

**Surveys of ICT Use and Digital Opportunity in  
Taiwan:  
Executive Summary  
(November, 2011)**

Research, Development, and Evaluation Commission,  
Executive Yuan, Taiwan



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## **A. Summary of the 2011 Individual/Household Digital Opportunity Survey**

### **I. Introduction**

The Internet has always been deemed as a public domain, which is free, open, independent, and without appreciable restraints due to its limitless information capacity. It is expected that social injustice can be minimized and social justice can be maximized through the medium of online communication. The charter of ISOC (Internet Society) states “No discrimination in use of the Internet on the basis of race, color, gender, disability, language, religion, political or other opinion, national or social origin, property, birth, or other status.”

The “ideal” cyber world built upon the Internet, however, has quickly fizzled into a bubble in the real world. The main reason for this is that enhancement and popularity of information and community technologies are required in order to increase Internet accessibility around the world; however, in the process of spreading such technology, a “lag” is inevitable as the time of appropriate technology introduction to any given social group may differ from another’s learning curve. The result of such a lag is that not only has the Internet failed to eliminate social injustice but also has created a new gap, commonly referred to as the “digital divide.”

In time though, the global community including the EU have come to acknowledge the existence of this digital divide due to an imbalance in the availability of information. However, the term “digital divide” has gradually been replaced by more positive terms such as “e-Inclusion” or “digital opportunity,” which stresses the creation of an information society shared by all and re-emphasizes the minimization of different digital opportunities through more effective and beneficial public policies stimulating inclusive digital empowerment for all.

Domestic studies on the changing boundaries of our digital divide also show corresponding results. For example, a sub-project of the 2004 “e-Taiwan Project” was entitled the “Project for Reducing the Digital Divide,” while follow-up projects including “National Information and Communication Development Project (2007-2011)” and “Third-stage National Construction Project in the New Century (2009-2012)” all use more positive nomenclature for the “Creation of Fair Digital Opportunities,” which still aim at utilizing all our public and private resources to provide all regions, ethnic groups and industries in Taiwan with fair digital

opportunities and achieve the panoply of social benefits made possible through the Internet.

Complementing this trend, the “Individual and Household Digital Divide Survey” conducted by the cabinet’s thinktank, the RDEC (the Research, Development, and Evaluation Commission of the Executive Yuan), annually since 2001, has also been officially renamed to the “Individual and Household Digital Opportunity Survey.”

For this year’s survey, we have not only continued to identify minority groups with weaker digital capacities performance, in order to formulate better inclusion stimulating policies, but we also have introduced question items covering digital opportunity and online query information-gathering for the first time. We hope that in doing so we can better evaluate how digital development influences an individual and what factors may be preventing the public from participating effectively in the information society.

## **II. Study Methodology**

Continuing its important mission, the “2011 Individual/Household Digital Opportunity Survey” was again entrusted to conduct by the Survey Department of United Daily News (UDN), from July to August, 2011. Using their Computer-aided Telephone Interview System (CATI), the public aged 12 or above throughout Taiwan were randomly interviewed over the phone.

The Survey was conducted after 6 p.m. from Monday to Sunday, and 13, 272 valid samples were completed among our populace, for a completion rate of 69.4% and rejection rate of 30.6%. The number of estimated and actually-acquired samples for each locality is shown in Table 1.

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

Locality	Number of residents aged 12 and above	Sampling Error	Expected Sample Size	Actual Valid Samples
Total	20,530,133	±0.9%	13,200	13,272
Taipei City	2,348,277	±4.0%	600	604
New Taipei City	3,474,139	±4.0%	600	603
Keelung City	343,751	±4.0%	600	600
Taoyuan County	1,740,127	±4.0%	600	601
Hsinchu County	441,165	±4.0%	600	602
Hsinchu City	356,119	±4.0%	600	602
Miaoli County	495,497	±4.0%	600	603
Taichung City	2,324,776	±4.0%	600	601
Changhua County	1,148,048	±4.0%	600	607
Nantou County	468,417	±4.0%	600	601
Yunlin County	635,669	±4.0%	600	606
Chiayi County	484,982	±4.0%	600	605
Chiayi City	238,404	±4.0%	600	606
Tainan City	1,676,550	±4.0%	600	601
Kaohsiung City	2,475,467	±4.0%	600	602
Pingtung County	778,933	±4.0%	600	601
Penghu County	86,982	±4.0%	600	601
Yilan County	409,362	±4.0%	600	603
Hualien County	301,004	±4.0%	600	601
Taitung County	203,567	±4.0%	600	602
Kinmen County	90,038	±4.0%	600	602
Lienchiang County	8,859	±4.0%	600	618

Note: The matrix data was provided by the Department of Statistics in July, 2011.

In order to generalize the data and determine the prevalent opinions among the populace age 12 or above, the sample data has been weighted and rendered consistent with the matrix. The sample composition of this survey has been weight fitted according to the gender and age proportion of the population over the age of 12 of each locality in Taiwan as released by the Ministry of the Interior in July 2011.

Besides the weighting of intra-city/county samples, a second-stage weighting was conducted based on the ratio of each locality's 12-and-older population to our overall 12-and-old population. This is because our random sampling is based on samples in each locality whose SD is within ±4.0%, in order to ensure enough samples for a proper city/county inference. However, although this practice helps equalize the cities and counties, the samples from certain cities/counties are "overly representative" and cannot be used to determine the "overall" opinion of the 12-and-older population.

Therefore, besides simple locality comparisons, the “overall” digital divide comparison of different groups must be weighted based on the locality ratio of the 12-and-older population to the overall 12-and-older population in order to ensure the validity of the results. The pre-weighting and post-weighting distributions of the samples’ gender and age are shown in Table 2.

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

Items	Actual Samples	Pre-weighting Percentile Weighting	Post-weighted Percentile Weighted
Gender			
Male	6214	46.8	49.9
Female	7058	53.2	50.1
Age			
12-14	583	4.4	4.4
15-20	1402	10.6	9.4
21-30	1503	11.3	17.1
31-40	2198	16.6	18.5
41-50	2603	19.6	18.3
51-60	2542	19.2	16.1
61-64	653	4.9	4.0
65 and above	1788	13.5	12.2

### III. Study Framework and Survey Items

The “2011 Individual/Household Digital Opportunity Survey” consists of three parts. first, the three dimensions of "information-access," "information-literacy" and "information applications" are discussed in order to determine differences in information-access and digital applications among the public; second, we consider the influences of the developing Internet on an individual’s day-to-day opportunities; and third, individuals who do not yet participate in the information society are evaluated for their understanding of and attitude towards the Internet.

Specifically, the questionnaire consists of six parts: personal computers and Internet access status, digital opportunity, digital exclusion, household information environment and household members’ computer literacy, and individual and household biodata. The question-items are shown in Fig. 1, and the indicators are shown in Tables 3, 4 and 5.

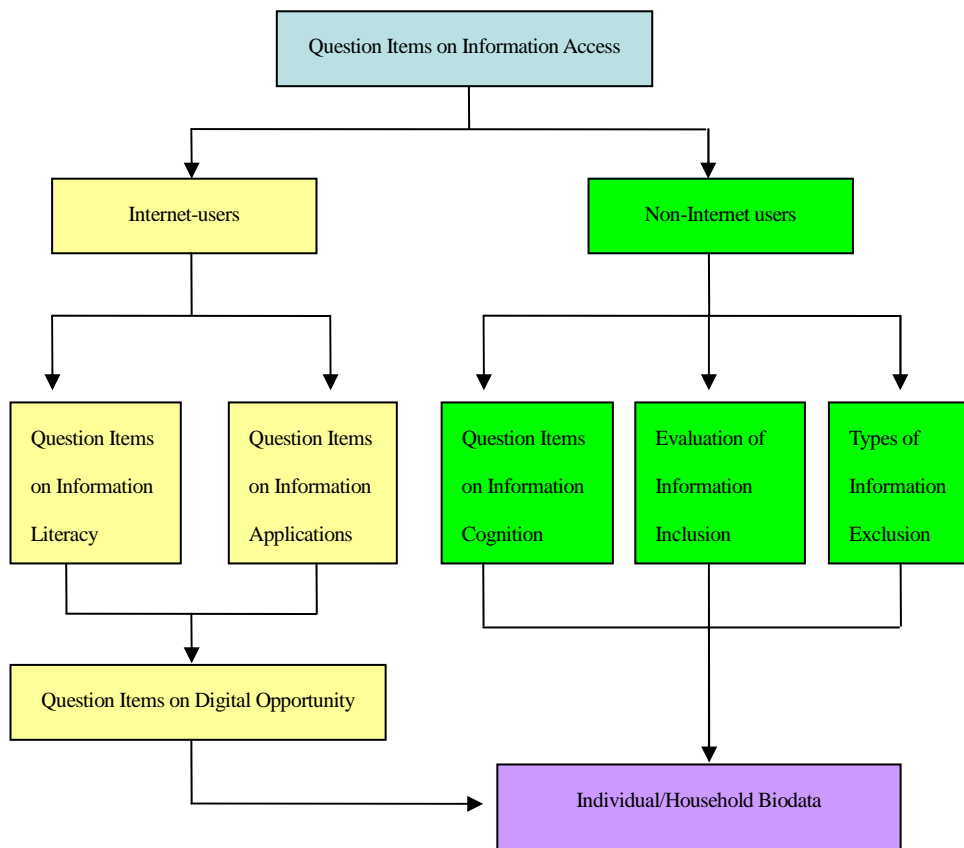


Fig. 1 The order of the question-items for the Survey



Table 3 Digital capacity indicators

Primary Dimension	Secondary Dimension	Tertiary Dimension	Indicators (The Coverage of Each Dimension)	Remarks	
Individual Digital Status	Information Access	Access to information equipment	<ol style="list-style-type: none"> <li>Whether one has used computer before.</li> <li>Whether one has accessed to the Internet before.</li> <li>Whether one has accessed to the Internet via mobile device.</li> </ol>	Evaluating the use of computers and mobile devices	
	Info. Literacy	Basic information literacy	<ol style="list-style-type: none"> <li>The ability to apply for accounts/PINs.</li> <li>Word-editing skills.</li> <li>Upload or download files.</li> <li>Knowledge of technical terms.</li> </ol>	Evaluation of the ability to access digital applications and services and the knowledge of technical terms	
	Info. Application	Civic behavior		<ol style="list-style-type: none"> <li>Experience of inquiring about public announcements online.</li> <li>Experience of submitting applications via agency websites.</li> <li>Experience of posting one's comments on a public policy through the Internet.</li> </ol>	Evaluation of the understanding of and access to e-governance.
		Life applications		<ol style="list-style-type: none"> <li>Online purchases</li> <li>Online banking</li> <li>E-mail access</li> <li>Information-gathering</li> <li>Online paging</li> <li>Web phone</li> <li>Online recreation</li> <li>Online learning</li> </ol>	Experience and status regarding searching for information online and accessing other applications
		Social sharing		<ol style="list-style-type: none"> <li>Participation in social networks</li> <li>Blog/website-management.</li> </ol>	Evaluation of Web 2.0 applications
	Household Digital Status	Household Information Environment	Household information equipment	<ol style="list-style-type: none"> <li>Existence of household computers.</li> <li>Percentage of mobile-phone ownership per household</li> </ol>	Evaluation of computer and mobile-phone ownership per household
Internet environment			<ol style="list-style-type: none"> <li>Status of household Internet connectivity.</li> <li>Method of household Internet connection.</li> </ol>	Evaluation of status and method of household Internet connectivity.	
Household Information Literacy			<ol style="list-style-type: none"> <li>Percentage of family-members accessing the Internet.</li> </ol>	Evaluation of number of family-members going online (percentage)	

Table 4 Digital capacity indicators

Main aspect	Aspects of Indicators (content of each aspect)	Description
Individual's digital opportunity	<ol style="list-style-type: none"> <li>1. Expand social network.</li> <li>2. Increase learning opportunities.</li> <li>3. Increase employment opportunities.</li> <li>4. Increase income.</li> <li>5. Increase the opportunity for useful day-to-day information.</li> <li>6. Enrich recreational life.</li> <li>7. Improve public information awareness.</li> <li>8. Political networking</li> </ol>	Evaluation of changes in all aspects of a person's life after getting online.

Table 5 Indicators of Factors Influencing the Acceptance of Digital Technologies

Main aspect	Sub-aspect	Aspects of Indicators (content of each aspect)	Description
Digital Inclusion	Type of Information Exclusion	<ol style="list-style-type: none"> <li>1.Reasons for not going online and the subjective intention for new learning.</li> <li>2.The availability of an Information Agent.</li> </ol>	By verifying the types of digital exclusion, the subjects' understanding of information technology (IT), and the factors hindering their access to such technology, we can understand the barriers faced by different groups and posit possible proscriptive public policy solutions.
	The Understanding of IT	<ol style="list-style-type: none"> <li>1. Understanding of the purpose of IT</li> </ol>	
	Factors influencing Information Adoption	<ol style="list-style-type: none"> <li>1. Difficulty cognition</li> <li>2. Benefits cognition</li> <li>3. Cost cognition</li> <li>4. Community influences</li> <li>5. Entertainment cognition</li> </ol>	

#### IV. Individuals' Digital Capacity

##### (1) Information Access and Drop-out

1. Among the 12-and-older population, 77.4% have accessed a computer and 72.0% have accessed the Internet. That means there are approximately 14.78 million Internet users among the 12-and-older population.

—Comparing across localities, the Internet access rate in Taipei City reached more than 80% for the first time (80.1%), while peer counterparts in Hsinchu City (78.0%), New Taipei City (77.0%) and Lienchiang County (75.8%) also exceeded 75%; in contrast, the counterpart performance in Chiayi County (59.5%), Yunlin County (61.0%), Penghu County (61.2%) and Pingtung County (61.9%) were about 60%, which is about 20% less.

—There are 6 localities where gender difference in Internet access is highest; of

which, females' Internet access is significantly higher in Chiayi County, and the opposite is found in New Taipei City, Taipei City, Hualien County, Kinmen County and Lienchiang County.

- Moreover, access rates in remote locales or indigenous communities is significantly lower than that in non-remote towns/villages or non-indigenous communities; among which, the rate is especially lower in highly-remote locales (53.4%) and mountain-indigenous communities (50.1%).
- Internet access rates are significantly lower for both genders in the 50-and-older population; Internet access rates among 51-60 year-old females is 5.3% lower than for the male counterpart, and 7.2% lower among 61-and-older females.
- Internet access rates are rather low among the middle-aged and seniors as only 49.0% of the 51-60 age group, 34.0% of the 61-64 age group, and 13.3% of the 65-and-older have accessed the Internet. By comparison, more than 92% of people age 40 or below access the Internet.
- In general, the Internet-access rate is positively correlated to educational level. More than 90% of the individuals who have finished a college education have accessed the Internet, while only 14.3% of those who have only finished elementary school or lower access the Internet.
- In terms of employment status, Internet access rate is highest among those who are students or work in information and communication industries (higher than 99.0%) and lowest among agriculture/forestry/fishery workers (21.1%).
- Among various occupations, the Internet access rate is highest among active military personnel, professionals, support staff, technicians, and assistants as more than 93% have surfed the Internet.
- As high as 93.5% of public employees have accessed the Internet, which is much higher than the counterpart of those hired by private companies (85.2%), employers (75.6%) and the self-employed (46.8%).
- The Internet access rate among the indigenous population (68.9%) is slightly lower than among the Hakka (72.1%) and non-Hakka/aboriginal (71.7%) counterpart.
- People with disabilities are clearly at a disadvantage in terms of digital development as only 32.1% of those who have disabilities are capable of accessing the Internet, 49.6% of those who have disabilities and who have family members that have disabilities are e-capable, both of which are far lower than those without disabilities (more than 73%).

Fig. 2 Information Access among 12-and-older Population

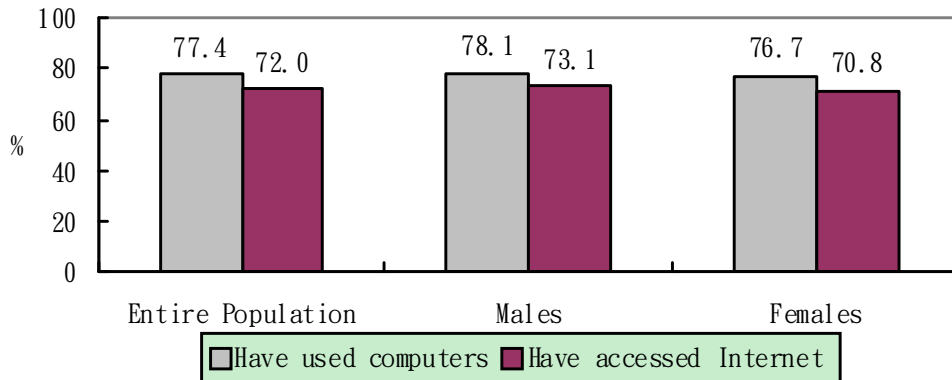
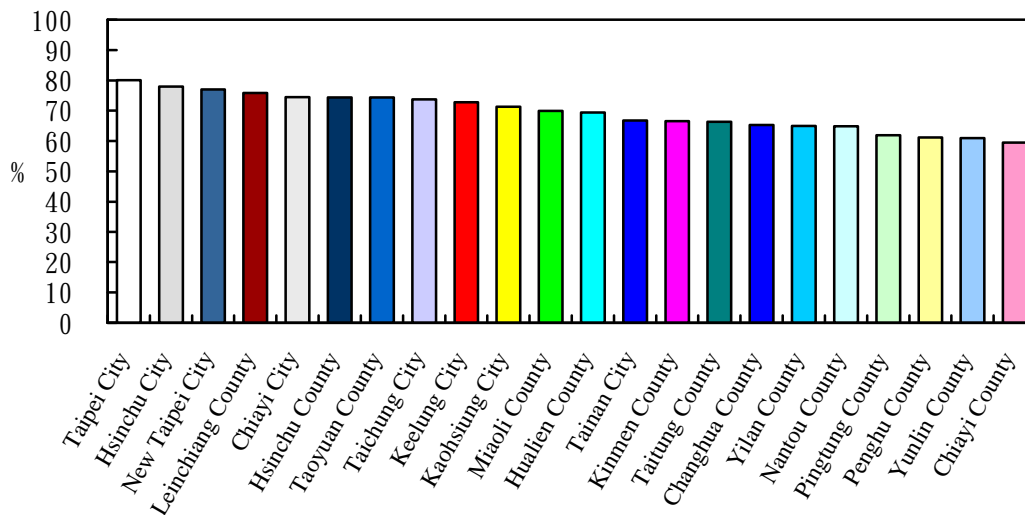


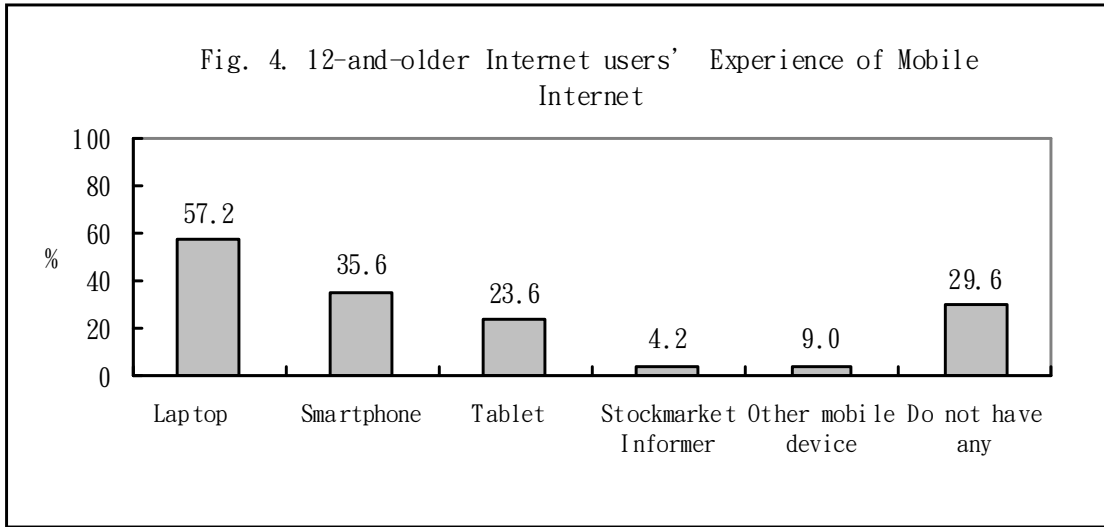
Fig. 3 Comparison of 12-and-older's Internet-access in 22 Cities/Countries



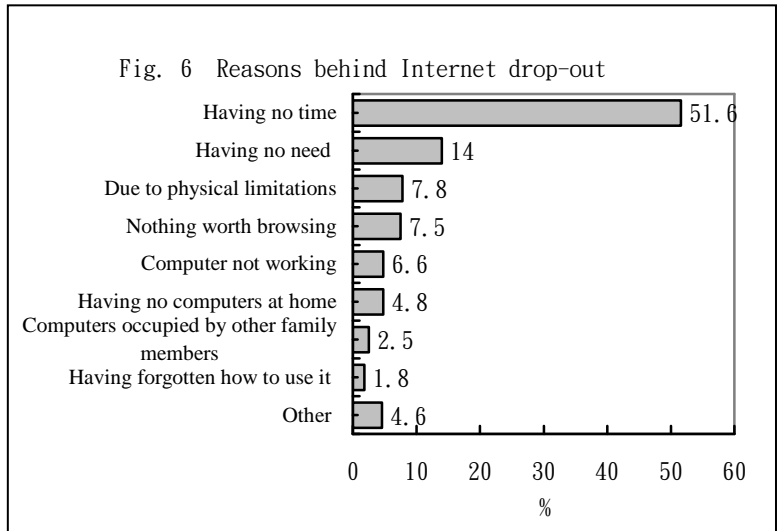
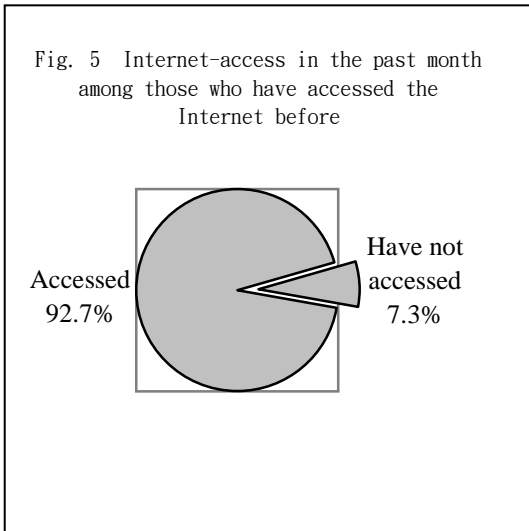
- The average years of experience among Taiwan's Internet users are 9.2 years. The question-items with multiple selections indicate that among new Internet users who have accessed the Internet for 1 year or less, most of them do so in order to learn new things or to stay updated (18.1%), followed by information-gathering (17.4%), pleasure (13.1%), work-related (11.7%), and helping children with their studies (8.8%).
- Among 12-and-older Internet users, 45.4% have a laptop, 39.7% have a smart phone, and 21.0% have a tablet PC, totaling some 65.5% who have a mobile Internet device. Looking at the actual experience with mobile Internet access, 70.4% in all

have accessed the Internet with a laptop, mobile phone, tablet PC or other mobile device. Among the entire 12-and-older population, the mobile Internet access rate has increased from 37.6% in 2010 to 50.7% in 2011.

- The citizenry in Taipei City have the highest ownership rates for mobile Internet devices (72.8%), and the mobile Internet access rate is highest in Hsinchu City (76.9%) and Taipei City (76.3%). In contrast, only 54.2% and 60.6%, of Internet users in Chiayi County have a mobile Internet device and have accessed mobile Internet, respectively.
- Of female Internet users, 65.8% have a mobile Internet device, and 70.0% have accessed the mobile Internet; both of which are similar to the male counterpart.
- Mobile Internet access in Taiwan predominantly started among the younger population. Of all age groups, mobile device ownership is highest in the 31-40 group (74.2%), whereas mobile Internet access rate is highest among the 21-30 group (81.8%). Though mobile Internet access is lower in the 50-and-above group, about half have experienced the mobile Internet.
- People who are more educated are also more likely to own a mobile Internet device or have accessed the mobile Internet; more than 75.8% of college-educated Internet users have a mobile device, and more than 80% of them have accessed the mobile Internet.
- Of various industries, professional, scientific and technology, and information and communication have the highest degree of mobile Internet access, with 85% of those working in these fields having accessed the mobile Internet.
- Among professionals, 84.1% have a mobile Internet device, and 87.0% have accessed the mobile Internet, making these the highest among all occupations.
- Though the degree of digitization in public sector jobs is higher than other fields', their mobile Internet access rates and device ownership is only similar to those working for private companies and employers.
- Mobile device ownership (71.1%) and Internet access rate (73.3%) in the indigenous groups is slightly higher than the counterpart in Hakka and non-indigenous/Hakka groups.



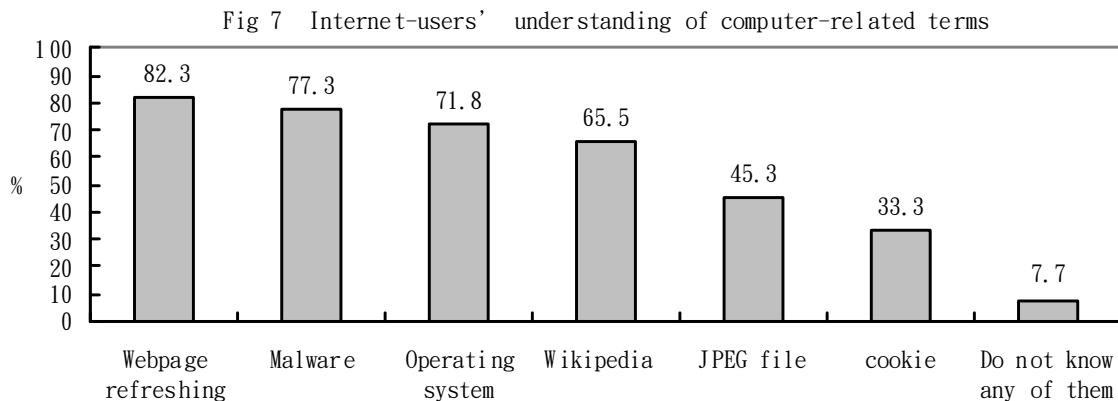
4. Defining “information drop-out” based on a subject’s Internet access in the past month, the findings indicate that among 12-and-older subjects who have accessed the Internet, 7.3% have not gone online in the past month, and the drop-out rate is highest in the 65-and-older group (26.9%). The primary reasons are having no time (51.6%) and having no need for it (14.0%); however, 68.2% did not exclude the possibility of accessing the Internet in the future.



## (2) Information Literacy

1. Judging the public's information capacity by their three abilities to apply for online accounts and passwords, word-processing, and uploading/downloading files, the finding indicates 77.6% of the Internet users know how to apply for accounts/PINs and acquire memberships, 83.5% can use a word-processing program (requiring usually, some familiarity with phonetic transcription of Mandarin, Taiwanese, Hakka, or indigenous languages), and 82.9% know how to upload/download files.
2. Judging the 12-and-older internet users' information literacy by looking at their technical vocabulary, the finding indicates 82.3% know what "webpage refreshing" means, 77.3% know what "malware" is, 71.8% know what an "operating system" is, 65.5% have heard about Wikipedia, 45.3% know what a jpeg file is, 33.3% know what a cookie is, while only 7.7% said they were not familiar with any of the terms above.

—Females' information-access opportunity is closing in on males'; however, their computer knowledge is still lagging behind significantly. Females' understanding of the technical terms is 7% to 11% lower than males except "webpage refreshing".



## (3) Information Applications

1. For questions providing that three selections can be chosen, the top 6 types of information most sought after by Internet users are news (29.9%), entertainment (23.3%), consumer (14.4%), work-related (12.6%), travel (10.4%) and stocks and finances (10.1%); categories higher than 5% include social networking (9.0%),

lifestyles (8.9%), school-related (8.3%) and music (6.2%).

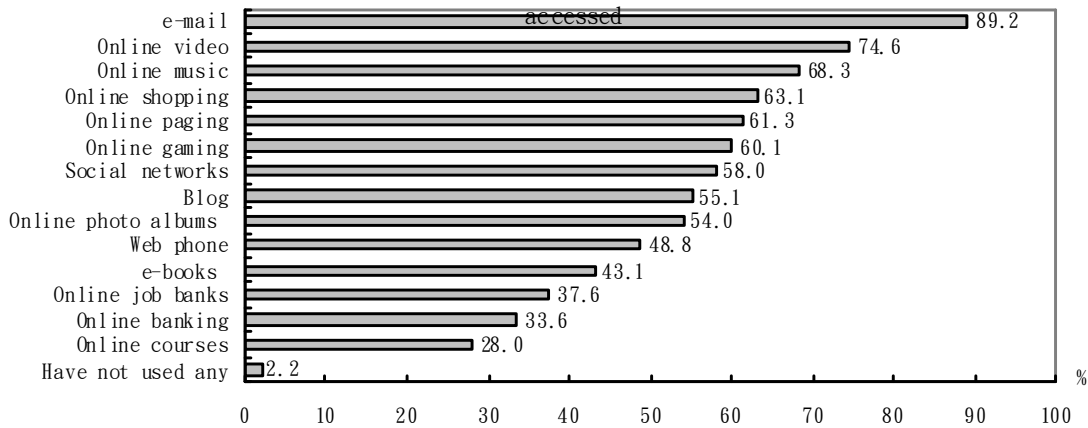
- Besides Chiayi County, Yunlin County and Changhua County where entertainment information is most popular, the most sought-after information in the other 19 localities surveyed was news.
- People in urbanized areas tend to look for news; in areas that are very remote, mountainside indigenous areas, places with traditional industries, or where the citizenry mostly consisted of seniors, “entertainment information” may be as important as or more important than news.
- Different age groups have different info-needs. The 20-and-below group mostly prefers entertainment and school-related info, followed by social networking and music. Though most of the 20-and-older individuals look for news, their secondary preference differs. The 21-30 group prefers entertainment, social networking, consumer, and work, the 31-40 group prefers info on consumers, work, entertainment, and travel. The 40-and-older group needs info on stocks and lifestyle-related matters, and health info is important to 65-and-older individuals.
- Indigenous groups have rather unique info-preference – they prefer entertainment and social networking information. Such preference is significantly higher than Hakka and non-Hakka/indigenous groups.

2. The Survey indicates the most popular online application is e-mail (89.2%), followed by online video (74.6%) and music (68.3%). Online applications whose access rates are between 50% to 70% include online shopping (63.1%), online paging (61.3%), online gaming (60.1%), online communities (58.0), blog and webpage creation (55.1%) and online photo albums (54.0%).

- There are no significant gender differences in e-mail, online videos, online music, online paging, blog and webpage creation; however, females’ online shopping (68.3%) is 10.3% higher than males, whereas males’ online gaming (66.2%) is significantly higher than females.



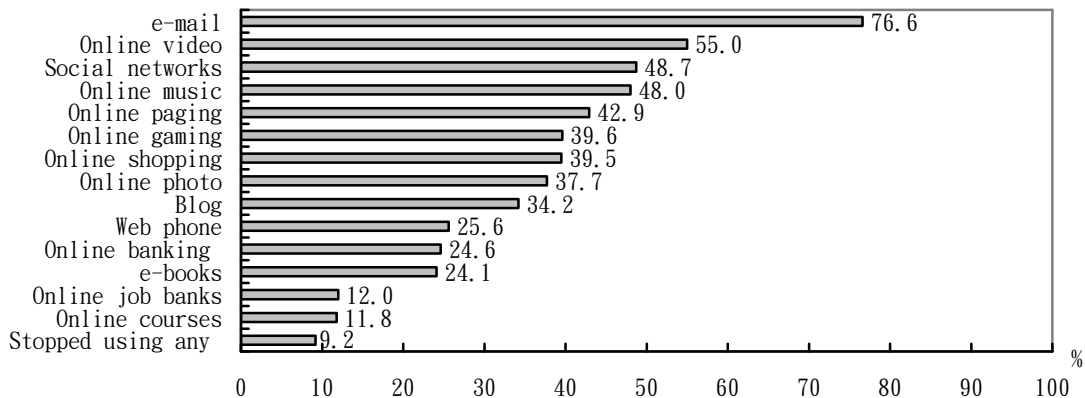
Fig. 8 Internet-applications that 12-and-older Internet-users have



3. As for access to online applications in the past month, the Survey indicates the most popular application in the past month was still e-mail (76.6%), followed by online video (55.0%) and social networking (48.7%).

— In terms of access to e-mail, blog and webpage creation, online photo albums and online learning in the past month, both genders' access is similar; males' access to online video, online music, online paging, online gaming, social networks, web phone, and e-books is slightly higher than females, and females have more online shopping, job hunting, and online banking.

Fig. 9 Internet-applications that 12-and-older Internet-users having still accessed in the past month



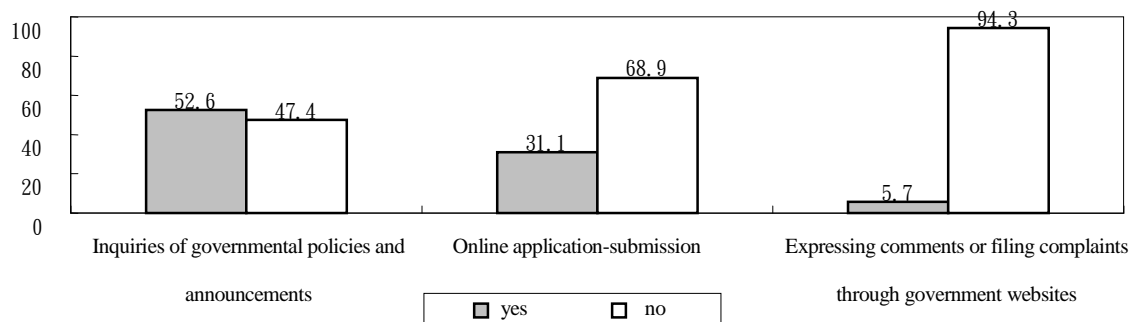
4. Judging duration of access to online applications in the past month, the Survey shows e-mail and social networking are the two most sustainable online features as more than 80% of the subjects still access them; other features still accessed by more than 70% of the subjects include online video, online banking, online photo albums, online paging and online music.

5. Of the study subjects, 52.6% have inquired about public policies and announcements in the past year; 31.1% have submitted online applications through agency websites in the past year, and 5.7% have filed official comments or complaints through such sites.

—Comparing online civil activities in different localities, people in Taipei City (62.7%) and Kinmen County (61.0%) are most likely to inquire about public policies or announcements through the Internet; people in Taipei City (39.2%) and Lienchiang County (37.4%) are most likely to file online applications through agency websites, and people in Kinmen County (8.0%) are most likely to file public comments or official complaints online.

—The 31-50 age group is most active in online civil activities as 60.6%~60.8% of them inquire about public announcements; 41.2%~43.0% engage in online applications, and 6.8%~7.8% undertake online comments or complaints.

Fig. 10 Internet-users' Online Civil Participation



6. Regarding our public policymakers' efforts to interact with the citizenry through social networks, 45.1% of those who have accessed social networks (such as Facebook and Twitter) are willing to add public agencies to their friends list. Of the respondents, public agencies were able to get in touch with 18.8% of the 12-and-older population.

7. Of the working force, 58.3% use their computer at work, and 47.1% need to go online for work purposes. The ratio has not changed much compared to 2010.

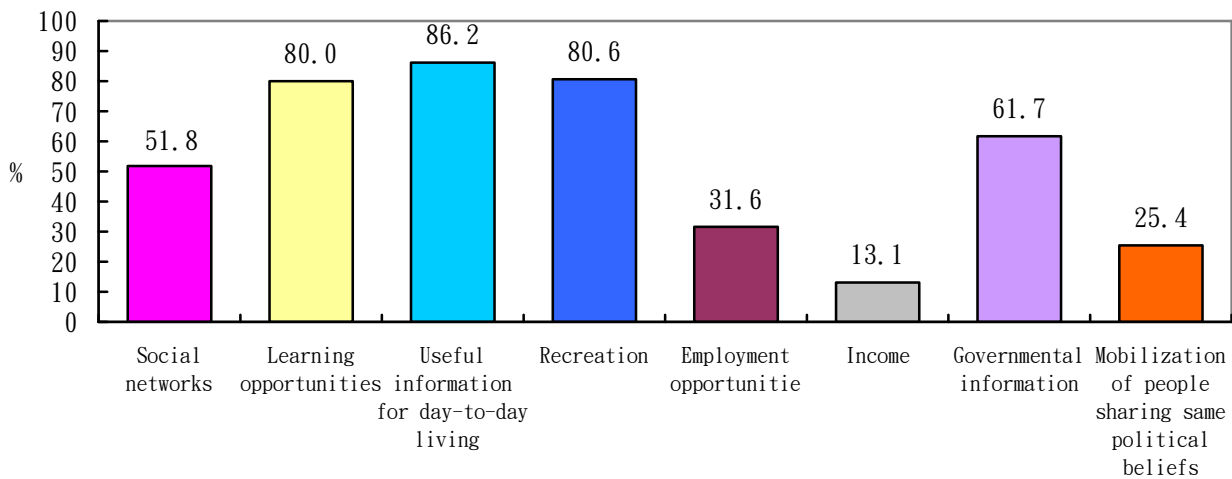
#### (4) Digital opportunity

1. The 8 indicators on the benefits of Internet exposure on life-opportunities indicate that for new Internet users, 86.2% of the respondents believe they have more useful

information as a result, 80.6% believe they have a better recreational life, 80.0% believe the Internet improves their learning opportunities; and 51.8% of the respondents believe their social networks have expanded as a result.

2. Relatively speaking, Internet users tend to perceive fewer political and economic opportunities; of the four indicators, most of the respondents acknowledged that the Internet makes it easier to acquire public service information (61.7%), followed by 31.6% stating the Internet increases one’s employment opportunities, 25.4% believe they can team up for political networking, while only 13.1% stated any income improvement as a result.

Fig. 11 The 12-and-older Internet-users’ perception of various Digital Opportunities



#### (5) Individual's scores on digital performance

1. We reviewed the subjects’ access, literacy and application to computers and the Internet and weighted the indicators through AHP analysis, and the results indicate the scores on digital performance in the 12-and-older population is 50.5.
2. The analysis of the components for overall computer-literacy performance indicates the population aged 12 or above perform the highest in “access to information” (69.0 points), followed by “information awareness” (49.5 points) and “information application” (40.7 points), indicating that the public have plenty of opportunities to access computers and the Internet, but there is still room for improvement in terms of the ability to use computers, the understanding of information-security, and the ability to apply information.2.

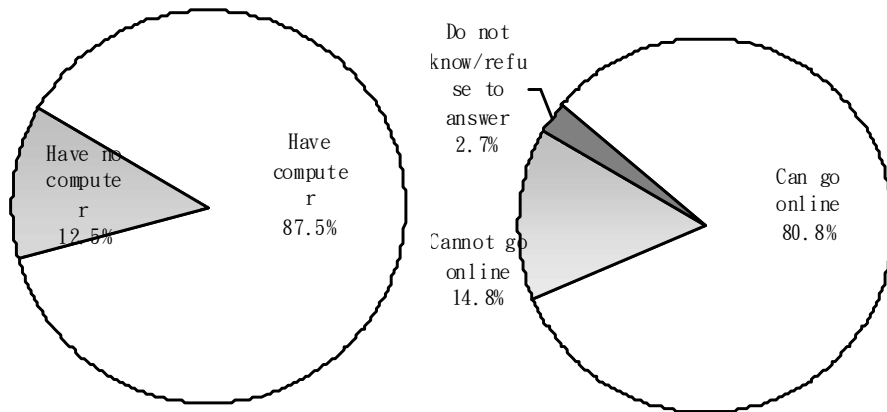
## V. Household Digital Environment

### (1) Household information environment and household member literacy

1. Of the households in Taiwan, 87.5% have computers, and 82.5% have Internet access. Among families with Internet access, 79.3% have broadband, only 1.7% still use dial-ups, 8.7% have wireless access through networks such as 3G, and 15.0% are unsure of what type of bandwidth they have at home.

- Of the 22 localities surveyed, Internet access rate is close to 90% in Hsinchu City (89.69%) and Taipei City (89.1%); in contrast, there are only about 70% of the households in Chiayi County (68.5%), Pingtung County (70.7%), Yunlin County (70.7%) and Penghu County (71.4%) which have Internet access, indicating a rather significant difference.
- Compared to municipalities where 86.8% of the households have Internet access, metropolitan cities and county-capitols perform equally well as 85.5% and 84.8% of the households have Internet access. The Internet access rate is lower in rural areas (78.1% and 76.8% respectively).
- Household Internet access rate drops in more remote areas. Access rates are 83.9% in non-remote areas but drop to 65.0% in highly-remote areas and 71.7% in moderately-remote areas.
- The availability of household Internet equipment is greatly increased in households whose heads of household are managers or professionals, technicians, work at desk jobs, or are active-duty military personnel, as more than 90% of these families have Internet connections.
- Internet access rate is below 51% in households whose monthly family income is less than 20,000 NT, and the rate increases to 68.8% in households whose monthly family income is 20,000 ~ 30,000 NTD. More than 90% of the households whose monthly family income is 50,000 NT or more have Internet connection.

Fig. 12 Ownership of Information-equipment among households in Taiwan

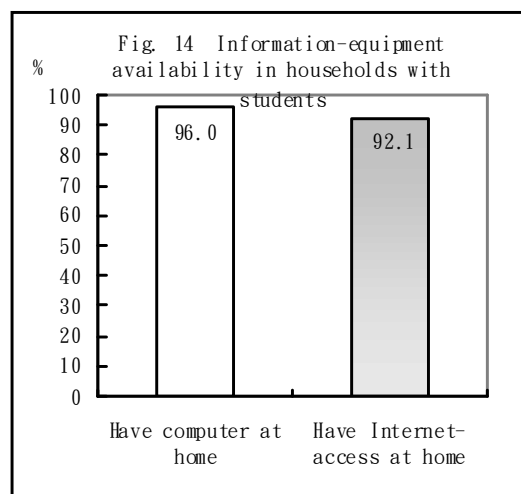
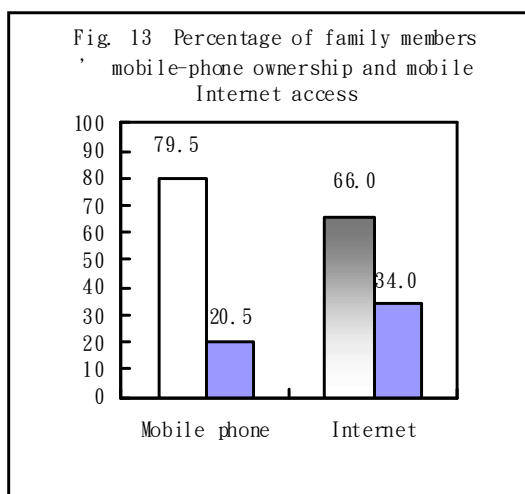


2. The Survey indicates that on average, 79.5% of the members in a family have a mobile phone, and 66.0% are capable of accessing the Internet. In other words, in a family of five, 4 would have a mobile phone, and 3 would know how to go online.

—Of the 22 localities, the degree of digitization is highest in Taipei City as 86.1% per household have a mobile phone and 75.8% know how to go online.

3. A household with students is most likely to have computers as computer-ownership is 96.0% in such families, and Internet access rates among them are 92.1%.

—Household across all the different localities invest much in their children’s digital capacity development, and Internet access rates exceeds 80% in households with students in all 22 localities. Of which, Taipei City (97.5%) takes the lead, ; in contrast, Pingtung County (84.8%) and Yunlin County (84.9%) is about 85%, which is about 12% lower.



4. Among international and Cross-Staits

families, 56.6% indicate their non-native spouses access the Internet; among families with disabled members, only 24.8% indicate the members with disabilities access the Internet.

## (2) Scores for household information performance

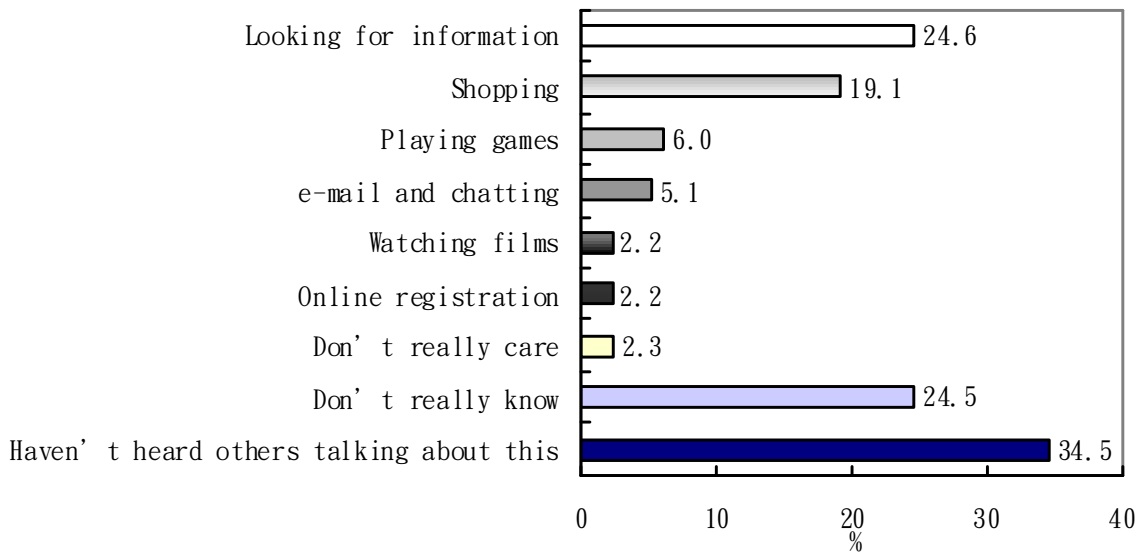
1. After weighting, the overall score for Taiwan's household digital performance is 71.2.
2. As for household monthly income, the performance of families with an income of 50,000 or above exceeds 80 points, making them the first-leading group; the score of those with an income of 30,000 ~ 50,000 is between 67.4 ~ 74.7, making them the second-leading group. The score of those with an income of 20,000 ~ 30,000 drops to 59.5, and to lower than 45 among those with an income of less than 20,000, indicating income-level affects the learning and application of information among an entire family primarily by impeding access deemed too costly and computing or mobile devices deemed overly prohibitive on their limited budgets.

## **VI. Analysis of Non-Internet Users**

1. The Survey indicates that reasons for not accessing the Internet include having no need (24.5%) and not knowing how (24.1%), followed by having no time (20.0%) and lacking the physical ability (10.1%) to do so.
  - “Not having the need” and “not knowing how” are the main reasons why males do not join the online society, and the female counterpart lack of e-participation is mostly due to “having no time” (23.3%).
  - Non-Internet users who are older are less likely to go online due to reasons such as “not knowing how,” “not having the need,” or physical reasons. The younger counterparts mostly do not go online due to the lack of time.
2. A possible factor that may influence the will to go online is whether non-Internet users could develop a positive attitude towards IT from the observations of others. The findings, however, indicate that only 65.5% of non-Internet users have seen or heard about other people's computer-access.

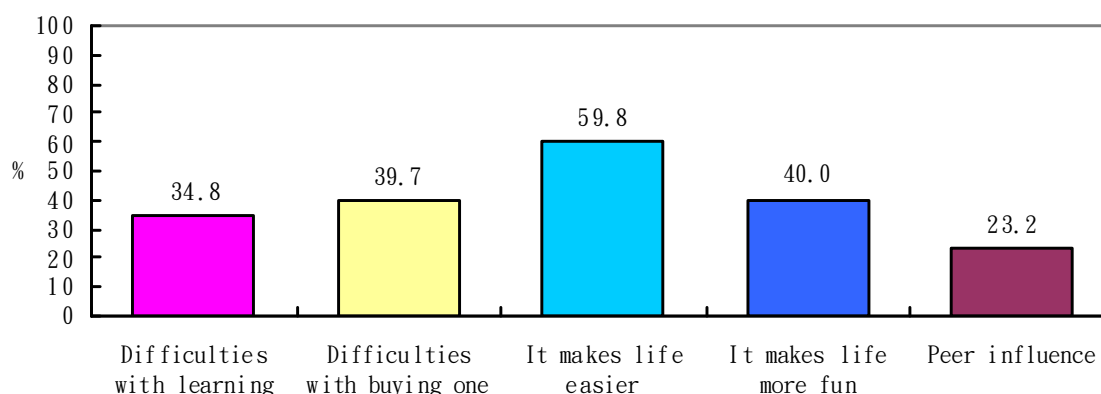
3. To these individuals presented with the digital opportunity, 24.6% and 19.1% of the subjects respectively treat “searching for information” and “making purchases” as the same; 6.0% believe computers are for playing games, 5.1% believe the Internet can be used for e-mailing and chatting, and 2.3% believe there is nothing the Internet or the computer cannot do. What is worth mentioning is that among the non-Internet users who have seen or heard about computer-access, 24.5% of them still cannot talk about any Internet or computer features and appear wholly functionally IT illiterate.

Fig. 15 Non-Internet users’ understanding of computers’ applications



4. The Survey on non-Internet users’ cognition towards the difficulty of computer-learning, cost, effectiveness, social influence, and entertainment values indicates that regarding the negative factors, 34.8% find it difficult to learn about computers, and 39.7% stated that paying for computers and Internet access is a financial burden; as for the positive factors, 59.8% believe life would be more convenient if they could access the Internet, 40.0% believe life would be more fun as a result, and 23.2% stated that seeing their friends accessing the Internet would indeed encourage them to do the same.

Fig. 16 Non-Internet users' attitude and cognition towards computers



5. Of the subjects who have never accessed the Internet, 24.9% have acquired online information or related services through their friends and family.
6. If free Internet courses are provided, 21.5% of the subjects who do not know how to access the Internet indicated their wish to sign up. Demographic analysis of non-Internet users who want to sign up for free Internet courses, reveal most of them are females (58.7%), 50 or older (68.2%), and with a senior/vocational high school or junior high school education (61.9%).
7. Multivariate analysis of the subjects' willingness-to-learn indicates the key factors are exposure and positive cognition. People who see others using or talking about computers or more and more same-age friends/family going online are likely to be encouraged to learn. Further, if they believe information can make their life more fun, "money" or "difficulty of learning" will no longer be hindering factors.

## VII. Trend-comparison with Past Years' Surveys

1. The Survey indicates among those aged 12 or older, 77.4% have used computers before, and 72.0% have accessed the Internet before, an increase of 1.8% and 1.1% respectively compared to the 2010 counterpart.

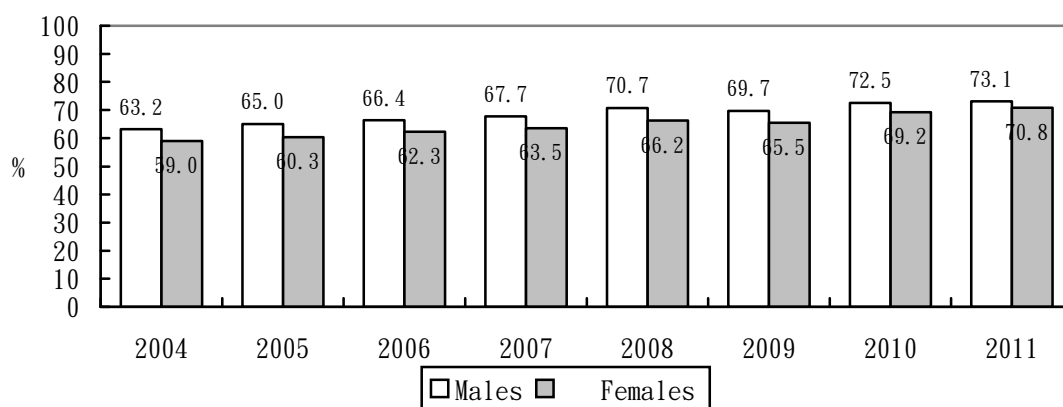


Table 6. Comparison of Information Access in Internet Population Age 12 or Above over the Years 2004-2011

	Unit: Persons,%							
	2004	2005	2006	2007	2008	2009	2010	2011
Number of Samples	14,120	26,622	26,702	15,007	16,131	16,133	16,008	13,272
Computer Access Rate	68.2	66.8	70.1	71.0	73.4	72.6	75.6	77.4
Internet Access Rate	61.1	62.7	64.4	65.6	68.5	67.6	70.9	72.0

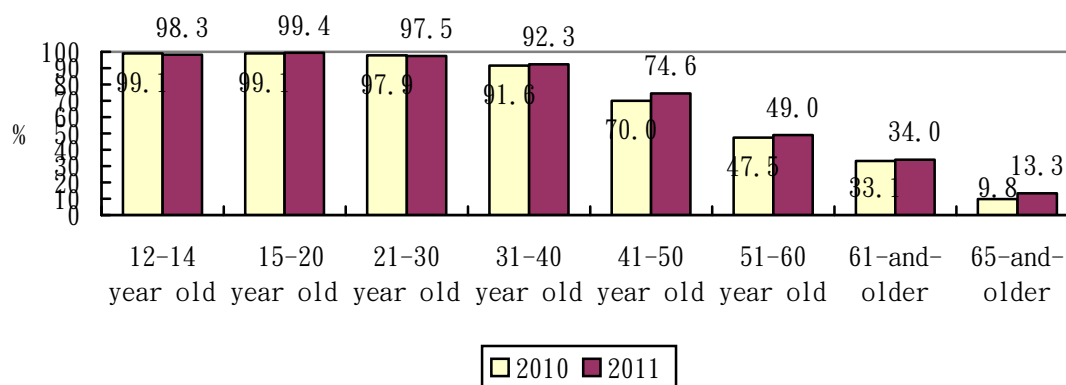
2. In terms of gender differences, the population with computer/Internet access has increased for both genders, especially with the rate of information access among females who lagged behind males by 3.3% in 2010 improving to a smaller lag behind males of 2.3% in 2011.

Fig. 17 Gender-difference in Internet-access in past years



3. Compared to 2010, information-access rates have significantly increased every year among the 40-and-older age groups; of which, the 41-50 and 65-and-older groups' computer and Internet access rates have increased by 3% and 4%, respectively, indicating the most significant growth.

Fig. 18 Age-difference in Internet-access in past years



4. Information-access has improved throughout Taiwan in the past two years; of which, computer-access rates have improved most significantly in Nantou County, Yunlin County and Chiayi County as the growth there has increased by more than 4%; Internet-access rates have grown much in Miaoli County and Chiayi County, indeed by nearly 3%.
5. In the past year, 52.6% of Internet users inquired about public policies or announcements through e-governance services, and 31.1% have filed online applications for public services; the numbers are roughly the same as the 2009 counterpart.
6. In the past 5 years, computer-access rates among the 12-and-older indigenous population have continued to increase every year from 62.7% in 2006 to 73.9% 2011; Internet-access rates have increased from 55.4% in 2006 to 68.9%, indicating the indigenous communities information-access opportunity is catching up with the non-indigenous groups.
7. Compared to the 2010 Survey, only the subjects in moderately-remote areas show a significant increase in information-access, and the same growth is not seen in those living in highly-remote areas.
8. Household computer ownership has slightly increased from 86.4% in 2010 to 87.5%, and the Internet access rate has increased from 80.8% to 82.5%. Moreover, the computer-ownership rate in households with enrolled students still maintains the high standard seen in 2010 as approximately 96 per 100 such households (95.8%) have a computer.

Table 7 Past-year analysis of the household information environment in Taiwan

Unit: %

	2006	2007	2008	2009	2010	2011
Computer ownership rate	81.6	82.6	84.6	84.1	86.4	87.5
Household Internet Connectivity	74.5	74.7	77.5	78.1	80.8	82.5
Computer-ownership rate in families with students	92.2	93.1	94.1	94.7	95.8	96.0

## **B. Summary of the 2011 Mobile Phone Users' Digital Opportunity Survey**

Thanks to the advancing information technology, today's mobile phones offer another important feature than voice-calls: mobile Internet access. Official statistics and surveys indicate that more and more mobile-phone users access mobile Internet, and the behavior of using a mobile phone for internet use has itself become a significant emerging subculture. The Cabinet RDEC has thus conducted our first mobile-phone random survey in order to learn more about mobile-phone users' digital participation.

### **I. Research Methods**

#### **1. Scope and Subjects**

“The Digital Opportunity Survey on Mobile-phone Users” covers individuals who are 12 years of age or older, own a mobile-phone (including smart-phones or mobile devices) and access mobile Internet through various service carriers in Taiwan.

#### **2. Sampling design**

According to data from the National Communications Commission (NCC), the number of mobile-communication subscribers reached 27.84 million by the end of 2010. Phone numbers from the list provided by NCC were randomly selected based on the first 4 digits, and a list of 6-digit phone numbers was randomly selected that cover all the mobile phone numbers in Taiwan.

#### **3. Duration of Implementation and Process**

For this Survey, phone interviews were conducted during evenings from September 5th to 14th, 2011, yielding 2,003 valid samples.

#### **4. Content of Survey**

The framework of “The Digital Opportunity Survey on Mobile-phone Users” Questionnaire is shown in Table 8\_.

Table 8 The Framework and Main Items for Investigation through the Digital Opportunity Survey on Mobile-phone Users

Aspect	Indicator	Item of investigation
Information Access	1. Individual's Internet Access	<ol style="list-style-type: none"> <li>Whether the subject has accessed the Internet with a computer.</li> <li>Whether the subject has accessed the Internet with a mobile-phone/motivation/reason of non-access.</li> <li>Whether the subject accessed the Internet with a mobile-phone as of now; reasons for discontinuing access.</li> </ol>
Types of use of mobile-phone	<ol style="list-style-type: none"> <li>Number of phone-accounts owned</li> <li>Types of mobile-phone activation</li> </ol>	<ol style="list-style-type: none"> <li>Number of mobile-phone-accounts owned by an individual</li> <li>Types of mobile-phone activation</li> </ol>
Mobile-phone Internet-access Behavior	<ol style="list-style-type: none"> <li>Type of connection</li> <li>Duration of use</li> <li>Cost of Internet access</li> <li>Online activities</li> <li>Applications</li> </ol>	<ol style="list-style-type: none"> <li>Access via Wifi or 3.5G/3G/2G network</li> <li>Time spent on mobile Internet access per day</li> <li>Monthly charges for mobile Internet access</li> <li>Types of activities conducted via mobile phone</li> <li>Whether the subject downloads any free or paid applications (App)?</li> </ol>
Mobile-phone Internet-access Satisfaction	<ol style="list-style-type: none"> <li>Quality of Internet access</li> <li>Charges for Internet access</li> </ol>	<ol style="list-style-type: none"> <li>Whether the subject is satisfied with the quality of mobile Internet access.</li> <li>Whether the subject is satisfied with the fees for mobile Internet access.</li> </ol>
Household Information Environment	<ol style="list-style-type: none"> <li>Household Info-Equipment</li> <li>Internet Environment</li> <li>Installation of a land-line phone.</li> </ol>	<ol style="list-style-type: none"> <li>Whether there is a computer at home.</li> <li>Whether there is Internet access at home.</li> <li>Replacing home Internet with mobile-phone.</li> </ol>
Interviewee Basic Information	<ol style="list-style-type: none"> <li>Gender</li> <li>Age</li> <li>Level of education</li> <li>Ethnic group</li> <li>City/county of residence</li> </ol>	

## II. Summary of Results

- Most of the mobile-phone users are males, between age 21 and 40, and are highly educated; their information-access is also higher than the national average.**

Weighted against the 2011 Individual/Household Digital Opportunity Survey and

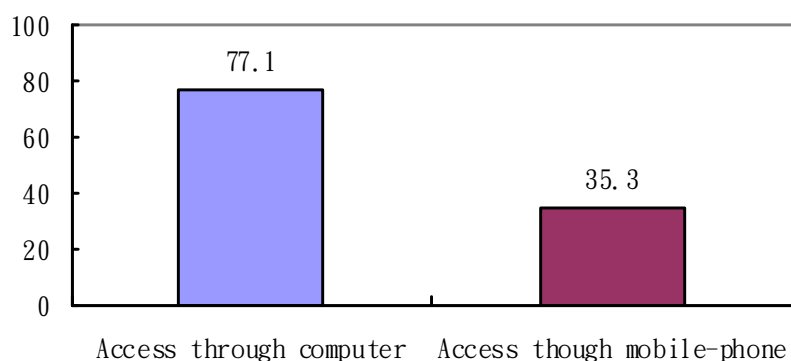
the sample-structure of the overall populace aged 12-and-older, the structure of the mobile-phone users mostly consists of “males, between age 21 and 40, with a college education.” This indicates individuals who use mobile phones heavily demonstrate certain demographic patterns, and a survey on mobile-phone usage should consider this limitation.

This demographic pattern makes the two information-access rates higher than the overall populace average by about 5%; as of now, 92.6% of the 12-and-older mobile-phone users have computers at home, and 77.1% access the Internet with a computer.

**2. About 1/3 of the mobile-phone users have experienced mobile Internet, but they access the Internet via a fixed line when at home.**

Among the 12-and-older mobile-phone users in Taiwan, 35.3% have access the Internet via a mobile-phone. However, mobile Internet cannot really replace a fixed line; of the 82.1% mobile-phone users who access Internet at home, 80.3% of them have a fixed line, and only 1.9% solely relies on mobile Internet.

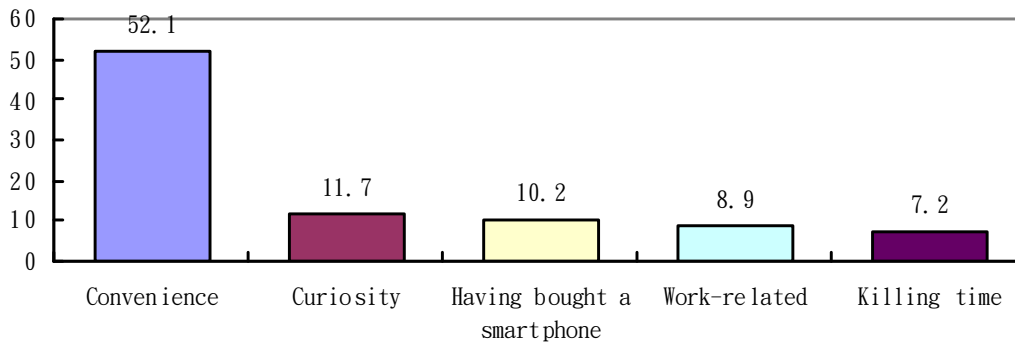
Fig. 19 12-and-older' s mobile-phone Internet-access



**3. “Convenience” is the main reason that encourages a person to use mobile Internet; however, the drop-out rate is also very high as 30% of the users have stopped using mobile Internet.**

Mobile-phone users in Taiwan who use mobile Internet mainly do so for the sake of “convenience” (52.1%), followed by curiosity (11.7%), having bought a smart phone (10.2%), work related (8.9%) and mere pleasure (7.2%).

Fig. 20 Main motive behind mobile-phone Internet access



However, mobile Internet has a high drop-out rate as 29.7% of the users no longer access this service. “Connection charges are too high” (35.2%) and “having no need for it” (35.2%) are the two main reasons for dropping-out; 13.3% complained about inconvenient interfaces when accessing the Internet with a mobile-phone, and 10.5% dropped out because of the poor quality of mobile Internet service or speed.

Fig. 21 Mobile-phone Internet-users’ current Internet access

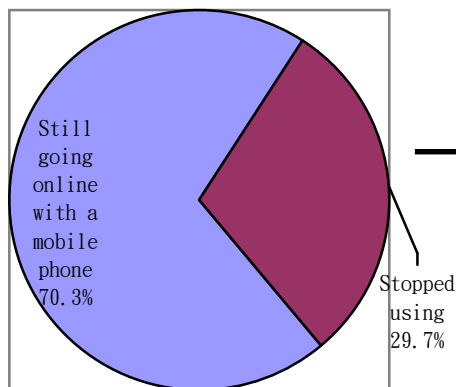
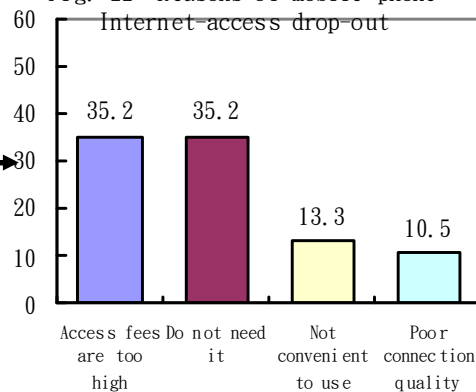


Fig. 22 Reasons of mobile-phone Internet-access drop-out

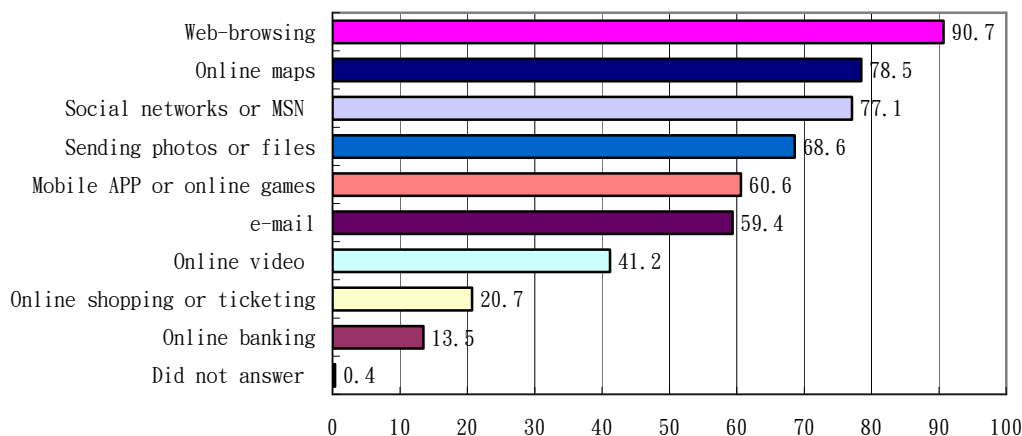


#### 4. Mobile Internet access is limited to certain activities and e-commerce applications are less popular than the downloading of apps.

Among mobile-Internet users in Taiwan, the most popular activities conducted with a mobile phone are as follows: surfing the web or searching for information (90.7%), checking maps (78.5%), accessing social networks or MSN (77.1%), sending photos or files (68.6%), playing mobile APPs or online games (60.6%) and accessing e-mail (59.4%). In contrast, only 41.2% used a mobile-phone to watch films, 20.7% purchased products and tickets online, and 13.5% accessed online banking with a mobile-phone.

Further, it has also been found that APPs are quite popular among mobile phone users as 3 out of 4 are APPs users (74.7%). Most of the subjects downloaded free apps, and only 28.8% downloaded paid apps.

Fig. 23 Mobile-phone Internet-access Applications that Mobile Internet-users have used before



**5. Most of the subjects subscribed to all-you-can-use plans provided by service-carriers; on average they pay 727 NT\$ per month and go online for 92 minutes per day.**

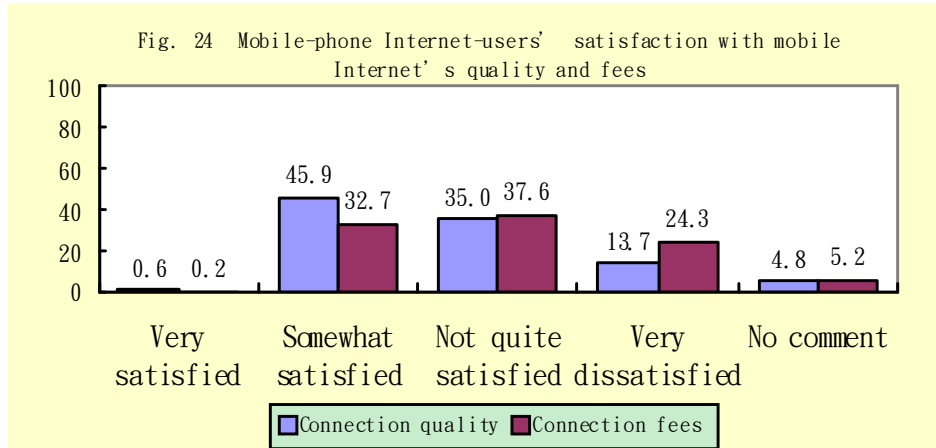
Mobile Internet users mostly choose all-you-can-use plans (62.6%), followed by WiFi connections (22.9%) and pay-as-you-go plans (12.9%). As for fees, 11.9% of the subjects only used free WiFi access, 15.2% pay less than 500 NT\$ per month, 19.7% pay between 501 and 700, 24.5% pay between 701 and 1000, 14.3% pay more than 1000 NT\$ monthly, and 14.3% said they did not care about the cost involved. The average monthly amount was 727 NT\$.

Most of the mobile Internet users spend 31 to 60 minutes online (19.9%), followed by 15-30 minutes (16.3%), 61-120 minutes (15.9%) and 1-15 minutes (13.7%); while 17.1% spend more than 2 hours per day. The median amount of time spent on mobile Internet is 60 minutes, and the mean is 92 minutes.

**6. Mixed views on connection quality; more than 60% are dissatisfied with billing rates.**

The Survey indicates mobile Internet users have mixed views on connection quality; 46.5% are satisfied, and 48.7% are dissatisfied. The analysis shows subjects who go online via WiFi expressed good remarks on connection quality (56.2%), and

those who do so via 3G/3.5G all-you-can-use networks and plans have the worst view of their connections (54.0%), with only 41.5% satisfied. As for connection fees, most of the subjects were dissatisfied (61.9%), which is about 30% more than those who gave good comments.



**7. Of those who have never experienced mobile Internet, 21.3% are interested in trying in the coming year.**

Of the subjects who have never tried mobile Internet, 21.3% stated they might try it in the coming year, 75.9% expressed that they are not interested, and 2.8% did not answer.