an important variable for scholars in explaining the digital opportunity gap. This year's survey revealed that the percentage of female internet users in Taiwan is still lower than that of males; 82.7% of males aged 12 and over have used a computer, and 80.1% have used the internet; both rates are 4.1% higher than that of female users. But in terms of the access rate of wireless or mobile internet, 92.5% of female internet users have used wireless or mobile internet. This is, for the first time, higher than the percentage of male internet users (90.6%). (Table 6)

Regarding device access, the percentage of female internet users that owned smartphones, tablets, and laptops is higher than male users, but a higher percentage of male internet users have owned a desktop computer. (Table 6)

A gender comparison of the degree of exposure to international information reveals that males account for a higher percentage (51.6%) than females (45.5%) in terms of exposure to foreign websites. Thus, the significant difference of 6.1% indicates that the degree of exposure to international information for males is higher than that of females. (Table 6)

In terms of basic skills and capabilities, gender does not account for any significant difference: approximately 90% of both genders can independently access the internet through any device and independently receive or send email, and 79% of both genders can operate word processing software. (Table 6)

Table 6. Gender Differences and Similarities in Empowerment

|  |  |  |  |
| --- | --- | --- | --- |
| **Sub-aspect** | **Indicator** | **Male** | **Female** |
| Information access | Computer usage rate (%) | 82.7 | 78.6 |
| Internet usage rate (%) | 80.1 | 76.0 |
| Internet users with WiFi/mobile access (%) | 90.6 | 92.5 |
| Internet users with WiFi/mobile access (%) | 84.1 | 78.1 |
| Internet users owning a laptop computer (%) | 52.7 | 56.2 |
| Internet users owning a tablet PC (%) | 45.8 | 48.8 |
| Internet users owning a smartphone (%) | 83.8 | 86.0 |
| Years of internet experience | 11.3 | 10.5 |
| Internet users accessing foreign websites (%) | 51.6 | 45.5 |
| Basic computer skills | Internet users capable of going online by themselves, regardless of device (%) | 90.4 | 89.7 |
| Internet users capable of receiving and sending emails by themselves (%) | 89.8 | 89.8 |
| Internet users familiar with word-processing software (%) | 78.8 | 78.9 |

Note: Those with test results that were not statistically significant (*p* > 0.05) are displayed at the bottom of the page.

###### (2) Integration

Table 7 shows the difference in the integration status of both genders for five main aspects - learning, social life, economic, civic participation, and health promotion.

**In terms of participation in learning activities**, no significant gender difference was found for interactive distance learning, but a higher percentage of female internet users participate in or search for online video courses than male internet users.

**Regarding social life participation**, the significant differences between both genders are, the percentage of male internet users that participate in online discussion forums (26.8%) is higher than that of female internet users (20.8%), the proportion of male internet users participating in entertainment activities (60.5%) is higher than female internet users (54.6%), and the proportion of female internet users engaged in art and cultural activities (71.4%) is higher than male internet users (62.9%), On the participation in instant messaging, social networking, and the search for lifestyle information, female internet users account for slightly more than males. (Table 7)

**In terms of participation in economic activities**, the percentage of female internet users who have shopped online and searched for employment information online in the past year is higher than male internet users. Yet for online price comparisons, online financial services, and online entrepreneurship, the gender difference was not significant. Additionally, based on the average amount spent on online shopping, male e-shoppers spent an average of NT$16,698 more than their female counterparts’ NT$12,990. In terms of the online shopping frequency in the past year, female online shoppers shopped 11 times on average, which is slightly higher than male online shoppers at 9 times. (Table 7)

**In terms of civic participation** in the past year, male internet users are slightly more active in publishing their opinions on public policy (25.6%) than female internet users (21.3%). The difference of 4.3% revealed that male internet users are more engaged in offering their opinions of current politics, and social or public policies online. For online application services, the proportion of female internet users (33.2%) is higher than male internet users (31.6%). The percentages of participation of both genders are similar for political related activities through comments on government websites and online mobilization, and searching for public government information. (Table 7)

**In terms of health promotion**, on gender participation in health-promoting behaviors through the internet, female internet users who have registered for an appointment online (40.6%) is higher than male internet users (34.9%). In the past year, the percentage of female internet users who have searched for health education knowledge (75.4%) is higher than male internet users (64.2%). In the past year, the proportion of female internet users who have engaged in online health advisory services (28.0%) was higher than that of male internet users (23.3%). In the past year, the percentage of female internet users who have sought physician information online (34.3%) was also higher than that of male internet users (24.8%). All of these indicators show significant differences, revealing that female internet users are more involved in online health promotion activities. (Table 7)

Table 7. Gender Differences and Similarities in Integration (%)

|  |  |  |  |
| --- | --- | --- | --- |
| **Sub-aspect** | **Indicator** | **Male internet users** | **Female internet users** |
| Participation in learning activities | Interactive distance learning  | 9.6 | 9.6 |
| Online video course usage  | 30.0 | 32.8 |
| Online information search  | 89.1 | 90.1 |
| Participation in social activities | Instant messaging usage  | 82.5 | 85.1 |
| Social network usage  | 80.2 | 82.6 |
| Online forums usage  | 26.8 | 20.8 |
| Arts and cultural information usage  | 62.9 | 71.4 |
| Entertainment activities participation and usage  | 60.5 | 54.6 |
| Searching for and use of lifestyle information  | 86.4 | 88.8 |
| Economic activity participation | Online price search  | 72.1 | 72.7 |
| Online financial services  | 34.9 | 33.4 |
| Online shopping  | 55.7 | 65.9 |
| Experiences of searching for employment information online  | 18.8 | 20.8 |
| Internet entrepreneurship  | 9.5 | 8.6 |
| Civic participation | Published an opinion about public policy  | 25.6 | 21.3 |
| Published an opinion about public policy on a government related site  | 7.6 | 5.0 |
| Participation in a social movement due to online mobilization  | 7.1 | 7.4 |
| Searched for public government information online  | 45.4 | 46.9 |
| Online application service  | 31.6 | 33.2 |
| Health promotion participation | Online search for health education knowledge  | 64.2 | 75.4 |
| Online health advisory services  | 23.3 | 28.0 |
| Searching for information on doctors online  | 24.8 | 34.3 |
| Scheduling appointments online  | 34.9 | 40.6 |

Note 1: Indicators for the experience of publishing an opinion of public policy and publishing an opinion of public policy on government related sites, subjects analyzed are online forum users aged 12 and over; the subjects analyzed for the remaining 3 indicators are internet users aged 12 and over

Note 2: Those with test results that were not statistically significant (*p* > 0.05) are displayed at the bottom of the page.

###### (3) Exclusion

Here, the survey assessed whether any gender differences exist in terms of personal crises resulting from internet use. The results show that the percentage of female internet users who become anxious and worried after not using the internet for one day or longer (25.0%) is higher than the male internet users (22.3%), indicating that internet anxiety is more severe in woman than men. In terms of the deterioration of physical fitness, the percentage of female internet users who feel that their level of physical fitness has deteriorated as a result of internet use is higher than that of male internet users (33.3% vs. 26.9%). Regarding making friends online, female users are more cautious when it comes to meeting friends online. In terms of violation of rights and interests, only a slight gender difference was found. (Table 8)

Table 8. Gender Differences and Similarities in Exclusion (%)

|  |  |  |  |
| --- | --- | --- | --- |
| **Sub-aspect**  | **Indicator**  | **Male internet users**  | **Female internet users**  |
| Personal crises | Become anxious after not using the internet for one day or longer  | 22.3 | 25.0 |
| Deterioration of physical fitness  | 26.9 | 33.3 |
| Deterioration of social skills  | 9.9 | 9.6 |
| Trust in fellow internet users  | 11.1 | 8.4 |
| Violation of rights and interests | Percentage of personal data breach  | 19.0 | 20.2 |
| Percentage of considering that spam email is increasing  | 63.2 | 64.2 |
| Percentage of computer viruses  | 32.9 | 31.2 |
| Internet fraud  | 2.7 | 3.5 |
| Experience of online verbal abuse or being affronted  | 4.7 | 3.2 |

Note: Those with test results that were not statistically significant (*p* > 0.05) are displayed at the bottom of the page.

##### 4.2.2. Generational Differences in Digital Opportunity

###### (1) Empowerment

In observing the computer usage among different generations in Taiwan, we found that over 97% of people between the age of 12 and 39 who are also digital natives have used computers and the internet; the percentage of computer/internet usage among those aged 40 or over (a.k.a., “digital immigrants”) decreases with age, as Figure 16 shows.

Figure 16 Computer and Internet Use by Age Group in Taiwan

Wireless or mobile internet access by the different generations follows the same trend as above. The percentage of internet users between 15 and 39 years old that have used wireless or mobile internet is as high as 88%, whereas the percentage of those aged 40 and over decreases with age. (Table 9)

For the differences in internet access devices, internet users aged 50 and over own more desktop computers followed by smartphones, indicating that digital immigrants mainly use desktop computers to access the internet. In contrast, internet users aged 15-49 years old are just the opposite, with smartphones as the main device for accessing the internet, followed by desktop computers. In addition to observing the devices used, we also compared the differences of various devices owned by different age groups and found that internet users aged 30-39 years old own more devices, showing that the 30-39 year old age group owns a richer variety of information equipment. (Table 9)

Of internet users aged 12 and over in Taiwan, those aged 30-39 years old possess the most years of internet use with an average of 13.2 years, followed by those aged 40 and over with an average of 11 years, and then followed by those aged 20-29 years, averaging 10.3 years. (Table 9)

For the degree of international information contact of internet users of different generations, the percentage of internet users aged 20-29 years old that browse foreign websites is the highest (62.0%), followed by internet users between 30-39 years old (54.6%), and because of limited education and exposure to information, the percentage of internet users aged 12-14 years old that browse foreign websites is the lowest (37.9%). (Table 9)

In terms of basic skill capabilities, those aged 15-39 years old are more advanced compared to any other age range - more than 90% can access the internet through any device and send and receive emails independently, and over 80% can operate word-processing software. For those who are 40 years old and over, basic skills and capabilities are lower with age. (Table 9)

Table 9. Generational Differences and Similarities in Empowerment

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sub-aspect** | **Indicator** | **Age 12-14** | **Age 15-19** | **Age 20-29** | **Age 30-39** | **Age 40-49** | **Age 50-59** | **Age 60-64** | **Age 65 and over** |
|
| Information access  | Computer usage rate (%) | 100.0 | 99.7 | 99.7 | 97.8 | 88.1 | 71.1 | 59.9 | 30.2 |
| Internet usage rate (%) | 100.0 | 99.6 | 99.1 | 97.2 | 86.1 | 66.3 | 52.6 | 24.1 |
| Desktop ownership rate (%) | 75.1 | 80.6 | 83.0 | 82.0 | 81.3 | 83.2 | 77.6 | 72.7 |
| Laptop ownership rate (%) | 36.3 | 39.2 | 57.4 | 63.3 | 58.8 | 55.3 | 40.1 | 38.4 |
| Tablet ownership rate (%) | 43.0 | 38.4 | 38.6 | 57.2 | 53.9 | 47.5 | 34.1 | 39.1 |
| Smartphone ownership rate (%) | 68.4 | 84.0 | 93.4 | 94.1 | 87.8 | 76.3 | 61.1 | 55.8 |
| Wireless or mobile internet access rate (%) | 86.6 | 93.0 | 96.6 | 96.9 | 92.9 | 86.7 | 71.5 | 71.0 |
| Years of internet use  | 4.1 | 6.2 | 10.3 | 13.2 | 12.2 | 12.1 | 10.7 | 10.1 |
| Basic skills and capabilities  | Usage rate of international websites (%) | 37.9 | 50.3 | 62.0 | 54.6 | 44.5 | 38.7 | 35.0 | 28.8 |
| Connect to the internet via any device independently (%) | 89.1 | 92.6 | 96.6 | 95.2 | 89.3 | 84.2 | 74.3 | 66.6 |
| Independently send and receive email (%) | 80.8 | 93.3 | 98.2 | 94.9 | 87.4 | 82.4 | 79.8 | 72.8 |
| Operate word processing software (%) | 70.7 | 89.7 | 94.0 | 85.7 | 74.6 | 64.1 | 58.6 | 46.0 |

###### (2) Integration

Table 10 shows the difference in the integration status of both generations for five main aspects - learning, social life, economic, civic participation, and health promotion.

**In terms of participation in learning activities**, the percentages of internet users of different generations that have used the internet to find information and absorb knowledge in the past year are over 90% for those aged 15-49 years old, over 80% for those aged 50-64 years old, creating a distribution of an inverted U shape. More than 30% of those aged 12-39 years old and approximately 24% of those aged 40-59 years old have used online video courses. When it comes to interactive distance learning, usage peaks at ages 12-14 and declines thenceforth until reaching the bottom 2.0% in the 65-or-over bracket, as shown in Table 10.

**In terms of participation in social activities**, we looked at various types of social participation, and analysis revealed that participation is higher for instant messaging, social networks, and the search for lifestyle information. However, in observing the age difference in detail, one can find that the main form of participation for internet users aged 12-29 years old is through social networks, whereas those aged 40 years old and over search for lifestyle information. (Table 10)

**In terms of economic activity participation**, internet users 30-39 years old have the highest participation rate out of the different generations for online price searches, online financial services, online shopping, and experience in online entrepreneurship. The generation trend distribution is an inverted U shape. Internet users aged 20-29 years old, since they are fresh out of school, are the most active in searching for employment information online; at 42.8%, their participation rate is higher than other generations. (Table 10)

**In terms of civic participation**, the survey revealed internet users 20-29 years old are the most active generation in publishing a political opinion online or joining a social movement due to online mobilization in the past year. Internet users of 30-49 years old are the most active for e-government participation. (Table 10)

**Regarding health promotion participation**, internet users 30-59 years old are the most active in Scheduling appointments online for the past year. Reaching 64% and above, the percentage of internet users aged 20 years old and over who have used the internet to search for Health education knowledge in the past year is higher than other age groups. Those of 30-39 years old are the most active in using health advisory services online (34.2%). Overall, the degree of health promotion participation of young people is the lowest, whereas that of the middle-aged and old-aged is the highest. (Table 10)

Table 10. Generational Differences and Similarities in Integration (%)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sub-aspect** | **Indicator** | **Age 12-14** | **Age 15-19** | **Age 20-29** | **Age 30-39** | **Age 40-49** | **Age 50-59** | **Age 60-64** | **Age 65 and over** |
| Participation in learning activities | Interactive distance learning  | 14.4 | 11.7 | 12.3 | 12.0 | 8.3 | 5.0 | 2.9 | 2.0 |
| Online video course usage  | 39.7 | 33.6 | 42.5 | 34.7 | 23.6 | 24.1 | 18.8 | 19.9 |
| Online information search  | 77.8 | 93.4 | 94.2 | 92.3 | 90.2 | 87.7 | 80.9 | 71.5 |
| Participation in social activities | Instant messaging usage rate  | 76.0 | 90.0 | 96.0 | 91.3 | 81.7 | 71.5 | 59.5 | 57.1 |
| Social network usage rate  | 89.9 | 95.6 | 94.8 | 89.6 | 78.4 | 62.4 | 47.2 | 45.5 |
| Online forums usage rate  | 24.8 | 33.0 | 36.2 | 29.7 | 18.0 | 9.9 | 7.6 | 4.4 |
| Rate of searching for arts and cultural information  | 45.9 | 65.9 | 75.9 | 73.4 | 68.1 | 61.8 | 53.6 | 45.2 |
| Online media usage rate  | 58.1 | 60.6 | 54.7 | 51.3 | 44.0 | 38.6 | 34.2 | 34.2 |
| Online gaming rate  | 64.4 | 58.4 | 47.4 | 39.7 | 29.8 | 21.7 | 14.3 | 14.1 |
| Lifestyle information search rate  | 69.7 | 82.8 | 92.3 | 91.7 | 90.1 | 87.1 | 79.4 | 72.8 |
| Economic activity participation | Online price search  | 33.6 | 63.7 | 84.4 | 84.0 | 75.8 | 65.1 | 58.2 | 41.5 |
| Online financial services  | 1.5 | 5.7 | 32.1 | 49.1 | 43.0 | 36.1 | 28.8 | 21.2 |
| Online shopping  | 30.4 | 56.3 | 77.2 | 76.2 | 59.8 | 46.0 | 36.4 | 22.7 |
| Experiences of searching for employment information online  | 2.4 | 19.3 | 45.2 | 23.1 | 11.8 | 7.6 | 2.4 | 2.1 |
| Internet entrepreneurship  | 2.4 | 4.5 | 13.6 | 14.6 | 8.8 | 4.2 | 1.4 | 1.1 |

Table 10. Generational Differences and Similarities in Integration (%)(Continued )

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sub-aspect** | **Indicator** | **Age 12-14** | **Age 15-19** | **Age 20-29** | **Age 30-39** | **Age 40-49** | **Age 50-59** | **Age 60-64** | **Age 65 and over** |
| Civic participation | Published an opinion about public policy  | 11.5 | 15.6 | 24.2 | 25.0 | 29.3 | 29.7 | 35.8 | 4.9 |
| Published an opinion about public policy on a government related site  | 1.4 | 2.9 | 6.2 | 6.9 | 9.7 | 10.5 | 5.6 | 0.0 |
| Participation in a social movement due to online mobilization  | 3.6 | 6.8 | 13.5 | 7.1 | 4.8 | 5.9 | 5.1 | 1.8 |
| Searched for public government information online  | 17.0 | 26.0 | 45.5 | 56.4 | 53.1 | 47.3 | 46.7 | 35.6 |
| Online application service  | 1.3 | 5.0 | 24.5 | 45.2 | 43.5 | 38.8 | 30.7 | 25.6 |
| Health promotion  | Scheduling appointments online  | 4.9 | 13.6 | 31.7 | 47.4 | 46.4 | 44.8 | 37.8 | 40.1 |
| Online search for health education knowledge  | 33.1 | 52.9 | 71.9 | 79.3 | 75.3 | 69.5 | 67.7 | 64.3 |
| Online health advisory services  | 9.0 | 13.5 | 24.4 | 34.2 | 26.4 | 27.9 | 22.5 | 21.4 |
| Searching for information on doctors online  | 4.0 | 8.7 | 31.5 | 42.8 | 34.3 | 28.0 | 17.3 | 18.0 |

Note 1: Indicators for the experience of publishing an opinion of public policy and publishing an opinion of public policy on government related sites, subjects analyzed are online forum users aged 12 and over; the subjects analyzed for the remaining 3 indicators are internet users aged 12 and over

Note 2: Those with test results that were not statistically significant (*p* > 0.05) are displayed at the bottom of the page*.*

###### (3) Exclusion

By comparing the degree of internet addiction of different generations, we found that internet users of 20-29 years old who are anxious and worried when not using the internet within one day is the highest (35.1%), followed by30-39 year olds (30.4%); this indicates that anxiety caused by internet addiction in the 20-39 age range warrants greater attention. (Table 11)

Regarding the deterioration of basic skills or capabilities, internet users aged 15-39 years old who feel that the internet has led to a deterioration of their social skills is the highest; meanwhile, the percentage of 40-49 year olds who feel that the internet has led to a deterioration of their physical fitness is higher than other generations (38.1%). Regarding the degree of trust in online friends, internet users aged 12-19 years old show a higher degree of trust in online friends. (Table 11)

Regarding the age-related difference in perceived personal data breaches and device damages caused by Internet usage, a relatively large percentage (20%-27%) of users aged 20-50 believe Internet use will lead to personal data leakage. In terms of cyber bullying, internet users of 12-19 years old who believe they have been abused online is higher than those aged 20 and over, showing that cyber bullying situations of the younger generation should be prioritized. (Table 11)

Table 11. Generational Differences and Similarities in Exclusion (%)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sub-aspect** | **Indicator** | **Age 12-14** | **Age 15-19** | **Age 20-29** | **Age 30-39** | **Age 40-49** | **Age 50-59** | **Age 60-64** | **Age 65 and over** |
| Personal crises | Become anxious after not using the internet for one day or longer  | 14.7 | 21.0 | 35.1 | 30.4 | 20.9 | 12.8 | 12.5 | 8.9 |
| Deterioration of physical fitness  | 17.5 | 25.4 | 30.9 | 30.2 | 38.1 | 29.2 | 26.4 | 19.4 |
| Deterioration of social skills  | 6.6 | 11.6 | 12.4 | 10.2 | 9.6 | 8.0 | 5.1 | 4.8 |
| Trust in fellow internet users | 21.1 | 15.2 | 11.9 | 10.4 | 6.0 | 5.7 | 6.7 | 4.8 |
| Violation of rights and interests | Percentage of personal data breach  | 5.0 | 12.6 | 25.4 | 26.8 | 20.0 | 14.5 | 12.8 | 7.8 |
| Percentage of considering that spam email is increasing  | 39.6 | 49.3 | 71.9 | 70.9 | 66.0 | 60.5 | 60.0 | 50.2 |
| Percentage of computer viruses  | 18.7 | 29.7 | 32.1 | 32.0 | 35.0 | 37.5 | 29.8 | 23.7 |
| Internet fraud  | 1.1 | 3.0 | 3.9 | 4.1 | 3.0 | 2.2 | 0.9 | 2.0 |
| Experience of online verbal abuse or being affronted  | 7.8 | 8.5 | 5.8 | 2.8 | 3.0 | 2.0 | 1.3 | 0.9 |

##### 3. Regional[[1]](#footnote-1) Differences in Digital Opportunity

###### (1) Empowerment

In observing the computer and internet usage of people in different regions, the survey revealed that as residential areas become more digitally developed, the proportion of residents that use the internet increases as well. Over 81% of residents of Level 1 and 2 Digital Development Regions have used a computer, and over 79% of these residents have used the internet. In contrast, only 62.3% of residents living in Level 5 Digital Development Regions have used a computer and only 58.1% have used the internet. (Table 12)

So is the case with WiFi/mobile internet usage: residents in areas with a relatively high level of digital infrastructure tend to use WiFi or mobile internet access more frequently. More than 90% of residents in Level 1, 2 and 3 Digital Development Regions have used wireless or mobile internet, compared to more than 88% in Level 4 and 5 Regions, as shown in Table 12.

Regarding the degree of exposure to international information, a correlation was found between a higher level of digital development of a region (“Digital Development Region”) and an increased amount of browsing of foreign websites by internet users. The percentage increased from 33.5% for those in Level 5 Digital Development Regions to 55.1% for those in Level 1 Digital Development Regions. (Table 12)

Table 12. Regional Differences and Similarities in Empowerment

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sub-aspect**  | **Indicator**  | **Level 1 Digital Development Region**  | **Level 2 Digital Development Region**  | **Level 3 Digital Development Region**  | **Level 4 Digital Development Region**  | **Level 5 Digital Development Region**  |
| Information access  | Computer usage rate (%) | 85.0 | 81.5 | 74.4 | 76.0 | 62.3 |
| Internet usage rate (%) | 82.6 | 79.2 | 70.8 | 72.3 | 58.1 |
| Ownership rate of desktop computers by internet users (%) | 81.0 | 81.8 | 81.2 | 80.0 | 73.9 |
| Ownership rate of laptops by internet users (%) | 59.0 | 54.3 | 46.6 | 49.0 | 44.0 |
| Ownership rate of tablets by internet users (%) | 50.0 | 47.1 | 43.2 | 42.0 | 41.7 |
| Ownership rate of smartphones by internet users (%) | 85.9 | 84.6 | 84.7 | 81.8 | 77.1 |
| Access rate of wireless or mobile internet by internet users (%) | 92.6 | 90.9 | 91.5 | 88.9 | 88.2 |
| Years of internet use by internet users  | 11.5 | 10.9 | 10.1 | 10.5 | 8.5 |
| Basic skills and capabilities  | Usage rate of international websites by internet users (%) | 55.1 | 47.0 | 41.6 | 38.8 | 33.5 |
| Independent access of the internet by internet users using any device (%) | 90.7 | 90.2 | 89.7 | 87.3 | 83.9 |
| Independent receiving and sending of emails by internet users (%) | 91.3 | 90.2 | 87.3 | 88.2 | 81.5 |
| Word processing software skills (%) | 81.8 | 78.7 | 75.1 | 76.5 | 63.4 |

###### (2) Integration

Table 13 shows the difference in integration status of different regions for five main aspects - learning, social life, economic, civic participation, and health promotion.

**Regarding participation in learning activities**, the percentage of internet users residing in Level 5 Digital Development Regions that search for information online is 77.7%, which is at least 10% lower than those living in Level 1 to 4 Digital Development Regions. No significant difference between the regions was found with regard to the level of participation in interactive distance learning and online video courses. (Table 13)

**Regarding participation in social activities**, overall, the percentages of internet users residing in Level 5 Digital Development Regions that use online forums, search for art and cultural information, and search for lifestyle information are lower than those of Levels 1 through 4 Digital Development Regions; but in the case of online gaming, internet users in Levels 1 through 4 Digital Development Regions have a higher rate of participation than users in Levels 1 through 4 Digital Development Regions. In terms of the use of instant messaging clients, social networks, and online media, no significant difference was found in the degree of participation between different regions. (Table 13)

**Regarding economic activity participation** among the respondents in different regions, internet users residing in Level 5 Digital Development Regions are less active in online price checks, online financial services, searching for employment information online, and experience in internet entrepreneurship. (Table 13)

**Regarding civic participation**, in the past year, the percentages of internet users in Level 5 Digital Development Regions that have searched for public government information and used online application services (31.6% and 18.2% respectively) are lower than that of users in Levels 1 through 4 Digital Development Regions. (Table 13)

**Regarding health promotion**, the percentage of internet users residing in Level 3 Digital Development Regions that registered for an appointment online (28.9%) is lower than the other regions. Whereas internet users in Level 5 Digital Development Regions are less active when it comes to searching for health education knowledge, using health advisory services, and searching for physician information online. (Table 13)

Table 13. Regional Differences and Similarities in Integration (%)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sub-aspect** | **Indicator** | **Level 1 Digital Development Region****(internet users)** | **Level 2 Digital Development Region****(internet users)** | **Level 3 Digital Development Region****(internet users)** | **Level 4 Digital Development Region****(internet users)** | **Level 5 Digital Development Region****(internet users)** |
| Participation in learning activities | Interactive distance learning  | 31.0 | 31.5 | 32.1 | 33.2 | 26.7 |
| Online video course usage  | 9.0 | 9.6 | 10.2 | 12.2 | 12.1 |
| Online information search  | 91.7 | 89.6 | 86.7 | 87.8 | 77.7 |
| Participation in social activities | Instant messaging usage rate  | 84.9 | 83.4 | 83.1 | 79.9 | 82.4 |
| Social network usage rate  | 81.3 | 81.2 | 82.7 | 81.1 | 75.3 |
| Online forums usage rate  | 25.7 | 23.9 | 20.8 | 22.0 | 18.7 |
| Rate of searching for and using arts and cultural information  | 70.3 | 66.2 | 63.1 | 66.7 | 56.3 |
| Online media usage rate  | 48.3 | 47.8 | 49.8 | 50.4 | 50.9 |
| Online gaming rate  | 35.3 | 37.5 | 41.1 | 41.5 | 42.7 |
| Lifestyle information search rate  | 89.7 | 87.0 | 85.6 | 86.1 | 78.6 |
| Economic activity participation | Online price search  | 74.1 | 73.0 | 69.1 | 69.7 | 61.7 |
| Online financial services  | 38.6 | 33.4 | 28.1 | 31.1 | 21.9 |
| Online shopping  | 37.3 | 39.8 | 42.6 | 37.7 | 41.9 |
| Experiences of searching for employment information online  | 19.5 | 20.3 | 20.8 | 17.7 | 12.4 |
| Internet entrepreneurship  | 9.6 | 9.4 | 7.4 | 8.9 | 6.0 |
| Civic participation | Published an opinion about public policy  | 23.4 | 24.4 | 22.3 | 23.8 | 28.2 |
| Published an opinion about public policy on a government related site  | 5.2 | 7.6 | 6.0 | 5.8 | 10.3 |
| Participation in a social movement due to online mobilization  | 9.1 | 6.3 | 5.5 | 6.7 | 5.8 |
| Searched for public government information online  | 49.3 | 46.4 | 40.2 | 46.3 | 31.6 |
| Online application service  | 37.1 | 31.6 | 25.9 | 29.8 | 18.2 |
| Health promotion | Scheduling appointments online  | 43.0 | 36.3 | 28.9 | 39.2 | 36.8 |
| Online search for health education knowledge  | 72.1 | 69.9 | 65.7 | 69.5 | 53.9 |
| Online health advisory services  | 27.5 | 25.5 | 22.5 | 22.2 | 20.9 |
| Searching for information on doctors online  | 32.6 | 29.9 | 24.0 | 23.1 | 18.4 |

Note 1: Indicators for the experience of publishing an opinion of public policy and publishing an opinion of public policy on government related sites, subjects analyzed are online forum users aged 12 and over; the subjects analyzed for the remaining 3 indicators are internet users aged 12 and over

Note 2: Those with test results that were not statistically significant (*p* > 0.05) are displayed at the bottom of the page*.*

###### (3) Exclusion

When it comes to regional differences in internet addiction, one can see that the percentage of internet users that feel anxiety or become worried by not having internet access for one day or less is lower for users in Level 5 Digital Development Regions (19.0%) compared to other regions. (Table 14)

Regarding the deterioration of various capabilities, the more developed the region, the more internet users believe their health deteriorates from using the internet. The percentage increases from 18.7% for users in Level 5 Digital Development Regions to 33.0% for users in Level 1 Digital Development Regions. 6.4% of users residing in Level 5 regions consider fellow internet users trustworthy, a percentage lower than any other region (Table 14).

Comparing the situation of personal data breach of the different regions, results reveal that in the past year, the percentage of personal data breach increases with the level of digital development, increasing from 12.8% of internet users residing in Level 5 Digital Development Regions to 20.5% of that of Level 1 Digital Development Regions. In general, the percentage of users who perceive the problem of spam emails to be increasingly severe ranges from 57% (Level 5) to 65% (Level 1 and 4), as shown in Table 14.

Table 14. Regional Differences and Similarities in Exclusion (%)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sub-aspect** | **Indicator** | **Level 1 Digital Development Region****(internet users)** | **Level 2 Digital Development Region****(internet users)** | **Level 3 Digital Development Region****(internet users)** | **Level 4 Digital Development Region****(internet users)** | **Level 5 Digital Development Region****(internet users)** |
| Personal crises | Become anxious after not using the internet for one day or longer  | 24.8 | 23.2 | 22.2 | 24.2 | 19.0 |
| Deterioration of physical fitness  | 33.0 | 29.7 | 26.0 | 27.5 | 18.7 |
| Deterioration of social skills  | 10.3 | 9.0 | 10.1 | 10.3 | 9.2 |
| Trust in fellow internet users | 10.5 | 9.3 | 9.4 | 11.1 | 6.4 |
| Violation of rights and interests | Percentage of personal data breach  | 20.5 | 20.1 | 17.7 | 16.6 | 12.8 |
| Percentage of considering that spam email is increasing  | 64.8 | 63.3 | 62.7 | 64.8 | 57.3 |
| Percentage of computer viruses  | 31.1 | 33.2 | 31.6 | 31.4 | 33.7 |
| Internet fraud  | 2.9 | 3.6 | 2.6 | 3.2 | 2.3 |
| Experience of online verbal abuse or being affronted  | 3.7 | 4.2 | 3.7 | 5.4 | 3.5 |

Note: Those with test results that were not statistically significant (*p* > 0.05) are displayed at the bottom of the page.

### 4.3 Analysis of Non-Internet Users

##### 4.3.1 Sample Framework

The survey reveals that internet users in Taiwan account for 78.0% of the total population; thus, approximately 22.0% of the population comprises non-internet users. The basic attribute differences of non-internet users are studied as the basis for subsequent data analysis. In terms of gender differences, female non-internet users account for 55.0%, while male non-internet users account for 45.0%. In terms of age, the percentages of non-internet users that are middle-aged or old-aged are the highest, with those above 65 years old accounting for 45.4%, followed by 50-59 year olds accounting for 26.1%. In terms of education level, non-internet users mainly comprise those with only a high school education or below; of these users, those with only a middle school and/or elementary school education account for 32.3%, while those with high school diplomas account for 23.0%. (Table 15)

Table 15. Basic Attribute Distribution of Non-Internet Users

Unit: Persons; %

|  |  |  |
| --- | --- | --- |
| **Item type**  | **Nationwide**  | **Non-internet Users**  |
| **Sample size**  | **13,262** | **2,918** |
| **Total**  | **100.0** | **100.0** |
| Gender | Male  | 49.7 | 45.0 |
| Female  | 50.3 | 55.0 |
| Age | Age 12-14  | 3.9 | - |
| Age 15-19  | 7.4 | 0.1 |
| Age 20-29  | 15.5 | 0.6 |
| Age 30-39  | 18.8 | 2.4 |
| Age 40-49  | 17.4 | 11.0 |
| Age 50-59  | 17.0 | 26.1 |
| Age 60-64  | 6.7 | 14.5 |
| Age 65 and over  | 13.1 | 45.4 |
| Level of education | Did not attend school  | 3.3 | 14.6 |
| Elementary school  | 8.6 | 32.3 |
| Junior high school or middle school  | 12.2 | 20.6 |
| High school, occupational school (including three years of a five year college program)  | 27.3 | 23.0 |
| Junior college  | 12.1 | 4.6 |
| University  | 29.3 | 3.1 |
| Institute-level or above  | 6.8 | 0.6 |
| Don't know/Decline to answer  | 0.4 | 1.1 |

##### 4.3.2 Information Support and Digital Integration

Regarding whether or not non-internet users have family members who can help them access information from the internet (i.e., information agent), 32.7% of non-internet users have information agents, while 66.2% do not. (Figure 17)

Note: Sample size of non-internet users = 2,918.

Figure 17. Non-internet users with family members who can help them acquire information off the internet

##### 4.3.3. Obstacles to ready access

The primary reason non-internet users do not use the internet is because they “don't know how to” (39.3%), followed by “internet access is not needed” (26.0%), “physiological factors” (17.0%), “internet is not important or have no interest” (16.5%), “too busy and have no time” (12.4%); “other reasons” accounts for less than 10%. (Figure 18)

Note 1: Sample size of non-internet users = 2,918

Note 2: This table only shows items with a percentage of 3% or more

Figure 18. Reasons non-internet users don't use the internet

##### 4.3.4. Desire to learn how to use the internet

17.4% of non-internet users desire to learn how to use the internet in the future, whereas 79% of non-internet users have no desire to learn how to use the internet. (Figure 19)

Note: Sample size of non-internet users = 2,918.

Figure 19. Desire of non-internet users to learn how to access the internet

### 4.4. Comparison of Trends of Cross-Year Survey Results

##### 4.4.1. Historical Trend Analysis of Personal Information Access

Since 2005, the rate of personal computer use of people in Taiwan aged 12 or older has increased each year, from 66.8% in 2005 to 80.7% in 2014, a growth of 13.9% over a 10-year period. The internet usage rate of people in Taiwan aged 12 or older has increased from 62.7% in 2005 to 78.0% in 2014, an accumulated 15.3% growth over 10 years. (Table 16)

Table 16. 2005-2014 Personal Computer and Internet Usage Rate

Unit: Persons; %

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Item type  | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  | 2011  | 2012  | 2013  | 2014  |
| Sample size  | 26,622 | 26,702 | 15,007 | 16,131 | 16,133 | 16,008 | 13,272 | 13,257 | 3,079 | 13,262 |
| Computer usage rate  | 66.8 | 70.1 | 71.0 | 73.4 | 72.6 | 75.6 | 77.4 | 78.0 | 80.0 | 80.7 |
| Internet usage rate  | 62.7 | 64.4 | 65.6 | 68.5 | 67.6 | 70.9 | 72.0 | 73.0 | 76.3 | 78.0 |

Table 17 shows the distribution of personal Internet usage in Taiwan across different administrative regions during the 2012-2014 period. Even though the rates of Internet accessibility in all cities have increased there is still a gap between the highest and lowest rate cities, which is a 20% drop.

Table 17 Personal Internet Usage in Taiwan by Administrative Region, 2005-2014 (%)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Admin. Region  | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012(A) | 2014(B) | B-A(%) |
| Total  | 62.7 | 64.4 | 65.6 | 68.5 | 67.6 | 70.9 | 72.0 | 73.0 | 78.0 | 5.0 |
| New Taipei City  | 67.9 | 70.1 | 70.9 | 72.6 | 71.7 | 74.6 | 77.0 | 77.0 | 81.6 | 4.6 |
| Taipei City  | 72.2 | 72.8 | 71.6 | 75.5 | 73.0 | 77.6 | 80.1 | 78.5 | 85.0 | 6.5 |
| Taichung City  | 66.6 | 67.1 | 69.4 | 70.8 | 71.2 | 74.1 | 73.7 | 74.3 | 79.1 | 4.8 |
| Tainan City  | 58.6 | 58.4 | 61.8 | 63.3 | 64.5 | 66.7 | 66.8 | 68.5 | 75.5 | 7.0 |
| Kaohsiung City  | 62.3 | 63.1 | 62.6 | 67.7 | 66.4 | 70.3 | 71.3 | 70.3 | 76.8 | 6.5 |
| Yilan County  | 57.6 | 59.5 | 62.0 | 64.0 | 61.4 | 66.6 | 65.0 | 68.6 | 74.9 | 6.3 |
| Keelung City  | 62.8 | 65.7 | 71.1 | 70.8 | 69.1 | 73.8 | 72.8 | 72.8 | 77.6 | 4.8 |
| Taoyuan County  | 66.6 | 69.8 | 69.6 | 73.7 | 72.3 | 75.9 | 74.4 | 76.9 | 80.4 | 3.5 |
| Hsinchu County  | 65.3 | 64.8 | 68.0 | 69.6 | 68.9 | 72.0 | 74.4 | 74.2 | 81.3 | 7.1 |
| Hsinchu City  | 70.0 | 73.2 | 75.5 | 75.9 | 76.0 | 76.6 | 78.0 | 79.7 | 84.0 | 4.3 |
| Miaoli County  | 55.9 | 59.5 | 64.1 | 63.3 | 66.2 | 67.1 | 69.9 | 71.4 | 72.3 | 0.9 |
| Changhua County  | 54.1 | 56.9 | 56.9 | 63.1 | 59.4 | 63.0 | 64.9 | 69.2 | 76.0 | 6.8 |
| Nantou County  | 52.1 | 56.0 | 58.5 | 60.9 | 63.1 | 64.6 | 65.3 | 68.3 | 71.1 | 2.8 |
| Yunlin County  | 49.5 | 48.6 | 53.2 | 56.3 | 53.1 | 58.7 | 61.0 | 65.4 | 67.1 | 1.7 |
| Chiayi County  | 48.6 | 51.0 | 52.2 | 56.2 | 54.5 | 56.8 | 59.5 | 63.1 | 64.2 | 1.1 |
| Chiayi City  | 62.8 | 64.6 | 67.2 | 71.1 | 67.9 | 72.1 | 74.5 | 75.3 | 81.0 | 5.7 |
| Pingtung County  | 50.6 | 56.1 | 56.0 | 59.5 | 58.0 | 59.5 | 61.9 | 66.1 | 69.4 | 3.3 |
| Penghu County  | 49.3 | 53.7 | 55.4 | 58.0 | 55.4 | 62.9 | 61.2 | 64.9 | 68.3 | 3.4 |
| Hualien County  | 57.1 | 59.8 | 61.8 | 63.8 | 65.5 | 68.8 | 69.4 | 71.5 | 74.9 | 3.4 |
| Taitung County  | 54.6 | 57.6 | 61.8 | 64.9 | 64.4 | 67.3 | 66.3 | 68.9 | 71.0 | 2.1 |
| Kinmen County  | 54.0 | 59.8 | 61.3 | 64.5 | 62.0 | 67.5 | 66.6 | 69.4 | 75.5 | 6.1 |
| Lienchiang County  | 63.2 | 68.8 | 67.5 | 70.1 | 66.8 | 72.6 | 75.8 | 76.3 | 77.8 | 1.5 |

Note: Note: Due to insufficient sample size, the 2013 data is not included in this table.

In 2014, 84.9% of Taiwanese internet users aged 12 and above have smartphone-enabled Internet access, 45.2% growth from the 2011 level of 39.7%. The number of users who accessed the Internet via laptop computers and tablet PCs for the same period increased by 9.4% and 26.2%, respectively. (Table 18)

Table 18. 2010 to 2014 Mobile Device Internet Access (%)

|  |  |
| --- | --- |
| Item type  | General public aged 12 and over  |
| 2010  | 2011  | 2012  | 2013  | 2014  |
| General public aged 12 and over | Laptops | 28.1 | 32.4 | 39.0 | 39.5 | 42.4 |
| Smartphones | 16.6 | 28.6 | 37.0 | 53.0 | 66.2 |
| Tablets | - | 15.1 | 15.6 | 27.2 | 36.8 |
| Internet users aged 12 and older | Laptops | 39.7 | 45.0 | 53.4 | 51.8 | 54.4 |
| Smartphones | 23.4 | 39.7 | 50.7 | 69.5 | 84.9 |
| Tablets | - | 21.0 | 21.4 | 35.7 | 47.2 |

The percentage of Taiwanese internet users aged 12 and over with mobile/WiFi Internet access rose from 53.0% in 2010 to 91.5% in 2014, which means a majority of the users have tried going online wirelessly. (Table 19)

Table 19. 2010 to 2014 Mobile or Wireless Internet Access Rates

Unit: Persons; %

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Item type  | 2010  | 2011  | 2012  | 2013  | 2014  |
| Sample size  | 16,008 | 13,272 | 13,257 | 3,079 | 13,262 |
| Whole population  | 37.6 | 50.7 | 56.4 | 58.5 | 71.4 |
| Internet users  | 53.0 | 70.4 | 77.3 | 76.6 | 91.5 |

##### 4.4.2. Historical Trend Analysis of Internet Civic Participation

E-government is one of the most important policies of the government agencies in Taiwan. In recent years, e-government has been greatly promoted to encourage the public to search for government related information online or use online application services to enhance the quality of public services. The percentage of people who have searched online for information about government policies or announcements increased from 35.1% in 2007 to 52.6% in 2011, and then stayed between 45% and 50% for three years. From 2011 to 2014, however, this trend remained flat for the percentage of people who use online application services. (Figure 20)

Figure 20. Individual involvement in online civic participation from 2007 to 2014

1. The cabinet-level Research, Development and Evaluation Commission published in 2011 a report on “Regional Classification in the Context of Digital Development,” which divided Taiwan’s special municipalities, county- and city-level towns and districts into five levels using 25 indicators from 6 dimensions of digital development, namely human resource structure, socio-economic conditions, education & culture, transportation & mobility, quality of life, and ICT infrastructure. Currently, there are 32 Level 1 Digital Development Regions, 93 Level 2 regions, 127 Level 3 regions, 49 Level 4 and 67 Level 5 regions in Taiwan. [↑](#footnote-ref-1)