Digital Divide in Taiwan 2009
Summary

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Research, Development, and Evaluation Commission,

Executive Yuan, Taiwan

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Summary of Digital Divide in Taiwan 2009

I. Introduction

According to the "World Information Society Report 2007" published by the International Telecommunication Union (ITU), Taiwan was ranked 7th out of 181 countries included in the Digital Opportunity Index (DOI), an index comprising three sub-indexes (infrastructure, opportunity and application) used to analyze the development status and trends of an information society, moving up from its 10th ranking in 2006.

However, despite its outstanding performance in the IT industry, Taiwan faces a similar problem as other advanced countries in the widespread use of information technology – the digital divide. The digital divide is the inevitable result from different community groups having different capabilities in using information technology equipment and the Internet due to inconsistent accessibility to computers and their use of the Internet at different periods of time.

To bridge the domestic digital divide and to realize the dream of equal e-opportunities, the government has incorporated the "Program for Bridging the Digital Divide" into the "e-Taiwan Project" since 2004 and listed it as a key focus in policy implementation. Each year, the Research, Development, and Evaluation Commission (RDEC) conducts a digital divide survey, to evaluate the status of information infrastructure implementation and the result of digital divide reduction, hoping to understand the current situation of Taiwan's digital divide through survey and research methodology consistent with modern social science standards. The results can be adopted not only as reference for the government in formulating the digital divide policy accordingly, but also in evaluating the progress and benefits of the implementation of the digital divide policy. At the same time, the results also help to sustain the achievements from digital divide research in previous years to further understand the changes in domestic digital divide trends, as well as to connect and conduct dialogue with international studies.

II. Study Methodology

In line with the purpose and spirit of its past studies, the 2009 Digital Divide Survey was contracted to the Survey Research Center of the UDN Group. The survey was conducted using computer assisted telephone interviews (CATI) from July to August 2009. Random sampling interview was used to interview a population segment of Taiwan nationals at the age of 12 or above in the two major metropolitan cities in Taiwan (Taipei and Kaohsiung), and 23 other counties and cities.

The survey was conducted after 6 pm from Monday through Sunday. The survey collected 16,133 valid random samples with a response rate of 66.4%. The estimated and actual distribution of random samples completed in counties and cities are shown in Table 1.

Table1 Distribution and Actual Number of Samples Interviewed for Individual/Household Telephone Survey

County/City	Number of residents aged 12 and above	Estimated Error	Sample Size	Actual Valid Samples
Total	20,193,911	±0.8%	16,000	16,133
Taipei City	2,317,290	±3.5%	800	813
Kaohsiung City	1,345,640	±3.5%	800	800
Taipei County	3,384,926	±3.5%	800	818
Yilan County	406,155	±4.0%	600	603
Taoyuan County	1,679,717	±3.5%	800	812
Hsinchu County	428,715	±4.0%	600	608
Miaoli County	489,855	±4.0%	600	603
Taichung County	1,347,623	±4.0%	600	602
Changhua County	1,141,033	±4.0%	600	605
Nantou County	468,331	±4.0%	600	600
Yunlin County	634,882	±4.0%	600	604
Chiayi County	484,707	±4.0%	600	602
Tainan County	981,719	±4.0%	600	600
Kaohsiung County	1,099,665	±4.0%	600	605
Pingtung County	780,914	±4.0%	600	601
Taitung County	203,730	±4.0%	600	605
Hualien County	300,472	±4.0%	600	606
Penghu County	84,258	±4.0%	600	608
Keelung City	345,314	±4.0%	600	601
Hsinchu City	345,691	±4.0%	600	607
Taichung City	922,034	±3.5%	800	800
Chiayi City	237,063	±4.0%	600	606
Tainan City	675,849	±4.0%	600	603
Kinmen County	79,671	±4.0%	600	602
Leinchiang County	8,657	±4.0%	600	619

Data Source: Department of Statistics, Ministry of the Interior, “Age structure of Each County / City in Taiwan and Fuchien Area”, June 2009.

In order to infer the opinions of the whole population over the age of 12 from the survey, the sample data had to be fitted with weight to be in compliance with the population data. The sample composition of this survey has been fitted with weights according to the proportion of sex and age in the population over the age of 12 of each county/city in Taiwan as released by the Ministry of the Interior in June 2009.

Apart from fitting the sample composition of each county/city with weights, we have carried out a second stage weighted reduction on them according to the proportion of the population over the age of 12 of each county/city to that of the whole country. This is because the sampling design of this survey, based on the allotments of samples for each individual county/city were so assigned that the sampling errors never exceed ±4%. This was done to ensure that those counties/cities with little population and which might not gather enough samples for inference through random sampling could still produce enough samples. Even though this practice has the advantage of offering basically uniform opportunity to all counties/cities, it also gives rise to a shortcoming: the overrepresentation of samples from some of the counties/cities. Thus, it is hard to directly infer the overall opinion of the population over the age of 12 in this country. Therefore, samples from those counties/cities that have inflated sample sizes must be fitted with weights according to the proportion of the population over the age of 12 of each county/city to that of the whole country to ensure the correctness of the survey results. This can be seen in the following comparisons and analyses of the overall digital divide except for those simple comparisons between counties/cities. The sex/age distribution of samples before and after being weighted is shown in Table 2.

Table 2. The Sex/Age Distribution of Samples in the Individual/ Household Telephone Survey

Items	Actual Samples	Percentage before Weighted	Percentage after Weighted
Gender			
Male	7,925	49.1	50.2
Female	8,208	50.9	49.8
Age			
12-14	710	4.4	4.8
15-20	1,742	10.8	9.6
21-30	2,319	14.4	18.2
31-40	3,062	19.0	18.4
41-50	2,916	18.1	18.7
51-60	2,644	16.4	15.1
61-64	575	3.6	3.2
65 and above	2,165	13.4	12.0

III. Study Framework and Survey Items

In harmony with the essence of the previous surveys, the 2008 Digital Divide Survey explores the digital divide status of various population segments in the Taiwan area from the three aspects of: access to information technology, information literacy, and information application.

In order to identify the digital divide indicators that are most representative of the status quo in the development of information technology and to keep pace with international trends, the indicators used in the 2009 Digital Divide Survey are determined in two stages. In the first stage, the research unit reviewed the newest relevant research documentation in Taiwan and abroad, made revisions to the existing investigation indicators, and made the first draft of the indicator framework. After symposia, scholars and experts adopted a resolution which confirmed that the framework and investigation indicators for the 2009 Digital Divide Survey are as shown in Table 3.

Table 3. The Study Framework and Major Investigation Indicators of the Individual and Household Digital Divide Survey 2009

Primary Dimension	Secondary Dimension	Tertiary Dimension	Indicators (The Coverage of Each Dimension)	Remarks
Individual Digital Status	Access to Information Technology	Access to information equipment	1.Used the Computer before 2.Days of weekly Computer usage	Used to measure the usage and frequency of computer and other information equipments
		Access to the Internet	1. Used the Internet before 2. Number of daily Internet usage hours 3. Access the Internet using mobile devices	Used to measure the usage and frequency of the Internet
	Information Literacy	Information Technology Literacy	1.Ability to use email 2. Ability to use word processing software.	Used to measure the basic skills of using a computer
		Information Security Literacy	1. Filtering unknown mails 2. Set up personal password 3. Online copyright awareness	Used to measure one's idea on information security and protection
	Information Application	Application at work	1. Search for information at work 2. Online Learning	Used to measure the application of computer at work and in study
		Citizenship behavior	1. Know government agencies' websites 2. Used the Internet to search for public notices 3. Submitted online applications through government websites	Used to measure the usage and frequency of e-government services

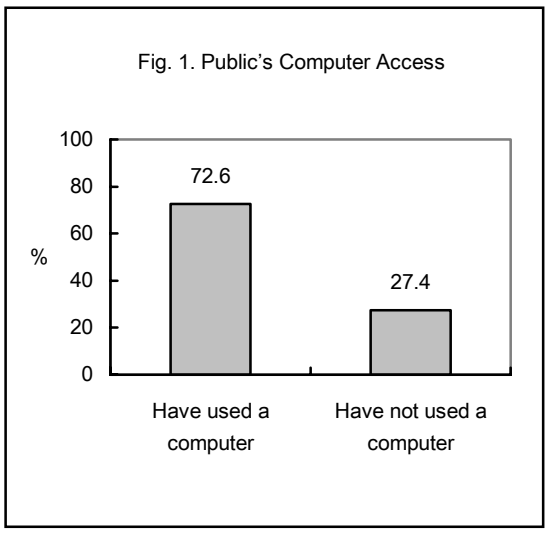
Primary Dimension	Secondary Dimension	Tertiary Dimension	Indicators (The Coverage of Each Dimension)	Remarks
		Daily life applications	1. Sell or buy products on the Internet 2. E-banking 3.Search for Life Information 4.Search for Travel/Food Information 5.Daily News browsing 6. Use the Internet for recreation purposes 7. Use online instant messaging services 8.Use Online telephone	Used to measure one's acceptance of e-business and using the Internet for information-searching, communication and recreation
		Web2.0	1. Browse Blogs 2. Have one's own blog 3.Uploaded media files / photos 4.Download media files / photos	Used to measure the status of Web 2.0 application
		Information collection	1. Ability to read English Web pages 2. Ability to search for specific information	Used to measure one's ability to collect information
Household Digital Status	Household Information Environment	Household information equipment	1. Household ownership of computer	Used to measure the household ownership of computer
		Internet environment	1. Household ownership of Internet access 2. Type of Internet connection for computers in the household	Used to measure the status of household access to the Internet and the Internet connection type
	Household Information Literacy		1. Percentage of computer users in the household 2. Percentage of Internet users in the household	Used to measure the percentage of family members using digital equipments or the percentage of family members using the Internet in a household

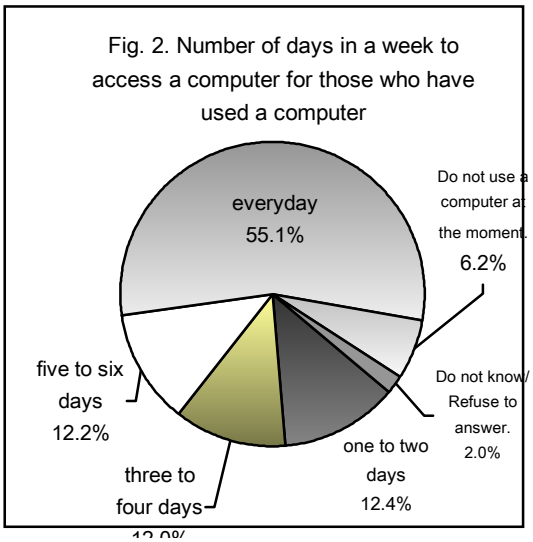
The 2009 Digital Divide Questionnaire was designed as a fundamental study on our nation's information development, while the trends in the past years were also compared to reflect the trend of the current information development. As a result, question items such as "Online Shopping" and "Web 2.0" added in 2008 were also kept for this year, while the content of the indicators have also been expanded. In addition, applications such as "Online News" and "Travel and Food Inquiries" were added under "Life Applications." However, these new indicators are only used to observe the digital trends in our society and are not counted towards the final digital scores for now.

IV. Current Status of the Individual Digital Divide

(1) Access to Information

01. The survey shows that 72.6 % of the population who are 12 years of age or older in Taiwan have used a computer before. Based on this information, it is estimated that there are about 14.66 million computer users in Taiwan who are 12 years of age or older. On average, computer users spend 5.2 days per week on the computer.





02. More than 75% of the population in Taichung City (81.0%), Hsinchu City (80.3%), Taipei County (77.4%), Taoyuan County (77.2%), Taipei City (76.1%), and Kaohsiung City (75.8%) have used a computer before, making these places of higher computer literacy. By comparison, computer literacy is lower in Yunlin County (59.8%), Chiayi County (60.6%), and Penghu County (61.0%).

03. The public's computer access varies significantly based on the degree of urbanization of the places they live in. Generally speaking, computer access is higher in more urbanized regions. Moreover, 56.2% of those living in remote areas have used a computer before, with an average computer-access frequency of 4.6 days per week, whereas 74.6% of those living in non-remote areas have used a computer before, with an average computer-access frequency of 5.2 days per week, indicating a significant gap.

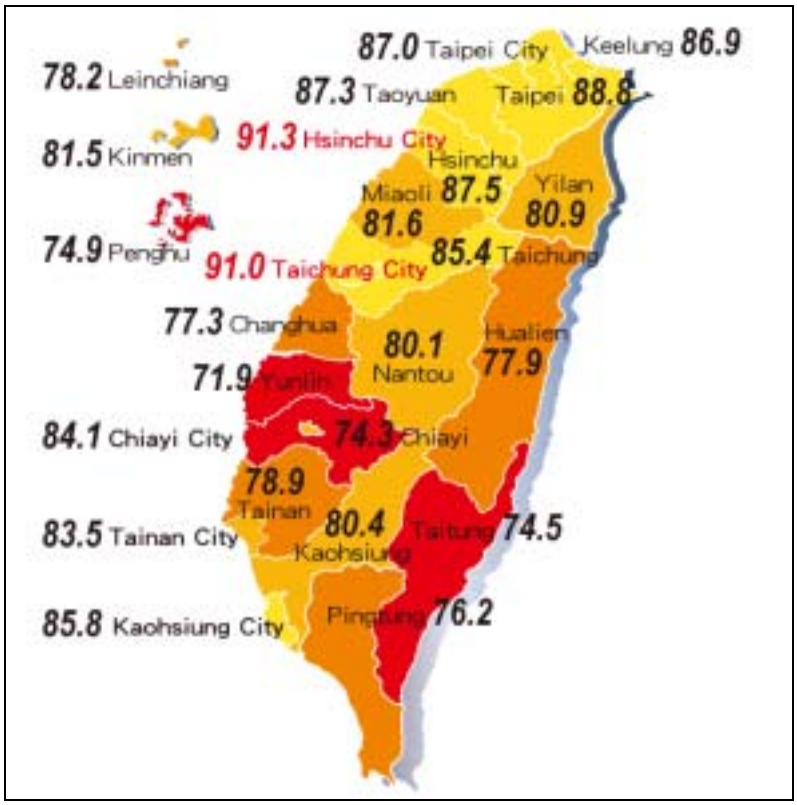
04. The public's computer access also varies significantly depending on individuals' education level, job status, and job positions. Those who have a higher level of education, work in finance and insurance, are in studies, or work in governmental

agencies clearly have a higher computer-access rate. Computer-access rate among those with disabilities is lower than 50%, which is significantly low.

05. Of those who are 12 years of age or older, 67.6%, approximately equal to 13.65 million individuals, have accessed the Internet before. On average, Internet users spend about 2.95 hours online per day.

06. Taichung City (77.2%) and Hsinchu City (76.0%) are the cities with the highest Internet-access rates. More than 75% of their residents have accessed the Internet before. In contrast, Yunlin County (53.1%), Chiayi County (54.5%), Penghu County (55.4%), Pingtung County (58.0%), and Chuanghua County (59.4%) have lower Internet-access rates. Less than 60% of their residents have gone online.

Fig. 3 Individual Internet Access Rate in 25 counties/cities



07. The public's Internet-access rate also varies significantly depending on how urbanized the places they live in are. Individuals living in places that are more urbanized not only enjoy better Internet-connectivity but also spend more time online on a daily basis. Internet-access rate is higher in provincial cities (72.2%) and municipalities (72.1%) and provincial cities (71.8%) in northern Taiwan, exceeding 70%. However, in townships (63.0%) and villages (60.2%), the rate is

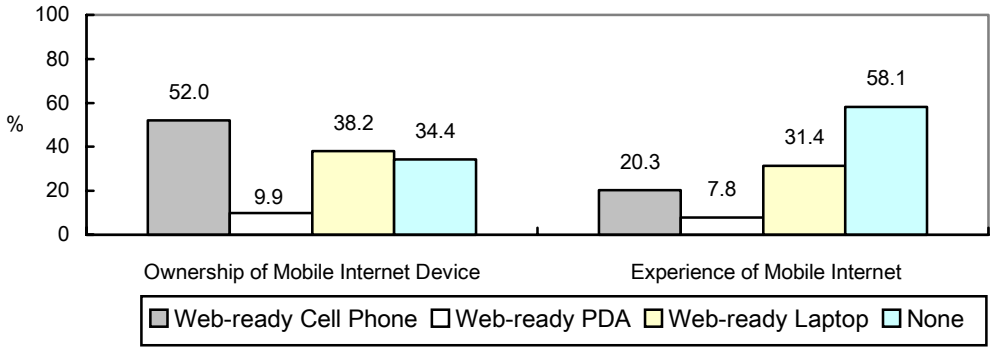
only slightly above 60%. Further, the Internet-access rate in individuals living in remote areas is significantly lower than those in non-remote areas. Highly remote townships and villages have the lowest Internet-access rate (50.9%).

08. In general, the Internet-access rate is positively correlated to the education level. More than 90% of the individuals who have finished university have accessed the Internet, while only 10.2% of those who have only finished elementary school or lower access the Internet. The current job status indicates that those who work in the information and communication industry spend the longest time online, as much as 5.1 hours per day.

09. Mobile Internet is a new trend, and a multi-select survey reveals that more than half (52.0%) of the Internet users who are 12 years of age or older, have mobile phones with Internet access, 38.2% have laptops with Internet access, and 9.9% have PDAs with Internet access, indicating 65.6% of Internet users have mobile Internet devices.

10. Of the Internet users who are 12 years of age or older, 65.6% of them have mobile Internet devices (such as mobile phones, laptops, or PDAs), yet only 41.9% of them have used these devices to go online, 20.3% of them have gone online with a mobile phone, 7.8% have done so with a PDA, and 31.4% have gone online outside their houses or offices with a laptop. Using the population of 12 years or older as the denominator, our nation's mobile Internet-access rate is 28.3%.

Fig. 4. Internet Users' Mobile Internet Device Ownership and Experience



11. Taipei City has the highest rate (51.8%) of mobile Internet-access, followed by Pingtung County (30.9%) and Tainan County (34.7%), which are lower than 35% on average. Mobile Internet-access is lower than 40% in remote townships and villages, indicating a lower popularity of the service.

12. More than 80% of high-level managers and professionals have mobile Internet devices, and 59.3% and 60.6% of them, respectively have used such devices to go online, making them the highest group compared to other workers.

(2) Information Literacy

01. A survey evaluating the public's information literacy based on their ability to use e-mail and word processors indicates that among the Internet users in Taiwan, 90.2% know how to use e-mail, while 9.8% do not. As for word processing, 17.3% of the Internet users believe they are proficient in this regard, 52.8% believe they are familiar with word processing, and 14.1% are not quite familiar. In total, 84.2% of the Internet users use word processing software.

02. When using the two indicators of "filtering unknown mails" and "the ability to set or change a personal computer's access code" to observe the information security awareness among computer and Internet users, 73.2% of the respondents stated that they delete the mails sent from unknown origins without opening them, 13.9% open them selectively, and 2.5% open every mail. As for setting and changing the computer access code, more than 70% of the Internet users stated that they know how to do so (72.3%), while 27.7% do not.

03. When compared to the common information-security awareness, the Internet users' online copyright awareness requires more improvement. Only about half of the respondents (51.3%) know it is illegal to download pictures, articles, or unauthorized video/ sound files for personal use; nearly 40% (39.4%) have a false understanding, and 9.4% stated they are not sure of this matter.

04. Except for the offshore townships and villages, the general pattern indicates that people living in urbanized areas have better information-security awareness; 76.8% of the Internet users in Taipei City know how to set and change computer access codes, much higher than those in mountain regions (63.9%).

05. Those who are employed by the government value information security most, and they have the highest percentage in terms of not opening unknown mails (81.5%) and being able to set or change personal codes (81.9%).

(3) Application of Information Technologies

01. In this survey the public's information application is analyzed by examining these five aspects: (1) job applications, (2) online citizenship behavior, (3) life applications, (4) Web 2.0 applications, and (5) information-gathering ability.

02. The survey reveals that among the working class in Taiwan, only 57.6% use a computer at work, and 46.6% go online for job-related purposes. This suggests that there is still much room for growth in Taiwan's computer and Internet access in the occupational setting.

03. Among the 25 counties and cities, Taipei City (75.7%), Hsinchu City (73.3%), and Taichung City (69.3%) have the highest levels of computerization in the workplace. In contrast, agricultural regions such as Yunlin County (41.1%), Pingtung County (40.3%), and Chiayi County (36.0%) have the lowest levels of digital applications in the workplace. Taipei City (67.6%) and Hsinchu City (63.0%) are still the leaders in terms of job-related Internet applications, which are lower than 35% on average in Tainan County (34.6%), Kaohsiung County (33.9%), Yunlin County (31.2%), Pingtung County (30.5%), and Chiayi County (28.5%).

04. Job-related computer applications are lower than 40% in remote areas, which is a finding significantly different from those in non-remote areas (60.2%), and the gap in terms of job-related Internet applications between the two is more than 20%.

05. With the increased level of education, people nowadays are more likely to work on a computer or go online in their workplaces. In terms of the current job market, professionals and people working in firms are the two types of employees with the highest level of digitalization. When classified based on the employing department, governmental agencies have the highest level of digitalization; 87.2% of governmental employees have to work with a computer, and 76.9% access the Internet for job-related purposes.

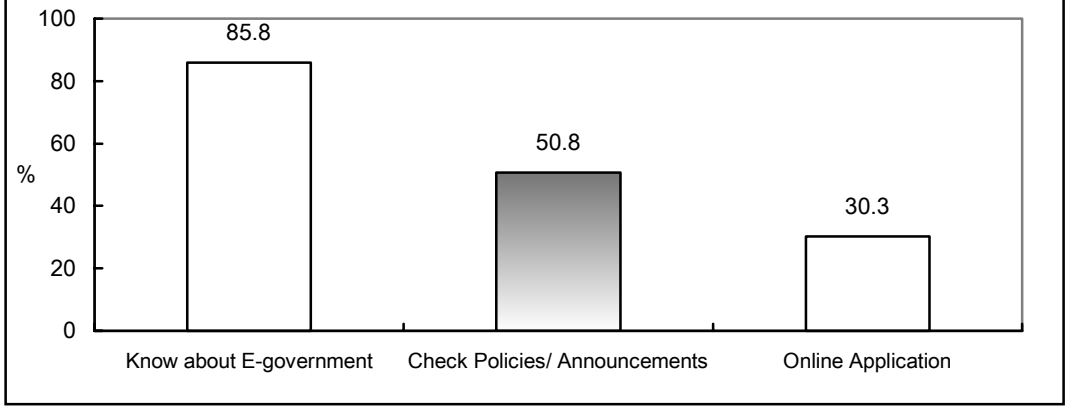
06. As for online learning, about 80% of the Internet users who are 12 years of age or older often (35.6%) or sometimes (42.8%) go online to look for job-related or learning-related information. By contrast, not that many Internet users have used the Internet for online learning as only 30.4% of them often (7.1%) or sometimes (23.3%) use the Internet for video-conference lessons or online learning.

07. Among the 25 counties and cities, people living in Lienchiang County (43.8%), Hualien County (41.3%), and Penghu County (39.9%) are most experienced in using the Internet for online learning. In addition, highly-remote areas are now making good use of online learning resources and have more Internet users who engage in online learning (37.2%) than the counterparts in moderately-remote areas (31.0%) and non-remote areas (30.3%).

08. In terms of the current job status, 89.4% of professionals go online to search for job/ learning-related information, and 44.5% of them have used the Internet for video-conference lessons or online learning, making this group the most digitalized in comparison with other professions. As for the differences between employing departments, governmental agencies have the highest level of e-learning; 86.9% of governmental employees go online to search for job/ learning-related information, and 55.6% of them have used the Internet for video-conference lessons and online learning.

09. Among the Internet users in Taiwan, 85.8% know governmental agencies have dedicated websites, 50.8% have used the Internet to search for governmental policies or announcements in the past year, and 30.3% have submitted online applications through governmental websites.

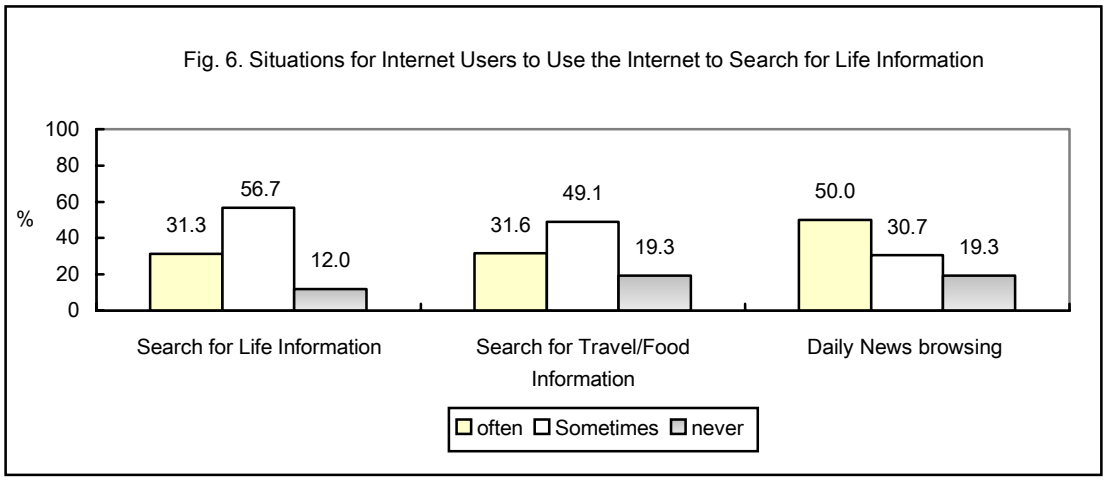
Fig. 5. Internet Users' Online Citizenship Participation



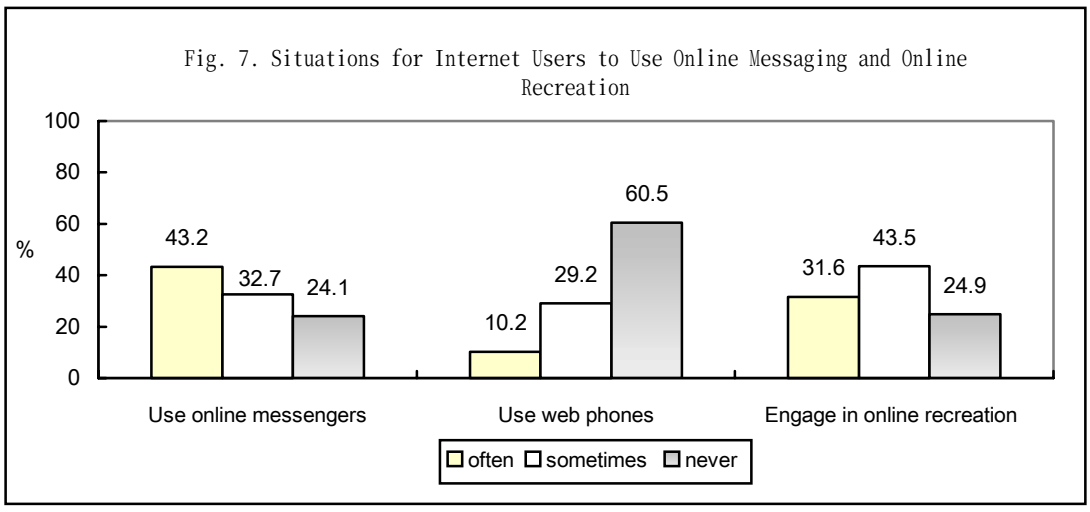
10. On average, more than 80% of the Internet users throughout the 25 counties/cities know governmental agencies have dedicated websites, and more than 90% of the Internet users in Taipei City (90.3%) and Taichung City (90.1%) have such knowledge. As for the urban-rural difference, the participation in online citizenship behavior is basically positively correlated with the degree of urbanization. The number of Internet users in municipalities, provincial cities,

and county-controlled cities who are familiar with governmental websites, use the Internet to browse governmental policies, and submit online applications is significantly higher than their rural counterparts.

11. Regarding the use of the Internet to gather daily-life information, the survey indicates that 88% of the Internet users age 12 or above look for daily-life information on the Internet, and 80.7% have looked for travel/food-related information on the Internet. In addition, half of the Internet users (50.0%) often check the daily news online, and 30.7% do so occasionally. Given the fact that the public relies on the Internet to gather daily-life information, it is common for Internet users to apply the Internet in their daily routines.



12. In total, 75.9% of the Internet users have used online messaging software, and 39.4% have used the web phone. Moreover, 75.1% of Internet users often or sometimes engage in online recreational activities.



13. Offshore Internet users in Kinmen County (88.8%) and Lienchiang County (87.7%) are significantly more likely to watch news online and to use the web phone (43.2%).

14. Whether Internet users engage in online recreational activities does not significantly differ based on their locations. On the contrary, those living in townships, mountainsides, and remote areas are slightly more likely to engage in online recreational activities.

15. In terms of current job status, active-duty military personnel or the economically inactive population are significantly more likely to engage in online recreation or use online messaging than other groups. White-collar workers are significantly more likely to use the Internet to search for daily-life information or check news than those in the service or labor sector. Professionals (54.2%) and managers (53.6%) are most likely to use the web phone.

16. Taiwan's e-commerce still has room for growth. About 10.7% and 18.2% of Internet users respectively often and sometimes use the Internet to deal with personal finance, totaling 28.9%. However, 68.6% of Internet users have checked or compared product prices online, and 59.3% have sold or purchased products or services online, while 40.7% have never conducted online transactions.

17. For those who have purchased online in the past year, the average amount per person was NT$9,816. Despite the popularity of online shopping, "online payment" is not the top choice of online shoppers. The multi-select survey indicates that most shoppers make payments through post offices or banks (50.4%), followed by using a credit card (36.9%). In addition, COD, or Cash on Delivery (32.9%) and pay-and-pick-ups at convenient stores (25.1%) are also quite popular, indicating online shoppers' concern with transaction-security.

18. It is estimated that about 10% (10.1%) of the Internet users in Taiwan have sold things online. When being asked the nature of their occupations, more than 90% of the online sellers do so as a part-time job, while only 1.9% does this full-time. As for the profit made through online auctioning, half of the sellers (50.3%) stated the average monthly profit was less than NT$1,000, 22.2% stated the profit was between NT$1,001 and NT$5,000, 4.2% made more than NT$5,000, and 15.3% did not wish to disclose such information.

19. People in different counties/cities have different levels of acceptance towards online shopping. The survey indicates that among the 25 counties/cities, Chiayi County has the lowest level of acceptance, and 50.6% of its residents have never purchased or sold products or services online. On the contrary, on average 65% of those in Taitung County (70.0%), Lienchiang County (67.2%), and Hualien County (66.3%) which are rather remote, and Taipei City (65.5%) which has a high degree of digitalization, have made online transactions.

20. Compared to remote areas, those in non-remote areas still show a higher frequency of using the Internet for online finance (29.7%) and online shopping (59.9%).

21. The survey analyzing the participation of people in Taiwan in Web 2.0 from their blog experience indicates that 30.8% and 45.9% of Internet users respectively often and sometimes browse blogs, totaling 76.7%. In addition, 43.8% of Internet users have their own blogs.

22. 57.5% of Internet users have downloaded photos or media files, and 38.6% forward or upload their own media files for others to access.

23. Among the Internet users who have post-secondary education, more than 80% browse blogs, more than 40% have blogs, and about 50% have uploaded media files for others to access; the percentages are significantly higher than the counterparts with other education levels.

24. When their friends/family have certain information needs, 17.8% of the Internet users are very confident that they can help them gather the needed information online, and 55.6% are quite confident, totaling 73.4% that are able to look for specified information online.

25. Unsatisfactory English ability is still a problem for the Internet users in Taiwan. Of the Internet users, 55.3 % lack the ability to read English websites, 38.9% stated they can manage, and only 4.8% stated they can read English websites without a problem.

(4) Miscellaneous

01. When being asked whether they access free computers placed in public places, 5.9% of Internet users responded that they access them frequently, while 54.1%

stated they sometimes might access them; in other words, the maximum access rate to public computers is 60.0%.

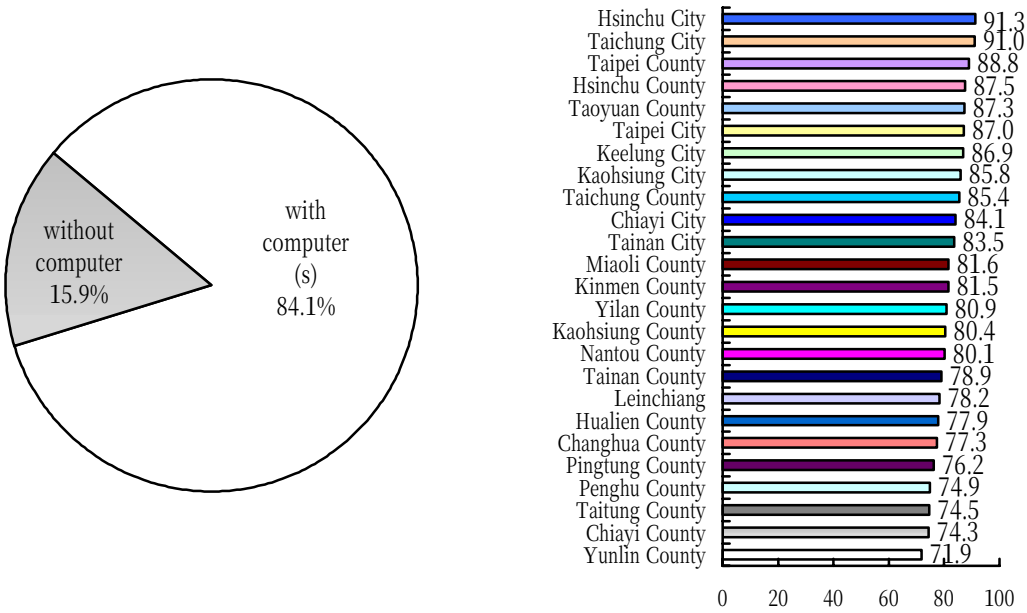
02. Among the 25 counties/cities, Lienchiang County (8.9%) and Hualien County (8.6%) have the highest need for free, public computers, where as Nantou County (3.0%) and Tainan County (3.1%) have the lowest.

V. Current Status of the Household Digital Divide

(1) Household Information Environment

01. Studies indicate that as many as 84.1% of the households in Taiwan have computer equipment. When the computer-ownership rates in the 25 cities/counties are compared, a large gap between counties and cities becomes evident. Household computer-ownership rates in Hsinchu City and Taichung City are respectively 91.3% and 91.0%; other regions with a household computer-ownership rate of 85% or higher include Taipei County, Hsinchu County, Taoyuan County, Taipei City, Keelung City, Kaohsiung City, and Taichung County. In comparison, household digitalization is lower in Yunlin County (71.9%), Chiayi County (74.3%), Taitung County (74.5%), and Penghu County (74.9%), where the household computer-ownership rates are all lower than 75%.

Fig. 8 Household Computer Ownership



02. The household computer-ownership rate in the highly remote areas is 63.5%, and though the rate in the moderately-remote areas has been increased to 70.3%, it is

still much lower than the 86.2% rate in the non-remote areas. The same pattern is also seen in aboriginal and remote villages; computer availability is lowest in mountainside aboriginal towns (53.3%), followed by lowland aboriginal towns (76.5%); 84.5% of the households in non-aboriginal towns have computers.

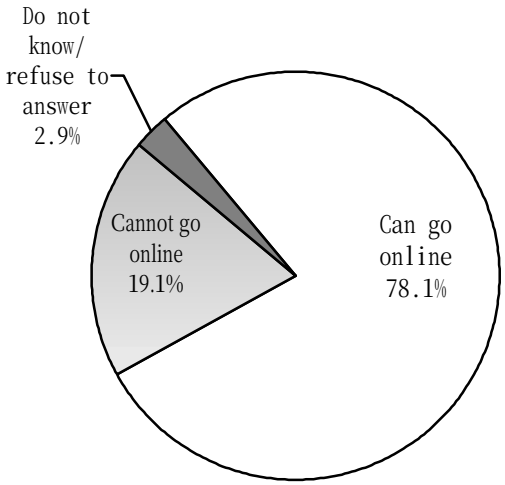
03. Households whose providers work as managers, professionals, technicians, or white-collar positions have significantly higher computer ownership (more than 95%). Computer availabilities in households that are in farming, forestry, and fishery and non-technical labor work are lower (61.9% and 69.4% respectively); only 58.9% of the households whose providers are currently economically inactive have computers.

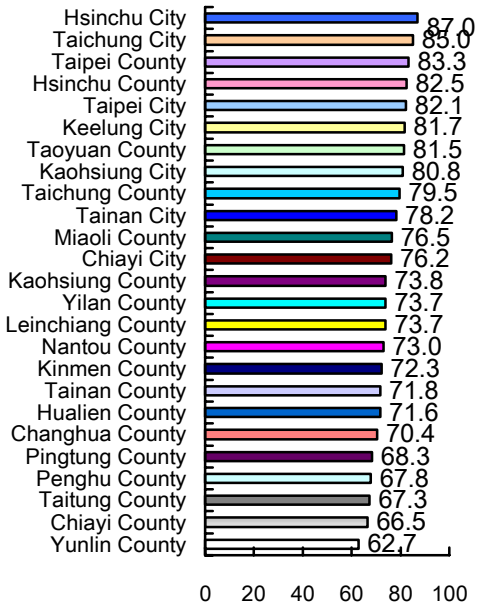
04. Judging from the monthly family income, for those households with a monthly income less than NT$17,280, the computer ownership rate is only 27.3%; for those households with a monthly income of NT$20,000-30,000, the computer ownership rate increases substantially to 72.3%, which, however, is still far lower than the national average of 84%.

05. The computer-ownership rate in households with foreign spouses is significantly lower than that in households without (75.0% vs. 84.6%). The difference in household information environment is limited between households with people who are with disabilities and those without (83.1% vs. 84.9%).

06. In terms of household Internet access, approximately 78 out of every 100 households have Internet connections (78.1%). Among these families with Internet access, 80.4% have broadband, only 2.0% still use dial-ups, 5.0% have wireless access through networks such as 3G, and 12.6% are not sure what type of bandwidth they have at home.

Fig. 9 Household Internet Connectivity





07. Among the 25 counties/cities, household Internet connectivity in Hsinchu City (87.0%), Taichung City (85.0%), Taipei County (83.3%), Hsinchu County (82.5%), Taipei City (82.1%), Keelung City (81.7), Taoyuan County (81.5%), and Kaohsiung City (80.8%) exceeds 80%; in contrast, less than 70% of the households in Pingtung County (68.3%), Penghu County (67.8%), Taitung County (67.3%), Chiayi County (66.5%), and Yunlin County (62.7%) have Internet access, showing a remarkable difference between counties and cities.

08. When judging how remote a given household is, the same conclusion of “lower household Internet connectivity in more remote areas” can be drawn. Household Internet connectivity in non-remote areas is 80.4%, and is reduced to 57.7% and 62.3% respectively in highly-remote and moderately-remote areas.

09. Households in aboriginal and remote areas show the same pattern. Mountainside aboriginal towns have the lowest Internet availability since only 48.7% of the households can go online. Internet availability is, however, substantially increased to 70.1% in lowland aboriginal towns and 78.4% in non-aboriginal towns.

10. The availability of household Internet equipment is greatly increased in households whose providers are managers or professionals (more than 93%), and about 90% of the households whose providers work as technicians, at desk jobs, or are active-duty military personnel also have Internet connection. In comparison, Internet connection is least available (50.1%) in households whose providers are economically inactive, work in farming, forestry, or fishery

(51.5%), or non-technical manual work (58.1%).

11. Monthly family income is an important influential factor on whether a household has Internet services. Less than 45% of the households whose monthly family income is less than NT$20,000, and 63.6% of the households whose monthly family income is NT$20,000 ~ 30,000 have Internet connection. More than 80% of the households whose monthly family income is NT$40,000 or more have Internet connection.

12. Internet connectivity in households with foreign spouses is only 64.1%, which is 14.7% lower than the 78.8% Internet connectivity in non-foreign spouse households. Internet connectivity in households with people who are with disabilities is 76.5%, which is only 2.7% lower than the households that are without.

13. Among the households in Taiwan that have Internet access, most (25.0%) pay NT$1,000-1,999 for the monthly Internet access fee (including home and mobile Internet), followed by NT$500-799 (13.1%), and NT$800-999 (12.6%); 7.4% and 4.8% respectively spend less than NT$500 or more than NT$2,000, while 37.1% are not sure how much their Internet access costs. Regarding the above spending, 65.1% of the respondents felt no pressure, while 3.3% did. As for those who feel Internet service is a financial burden to them, the average monthly amount acceptable to them is NT$507.

(2) Information Literacy of Family Members

01. In Taiwan, 64.5% of each household's members are capable of operating a computer. In other words, in a family of three, about two would know how to use a computer, and more than 60% of a household's members know how to use the Internet (61.7%). When considering the degree of urbanization, the overall information literacy is lower in households that are in highly-remote and mountainside aboriginal areas, where less than 50% of household members know how to use a computer and access the Internet.

02. Households with enrolled students are most likely to have computer equipment; as high as 94.7% of the households with enrolled students have computer equipment, and the Internet access rate of these households also reaches 91.0%. However, Internet access rate in households with students in Yunlin County, Kinmen County, and Taitung County is lower (about 80%), putting these places at

the bottom when compared to other counties/cities. When judging from how remote an area is, the computer-ownership rate and Internet access rate in highly-remote households with enrolled students are reduced to 88.5% and 84.7% respectively.

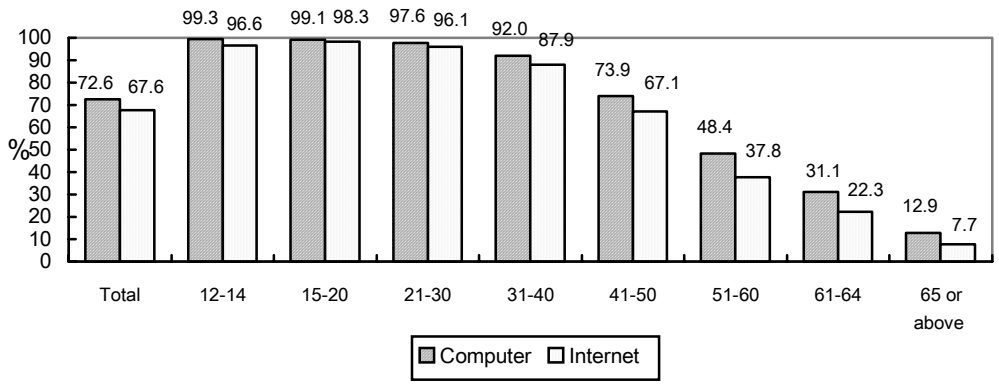
VI. Current Status of the Generation Digital Divide

01. Whether it is about using a computer, accessing the Internet, or the digital capacity, a general pattern is that older people use computers less frequently and have weaker Internet capabilities.

02. The 2009 survey indicates that more than 92.0% of the 40-or-below age group use a computer, and the computer access rate drops to 73.9% in the 41-50 group, 48.4% in the 51-60 group, 31.1% in the 61-64 group, and 12.9% in the 65-and-over group.

03. In terms of Internet access, the middle-aged and seniors are less likely to access the Internet. The population of Internet access is reduced to 37.8% of the 51-60 group, 22.3% of the 61-64 group, and 7.7% of 65-and-older. In comparison, more than 96% of people who are 30 or below access the Internet.

Fig. 10. The Average of Computer/Internet Access of Each Age Group



04. Middle/old-aged individuals not only have a lower information access rate, but even if they access information, the frequency is also lower than that of the younger generation. The weekly computer access rate in the 50-64 group is 4.5 days, and is reduced to 3.8 in the 65-and-older group, which are both far lower than the national average of 5.2 days. In terms of the duration of Internet access, those who are 50 or older spend 2 hours or less per session, which is significantly

lower than the national average of 3.0 hours.

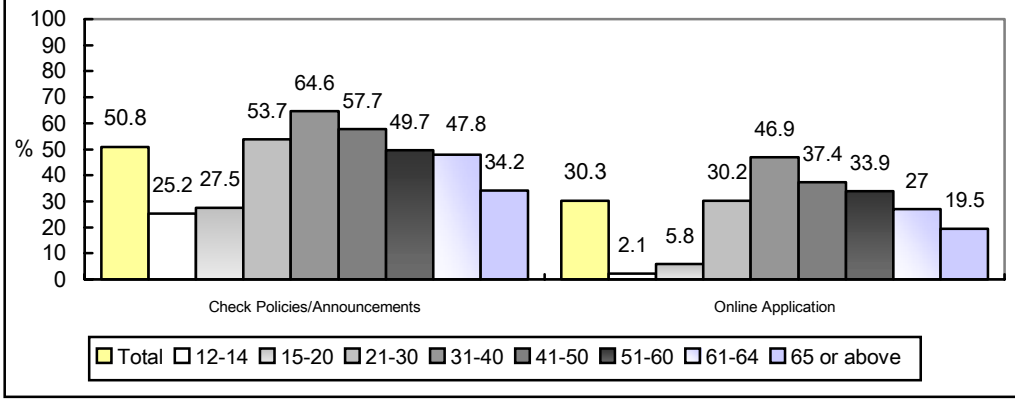
05. About 73% of the Internet users between the ages of 21 and 30 have mobile Internet devices and more than 50% of accessed mobile Internet (51.6%), making this age group the highest in this regard. In comparison, the ownership of mobile Internet devices and frequency of accessing mobile Internet are reduced to 60% and 35% respectively among Internet users who are 50 or older.

06. More than 70% of Internet users aged 40 or older know how to use e-mail; although this is not low, more than 90% of the Internet users aged between 15 and 40 know how to do so. In terms of using word processors, less than 70% of the Internet users age 50 or older know how to do so.

07. Middle/old-aged individuals have less computer/Internet security capabilities, and less than 60% of them know how to set or change personal codes.

08. Internet users age 31 to 50 are the most active group in online citizenship; 57.7% ~ 64.6% of them browse governmental announcements, and 37.4% ~ 46.9% process applications online.

Fig. 11. Each Age Group's Access to E-government

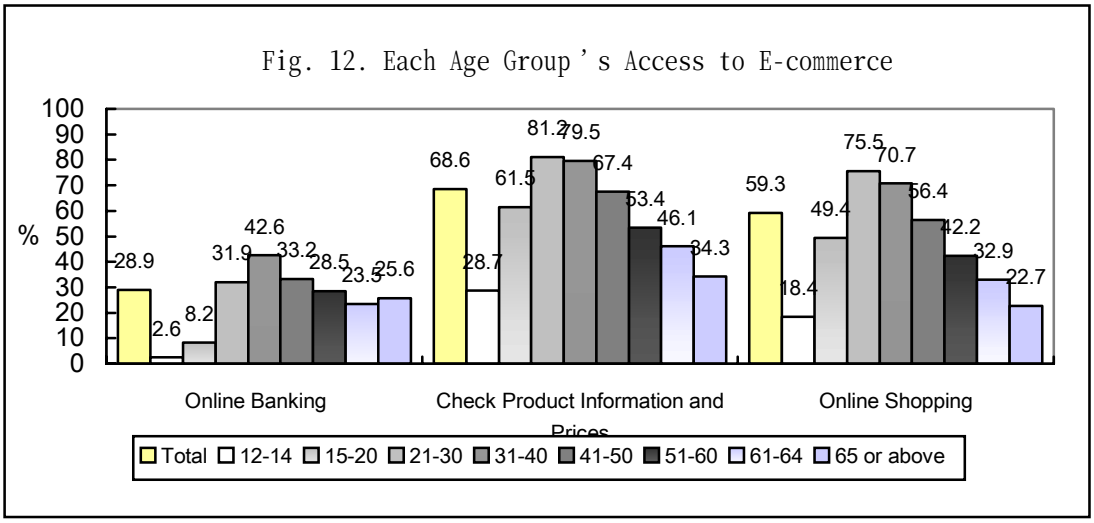


09. More than 90% of the Internet users age 20 or below engage in online recreation, which is twice as frequent as those who are 50 or older. In terms of gathering daily-life information, people of the 21-40 age group are most likely to do so (90%). The same age group is also most likely to search for travel/food-related information or check news online (more than 85%).

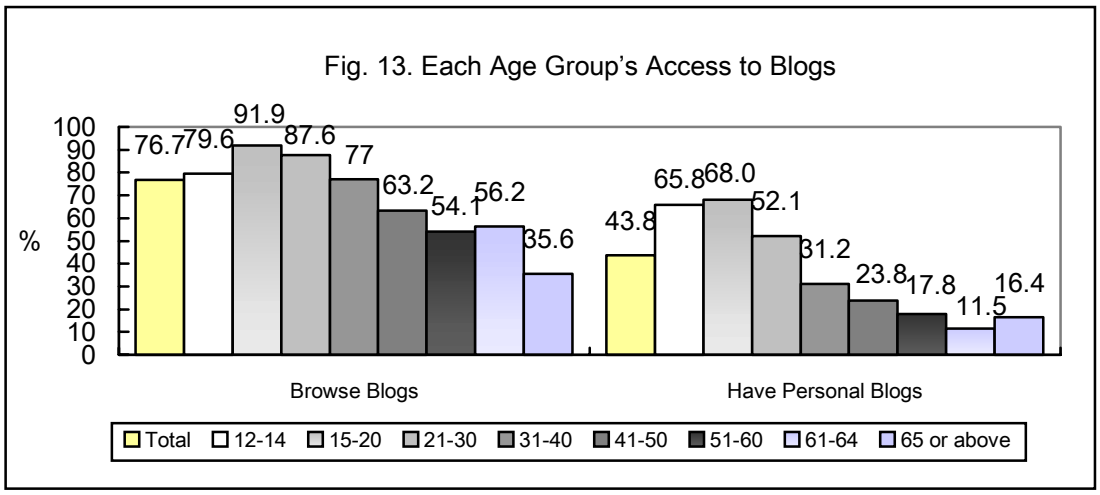
10. Online messaging software is quite common in the 15-30 age group (more than

90%). In comparison, less than 50% of those who are 50 or older use such software, indicating a wide gap between the two groups.

11. Among all age groups, the 31-40 group is most likely to use the Internet to handle personal finance (42.6%), and the 21-30 group is most likely to go online to compare prices (81.2%) or purchase/sell products (75.5%). About 23.5% ~ 33.2% of the middle/old-aged Internet users have used online banking, and 34.3% ~ 67.4% and 22.7% ~ 56.4% have compared prices online and purchased/sold things online respectively.



12. The new Web 2.0 participation is very popular among Internet users aged 30 or younger, and is especially so in the 15-20 age group, of which 60.9% often go online to browse blogs of their own or others, and 31.0% sometimes do so, totaling 91.9%. Further, more than 60% of those who are 20 or younger have personal blogs.

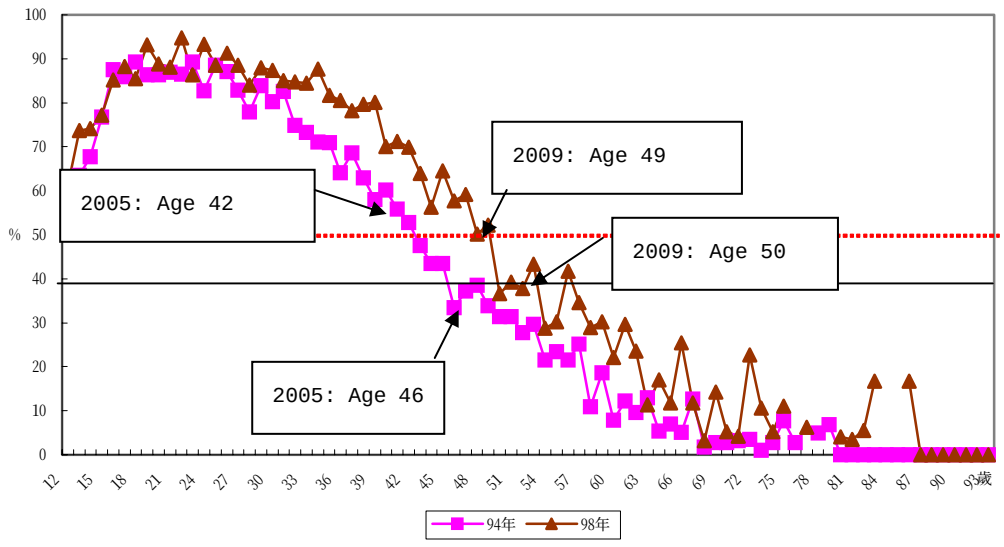


13. The 15-30 age group is distinctive in terms of online media as 60% of them have downloaded media files from the Internet, while less than 40% of middle/old-aged individuals have done so before. In addition, when compared to other age groups, the 15-30 group is most likely to upload media files (approximately 69.0%), while 55% of the 12-14 and 31-40 age groups also upload media files for others to access.

14. Internet users in the 12-14 age group and who are 40 or older are much less confident in online data searching than the 15-40 age group. As for the skill of reading English, the gap between middle/old-aged and younger generations is actually not significant since most Internet users are not confident in this regard.

15. In this study, the three indicators of (1) having accessed the Internet before, (2) knowing how to use the Internet to look for life information, and (3) being able to use the Internet for communication (e-mails, instant messengers, or web phones) are adopted, and "breaking free from a restriction" is only achieved when a certain percentage of an age group are capable of all three abilities. The "age digital wall" is determined by examining the age groups of which at least 40% have all three abilities based on the data from 2005 to 2009. In 2005, the middle/old-aged digital wall occurs at the age of 46, which has been significantly improved in 2009 as it has been delayed to the age of 50. When the expectation level is raised, the age digital wall is then determined by examining the age groups of which at least 50% have all three abilities. In 2005, the middle/old-aged digital wall occurs at the age of 42, which is delayed to 49 in 2009.

Fig. 14 Indicators of Middle/Old-aged Digital Wall



VII. Current Status of the Gender Digital Divide

01. The survey reveals that the computer access rate in females aged 12 or above is significantly lower than in males; 70.7% of females have used a computer before, which is 3.9% lower than the males. Among those aged 12 or above, the population of female computer-users is approximately 7.11 million, 440,000 less than the males.

02. The defining line for the gender-difference in computer access is mostly in generations that are 50 or older; the 51-60 year old females lag behind their male counterparts by 11.1%, and the gender gap is 7.3% for individuals age 61 or older. There is no significant gender-difference in computer access in the below-50 age groups in which females' computer access rate is actually higher than that of males.

03. 65.5% of females have accessed the Internet before, lagging behind their male counterparts by 4.2%. Similar to the gender difference in computer access, the Internet access rate in the below-50 age group shows no gender differences. However, the Internet access rates in females age 51 to 60 and 61 or older are 8.7% and 5.3% respectively lower than in males.

Table 4. Gender differences in Computer/Internet Access Rate among Different Age Groups

Unit: %

	Computer Access Rate			Internet Access Rate		
	Male	Female	Difference (male-female)	Male	Female	Difference (male-female)
12-14	99.2	99.4	-0.2	95.9	97.4	-1.5
15-20	99.1	99.2	-0.2	98.2	98.3	-0.1
21-30	97.7	97.4	+0.3	96.5	95.7	+0.8
31-40	91.0	93.0	-2.0	87.8	88.0	-0.1
41-50	73.5	74.3	-0.8	67.4	66.9	+0.5
51-60	54.2	43.1	+11.1	42.3	33.6	+8.7
61 or older	20.4	13.1	+7.3	13.4	8.1	+5.3

04. The comparison of both genders' computer access rate throughout the 25 counties/cities in Taiwan indicates that the number of counties/cities where females' computer-access rate is significantly lower than the males has increased from 8 to 13, including Taipei County, Yilan County, Hsinchu County/City, Miaoli County, Nantou County, Yunlin County, Tainan County, Pingtung County, Chiayi City, Tainan City, Taipei City, and Kaohsiung City. Males' computer access is significantly higher than females, and the gender difference in Chiayi City is even more than 10%.

05. Comparing both genders' Internet access rate throughout the 25 counties/cities, the number of counties/cities where females' Internet access rate is lower than the males is still 10. Of these, Chiayi City, Tainan City, and Taipei City show the greatest gender digital divide, where males' Internet access rate is at least 10% higher than females.

06. Females not only show a much lower information access rate than males but also demonstrate more regression in this regard. 7.4% of females who have used a computer before no longer do so, which is a regression of 2.3% higher than among males; 5.9% of females who have accessed the Internet before no longer do so, 1.7% higher than among males.

07. On average, females who still access computers use the computer about 5 days per month, which is 0.4 day shorter than males. Females who still access the Internet spend about 165 minutes online per day, which is 24 minutes shorter than the males' 189 minutes.

08. Though both genders use mobile Internet, there is a time difference in how fast they accept the technology. Except for the 20-30 age group, all other age groups of female Internet users are behind males in terms of adopting new technologies. 38.9% of females Internet users have used mobile Internet, which is 5.9% lower than the male counterpart.

09. There is no gender difference in the ability to accessing e-mails; both genders have an e-mail access rate of 90.2%. A comparison of different age groups indicates that females of age 15 or below have a higher rate of e-mail access than the males, but both genders show no significant differences in the 15-50 age group. Among the Internet users age 50 or older, the 51-60 female age group lags behind their male counterparts by 4.1%, and the gap widens to 9.6% for females

aged 61 and over.

10. It has also been found that except for those who are 61 or older, all other age groups of female Internet users are better than their male counterparts in terms of using word processors. Overall, 85.5% of females know how to use word processors, which is 2.4% higher than the males.

11. Both genders have similar ways of screening unknown mail and understanding of online copyright. Among Internet users who know how to use e-mail, about 81% of each gender would not open suspicious mail, and 50.9% and 51.7% of males and females respectively understand that it is illegal to download pictures, forward articles, or download media files without authorization. However, males perform better than females in terms of setting or changing personal computer codes; 76.5% of the males know how to do this, which is 8.7% higher than females.

12. Due to different occupational structures and the fact that most females work in white-collar or office positions, they are much more likely than males to use a computer or access the Internet to do their work (10% ~ 12% higher). Examining employees in the same occupational domain, the two genders show no significant differences in how professionals and workers access information (the difference is within 4%). However, the reliance on computers or the Internet for job purposes in female employees who are managers, technicians, assistants, office workers, technical workers, or laborers are higher than their male counterparts by 3% ~ 18%, a difference that could have been caused by how tasks are assigned based on one's gender.

Table 6. Reliance on Information Equipment for Job Purposes in the Two Genders – Classified by Age Groups

Unit: %

	Computer Application		Internet Application	
	Male	Female	Male	Female
21-30	59.1	79.3	45.8	65.3
31-40	65.5	77.9	55.9	64.7
41-50	53.8	60.1	44.1	47.9
51-60	39.1	37.8	27.5	29.1
Representative/Manager	79.6	84.6	71.3	74.3
Professional	93.6	92.3	85.4	84.5

	Computer Application		Internet Application	
	Male	Female	Male	Female
Technician/Assistant	67.6	84.9	54.0	72.3
Office Worker	84.2	94.4	70.4	78.3
Service Agent/Salesperson	28.7	31.0	17.1	21.0
Workers in Farming/Forestry/Fishery	8.6	3.0	7.0	1.3
Technical Worker	27.0	35.2	12.9	11.4
Machinery Operator/Installer	21.8	36.0	6.5	7.2
Non-technical Labor	6.2	9.4	3.2	4.0

Note: The samples of workers under the age of 20 or over the age 60 are too few to be analyzed.

13. Female Internet users have a higher level of understanding of e-government than males (87.4% vs. 84.3%). In terms of actually using it, females and males show a similar frequency of sending applications online or checking governmental policies and announcements. Age analysis indicates that when compared to males of their age, females aged 21 to 30 access e-government services more actively, and are 6.7% and 3.1% higher in terms of making online inquiries and applications respectively. In contrast, females between the age of 40 and 60 have an e-government access rate that is slightly lower than males.

14. The two genders show significant differences in how they access the Internet for recreation: 77.2% of male Internet users engage in online recreation, which is 4.2% higher than the females' 73.0%.

15. In terms of using the Internet to gather life information, both genders show a similar rate of browsing life information and checking news (88% in males and 80% in females). Females, however, are more likely to search for information on travel, food, or recreation than males (84.4% vs. 77.3%).

16. There are no significant differences in how the two genders use online messengers and web phones.

17. As for online banking, only 29% of either gender has relevant experience. However, females aged 21-30 are slightly more likely to try online banking than their male counterparts (higher by 2.0%); the opposite shows in the age groups of 31-40 and 51-60, where males' rate of online banking is 7% higher than their female counterparts.

18. The two genders show no significant differences in comparing products and prices online (about 68% in either gender). However, females are more likely to engage in online transactions (63.1%: 55.7%), especially those of the 15-30 age group whose online shopping is higher than the male counterpart by 14%. However, most females go online to purchase -- 63.0% of female Internet users have shopped online, which is higher than their male counterparts (55.1%) by 7.9%. On the other hand, only 8.0% of females have sold things online, lower than males (12.1%).

Table 7. Online Shopping and Selling in the Two Genders – Classified by Age Group

Unit: %

	Online Product Inquiry Information and Prices		Purchase Products		Sell Products	
	Male	Female	Male	Female	Male	Female
12-14	26.4	31.6	15.2	21.0	3.4	0.0
15-20	58.0	65.8	43.6	56.1	9.1	3.8
21-30	79.8	82.7	68.4	82.8	18.0	17.1
31-40	81.1	77.8	68.4	72.0	19.2	9.8
41-50	70.7	64.5	54.3	57.9	5.5	2.7
51-60	56.1	50.2	42.8	41.6	3.4	2.8
61 or older	41.7	35.7	33.9	30.2	0.0	1.9

19. An analysis of how payments and shipments are made in e-commerce indicates that both genders mostly pay through a post office or bank (54.1% in males and 47.0% in females), followed by paying with a credit card (about 36% in either gender). However, females are more likely to choose CODs and pay-and-pick-ups at convenient stores, whereas males are more likely than females to pay and pick-up from a seller in person.

20. Female Internet users are more enthusiastic than male ones about browsing others' blogs (78.6%) and are more likely to have personal blogs by 6.9%. Females who are 30 or younger are more likely than males to have blogs by 12% ~ 25%.

21. The males are more likely than the females to download media files (59.9% vs. 55.0%). However, the females are more enthusiastic about uploading media files (40.7% vs. 36.5%), and females aged 15 ~ 30 are more likely than the males to upload media files by 12 ~ 20%.

22. In households whose primary providers are males, 85.8% have computers, and 80.0% have Internet access, which are 3.9% and 4% respectively higher than those whose primary providers are females.

VIII. Personal/Household Digital Performance Scores

(1) Digital Divide Index Weight

In the 2009 digital divide survey, we used different indexes to find out the usage of computers and Internet among people who are above the age of 12 in Taiwan. After weighing the importance of each index based on the AHP analysis conducted by certain experts, we are able to calculate the scores of individual, household, and overall digital performance in Taiwan and to compare the digital capacity in different groups.

The 2009 digital performance score will use the index weighting of 2008, thus guaranteeing a consistent comparison base for the two years. After weighing the importance of each index based on the AHP analysis on the results of the 2009 digital divide survey, we are able to calculate the overall digital performance scores of individual and household in Taiwan.

In order to allow clearer expression of the data, the score of a sub-dimension or main dimension is from 0 to 100. After the sub-dimension is converted into the main dimension score or the main dimension is calculated into the total score, the relative weight of each dimension is sumed up. The equation for the calculation is:

$$Y = \left[\sum \alpha i Xi\right] * 100$$

αi The weight of each index or dimension.

Xi The index score of each index or dimension.

Table 5. The Weight of Digital Divide Indicators and Framework for Individuals/Households in 2009

The weight of digital divide indicators for individual digital score(0.668)					
II III IV		Primary Dimension I	Secondary Dimension II	Indicators III	Cross-indicator Weight
Access to Information Technology		0.224			
	Access to information equipment		0.395		
	Use a computer			1.000	0.059
	Access to the Internet		0.605		
	Used the Internet before			0.307	0.028
	Number of Internet usage hours			0.551	0.050
	Access the Internet using mobile phone			0.142	0.013
Information Literacy		0.179			
	Information technology literacy		0.542		
	Ability to use e-mail service			1.000	0.065
	Information security literacy		0.458		
	Filtering unknown mails			0.466	0.025
	Set PIN			0.534	0.029
Information application		0.597			
	Applications at work		0.268		
	Use the Internet to search data for work or study			0.660	0.071
	Online Learning			0.340	0.036
	Citizenship behavior		0.130		
	Know government agencies' websites			0.120	0.006
	Used the Internet to search for public notices			0.418	0.022
	Submitted online applications through			0.462	0.024
	Daily life applications		0.304		
	Sell or buy products on the Internet			0.130	0.016
	E-banking			0.099	0.012
	Information search			0.421	0.051
	Use the Internet for recreational purposes			0.195	0.024
	Use online instant messaging services			0.155	0.019
	Web2.0		0.082		
	Browse blogs			0.337	0.011
	Share knowledge and experiences			0.663	0.022
	Information collection		0.216		
	Ability to read English Web pages			0.356	0.031
	Ability to search for specific information			0.644	0.055
The weight of digital divide indicators for household digital score(0.332)					
II III IV		Primary Dimension I	Secondary Dimension II	Indicators III	Cross-indicator Weight
Household information environment		0.345			
	Household information equipments		0.362		
	With or without a computer(s)			1.000	0.041
	Internet environment		0.638		
	Does the household have access to the Internet			0.700	0.051
	Type of Internet connection for computers			0.300	0.022
Household Information Literacy		0.655			
	Percentage of computer users in the household			0.338	0.074
	Percentage of Internet users in the household			0.662	0.144

(2) Personal Digital Score

01. The overall digital score of our nation's population age 12 or above is 41.0. An analysis of the structure of the overall digital score indicates that the population of age 12 or above has the highest scores on information access (56.4 points) and information literacy (57.6 points), while their performance on information application is a bit lower (30.2). This indicates that the public come in contact with computers and the Internet regularly and have a certain level of computer operation skills and information security awareness. However, there is still room for improvement when it comes to information applications.

02. The males' overall score is 43.6, which is 3.2 points higher than the female counterpart.

03. Overall individual scores drop along with education level. Those who finished graduate schools have an individual score of 74.1, while those who are illiterate have a score of 0.3.

04. Among all age groups, the level of digitalization is highest in the 21-30 group with an overall score of 64.3, followed by the 15-20 group's 61.6. On the other hand, digital divide is a bit more significant in the population age 40 or above; the 41-50 group's score is 37.3, the 51-60 and the 61-64 group's scores are 19.6 and 11.8, respectively, and the average score in those who are 65 or older is as low as 3.6.

05. People working in different industries show different degrees of digitalization. The information and communication industry has the best performance in this regard with a point of 71.6, which is 4.2 points higher than the education service industry (67.2). Information application is still the weakest in the farming/forestry/fishery industry (9.3) and among the retired (10.9). Moreover, digitalization is limited in the water and sewage industry (27.4) and the construction sector (30.7).

06. In terms of occupations and job titles, professionals have the highest level of digitalization (67.9), followed by active-duty military personnel (64.4) and office workers (62.0). On the other hand, digitalization is low (average score below 31) among laborers and those working in farming/forestry/fishery, especially the latter (8.7).

07. The overall digital performance of governmental agencies is 62.7, which is far higher than that of private enterprises (50.2), employers (43.2), the self-employed (25.8), and unpaid homemakers (31.7).

08. The overall digital performance of the aboriginals is 37.0, which is slightly lower than that of the Hakka (43.1) and non-aboriginals (40.8).

09. As for county-city differences, Hsinchu City (47.9) and Taichung City (47.8) are the most digitalized cities in Taiwan, followed by Taipei City (46.6). Chiayi County (31.3) and Yunlin County (32.0) on the other hand could use more improvement.

10. A regression analysis indicates that when the influences of all other variables are controlled, gender, age, educational level, occupation, job position, and urbanization of residence are all important variables that predict a person's digital literacy. The interpretative power of model R2 is as high as .70; of which, age and educational level have the strongest influences.

(3) Household Digital Score

01. The overall digital score of households in Taiwan is 68.7. Scores are highest in households whose providers work in dedicated sciences and services (84.9), finance (83.9), real estate (83.8), and information and communication (83.7), and much lower in those whose providers work in farming/forestry/fishery and who are homemakers, unemployed, or retired.

02. As for the monthly household income, the average score of households making NT$70,000 per month is higher than 80, making them the first leading group; the second leading group is those with an income between NT$40,000 and 70,000, with a score between 75.7 and 78.5 respectively. Those with a NT$30,000 ~ 40,000 income has a score of 66.6, and the score is reduced to 56.4 in those with a NT$20,000 ~ 30,000 income. Digitalization is significantly poor in those making less than NT$20,000 per month as the score is below 40, indicating how a family's socioeconomic status influences its entire members' digital learning and application.

03. Information environment and members' information awareness are also significantly poor in households with foreign spouses (56.6), which, on average, is 12.7 points lower than in non-foreign spouse households (69.3).

04. In terms of county-city differences, Taichung City (78.0) and Hsinchu City (77.1) have the highest level of digitalization. On the other hand, the average score is below 65 in Chuanghua County, Nantou County, Tainan County, Kaohsiung County, Pingtung County, Penghu County, Taitung County, Hualien County, Yunlin County, and Chiayi County, signaling a need for an improved household environment.

04. The development of household digitalization is generally a positive correlation with the degree of urbanization. Households in industrial/commercial areas show the highest digital development (74.7) followed by Taipei City (74.0). Mountainside areas, remote towns, and mountainside towns have the lowest digital development with a score of 59.0, 55.4, and 46.1 respectively.

(4) Overall Individual/Household Digital Performance

01. Weighted calculations of individual and household scores indicate that the overall digital score in Taiwan in 2009 is 51.0, with a standard deviation of 28.2, indicating a rather high heterogeneity between different groups in terms of digital development.

02. Males' overall score is 51.8, 1.6 points higher than females.

03. The overall digital-performance score rises along with one's education level. The overall score of people who finished graduate studies is 77.8, which is 4.9 times as much as that of people who finished elementary school or below.

04. When compared based on the age group, the overall scores of the 15-20 and 21-30 groups are 68.1 and 69.0 respectively, making them the best performing groups. The score of those who are 51 or older is below 35.

05. Based on industry, digitalization is highest in the information and communication industries (75.3), and lowest in the farming/forestry/fishing industry (18.5).

06. Based on occupation, the overall digital score of professionals is the highest (73.4). On the other hand, the average score is below 30 among those who work in non-technical labor jobs or farming/forestry/fishing, especially the last (17.7).

07. Based on job position, the overall digital performance of those working in

governmental agencies is 69.6, which is far higher than those working in private enterprises (58.7) and who are employers (55.5), unpaid homemakers (39.3), and self-employed (38.5).

08. In terms of regional differences, Taichung City (58.7) took the first place for the first time, followed by Hsinchu City (58.2) and Taipei City (56.5). Yunlin County and Chiayi County have the poorest digital performance; each with an average score of 40.3.

09. Based on location, digitalization is highest in northern counties/cities (53.9), whereas central counties/cities, eastern counties/cities, and offshore counties/cities share similar scores (48.1 ~ 49.3), and the southern counties/cities have the lowest score (45.6).

10. In terms of the digital development in aboriginal towns, while lowland aboriginal towns perform better than their mountainside counterparts (47.1 vs. 34.8), both are worse than non-aboriginal towns (51.2).

IX. Comparison of the Digital Divide Trends in Taiwan over the Past Years

01. The 2009 survey reveals that 72.6% of the population of age 12 or older has used a computer, and 67.6% has accessed the Internet. Though the information-access rate has dropped slightly compared to that of 2008, the difference does not reach the level of significance and is still within the sampling error, suggesting the population of computer users in Taiwan in the past year has not grown significantly.

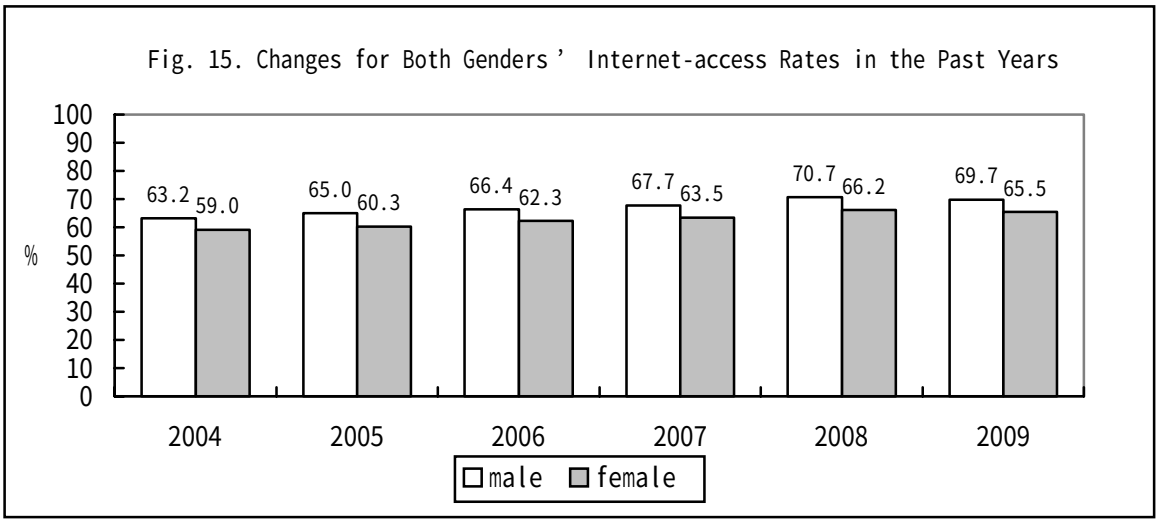
Table 9. Comparison of Information Access in Internet Population at Age 12 or Above over the Years

Unit: Persons,%

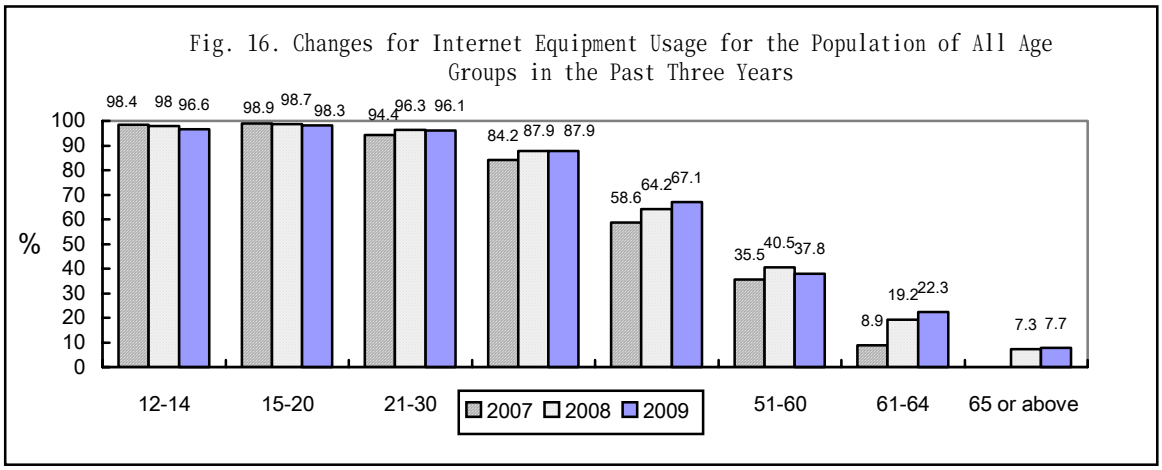
	2004	2005	2006	2007	2008	2009
Number of Valid Samples	14,120	26,622	26,702	15,007	16,131	16,133
Computer Access Rate	68.2	66.8	70.1	71.0	73.4	72.6
Internet Access Rate	61.1	62.7	64.4	65.6	68.5	67.6

02. In terms of gender difference, 70.7% and 65.5% of females have respectively used a computer and accessed the Internet before; for males, the percentages are 74.6% and 69.7% respectively. Based on the data that females' Internet-access rate is still 4% lower than their male counterparts, females still have poorer information

access, and the gender digital divide has not been reduced significantly.



03. In terms of the age groups, the digital divide between different generations is still prominent. Compared to last year, the information-access rates in different age groups are basically the same, and there is no significant growth of information access in middle/old-aged individuals.



04. Regarding the performances of different counties/cities over the past two years, only Tainan County showed an exceptional performance this year with a 5% growth in the computer-access rate and 4.6% in the Internet-access rate. On the other hand, except for Taipei City whose computer-access rate has dropped noticeably, the changes in the information-access rate in other counties/cities are within the range of the sampling error.

05. When compared to the results of the 2008 survey, the daily amount of time spent online in the population aged 12 or above has slightly increased from 2.72 to

2.95 hours. Although females' daily Internet access has slightly increased from 2.6 to 2.8 hours, it is still significantly lower than the males. In terms of age, the 31-40 age group showed slightly more growth, with 2.7 hours jumping to 3.1 hours.

06. The trends indicate that while the population of Internet users aged 12 or older has not grown significantly, there are improvements in their Internet-related capabilities. Online shopping has increased the most with a 10% growth; online recreation increased by 6.7%, and e-mail access increased from 86.4% to 90.2%. Life/recreation-related information searching, online messaging, and online banking have all increased by 2% compared to last year.

Table 10. Comparison of Internet Access in Internet Population Aged 12 or Above over the Years

Unit: %

	2004	2005	2006	2007	2008	2009
E-mail Access	86.9	85.7	88.2	88.9	86.4	90.2
Online Recreation	67.3	67.4	68.0	70.1	68.4	75.1
Life-information Inquiry	85.4	88.1	86.7	89.8	86.0	88.0
Online Messaging	56.2	67.6	73.0	76.4	74.3	75.9
Online Banking	18.1	18.5	22.6	27.8	26.1	28.9
Online Shopping	30.4	37.2	44.7	49.6	49.5	59.3

07. A comparison of the 2008 and 2009 surveys reveals that although the household computer-ownership rate has barely changed (84.6% in 2008 and 84.1% in 2009), the Internet-connection rate has slightly increased from 77.5% to 78.1%. Moreover, the computer-ownership rate is still high in households with enrolled students, and has increased from 94.1% to 94.7%.

08. 85.8% of the Internet users know about governmental websites, and there has been an increase by 5.4% compared to that in 2008. Further, the access rate of e-government has greatly increased this year. The rate of accessing policies and announcements through e-government has increased from 35.0% to 50.8%, and the percentage of Internet users processing applications online has increased from 25.9% to 30.3%.

Table 11. Online Citizenship Participation by the Internet Population of Age 12 or Above

Unit: %

	2007	2008	2009
Know about governmental websites	74.2	80.4	85.8
Inquired policies/announcements	35.1	35.0	50.8
Online applications	28.0	25.9	30.3

09. A comparison of different generations' online governmental policy inquiries and online applications indicates a growth compared to that in 2008. The 31-40 age group showed the most growth (19.7%). As for online applications, the people of the 21-60 age group are more likely to access governmental services, while other age groups show fewer changes.