# Statistical Report on Internet Development in China

(July 2009)

**China Internet Network Information Center**

# Contents

# Report Summary

◇ By June 30, 2009, the number of Chinese Internet users and the Penetration rate of the Internet had reached 338 million and 25.5% respectively. The number of Internet users increased by 40 million compared with late 2008, up 13.4% within six months, and the increase in the number of Chinese Internet users remains robust.

◇ The number of broadband users had reached 320 million, accounting for 94.3% of all Internet users. In spite of the high Penetration rate of broadband, China is far behind the countries developed in the Internet in terms of broadband access speed.

◇ The number of Chinese Internet mobile Internet users was 155 million, accounting for 45.9% of all Internet users, and the number of mobile Internet users exceeded 37 million within six months. 28% of the existing mobile Internet users said they would access the Internet by 3G mobile phone in the coming six months; 7.25% of the users that have not accessed the Internet by mobile phone said they would probably access the Internet by 3G mobile phone in the coming six months.

◇ The number of rural Internet users had reached 95.65 million, 14.8% of whom visited rural or agricultural websites over the past six months. Farming, forestry, animal husbandry and fishery laborers using rural or agricultural websites accounted for 42.7% of all Internet users.

◇ The increase in China's basic Internet resources slowed down. The increases in the number of IP addresses, international outlet bandwidth and number of websites were significantly lower than those in 2008, the number of domain names fell slightly, but the proportion of domain names linked to live websites increased remarkably.

◇ 82.4% of Chinese Internet users installed security software in the most frequently used computers. Nonetheless, China's network security was still unoptimistic, and 195 million Internet users were attacked by viruses and Trojan horses online within six months, and the accounts or passwords of 110 million were stolen.

◇ The proportion of Internet users accessing the Internet for entertainment, information and communication purposes was high. Except for forum/BBS, the penetration rate of all the three Internet applications by Internet users was over 50%, and the utilization rate of transaction-type Internet applications like online shipping and online payment was relatively low.

- Entertainment application tended towards stability after fast growth, and all sub-divisional applications differed in use rate. The number of online game players increased by 30 million within six months with a use rate of 64.2%, up 1.4%. Online music application remained ahead within six months, with an increase of 16.1% in the number of users and an increase of 1.8% in use rate. The number of Internet video users continued increasing to 10% within six months with a decrease of 1.9% in Penetration rate.

- The use rate of information application rose. Search engine and Internet news accounted for 69.4% and 78.7% respectively, up 1.4% and 0.2% from late 2008.

- The number of communication application grew continuously, with use rate dropping lightly. The use rate of email and instant messaging stood at 55.4% and 72.2% respectively, down 1.4% and 3.1% from late 2008. The number of blog users reached 181 million with a use rate of 53.8%, down 0.5% from late 2008.

- The use of transaction application was of low level and relatively backward. The number of online shoppers picked up from 74 million to 87.88 million with an increase of nearly 14 million amid the current economic situation; affected by the economic actuality, the number of users reserving travel online slipped slightly from late last year; the number of users making payment online climbed to 23.7 million within six month with an increase of 4.8% in use rate.

◇ The Internet plays a prominently positive role in information acquisition, interpersonal communication, social participation, practical life convenience and other respects, but is prone to isolating Internet users away from the reality to probably cause some mental problems.

- **Social participation:** the Internet is playing a more and more important role in promoting people to participate in social activities, and the number of Internet users participating in social activities through the Internet rose by 4.8% within six months.

- **Interpersonal development:** human association is developed in the Internet era, and interpersonal relation becomes closer. Nearly 90% of Internet users recognized that the Internet had cemented relations with friends, up 4.5% within six months.

- **Internet share:** 78.5% of Internet users often shared knowledge with others. The behavior of mutual help is conductive to promoting knowledge dissemination, increasing production and life efficiency and creating a healthy and positive Internet environment.

- **Life aid:** 81.6% of Internet users recognized that handling affairs online saved much time, and 77.5% thought that life was inseparable from the Internet, which has penetrate into all respects of people's livelihood.

- **Social isolation:** the Internet gradually widened the distance of soul exchange, namely worsened social isolation. Low-age Internet users felt a higher sense of social isolation due to the Internet.

- **Internet addiction:** about one out of six Internet users was inclined to Internet addiction, especially those with a net age of less than a year.

- **Information trust:** 84.3% of Internet users believed the Internet to be the most important information channel.

- **Transaction trust:** Internet users have low trust in online transactions, with only 29.2% recognizing the security of online transactions.

# Chapter I Introduction of Survey

## I. Survey Background

The number and structural characteristics of Chinese Internet users, basic Internet resources, conditions for Internet access, Internet applications and other information are of great significance for the State and enterprises to keep up to date with Internet development and make decisions. In 1997, the state competent authorities made a decision that China Internet Network Information Center (CNNIC) performed the statistical work in combination with the then four Internet units through deliberation, and published the 1st *Statistical Report on Internet Development in China* in November same year. To regularize and systemize the work, from 1998, CNNIC periodically published the report in January and July every year. After being published, the report received great attention from all sides and was extensively quoted both at home and abroad. This is the 24th survey.

The work was strongly supported by state competent authorities like the Ministry of Industry and Information Technology, with the assistance of all Internet units, the websites supporting the survey and the media, thus ensuring the smooth progressing of the survey. We would hereby extend our heartfelt thanks to them for their strong support.

## II. Report Terms

◇ Internet user

All Chinese citizens aged six or above that accessed the Internet over the past six months.

◇ Broadband user

All users that accessed the Internet by broadband means over the past six months, including xDSL, cable modem, fiber access, PLC, Ethernet, etc.

◇ Mobile Internet user

All users accessing and using the Internet by mobile phone over the past six months, including but not limited to those accessing the Internet by mobile phone.

◇ Rural user

All users that mainly resided in the countryside over the past six months.

◇ Urban user

All users that resided in cities over the past six months.

◇ Teenage user

All users aged below 25[1].

◇ IP address

IP addresses, which identify online computers, servers or other equipment in the network, are basic Internet resources. Only with IP addresses (in any form) can the Internet be accessed.

◇ Domain name

Domain names, which refer to English domain names only in this report, are strings split by dot and made up of figures, English letters and hyphens, and hierarchical Internet address identities corresponding to IP addresses. Common domain names fall into two categories: one is country code top-level domain (ccTLD), for example, a domain name ending with .CN represents China; the other is generic top-level domain (gTLD), such as domain names ending with .COM, .NET and .ORG.

◇ Website

Websites refer to those with domain names or "www. + domain names" as URLs, including those under China's top-level domain .CN and generic top-level domain (gTLD), and the registrants of the domain names are in the territory of China. For example, there is only one website for domain name cnnic.cn, and the corresponding URL is cnnic.cn or www.cnnic.cn, besides, other URLs ending with the domain name like whois.cnnic.cn and mail.cnnic.cn are only deemed different channels of the website.

◇ Survey scope

Unless expressly specified, all data in this report refer to those of the Chinese mainland, with the exception of Hong Kong, Macau and Taiwan.

◇ Deadline for survey data

The deadline for the survey data is June 30, 2009.

# III. Survey Methods

## (I) Phone Survey

## 3.1 Survey Population

Permanent residents aged six or above with residence fixed-line phones (home phone, PHS and dormitory phone).

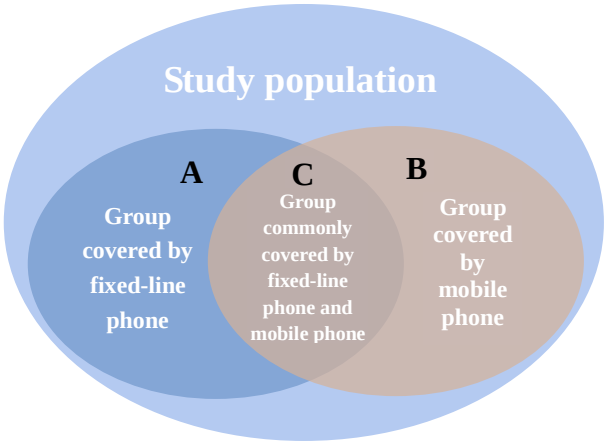
### 3.1.1 Sample Scale

Among the 30,000 survey samples, there are 15,000 residence fixed-line phone subscribers and 15,000 mobile phone subscribers, covering 31 provinces, autonomous regions and municipalities

[1] The *World Program of Action for Youth to the Year 2000 and Beyond* adopted at the 50th UN General Assembly on December 14, 1995 defined the age group of 15 to 24 as teenager group, while this report defined the group aged 6 to 24 as teenager group.

on the Chinese mainland.

### 3.1.2 Subdivision of Survey Population




The survey population is divided as follows:

Group A: group covered by residence fixed-line phone, including residents covered by fixed-line phone, PHS subscribers, school dormitory phone subscribers and subscribers to other dormitory phones;

Group B: group covered by mobile phone;

Group C: group commonly covered by mobile phone and residence fixed-line phone (the superposition of group covered by residence fixed-line phone and group covered by mobile phone is Group C), C=A∩B.

## 3.2 Survey Content

This survey focuses on the number and structural characteristics of Chinese Internet users, conditions for Internet access, Internet applications, Internet users' attitude towards the use of the Internet and condition of non-Internet users. The survey content includes whether respondents access the Internet, respondents' background, Internet users' online behaviors, Internet depth, Internet experience, etc.

## 3.3 Survey Method

The survey was conducted through the Computer Assisted Telephone Interviewing System (CATI) from June 1 to 30, 2009.

## 3.4 Difference between Survey Population and Target Population

CNNIC studied the group that could not be covered by telephone in late 2005 and discovered that the number of Internet users in the group was small. With the development of China's telecom industry, the number of the group is gradually decreasing (the number of Chinese telephone subscribers was 744 million by late 2005, while the figure rose to 1.018 billion by late May 2009). Therefore, the survey study has a hypothesis, namely:

In this study, the Internet users that cannot be covered by telephone are negligible.

# (II) Online Survey

The online lays emphasis on the facts of typical Internet applications. CNNIC conducted an online survey from June 5 to 30, 2009. It put the questionnaire on its websites, linked it to government and media websites, large ICP/ISP websites around the country as well as information ports of all provinces for voluntary completion by Internet users, and tested the validity of the collected questionnaires by technical means to screen out invalid ones. A total of over 57,000 effective questionnaires were collected in the online survey.

# (III) Online Automatic Search and Statistical Data Reporting

Online automatic search is mainly aimed at technical statistics of indicators like number of domain names and websites and geographic distribution, and the statistical data reported mainly includes the number of IP address and international outlet bandwidth.

## 1. Number of IP Addresses

The statistical data of IP addresses by province are from the IP address databases of Asia-Pacific Network Information Centre (APNIC) and CNNIC. The data by province may be acquired by totaling the data in the two databases that have been registered and can recognize the provinces where the addresses are located. As address assignment is dynamic, all statistical data are for reference only. Meanwhile, the Ministry of Industry and Information Technology, the state competent authorities of IP addresses, will also require the Chinese units assigning IP addresses (such as China Telecom) to report the number of IP addressed owned by them once six months. To ensure the accuracy of IP data, CNNIC will compare and verify the statistical data from APNIC and the reported data to determine the final number of IP addresses.

## 2. Number of Chinese Domain Names and Number of Chinese Websites

The number of Chinese domain names and the number of Chinese websites are the sum of the two parts of data as follows:

The first part is the number of .CN domain names and websites acquired by CNNIC through online automatic search; the second part is the number of Chinese generic top-level domains (gTLD) and websites provided by various domestic top-level domain registration units. These data include the number of all generic top-level domains (gTLD) and the opened websites under the domains; the number of generic top-level domains (gTLD) and websites by .COM, .NET and .ORG; as well as the number of generic top-level domains (gTLD) and websites by the provinces where registration units are located.

## 3. International Outlet Bandwidth

The Ministry of Industry and Information Technology periodically acquired the total outlet bandwidth of Chinese operators linked to other countries and regions through telecom enterprises' statement systems. The *Statistical Report on Internet Development in China* has included these reported data.

# IV. Report Innovation

## 1. Refined Study of Internet Lifestyles

Describe the most important Internet lifestyles of Chinese Internet users from the perspectives of Internet trust, Internet interaction and Internet reliance, analyze the recognition of Internet users' information trust, transaction trust, social participation, interpersonal influence, Internet share, life aid, social isolation and Internet addiction, and study the changes to people's psychology and behavior brought by the Internet.

## 2. Mobile Access

Describe the number and structural characteristics of mobile Internet users, analyze the characteristics of Internet applications by the users, summarize the influential factors for mobile access, and solicit the users' intention to access the Internet by mobile phone (3G mobile phone) in the future.

## 3. Network Security

Network security has become a nationwide and social focus, which is not only related to the security guarantee of national networks and information, but also the information and transaction security of individual Internet users in daily life, therefore this report conducted a special survey on network security, inquired of Internet users about security events like virus, Trojan horse attack and number stealing, and surveyed the installation of security software.

## 4. Internet Agricultural Information

With the improvement in the construction of rural information infrastructure and the gradual increase in the level of rural informatization, the agricultural information platform has been established progressively, and it is necessary to conduct a survey on Internet agricultural information to find out use of rural and agricultural information by Internet users. This time, we surveyed and analyzed whether Internet users visited agricultural and rural websites and what kind of information they acquired from such websites.

# Chapter II Number and Structural Characteristics of Internet Users

## I. Number of Internet Users

### (I) Overall Number of Internet Users

By June 30, 2009, the number of Chinese Internet users had increased continuously to 338 million, up 13.4% from late 2008, and the Penetration rate of the Internet had risen steadily to 25.5%.

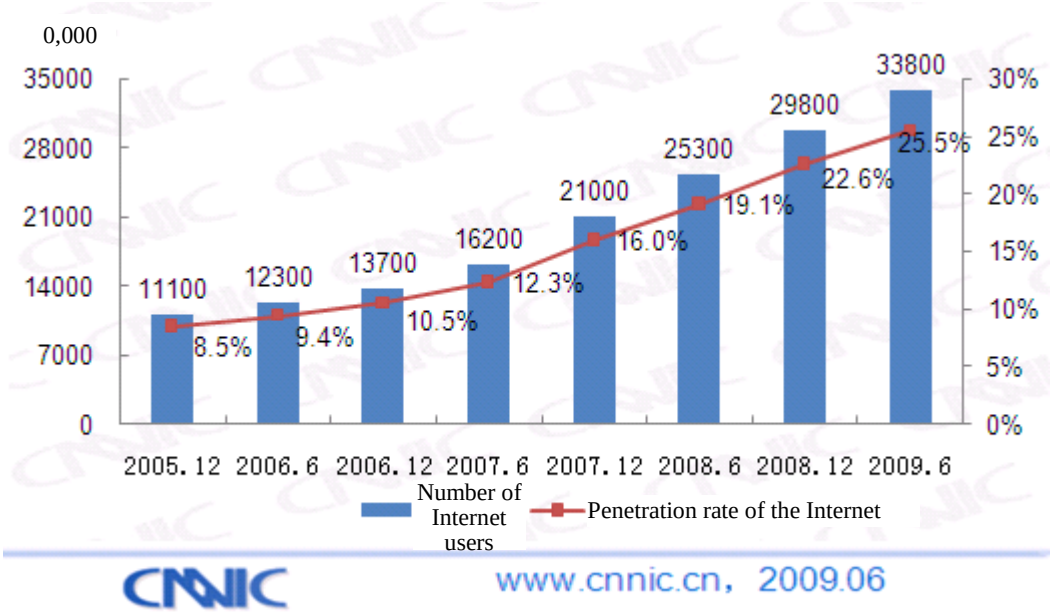



**Fig. 1 Number of Internet Users on the Chinese Mainland and Penetration Rate of the Internet**

The outbreak of the US financial crisis in 2008 had little impact on Internet development in China, where the first half of 2009 saw the steady increase in the number of Internet users. The fast growth of the number of Internet users is attributable to the following factors:

Firstly, guided by a series of state policies like the *National Strategy for Information Development from 2006 to 2020* and *"Eleventh Five-Year Plan" for Informatization of National Economy and Social Development*, governments and relevant institutions in all areas input a large amount of money and manpower in the construction of network infrastructure and the establishment of information service platforms to meet people's needs for Internet access. The number of Internet users and level of Internet application is not only an indicator for local Internet development, but a sign of integration of informatization with industrialization.

Secondly, with progress in industrial technology, recombination of network operators and the intensification of competition, the software and hardware environment of Internet access is optimized constantly. The Penetration of 3G technology facilitates the use of mobile phone as network terminal. Meanwhile, the constant decrease in the prices of Internet access and users' terminal products, as well as the continuous improvement in product performance and user experience constantly lower the threshold of Internet access.

Lastly, the public accesses the Internet actively. With social and economic development, people's living standards have been improving continuously. After material needs are satisfied to some extent, social communication and information acquisition have been critical to spiritual life. Modern interpersonal communication is more indirect, and the Internet, as a media and communication means, fills the gap in people's information and social communication in daily life. Additionally, a large number of migrant workers returned home amid the financial crisis, whose understanding of and familiarity with the Internet was extended to the people around them, and the multiplier effect of interpersonal messaging also raised rural people' awareness and behavior of accessing the Internet.

Now, the number of Chinese Internet users is rising continuously, but compared with the countries developed in the Internet, China is still low in Internet Penetration and has not taken full advantage of network informatization. However, with the fast growth of the national economic entity and the constant improvement in network infrastructure, the Penetration rate of the Internet will pick up.

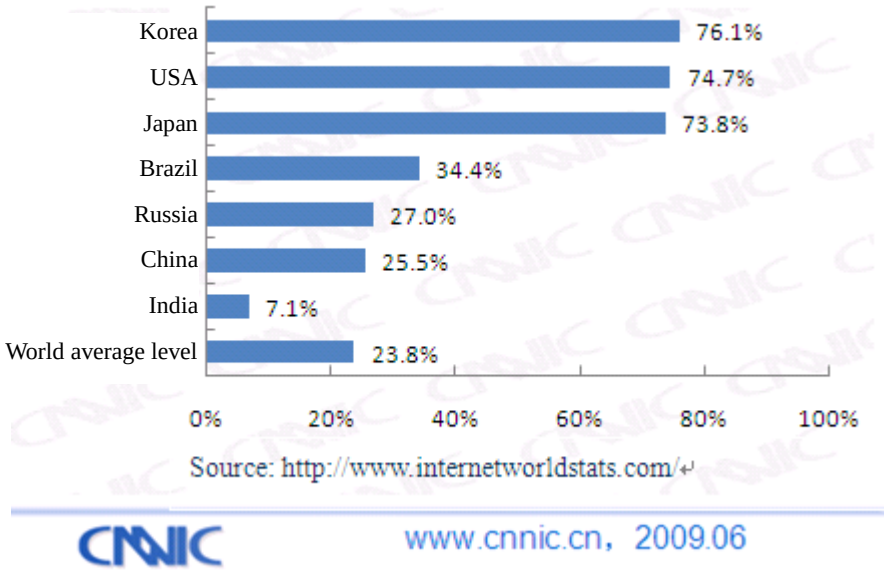



**Fig. 2 Internet Penetration in Some Countries**

## (II) Number of Broadband Users

The number of broadband users increased continuously, by June 2009, 320 million users had

accessed the Internet by broadband, accounting for 94.3% of all users and up 3.7% from late 2008.

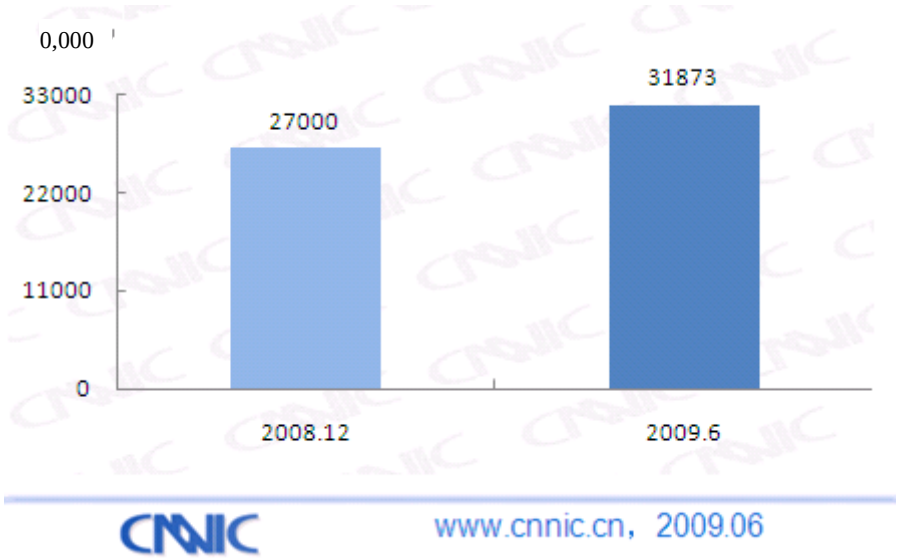



**Fig. 3 Comparison in Number of Broadband Users on the Chinese Mainland**

According to the statistical results, the Penetration rate of broadband in China has been very high. However, we must be clearly aware that the broadband users mentioned here are only those accessing the Internet by broadband instead of being defined and differentiated by network transmission speed.

According to the statistics of the Organization for Economic Cooperation and Development (OECD), by October 2007, the average network downstream speed of OECD's major countries was 17.4 Mbps, and the downstream speed of Japan as the country most developed in broadband had even exceeded 90 Mbps, while the majority of China's Internet access predominated by ADSL has a downstream speed of no more than 4 Mbps. Meanwhile, because of broadband share, the speed will be even lower in peak hours.

Thus, it can be seen that China is still far behind the countries developed in the Internet in the speed of broadband access. We need to further intensify the construction of Internet infrastructure and constantly increase Internet connection speed to advance the high-speed development of China's Internet.

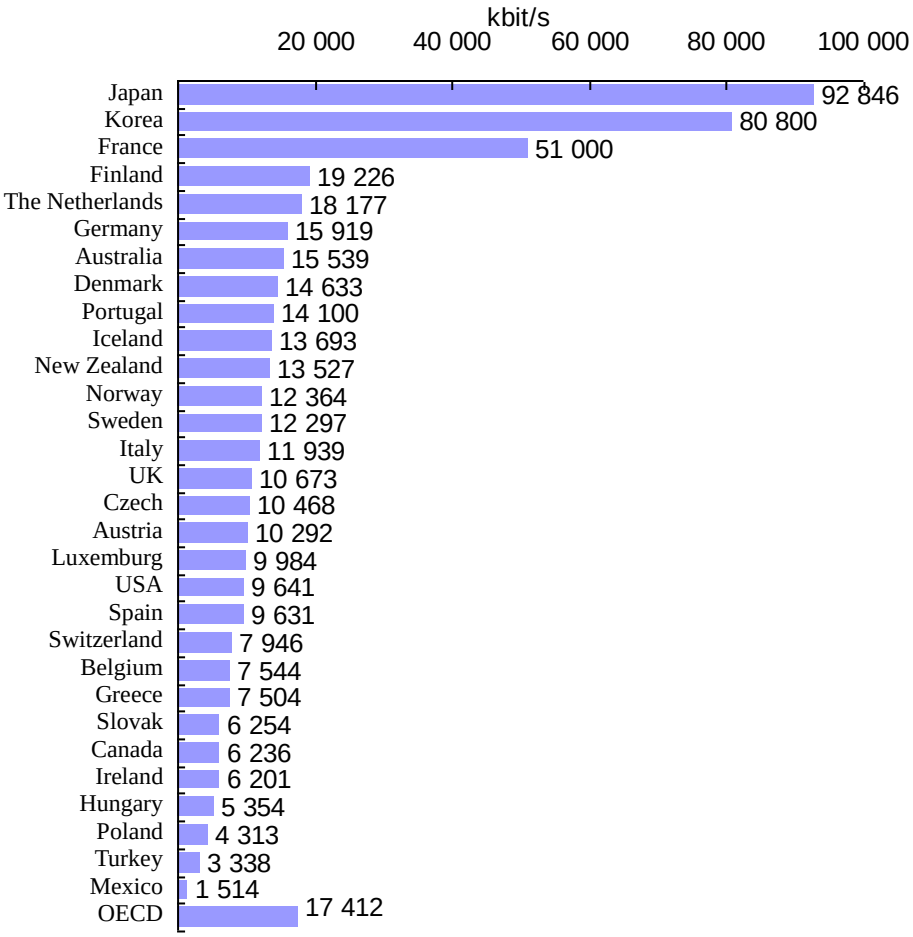



**Fig. 4 Network Downstream Broadband of OECD's Major Countries (kbit/s)**

# (III) Number of Mobile Internet Users

By June 2009, the number of mobile Internet users had jumped to 155 million, up 32.1% within six months, showing a momentum of fast growth.

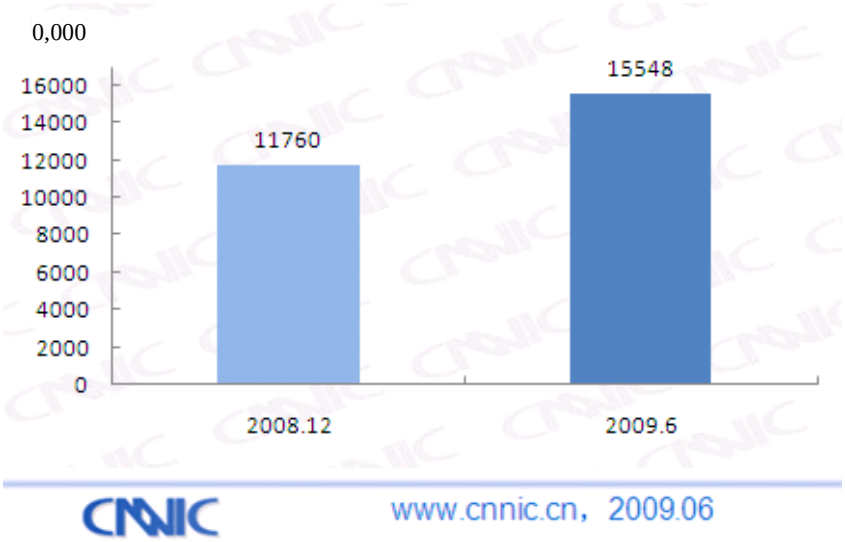



**Fig. 5 Comparison in Number of Mobile Internet Users**

The fast growth of the number of mobile Internet users is ascribable to the following respects:

I. Concerted efforts of the government and operators. The State Council adopted the resolution to launch the work of issuing 3G licenses on January 1, 2009, which offered operators larger development space and strengthened the concept of mobile Internet. Afterwards, China Mobile reduced the tariffs on GPRS data throughput; China Telecom lowered the fee for the wireless access package; China Unicom introduced diversified GPRS packages, etc. Major operators successively took actions to attract and increase users to promote market development.

II. Integration of Internet access and fashion concept. With the Penetration of mobile phone with the function of Internet access and the facilitation of mobile access platforms, mobile phone is not only the most portable tool for Internet access, but a symbol of fashion, trend and popular culture. The fashion of mobile access attracts young users, thus boosting the number of mobile Internet users

III. Enrichment of Internet content and applications. The amount and quality of mobile access increase gradually, with mobile blog, mobile video and mobile TV growing rapidly to offer users richer choices and to promote the expansion of mobile Internet users.

# II. Structural Characteristics of Internet Users

## (I) Sex Structure

By June 2009, the proportion of male users to female users in China had been 53:47, relatively stable compared with late 2008.

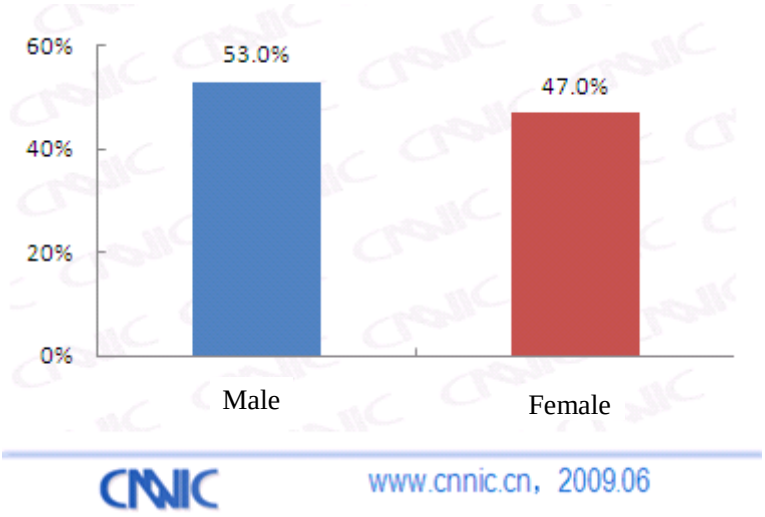



**Fig. 6 Comparison in Sex Structure of Internet Users**

In the first half of 2009, the proportion of Chinese rural female users rose slightly by 1.6%,

showing the progressive convergence of rural Internet development to urbanization and more Internet access by rural women.

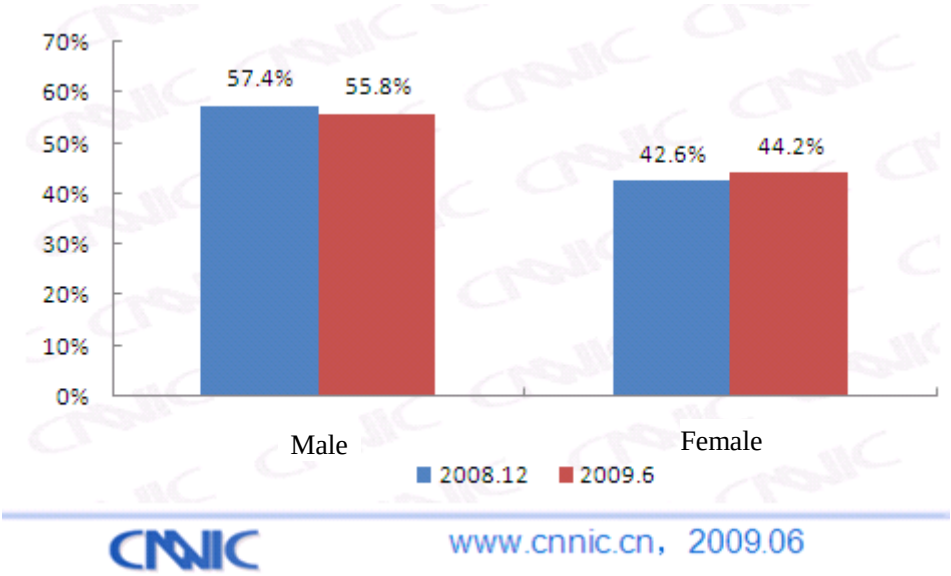



**Fig. 7 Comparison in Sex Structure of Rural Internet Users**

## (II) Age Structure

The age structure of Chinese Internet users was optimized constantly, showing a trend of maturity. Compared with late 2008, the proportion of users aged 30 to 39 increased significantly within six months from 17.6% to 20.7%. Additionally, the proportion of users aged 40 or above showed a trend of increase and the proportion of young group aged 10 to 29 dropped remarkably.

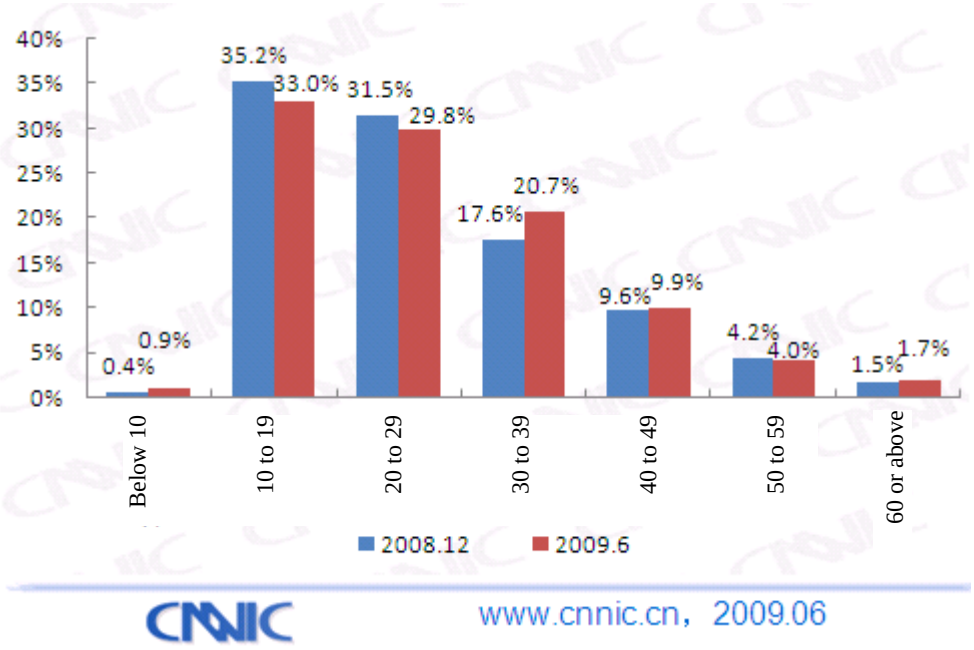



**Fig. 8 Comparison in Age Structure of Internet Users**

The number of Chinese teenage users was 175 million, up 5% within six months and accounting for 51.8% of all Internet users.

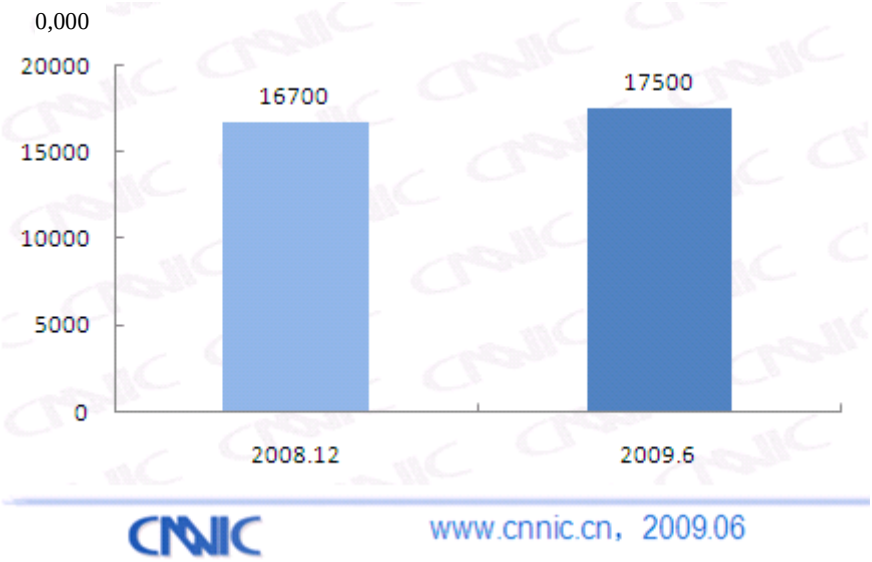



**Fig. 9 Comparison in Number of Teenage Users on the Chinese Mainland**

## (III) Education Structure

Compared with late 2008, Internet users are still tilting gradually to low education, with the number of those with the education of primary school or below and senor high school increasing slightly.

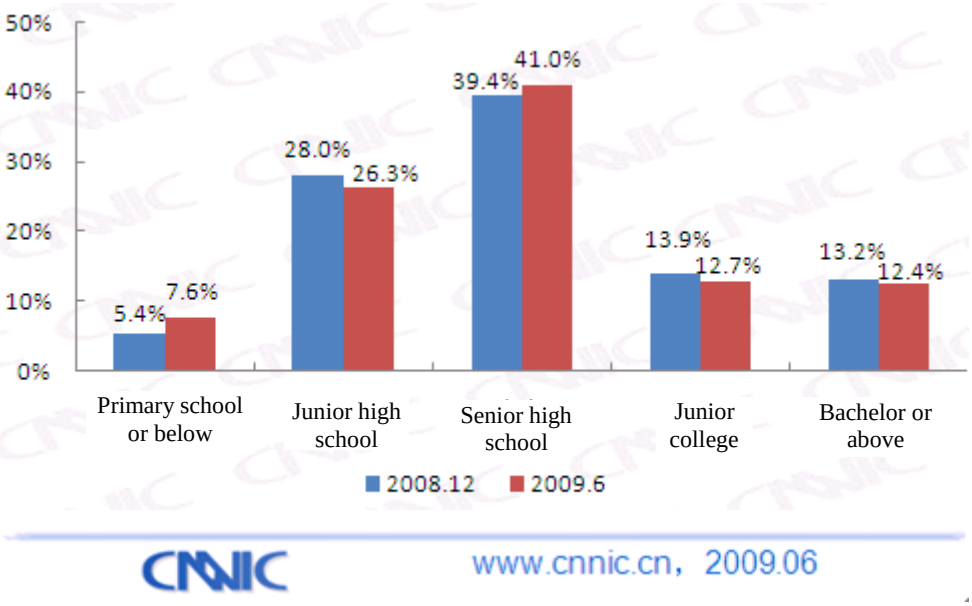



**Fig. 10 Comparison in Education Structure of Internet Users**

## (IV) Occupation Structure

Now, the largest group of Internet users is still students, accounting for 31.7% of all Internet users. Compared with late 2008, the proportion of laid-off workers rose 2.1%, showing that Internet access was increased in the group and online information could be transmitted to the lower class.

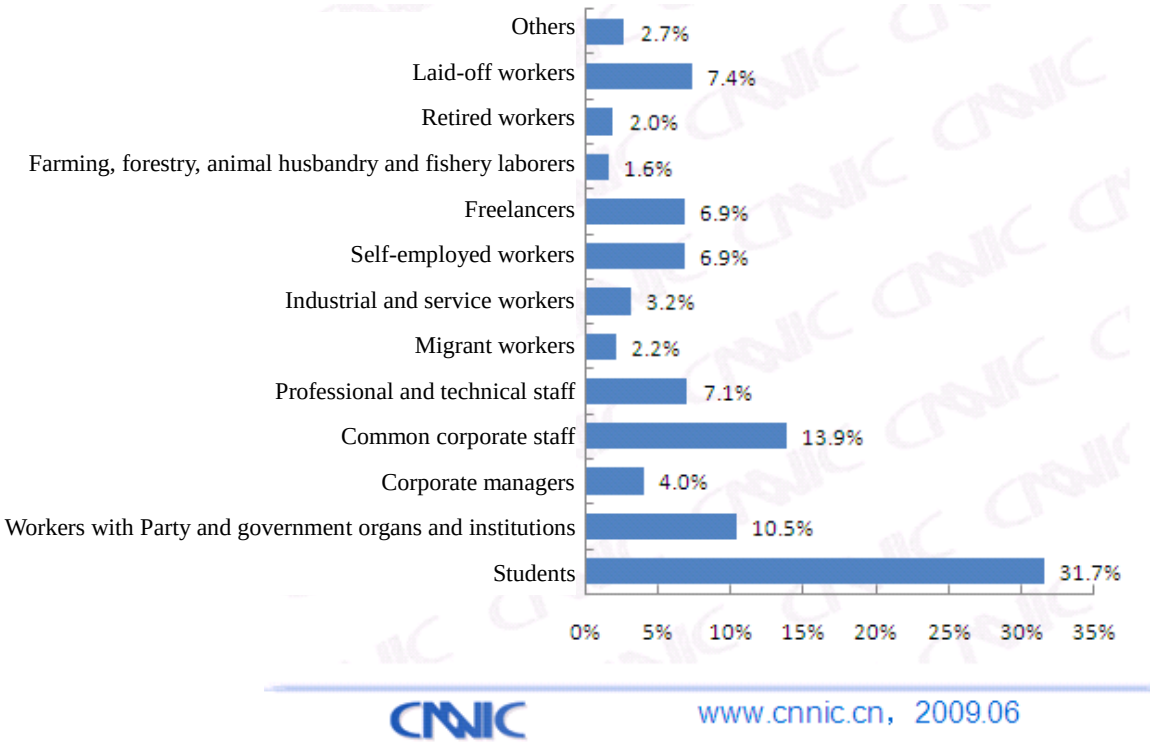



**Fig. 11 Occupation Structure of Internet Users**

## (V) Income Structure

As the largest group of Internet users is students, the proportion of low-income users is high. However, compared with late 2008, the proportion of medium & high-income users increased, with the proportion of those with a monthly income of over RMB 1,500 rising from 40.3% to 41.8%.

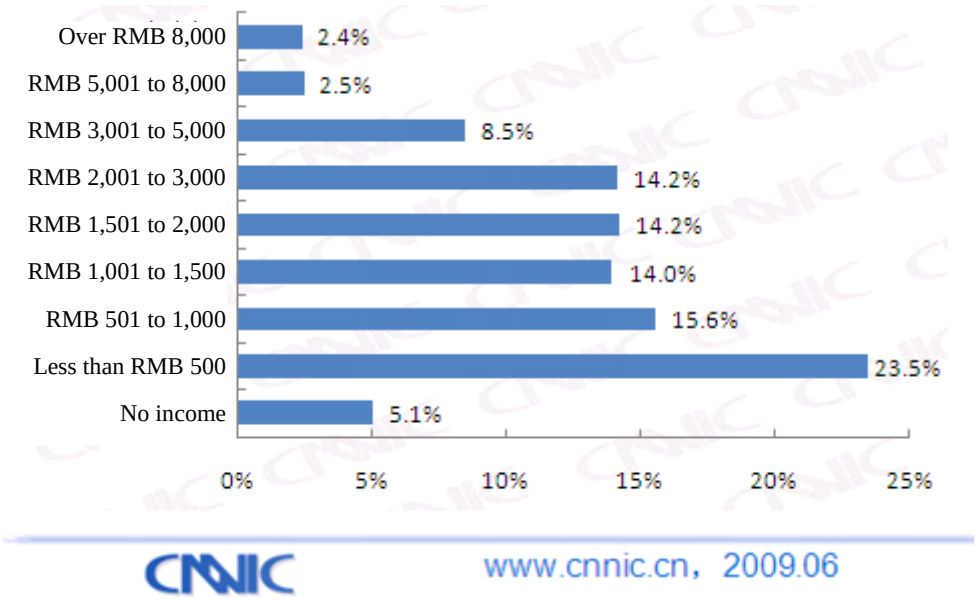



**Fig. 12 Income Structure of Internet Users**

## (VI) Urban and Rural Structure

By June 2009, the proportion of Chinese urban Internet users had been consistent with that in late 2008, with the proportion of rural users increasing slightly. Now, the number of rural users has reached 95.65 million and is increasing progressively, but the penetration of the Internet into the rural areas slowed down a bit compared with 2008.

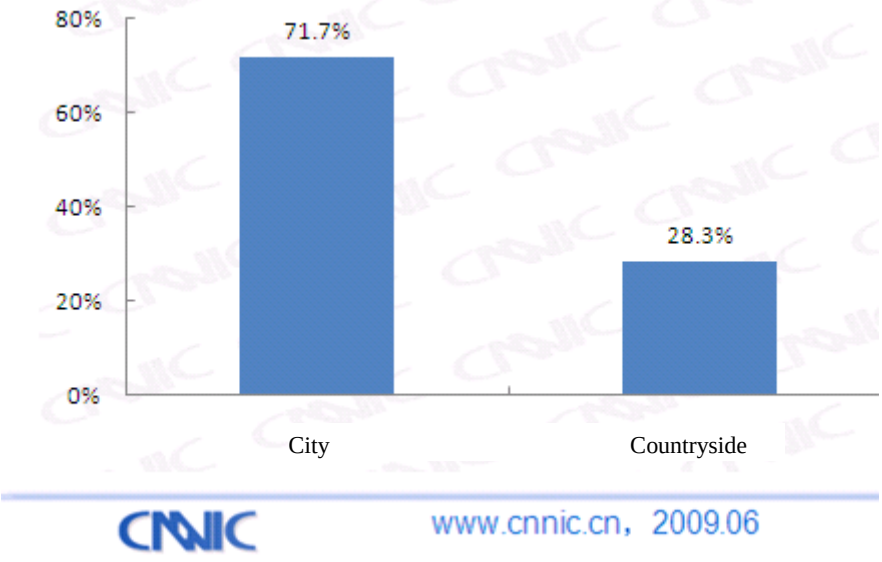



**Fig. 13 Comparison in Urban and Rural Structure of Internet Users**

By late June 2009, the number of Chinese rural Internet users had increased by 11.05 million to 95.65 million, up 13.1% from late 2008.

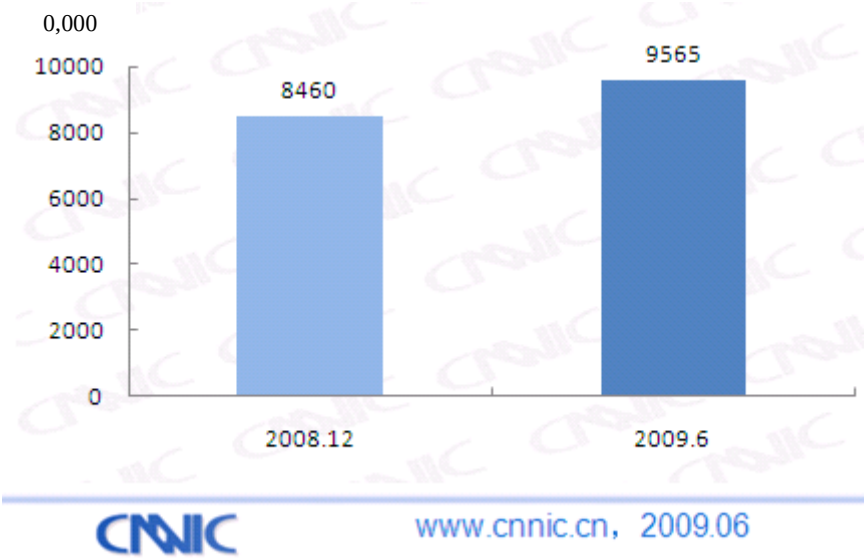



**Fig. 14 Comparison in Number of Rural Internet Users on the Chinese Mainland**

# Chapter III Basic Internet Resources

## I. Overview of Basic Resources

Within six months from late 2008 to June 2009, the number of Chinese IPv4 addresses increased by 23.75 million to 205 million.

By June 2009, the total number of Chinese domain names had reached 16.26 million, including 12.96 million CN domain names. Both the number of domain names and that of CN domain names dropped slightly compared with late 2008.

The number of Chinese websites was 3.061 million, of which CN websites accounted for 78.7%.

China's international outlet bandwidth was 747,541.4Mbps, up 16.8% within six months.

Table 1 Comparison in Basic Internet Resources of the Chinese Mainland from December 2008 to June 2009

| | Dec. 2008 | Jun. 2009 | Six-month Growth | Six-month Growth Rate |
|---|---|---|---|---|
| IPv4 | 181,273,344 | 205,031,168 | 23,757,824 | 13.1% |
| Domain name | 16,826,198 | 16,259,562 | -566,636 | -3.4% |
| CN domain name | 13,572,326 | 12,963,685 | -608,641 | -4.5% |
| Website | 2,878,000 | 3,061,109 | 183,109 | 6.4% |
| CN website | 2,216,400 | 2,410,546 | 194,146 | 8.8% |
| International outlet bandwidth (Mbps) | 640,286.67 | 747,541.40 | 107,255 | 16.8% |

## II. IP Address

IP addresses fall into two categories: IPv4 and IPv6, with the former as the mainstream. By June 2009, the number of Chinese IPv4 addresses hand reached 205,031,168, up 13.1% from late 2008.

According to the growth trend in the first half of the year, the growth rate of IPv4 resources slipped continuously. The scarcity of IPv4 resources will worsen the situation.

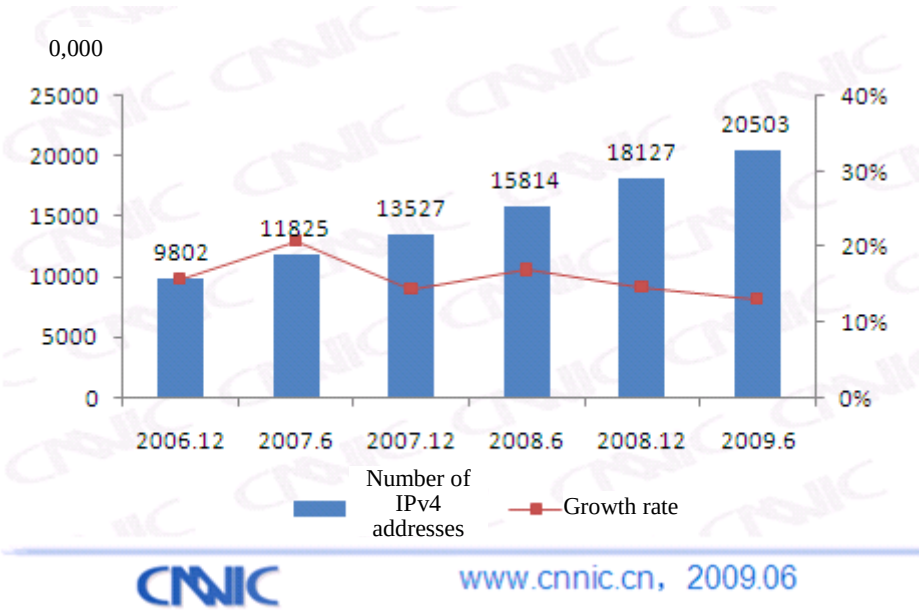



**Fig. 15 Change in IPv4 Address Resources of the Chinese Mainland from 2006 to June 2009**

# III. Domain Name

By June 2009, the total number of Chinese domain names had reached 16.26 million, nearly 80% of which was CN domain names.

Table 2 Number of Classified Domain Names of the Chinese Mainland

| | Number | Proportion to Total Number of CN Domain Names |
|---|---|---|
| CN | 12,963,685 | 79.7% |
| COM | 2,811,383 | 17.3% |
| NET | 398,801 | 2.5% |
| ORG | 85,693 | 0.5% |
| Total | 16,259,562 | 100% |

Among the existing CN domain names, the proportion of second-level domain names is still highest, accounting for 66.8% of all CN domain names, followed by .COM and .CN domain names with a proportion of 25%.

Table 3 Number of Classified CN Domain Names of the Chinese Mainland

| | Number | Proportion to Total Number of CN Domain Names |
|---|---|---|
| .cn | 8,659,698 | 66.8% |
| .com.cn | 3,241,876 | 25.0% |
| .net.cn | 456,343 | 3.5% |

| | | |
|---|---|---|
| .adm.cn[2] | 201,164 | 1.6% |
| .org.cn | 333,022 | 2.6% |
| .gov.cn | 52,477 | 0.4% |
| .ac.cn | 15,577 | 0.1% |
| .edu.cn | 3,520 | 0.0% |
| .mil.cn | 8 | 0.0% |
| Total | 12,963,685 | 100.0% |

# IV. Website

By June 2009, the number of Chinese websites, namely the number of websites of domain name registrants within the territory of China (including those accessing the Internet from home and abroad) had reached 3.06 million, up 6.4% from late 2008.

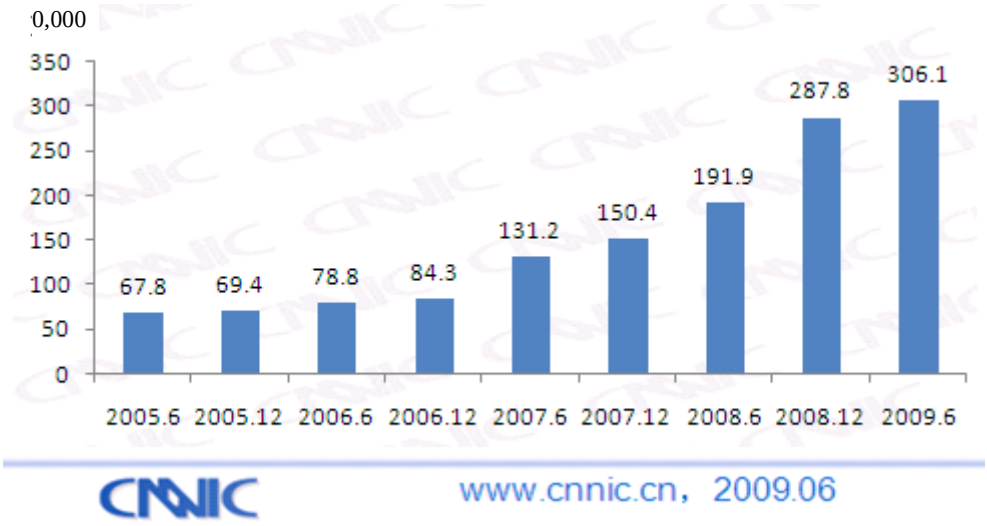



**Fig. 16 Change in the Number of Websites on the Chinese Mainland from June 2005 to June 2009**

Note: The data exclude the number of .EDU.CN websites

# V. International Outlet Bandwidth

By June 2009, China's international outlet bandwidth had reached 747,541Mbps, up 16.8% from late 2008.

[2] .adm.cn refers to the domain names of Chinese administrative regions, such as bj.cn and sh.cn.

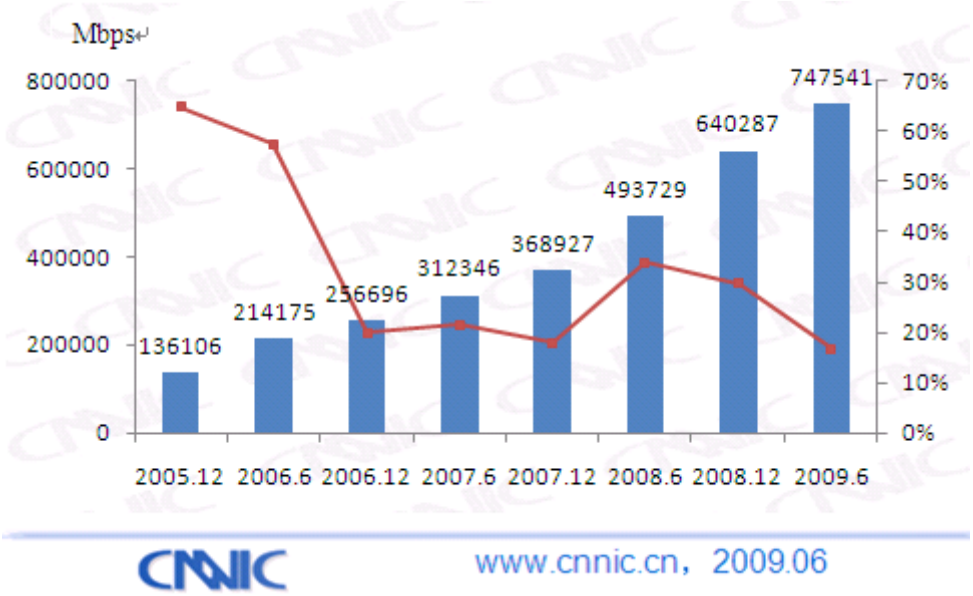



**Fig. 17 Change in International Outlet Bandwidth of the Chinese Mainland from December 2005 to June 2009**

Table 4 International Outlet Bandwidth of Major Backbone Networks on the Chinese Mainland

| | International Outlet Bandwidth (Mbps) |
|---|---|
| China Telecom | 416,778.9 |
| China Unicom | 295,136.5 |
| CSTNet | 10,477 |
| CERNet | 9,932 |
| China Mobile Internet | 15,215 |
| CIETNet | 2 |
| Total | 747,541.4 |

# Chapter IV Internet Access

## I. Access Places

Now, 80.2% of Internet users surf the Internet at home, and family is still the primary place for Internet access. The number of Internet users surfing the Internet at net cafe fell by 7% compared late 2008, and that of Internet users surfing the Internet at company rose by 5%.

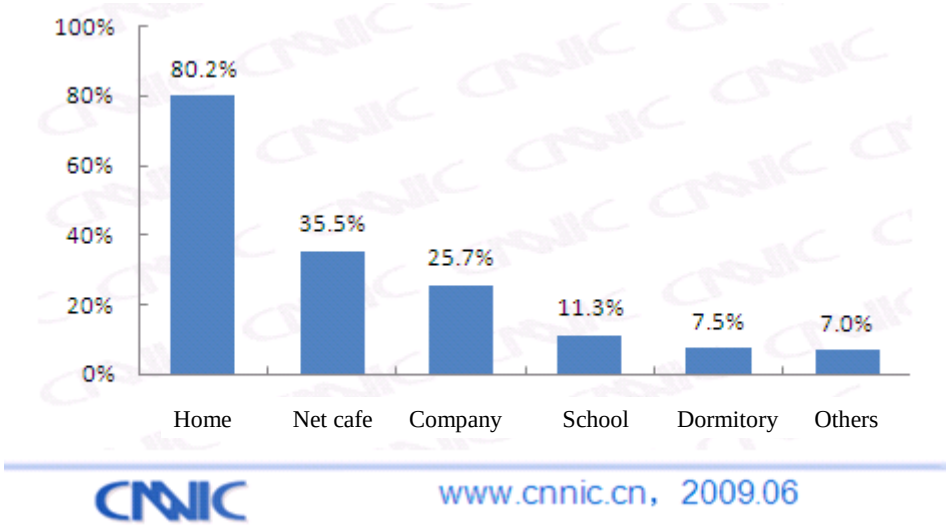



**Fig. 18 Access Places**

## II. Access Equipment

The proportion of accessing the Internet by mobile increased enormously from 39.5% in late 2008 to 46% in June 2009, while the proportion of using desktops and laptops decreased.

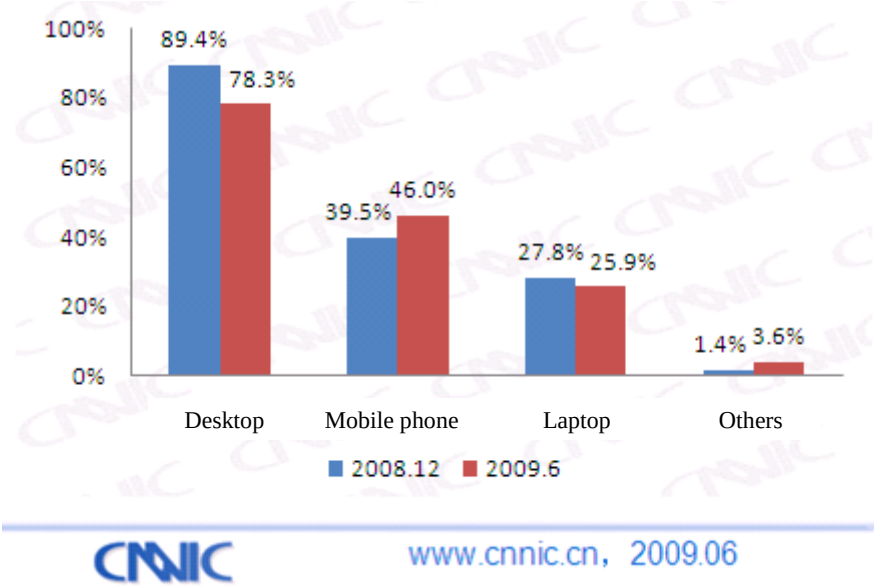



**Fig. 19 Access Equipment**

# III. Access Modes

The survey showed that the Penetration rate of broadband access was still climbing, now 94.3% of Chinese Internet users have accessed the Internet by broadband, and the proportion of narrowband use is 40.8%. The narrowband mentioned here includes traditional narrowband and wireless narrowband, due to the rapid shrinkage of the proportion of traditional narrowband, the use rate of narrowband remains low on the whole in spite of the increase in the proportion of wireless narrowband use.

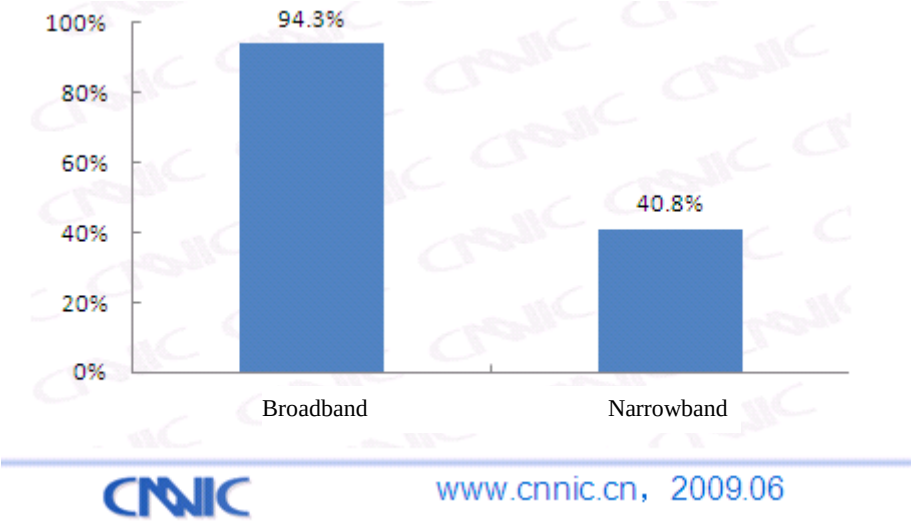



**Fig. 20 Penetration Rate of Broadband and Narrowband**

# IV. Online Time

Internet users surfing the Internet frequently, and 39.5% are online six to seven days a week. Meanwhile, Internet users' online line increased significantly by 1.4 hours a week per capita compared with late 2008.

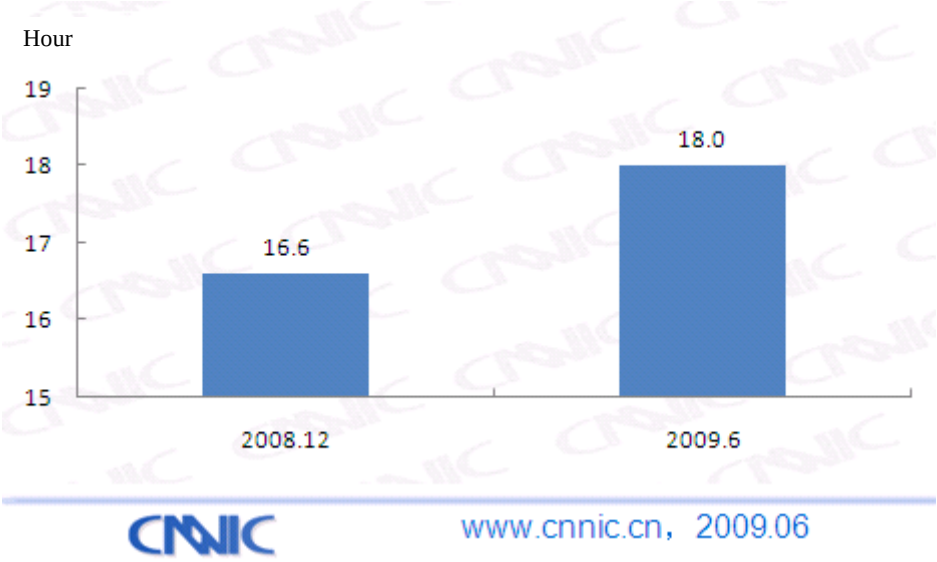



**Fig. 21 Comparison in Average Weekly Online Time**

# Chapter V Internet Applications

## I. Major Internet Applications

According to the purposes of Internet users, Internet applications may fall into four categories: information acquisition, communication, Internet entertainment and business transaction, basically covering specific applications like Internet news, search engine, instant messaging, online game, online music, online shopping, online payment and online banking.

On the whole, the proportion of Chinese Internet users accessing the Internet for entertainment, information and communication purposes was high. Except for forum/BBS, the Penetration rate of the three Internet applications in Internet users was all over 50%. The level of application of business transaction remained low, and the Penetration rate of online shopping was 26%.

**Table 5 Rankings and Categories of Internet Applications**

| Rank | Application | Use Rate | Category |
|---|---|---|---|
| 1 | Online music | 85.5% | Internet entertainment |
| 2 | Internet news | 78.7% | Information acquisition |
| 3 | Instant messaging | 72.2% | Communication |
| 4 | Search engine | 69.4% | Information acquisition |
| 5 | Online video | 65.8% | Internet entertainment |
| 6 | Online game | 64.2% | Internet entertainment |
| 7 | E-mail | 55.4% | Communication |
| 8 | Blog | 53.8% | Communication |
| 9 | Forum/BBS | 30.4% | Communication |
| 10 | Online shopping | 26.0% | Business transaction |
| 11 | Online payment | 22.4% | Business transaction |
| 12 | Online stock | 10.4% | Business transaction |
| 13 | Travel reservation | 4.1% | Business transaction |

### (I) Information Acquisition

1. Search Engine

By June 2009, 69.4% of Internet users had used search engines, up 1.4% from late 2008. Now, search engine has become a major information entry for Internet users and has a profound impact on their Internet life and real life.

Table 6 Comparison in Users of Search Engines from December 2008 to June 2009

| | Late 2008 | | Middle 2009 | | Change within 6 Months | |
|---|---|---|---|---|---|---|
| | Use Rate | Number of Internet Users (0,000) | Use Rate | Number of Internet Users (0,000) | Growth (0,000) | Growth Rate |
| Search engine | 68.0% | 20,300 | 69.4% | 23,457 | 3,157 | 15.6% |

2. Internet News

Now, the use rate of Internet news remains steady at 78.7%, up slightly from late 2008. Because the instantaneity and convenience of the Internet, Internet news has always been one of the most frequent Internet applications of Internet users, whose depth and speed of dissemination are both ahead of traditional media. Particularly following major news events like the Beijing 2008 Olympic Games and Wenchuan earthquake, the Internet has become one of the most convenient media means to keep up to date with news events. In early July 2009, *New York Times* announced that it would accredit the Internet media in partnership to first publish its news content on the Internet, including news and photos. The trend will strengthen Internet media's speed, depth and authority of information dissemination in the future. Meanwhile, user generated content (UGC) and interaction-generated relation communication will become the new features of development of Internet media to jointly boost the fast growth of Internet media.

Table 7 Comparison in Users of Internet News from December 2008 to June 2009

| | Late 2008 | | Middle 2009 | | Change within 6 Months | |
|---|---|---|---|---|---|---|
| | Use Rate | Number of Internet Users (0,000) | Use Rate | Number of Internet Users (0,000) | Growth (0,000) | Growth Rate |
| Internet news | 78.5% | 23,400 | 78.7% | 26,601 | 3,201 | 13.7% |

## (II) Communication

1. E-mail

By June 2009, the use rate of e-mail had reached 55.4%, down 1.4% from late 2008. Generally speaking, the higher Internet users' education is, the higher the use rate of e-mail is, with the ceaseless influx of people with low education, the use rate of e-mail will decline slightly in the short term. However, with the further Penetration of the Internet and the growth of Internet users, more and more people will use e-mail as a means of work and life, the use rate of e-mail will ascend in the long run.

2. Instant Messaging

The number of instant messaging users increased by 20.04 million within six months, but the use rate tumbled again by 3.1% after a drop in late 2008.

Table 8 Comparison in Users of Internet Communication from December 2008 to June 2009

| | Late 2008 | | Middle 2009 | | Change within 6 Months | |
|---|---|---|---|---|---|---|
| | Use Rate | Number of Internet Users (0,000) | Use Rate | Number of Internet Users (0,000) | Growth (0,000) | Growth Rate |
| E-mail | 56.8% | 16,900 | 55.4% | 18,725 | 1,825 | 10.8% |
| Instant messaging | 75.3% | 22,400 | 72.2% | 24,404 | 2,004 | 8.9% |

3. Blog and Forum

By late June 2009, the number of Chinese Internet users with personal blogs/spaces had hit 182 million. The number of users increased net by 19.84 million, and the use rate was steady at 53.8%, after long-term fast growth, down 0.5% from late 2008. The proportion of users updating blogs within six months increased to 35.3% from 35.2% in late 2008, and the number of active blogs is further rising.

With the increase in recognition and Penetration of blogs, blog application has tended to stability. Additionally, a considerable number of grass-roots blogs transferred from professional blog operators to more interactive SNS (Social Networking Services) sites, which benefited blog update and growth.

Table 9 Comparison in Users of Internet Communities from December 2008 to June 2009

| | Late 2008 | | Middle 2009 | | Change within 6 Months | |
|---|---|---|---|---|---|---|
| | Use Rate | Number of Internet Users (0,000) | Use Rate | Number of Internet Users (0,000) | Growth (0,000) | Growth Rate |
| Blog ownership | 54.3% | 16,200 | 53.8% | 18,184 | 1,984 | 12.2% |
| Blog update | 35.2% | 10,500 | 35.3% | 11,931 | 1,431 | 13.6% |
| Forum/BBS | 30.7% | 9,100 | 30.4% | 10,275 | 1,175 | 12.9% |

## (III) Internet Entertainment

1. Online Game

By June 2009, the use rate of online game services had only been 64.2%, up 1.4% from late 2008, and the number of players had increased by 30 million to 217 million. The proportion of primary and high school students playing online games increased to 73.8% from 69.7% in late 2008. The steady growth of online game players was ascribable to the fact that the use proportion of students and low-income Internet users is high due to the high viscosity and low threshold of online games on the one hand, and the fact that the current economic situation has brought about problems like unemployment and income reduction to compel people to lower their expectation of future income, thus reducing entertainment consumption. However, online game is exactly an entertainment application with low input and great experience at low cost, therefore it has become people's new interest, and the reasonable choice of entertainment forms boost the increase in the use rate of online games.

In the meantime, the growth rate of online game players was only 16% within six months, hitting the lowest since 2007. This is mainly due to the fact that China's online game industry has gradually become mature through over ten years of development, and means that the growth of online game players will slow down, besides, game product line and operation modes are improved progressively, therefore the competition in China's online game industry will be further intensified in the future.

Table 10 Comparison in Users of Internet Entertainment from December 2008 to June 2009

| | Late 2008 | | Middle 2009 | | Change within 6 Months | |
|---|---|---|---|---|---|---|
| | Use Rate | Number of Internet Users (0,000) | Use Rate | Number of Internet Users (0,000) | Growth (0,000) | Growth Rate |
| Online game | 62.8% | 18,700 | 64.2% | 21,699 | 3,000 | 16.0% |
| Online music | 83.7% | 24,900 | 85.5% | 28,899 | 3,999 | 16.1% |
| Online video | 67.7% | 20,200 | 65.8% | 22,240 | 2,040 | 10.1% |

2. Online Music

Online music has always been the top Internet application, and its use rate continued to climb with an increase of 1.8% in penetration rate and a growth rate of 16.1% in the number of users within six months.

3. Online Video

The number of online video users increased by 10% within six months, and the use rate shrank slightly by 1.9% with the number of users maintaining growth. This is probably related to the fluctuation in the development of the video industry since late 2008. The introduction of the system for the issuance of online video licenses marks that the State has posed new requirements for the development of new video media and possibly bring a new change to the layout of the online video industry. The supervisory department has begun to focus on the construction of the regularized market, and the content system of vide websites is being regularized progressively, after a round of shuffle, the market concentration of vide websites was further increased, and withdrawal of some video websites also led to the loss of some users.

## (IV) Business Transaction

1. Online Shopping

The number of online shoppers rose against the economic crisis by nearly 14 million from 74 million to 87.88 million, more and more Internet users were used to transparent and convenient online shopping. Now, one out of four Chinese Internet users shops online, while two out of three Internet users in countries with high Internet Penetration like Europe, America and Korea are online shoppers. China's potential of online shopping is yet to be released. Additionally, the government has attached great importance to e-commerce's stimulus to the economy, and has released a series of policies to regularize and guide e-commerce development; industry e-commerce also grew vigorously, with more e-commerce platforms emerging and more and more farsighted traditional enterprises setting out for e-commerce. Against the general background, e-commerce is expected to maintain fast growth in the coming years.

2. Travel Reservation

Online hotel/travel reservation is one of the major e-commerce applications, whose users are mainly high-end Internet users, probably due to the current economic situation, the scale dropped

slightly compared with late 2008. On the whole, the growth of online hotel/travel reservation is a general trend, and the scale will definitely increase with the upturn in the economy.

Table 11 Comparison in Users of Business Transactions from December 2008 to June 2009

| | Late 2008 | | Middle 2009 | | Change within 6 Months | |
|---|---|---|---|---|---|---|
| | Use Rate | Number of Internet Users (0,000) | Use Rate | Number of Internet Users (0,000) | Growth (0,000) | Growth Rate |
| Online shopping | 24.8% | 7,400 | 26.0% | 8,788 | 1,388 | 18.8% |
| Travel reservation | 5.6% | 1,700 | 4.1% | 1,386 | -314 | -18.5% |
| Online payment | 17.6% | 5,200 | 22.4% | 7,571 | 2,371 | 45.6% |
| Online stock | 11.4% | 3,400 | 10.4% | 3,515 | 115 | 3. 4% |

3. Online Payment

Online payment is a major indicator for the commercial applications of the Internet closely related to the life of numerous Internet users. The application of online payment grew fast by 23.71 million within six months.

4. Online Stock

The application rate of online stock continued to fall in the first half of 2009, but began to bottom out on the whole with a slight increase of 1.15 million in 2008.

# II. Survey on Hot Internet Applications

## (I) Network Security

Network security has become an issue attracting wide attention from all circles. According to the survey, 57.6% of Internet users were attacked by viruses or Trojan horses during surfing the Internet within six months

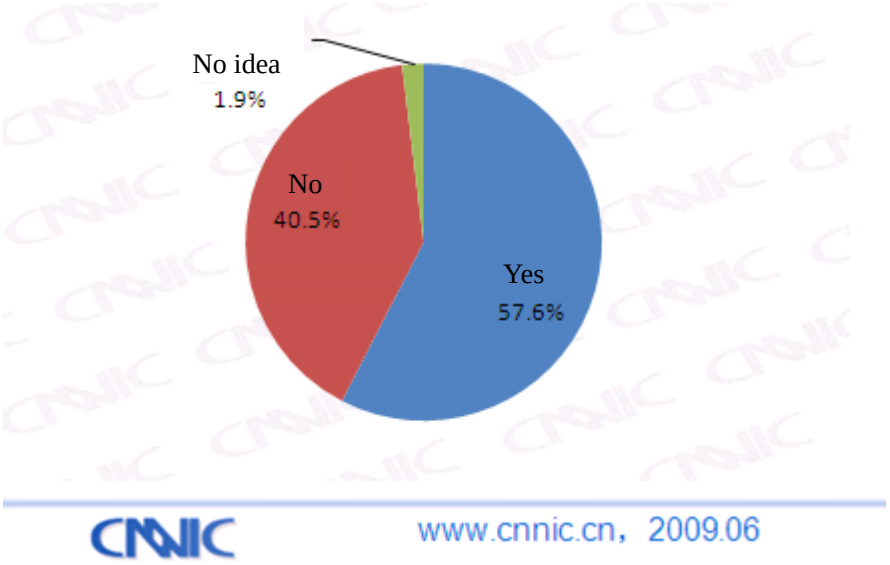



**Fig. 22 Virus or Trojan Horse Attack within Six Months**

Meanwhile, the accounts or passwords of 110 million Internet users were stolen over the past six months, accounting for 31.5% of all Internet users, network security is non-negligible, and potential safety hazards may restrict the development of transaction applications like e-commerce and online payment.

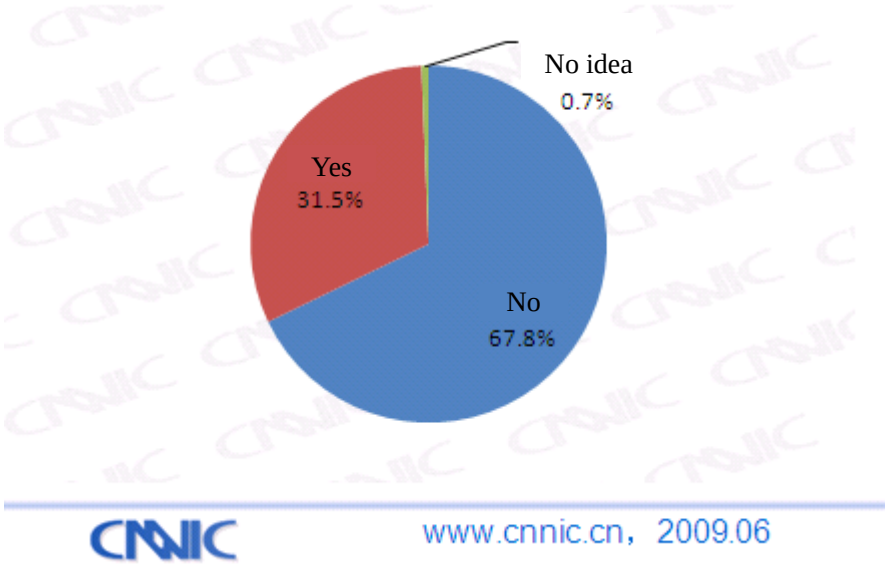



**Fig. 23 Account or Password Stealing within Six Months**

According to the survey, the proportion of Chinese Internet users using network security software is high, now 82.4% of Chinese Internet users have installed security software in the most frequently used computers. Besides, there is a high recognition of security software among Internet users, only 5.2% of whom have no idea of network security software.

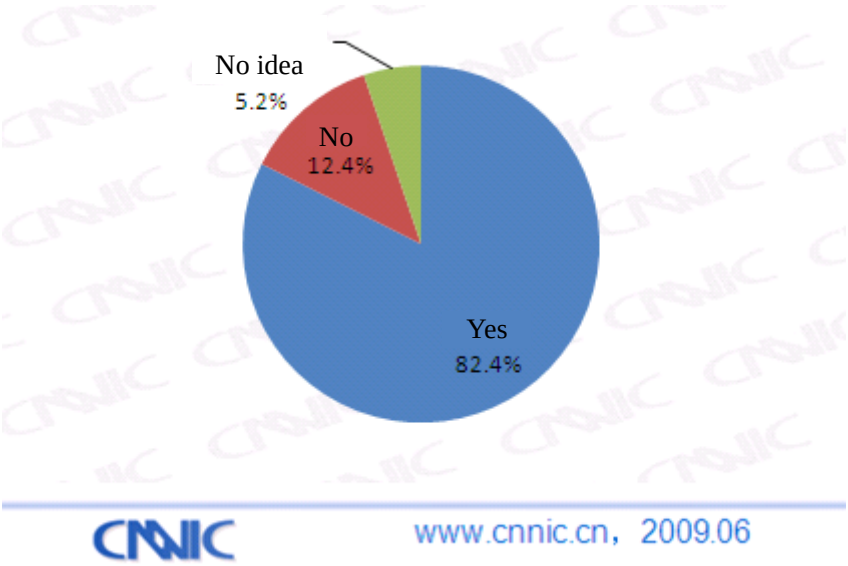



**Fig. 24 Facts on Installation of Security Software in Most Frequently Used Computers**

## (II) Internet Agricultural Information

45.29 million Internet users visited agricultural and rural websites within six months, accounting for 13.4% of all users. With the gradual increase in the level of rural informatization, agricultural industrialization network platforms were established, and the measures for assisting farmers in agricultural production and income increase through informatization were deepened constantly. However, the proportion of users of rural information websites is still very low, and the function of agriculture assistance and promotion by the Internet and other information means is yet to be explored.

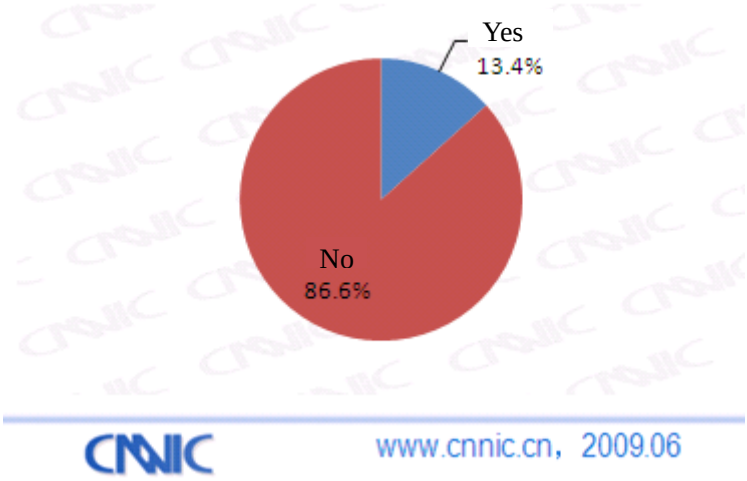



**Fig. 25 Visit to Agricultural and Rural Websites within Six Months**

Now, 14.8% of rural Internet users visited agricultural websites within six months, accounting for 31.3% of all users visiting agricultural websites; and the proportion of farming, forestry, animal husbandry and fishery laborers visiting rural or agricultural websites was 42.7%

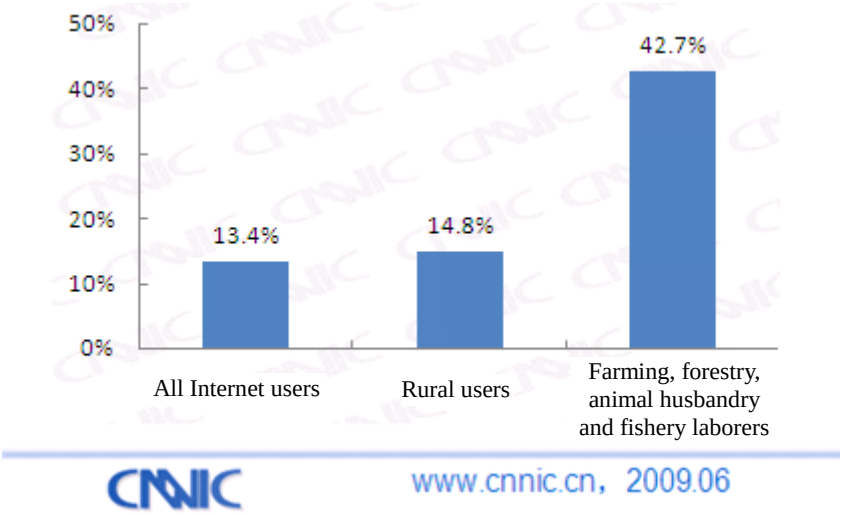



**Fig. 26 Proportion of Different Groups Visiting Agricultural Websites**

Among the Internet users visiting agricultural websites, CNNIC conducted a survey on three applications-search of information of agricultural materials, search of planting and breeding information and search of supply and demand information of farm products. According to the results of the survey, the proportion of the three applications was 41.6%, 40.4% and 39.6%.

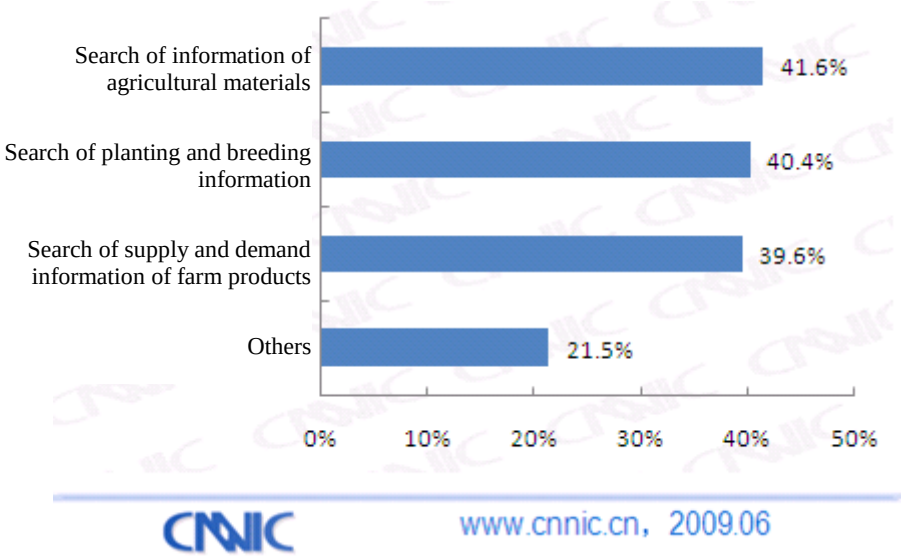



**Fig. 27 Concrete Applications of Agricultural and Rural Websites**

# Chapter VI Study of Mobile Access

## I. Number and Structural Characteristics of Mobile Internet Users

By late June 2009, the number of mobile Internet users had reached 155 million, accounting for 46% of all users, and the proportion of mobile Internet users increased by 6.5% within six months.

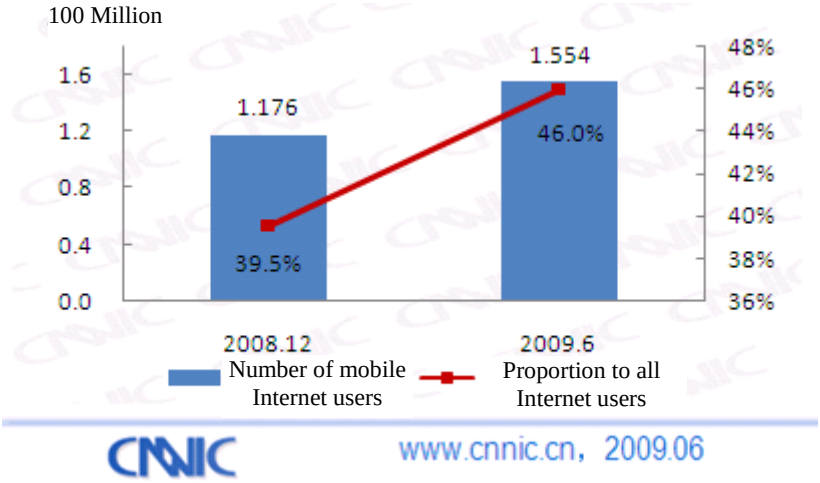



**Fig. 28 Proportion of Mobile Internet Users to All Internet Users**

### (II) Structural Characteristics of Mobile Internet Users

The ages of mobile Internet users are distributed in a skewed manner, and those aged 10 to 29 are more concentrated. Compared with overall Internet access, mobile access is more attractive to young groups, especially teenagers.

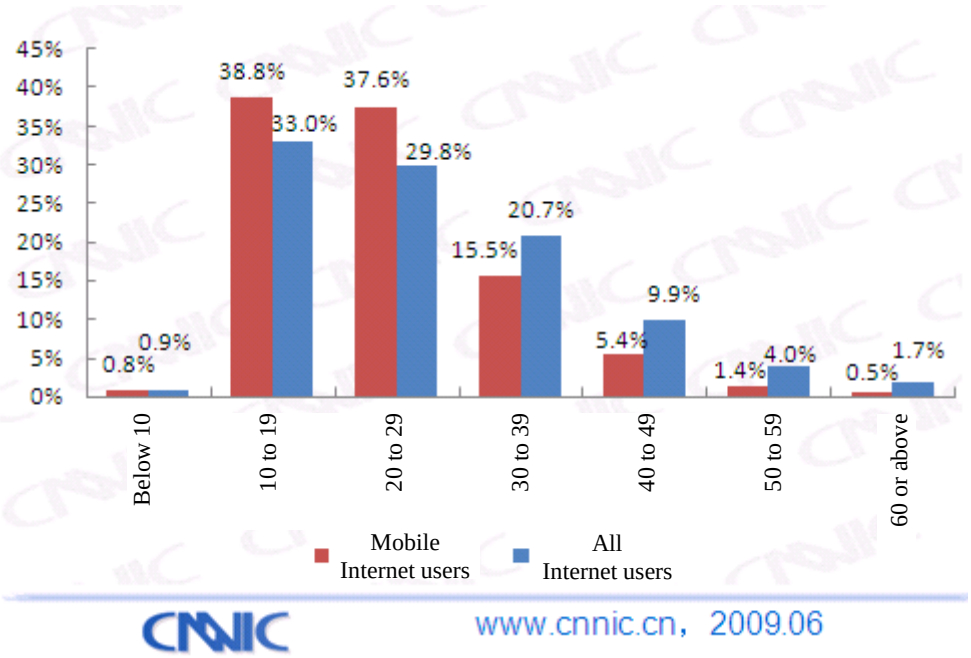



**Fig. 29 Comparison in Age Characteristics of Mobile Internet Users and All Users**

According to education comparison, the proportion of mobile Internet users with low education is larger, while the proportion of those with the education of junior high school and senior high school is 4.5% higher than the proportion of all Internet users in this age group.

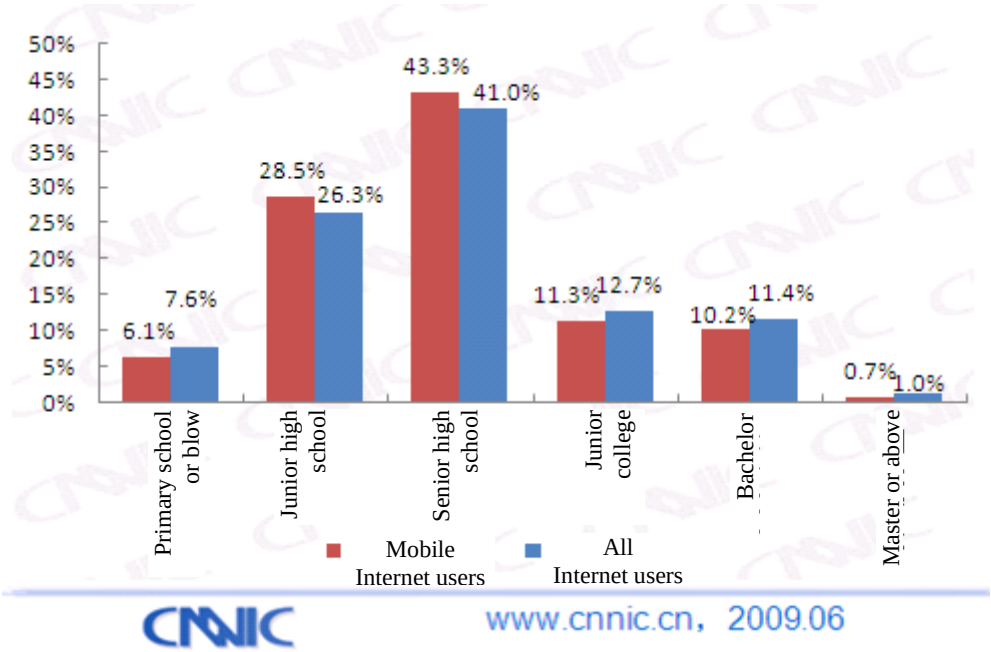



**Fig. 30 Comparison in Education Characteristic of Mobile Internet Users**

Compared with all Internet users, the proportion of low-income mobile Internet users is higher,

and the proportion of mobile Internet users with a monthly income of RMB 501 to 1,000 is 2.7% higher than that of all Internet users.

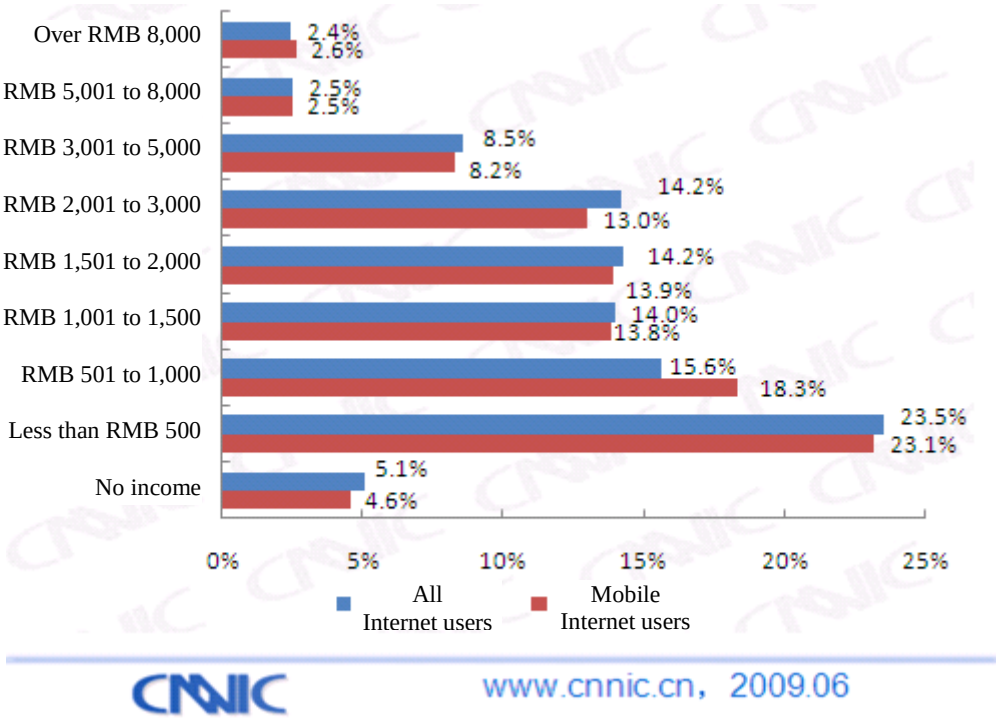



**Fig. 31 Income Characteristic of Mobile Internet Users and All Internet Users**

# II. Mobile Applications

Now, 71.5% of mobile Internet users use the function of mobile chat, which is most frequently used in mobile applications. The use rate of mobile search and that of online music listening/music downloading are 26.2% and 25.8%, which make up the second echelon of mobile applications, while the use proportion of online mobile game, mobile mail, community and blog is low.

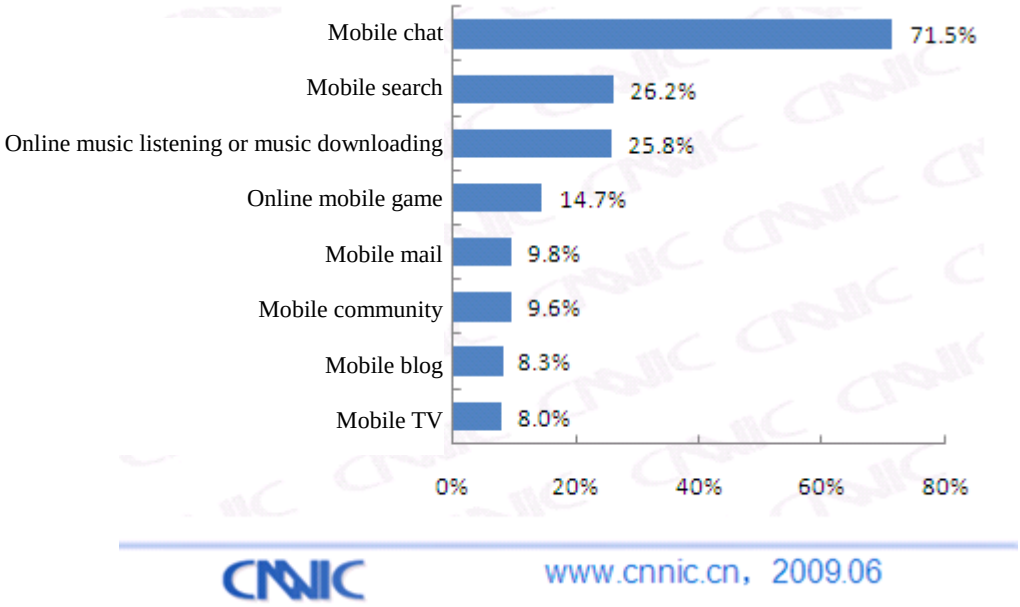



**Fig. 32 Mobile Applications**

# III. Expectation of 3G Market and Analysis of Influential Factor for Mobile Access

### 1. Expectation of 3G Mobile Access

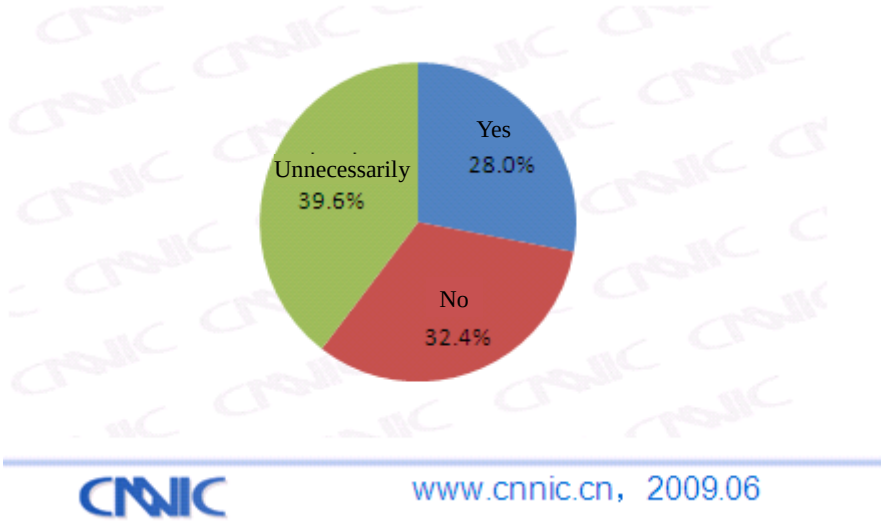



**Fig. 33 3G Mobile Access by Mobile Internet Users in the Coming Six Months**

According to the survey, 28% of the existing mobile Internet users said they would access the Internet by 3G mobile phone in the future; 32.4% said they would not consider 3G mobile access, and the remaining 39.6% were not certain about whether they would access the Internet by mobile

phone. Now, Internet users have little understanding of 3G mobile access, the capacity of the future 3G market is flexible, and operators' 3G product strategies and development of users' surfing habits are vital.

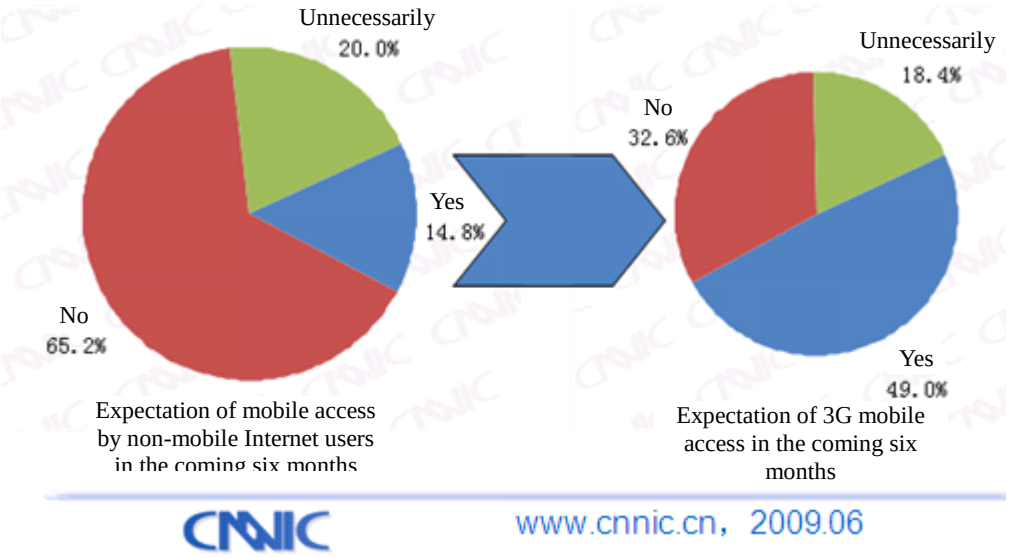



**Fig. 34 Expectation of Mobile Access by Non-Mobile Internet Users in the Coming Six Months**

However, 14.8% of the users that have not accessed the Internet by mobile phone said they would probably access the Internet by mobile phone in the coming six months, and 49% said they would use 3G mobile phone to access the Internet.

For the Internet users that will probably use 3G mobile phone, 65.7% will take mobile chat as the most likely mobile application, and the figure is less than the average (71.5%) of the existing mobile Internet users using mobile chat, while the desire for applications like music downloading is higher than the actual use rate currently.

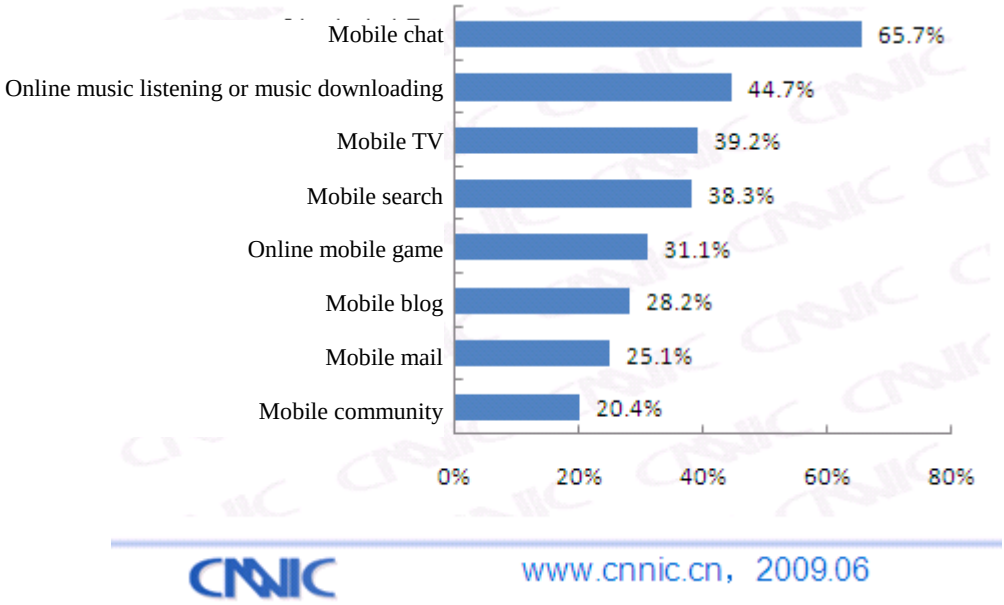



**Fig. 35 3G Mobile Applications in the Coming Six Months**

### 2. Influential Factors for Mobile Access Experience

Over 50% of mobile Internet users said “low access speed” is the most important influential factor for mobile access; 34.6% thought “access fee is too high”; while “large power consumption” is the third hindering factor for mobile access. Besides hardware factor (such as small screen) for mobile access, “undesirable content and application” is also a major influential factor for mobile access.

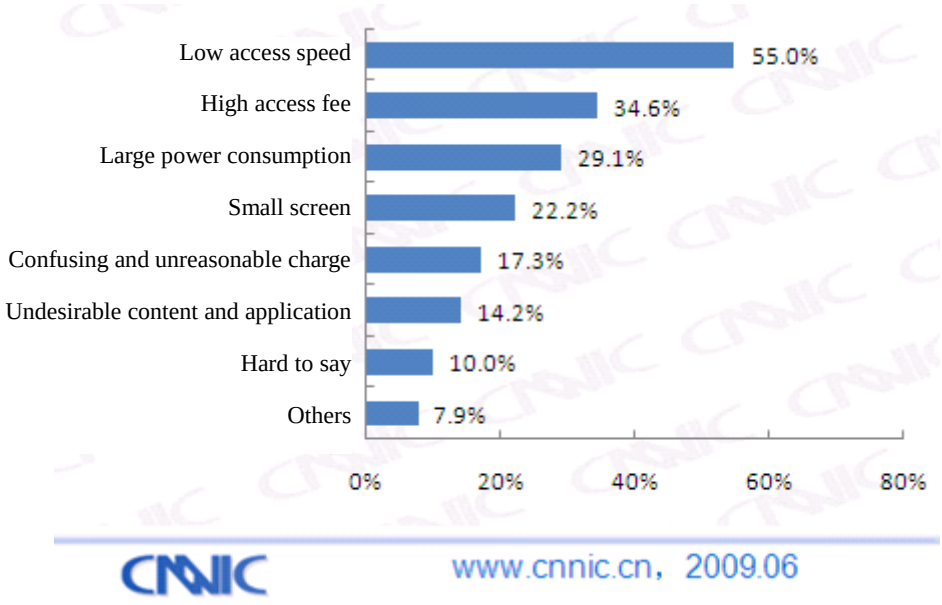



**Fig. 36 Influential Factor for Mobile Access**

### 3. Restraining Factor for Mobile Access

According to the survey to non-mobile Internet users, the main reason of 37.5% for not accessing

the Internet by mobile phone is "no idea of how to use", Internet users' little understanding of mobile access becomes the primary restraining factor for mobile access; "no need" is the second reason for not accessing the Internet by mobile phone; besides hardware barriers like "no mobile phone" and "mobile nonsupport", "no idea of mobile access" and "high fee" are also restraining factors for mobile access.

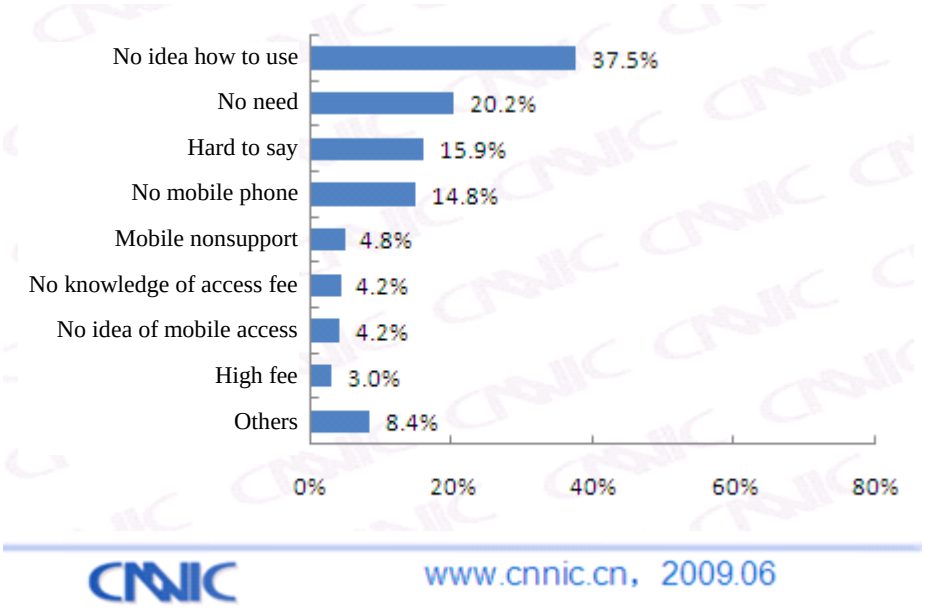



**Fig. 37 Most Influential Factors for Mobile Access**

# Chapter VII Study of Internet Lifestyles

## I. General Analysis

As an interactive medium, information channel and life platform, the impact of the Internet is on people's behavior is particularly worthy of study. According to the focuses of Internet study and the industry, we may divide Internet behavior and attitude into Internet trust, Internet interaction and Internet reliance, describe the general Internet lifestyles of Internet users from seven perspectives like information trust, transaction trust, social participation, Internet share and Internet addiction, and compare the difference in various lifestyles between groups at different ages and net ages.

**Table 12 Internet Users' Overall Recognition of Lifestyle Remarks**

| Category | Indicator | Test Item | Recognition |
|---|---|---|---|
| Internet trust | Information trust | The Internet is a major information channel of mine | 84.3% |
| | | I trust the information on the Internet more than television | 48.0% |
| | Transaction trust | I am willing to provide true data during online registration | 39.4% |
| | | I believe online transaction to be safe | 29.2% |
| Internet interaction | Social participation | I often express my opinions online | 56.1% |
| | | I have been more concerned about social events since I started surfing | 81.7% |
| | Interpersonal development | I get acquainted with a lot of new friends through the Internet | 66.5% |
| | | The Internet cements my relation with friends | 87.0% |
| | Internet share | I often share knowledge with others online | 78.5% |
| | | Whenever I see something good online, I will forward it | 76.0% |
| Internet reliance | Life aid | My life is inseparable from the Internet | 77.5% |
| | | The Internet saves me much time | 81.6% |
| | Social isolation | I feel lonelier in the era of Internet | 22.0% |
| | | The Internet reduces the time I spend with my family | 34.4% |
| | Internet addiction | I will feel sick once I can't access the Internet | 16.4% |
| | | I am more willing to stay online than in the real society | 17.4% |

The Internet plays a prominently positive role in information acquisition, interpersonal communication, social participation, practical life convenience and other respects, but is prone to isolating Internet users away from the reality to probably cause Internet addiction. Overall, Internet users have a higher recognition of the Internet as life aid, and the value of the Internet as information channel and means of association is prominent.

# II. Internet Trust

### 1. Information Trust

Now, 84.3% of Internet users believe the Internet to be the most important information channel, and 48% trust the Internet more than television. The point-to-point dissemination structure of the Internet accelerates information penetration and widens dissemination scope, posing a great challenge to information verification. Now, the use rate of Internet news as the second largest Internet application among Internet users has reached 78.7%. Under the condition of Internet users' high trust in Internet information, the issues of Internet information management and information security are particularly important.

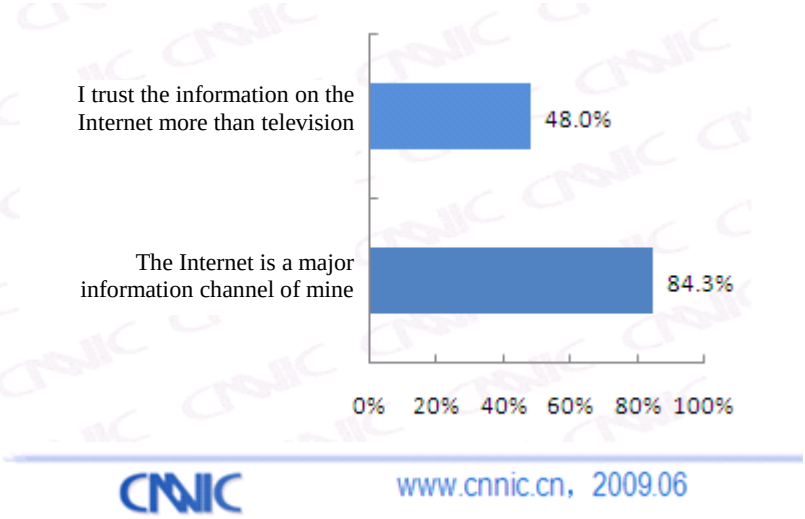



**Fig. 38 Internet Information Trust**

According to analysis, the proportion of university students viewing the Internet as a major information channel is high (90.5%), but they have a low (37.1%) trust in Internet information, the contrast is worthy of in-depth study.

### 2. Transaction Trust

Internet users have low trust in online transactions, with only 29.2% recognizing the security of online transactions and less than 40% willing to provide true information online. In spite of the substantial development of online business transactions in China, low trust in online transactions is still one of the obstacles to the development of business applications.

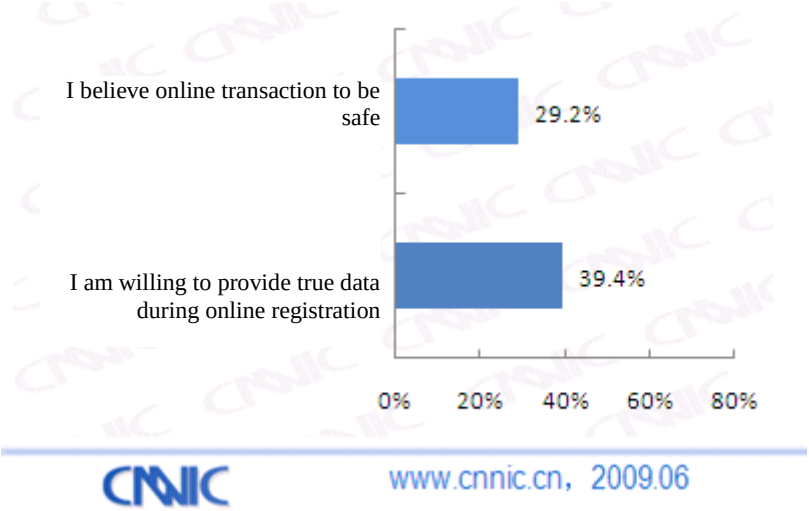



**Fig. 39 Online Transaction Trust**

It is found through in-depth analysis that the higher the net age is, the higher the income is, the more frequent the use of the Internet is, the higher Internet users' trust in online transactions is. However, it is founded through education analysis that though the higher education is, the security of online transaction is more believed, Internet users with the education of junior college or above are more unwilling to provide true registration information compared with those with lower education.

According to the degree of information trust and transaction trust of Internet users, whether Internet information or Internet business applications, network security and honesty have always been a worrying factor. As the Internet transited from the age of web browsing (web1.0) to the age of content generation by Internet users (web2.0), Internet applications have grown from simple mail at first to diversified forms now, and the Internet should also march from the stage of usability to the stage of credibility, thereby creating healthy and harmonious network order and advancing the extensive application of e-commerce.

# III. Internet Interaction

### 1. Social Participation

With the development of the Internet in China, the Internet is playing a more and more important role in promoting people to participate in social activities. 81.7% of Internet users said that they had been more concerned about social events since they started surfing, up 4.8% from 2008.

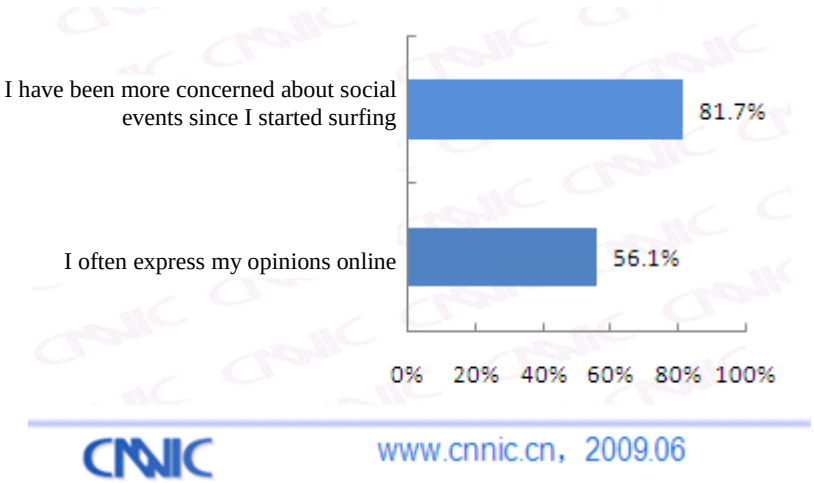



**Fig. 40 Social Participation Promoted by the Internet**

It is found through in-depth analysis that the higher the age is, the higher the education and income is, and the lower the proportion of Internet users expressing opinions online; according to the analysis of occupational identity, the proportion of primary and high school students expressing opinions online is higher than university students, and the proportion of migrant workers and industrial and service workers is higher than that of corporate managers.

### 2. Interpersonal Development

With a use proportion of 72.2%, instant messaging is the third largest Internet application. Through networking application, human association is developed and interpersonal relation becomes closer. Now, nearly 90% of Internet users recognize that the Internet has cemented relations with friends, up 4.5% within six months. Internet users' recognition that the Internet has contributed to the development of interpersonal relation has also reached 66.5%。

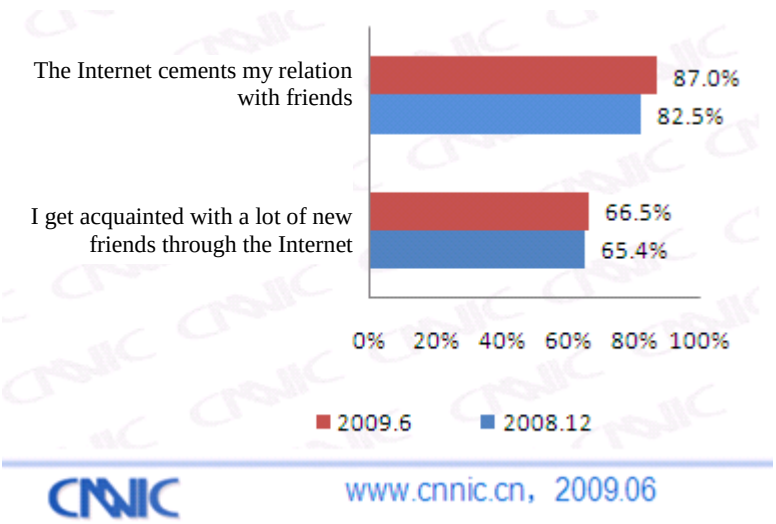



**Fig. 41 Development of Interpersonal Relation**

It is found through in-depth analysis that the lower the age is, the education is lower, the income is lower, the net age is lower, and the higher is the recognition that the Internet has contributed to the development of interpersonal relation.

### 3. Internet Share

Now, more and more Internet users share information online, and 76% will forward anything good they see online. 78.5% of Internet users often share knowledge with others. The behavior of mutual help is conductive to promoting knowledge dissemination and increasing production and life efficiency to a certain extent, and is closely related to the creation of a healthy and positive Internet environment.


**Fig. 42 Common Share Behavior**

Young Internet users are active in Internet share, as low-age users are more active in online mutual help, as they grow up, the behavior of Internet share and online mutual help will be more prevalent in the future.

# IV. Internet Reliance

### 1. Life Aid

81.6% of Internet users recognize that handling affairs online saves much time, 77.5% think that life is inseparable from the Internet, which has penetrate into all respects of people's livelihood, and Internet users also feel the life convenience brought by the Internet. In terms of Internet applications, the Penetration rate of basic Internet applications like search engine, instant messaging and e-mail is higher, the use rate of online shopping and online payment increases year by year, the Internet has become an indispensable tool for life.

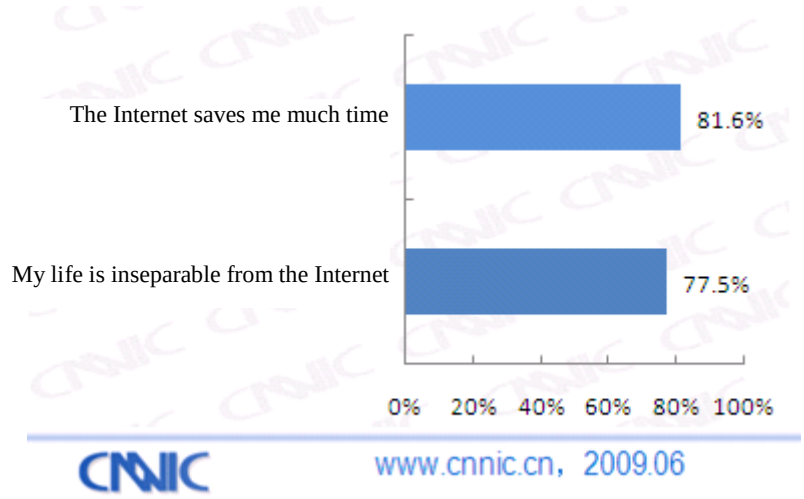



**Fig. 43 Perception of Role of the Internet as Life Aid**

### 2. Social Isolation

With the progressive penetration of the Internet into people's life, the Internet gradually widened the distance of soul exchange, namely worsened social isolation. Compared with late 2008, the number of Internet users feeling the Internet has reduced the time they spend with their families jumped by 5.4%, and the number of those feeling lonelier in the era of Internet also increased by 2.1%.

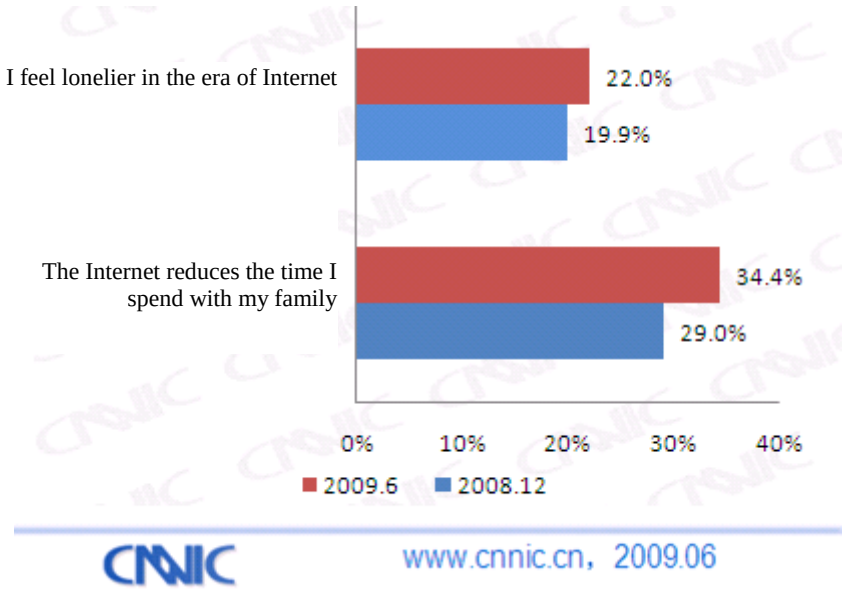



**Fig. 44 Social Isolation Caused by the Internet**

### 3. Internet Addiction

According to the relevant measuring scale of Internet addiction, we chose relevant test remarks to survey Internet users' tendency to Internet addiction. 16.4% of Internet users said they would feel sick once they could not access the Internet, 17.4% of Internet users were more willing to stay

online than in the real society, one out of six Internet users was inclined to Internet addiction.

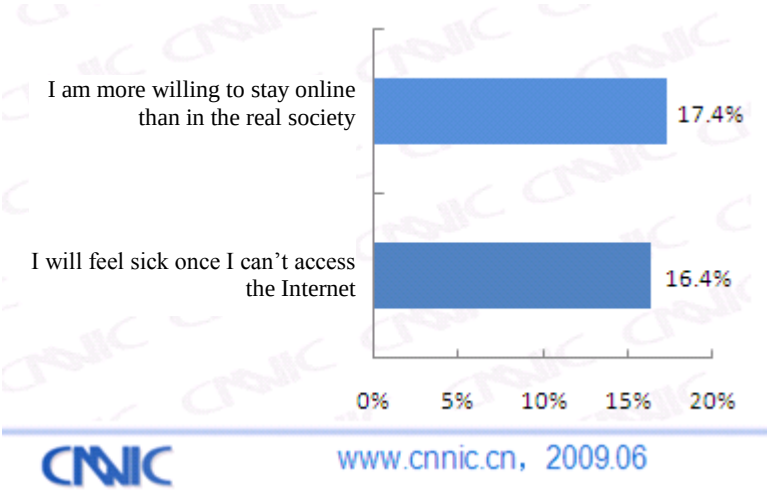



**Fig. 45 Tendency to Internet Addiction**

It is found through in-depth analysis that the Internet users "more willing to stay online that in the real society" are more inclined to passive, resigned and evasive choices, while those feeling sick one they can't access the Internet are more inclined to positive, active and tendency choices. According to analysis, the tendency of low-age Internet users to surf the Internet for the purpose of evading the real society is stronger than the tendency to active Internet applications, while high-age groups are on the contrary. Difference is also reflected in the occupational characteristics of groups: the tendency of migrant workers, farming, forestry, animal husbandry and fishery laborers, and laid-off workers to surf the Internet for the purpose of evading the real society is stronger than the tendency to active Internet applications, while Workers with Party and government organs and institutions and corporate managers are on the contrary.

# Conclusion

In the first half of 2009, the number of Chinese Internet users continued to increase fast to 338 million, including 155 million mobile Internet users and nearly 320 million broadband users. Meanwhile, the growth rate of China's basic Internet resources showed a trend of slowdown, of which international outlet bandwidth, number of IP addresses and number of websites all hit the lowest in growth since 2007. Particularly, in terms of broadband application, though the number of Chinese broadband users is nearly 320 million, but it cannot be neglected that the broadband mentioned here is defined according to access mode rather than transmission speed, and the nominal transmission speed under the access mode is the transmission speed of shared bandwidth and the speed in peak hours is far lower than the nominal transmission speed. In spite of the large number of Chinese broadband users, China is still far behind the countries developed in the Internet in broadband access environment, which does not fit in with the growth rate of Chinese broadband users. To change the situation, we need to continue to intensify the construction of network infrastructure, constantly increase Internet connection speed to advance the high-speed development of China's Internet.

However, it is encouraging to see main Internet resources showed a sign of structural optimization while its growth slowed down. Take domain name for example, though the total number of Chinese domain names in June 2009 was slightly lower than late 2008, the use rate of domain names, especially the proportion of websites to domain names hit the highest since 2007.

Internet application environments include two aspects: one is the above-mentioned resource environments like outlet bandwidth, website and IP address, the other is Internet users' psychological experience online, especially psychological experience in Internet trust and network security, which has a direct bearing on the depth of Internet use. According to the report, only less than 30% of Internet users believe the security of online transactions, less than 40% are willing to provide their true information during online registration. Distrust in network security will restrict the development of in-depth Internet applications, and overprotection of personal information caused by the distrust will also restrict the accuracy and effect of online marketing. Therefore, we must promote the transition of the Internet from usable Internet to credible Internet.

As a high-speed and high-efficiency tool of the modern society, the Internet make some people dependent on the Internet and inclined to Internet addiction while bringing convenience to people's life. According to the report, one out of six Internet users is inclined to Internet addiction. Meanwhile, the sense of social isolation brought by the Internet is also strengthening constantly, which has started to become the "wall of psychology" isolating Internet users from their families and the society, which is showing a trend of gradual thickening. The Internet is tending to develop from a controlled tool to an alienation breaking away from control and controlling people. Therefore, while advancing the development of the Internet towards high-speed and credible Internet, we must be wary of the conversion from the tool-oriented Internet to the goal-oriented Internet.

# Annex 1 Tables of Basic Internet Resources

Table 1 Number of IPv4 Addresses around China

| Region | Number of Addresses | Equivalent |
|---|---|---|
| Chinese mainland | 205,031,168 | 12A+56B+135C |
| Taiwan | 25,201,920 | 1A+128B+141C |
| Hong Kong | 8,233,216 | 125B+161C |
| Macau | 163,072 | 2B+125C |

*Source: APNIC, CNNIC*

Table 2 Assignment of IPv4 Addresses by Units on the Chinese Mainland

| Unit | Number of Addresses | Equivalent |
|---|---|---|
| China Telecom Corporation | 70,277,120 | 4A+48B+88C |
| China Unicom Corporation Limited | 44,360,704 | 2A+164B+228C |
| China Mobile Communications Corporation | 29,720,576 | 1A+197B+128C |
| China Education and Research Network | 13,765,120 | 210B+10C |
| State Information Center | 4,194,304 | 64B |
| Beijing Shenzhou Great Wall Telecom Technology Development Center | 1,581,056 | 24B+32C |
| Beijing Education Information Network Service Center Co., Ltd. | 1,572,864 | 24B |
| Beijing Teletron Telecom Engineering Co., Ltd. | 1,397,760 | 21B+84C |
| Oriental Cable Network Co., Ltd. | 1,138,688 | 17B+96C |
| Beijing Chengyi Shidai Network Technology Engineering Co., Ltd. | 1,048,576 | 16B |
| Beijing Shidai Hongyuan Communications Science & Technology Co., Ltd. | 786,432 | 12B |
| Beijing Broad Netcom Telecom Technology Co., Ltd. | 753,664 | 11B+128C |
| Beijing HiChina Science & Technology Co., Ltd. | 729,088 | 11B+32C |
| Beijing Bitong United Network Technology Service Co., Ltd. | 688,128 | 10B+128C |
| China Cable Television Network Co., Ltd. | 663,552 | 10B+32C |
| Beijing Billion Communication High-Tech & Development Corp. | 655,360 | 10B |
| Beijing Yiliyou Data Co., Ltd. | 655,360 | 10B |
| Beijing Weishi Chuangjie Technology Development Co., Ltd. | 655,360 | 10B |
| Great Wall Broadband Network Service Co., Ltd. | 655,360 | 10B |

| | | |
|---|---|---|
| Huaxia Shilian Holdings Co., Ltd. | 524,288 | 8B |
| CITIC Network Co., Ltd. | 524,288 | 8B |
| Beijing Kuancom Network Technology Co., Ltd. | 524,288 | 8B |
| SSL China Science & Technology (Beijing) Co., Ltd. | 524,288 | 8B |
| 21ViaNet (China) Inc. | 509,952 | 7B+200C |
| CECT-Chinacomm Communications Co., Ltd. | 487,424 | 7B+112C |
| Guangdong Jinwanbang Science & Technology Investment Co., Ltd. | 479,232 | 7B+80C |
| Beijing Shuxunda Communications Technology Co., Ltd. | 446,464 | 6B+208C |
| China Science & Technology Network | 428,032 | 6B+136C |
| Shenzhen Topway Co., Ltd. | 425,984 | 6B+128C |
| Beijing Beida Founder Broadband Network Science & Technology Co., Ltd. | 401,408 | 6B+32C |
| Beijing SRIT NETech Co., Ltd. | 385,024 | 5B+224C |
| Jiangxi Radio & Television Network Transmission Co., Ltd. | 327,680 | 5B |
| Shandong Sanlian Electronic Information Co., Ltd. | 327,680 | 5B |
| Guangzhou Radio & Television Network Co., Ltd. | 327,680 | 5B |
| Daqing Zhongji Petroleum Communication Construction Co., Ltd. | 307,200 | 4B+176C |
| Huabei Oil Communication Co. | 294,912 | 4B+128C |
| Beijing Fibrlink Communications Co., Ltd. | 286,720 | 4B+96C |
| Foshan Ely Network Co., Ltd. | 278,528 | 4B+64C |
| Jinan Guangdian Jiahe Broadband Network Co., Ltd. | 270,336 | 4B+32C |
| Langfang Economic & Technical Development Zone Huarui Xintong Network Technology Co., Ltd. | 262,144 | 4B |
| Beijing Yitaifeng Science & Technology Development Co., Ltd. | 262,144 | 4B |
| Shanghai Shanze Information Communication Technology Co., Ltd. | 262,144 | 4B |
| Shenzhen Inda Communication Co., Ltd. | 249,856 | 3B+208C |
| Guangzhou Etrunk Telecommunication Co., Ltd. | 233,472 | 3B+144C |
| Shanghai Aorong Information Science & Technology Service Co., Ltd. | 229,376 | 3B+128C |
| 263 Network Communication Co. Ltd. | 220,160 | 3B+92C |
| China Motion Telecom Corporation | 204,800 | 3B+32C |
| Fujian ChinaFIC Communication Co., Ltd. | 196,608 | 3B |
| Guangdong Cable Radio & Television Network Co., Ltd. | 196,608 | 3B |
| Shenzhen Wotong Network Development Co., Ltd. | 196,608 | 3B |
| Shenzhen Asiastar Telecommunication Technology | 180,224 | 2B+192C |

| | | |
|---|---|---|
| Service Co., Ltd. | | |
| Shaanxi BC & TV Network Intermediary Co., Ltd. | 176,128 | 2B+176C |
| Beijing Citynet Communication Technology Co., Ltd. | 163,840 | 2B+128C |
| Digitalways Information and Culture Development Co., Ltd. | 147,456 | 2B+64C |
| SVA (Group) Co., Ltd. | 131,072 | 2B |
| Guangdong Kingshine Investment Development Co., Ltd. | 131,072 | 2B |
| Tianjin Ruiding Digital Science & Technology Co., Ltd. | 131,072 | 2B |
| Beijing OptiEast Network Corporation Limited | 131,072 | 2B |
| Beijing Euncn Science & Technology Co., Ltd. | 126,976 | 1B+240C |
| Chongqing Cable TV Network Co., Ltd. | 98,304 | 1B+128C |
| China Entercom Communication Technology Co., Ltd. | 98,304 | 1B+128C |
| Tianjin Broadcast & TV Network Co., Ltd. | 77,824 | 1B+48C |
| Beijing Huaxia Guangwang Communication Technology Co., Ltd. | 73,728 | 1B+32C |
| Coca-Cola Enterprise Management (Shanghai) Co., Ltd. | 73,728 | 1B+32C |
| Beijing Xirang Media Culture Co., Ltd. | 67,584 | 1B+8C |
| Shanghai Bennalong Network Science & Technology Co., Ltd. | 67,584 | 1B+8C |
| Shanghai HTP Network Technology Co., Ltd. | 65,536 | 1B |
| Epern Science & Technology Co., Ltd. | 65,536 | 1B |
| Shanghai Chuanwang Communication Science & Technology Co., Ltd. | 65,536 | 1B |
| Beijing Huandao Communication Co., Ltd. | 65,536 | 1B |
| Hangzhou SRT Science & Technology Co., Ltd. | 65,536 | 1B |
| Beijing Yanyang Century Science & Technology Co., Ltd. | 65,536 | 1B |
| Beijing Shocom Telecom Co., Ltd. | 65,536 | 1B |
| Beijing Neteon Technology Co., Ltd. | 65,536 | 1B |
| Tianjin Xinbei Broadband Digital Network Co., Ltd. | 65,536 | 1B |
| Shanghai Aitimu Network Science & Technology Co., Ltd. | 65,536 | 1B |
| Beijing Heju Digital Technology Co., Ltd. | 65,536 | 1B |
| China Netcom Corporation Chongqing Branch | 65,536 | 1B |
| Shanghai GEIS Information Technology Co., Ltd. | 65,536 | 1B |
| China Digital Port Science & Technology Co., Ltd. | 65,536 | 1B |
| TravelSky Technology Limited | 65,536 | 1B |
| Anhui Education and Research Network | 65,536 | 1B |
| Shantou Takewin Information Technology Co., Ltd. | 65,536 | 1B |

| | | |
|---|---|---|
| Beijing Caihuida Technology Co., Ltd. | 65,536 | 1B |
| Shenzhen Nova Science & Technology Development Co., Ltd. | 65,536 | 1B |
| Beijing CNLink Networks Limited | 65,536 | 1B |
| Beijing CAPNET Information Service Co., Ltd. | 65,536 | 1B |
| Sichuan Broadcasting & TV Network Co., Ltd. | 65,536 | 1B |
| Shanghai Hanwei Information Science & Technology Co., Ltd. | 65,536 | 1B |
| Beijing Hangshu Broadband Network Science & Technology Co., Ltd. | 65,536 | 1B |
| Xiamen Broadcasting & TV Network Co., Ltd. | 65,536 | 1B |
| Zhong Ping Energy Chemical Group Information Communication Technology Development Co., Ltd. | 65,536 | 1B |
| Guangzhou Gehua Network Science & Technology Development Co., Ltd. | 65,536 | 1B |
| 21ViaNet Shanghai Information System Co., Ltd. | 65,536 | 1B |
| China International Electronic Commerce Center (Co., Ltd.) | 65,536 | 1B |
| Airway Communication Co., Ltd. | 65,536 | 1B |
| Epern Science & Technology Co., Ltd. | 65,536 | 1B |
| Beijing Jinfeng Weiye Science & Technology Co., Ltd. | 65,536 | 1B |
| Beijing Brains Ocean Science & Technology Co., Ltd. | 65,536 | 1B |
| Henan Shenghong Science & Technology Co., Ltd. | 65,536 | 1B |
| Shanxi Datong Coal Mine Group Communication Co., Ltd. | 65,536 | 1B |
| Dagang Oil Field Communication Co., Ltd. | 65,536 | 1B |
| Subtotal | 190,129,664 | 11A+85B+38C |
| Other units | 14,901,504 | 227B+97C |
| Total | 205,031,168 | 12A+56B+135C |

*Source: APNIC, CNNIC*

*Note 1: As the national Internet registry (NIR) of China recognized by APNIC and the Ministry of Industry and Information Technology, CNNIC brought together ISPs with some scale and influence at home to make up the IP address assignment union, which now consists of 284 members with 53,953,792 IPv4 addresses, equivalent to 3.22A. The majority of the table above are members of the assignment union;*

*Note 2: The IPv4 address assignment table only lists the units with the number of IPv4 address equal to and greater than 1B.*

Table 3 Number of IPv6 Addresses around China

| Region | Number of IPv6 Addresses (/32) |
|---|---|

| | |
|---|---|
| Chinese mainland | 58/32 |
| Taiwan | 2,310/32 |
| Hong Kong | 20/32 |
| Macau | 2/32 |

Table 4 Assignment of IPv6 Address on the Chinese Mainland (/32)

| Unit | Number of IPv6 Addresses (/32) |
|---|---|
| Beijing BII Information Technology Co., Ltd. | 16 |
| China Education and Research Network | 11 |
| Beijing Shenzhou Great Wall Telecom Technology Development Center | 8 |
| China Telecom Corporation | 2 |
| China Unicom Corporation Limited | 2 |
| China Southern Power Grid Co., Ltd. | 2 |
| China Internet Network Information Center | 1 |
| China Railcom Corporation | 1 |
| China International Electronic Commerce Center (Co., Ltd.) | 1 |
| China Science & Technology Network | 1 |
| China Mobile Communications Corporation | 1 |
| Beijing Teletron Telecom Engineering Co., Ltd. | 1 |
| Chongqing Netcom Information Port Broadband Network Co., Ltd. | 1 |
| Tisson Communication Technology Co., Ltd., Dongguan Bolu Telecom Branch | 1 |
| Beijing HiChina Science & Technology Co., Ltd. | 1 |
| Beijing Center for Promotion of Software and Information Service Industry | 1 |
| Management Information Department of CITIC Group | 1 |
| Oriental Cable Network Co., Ltd. | 1 |
| Beijing Guxiang Information Technology Co., Ltd. | 1 |
| Great Wall Broadband Network Service Co., Ltd. | 1 |
| Hangzhou SRT Science & Technology Co., Ltd. | 1 |
| Zhong Ping Energy Chemical Group Information Communication Technology Development Co., Ltd. | 1 |
| Beijing Beida Founder Broadband Network Science & Technology Co., Ltd. | 1 |

*Source: APNIC, CNNIC*

*Note: "/32" in the IPv6 address assignment table is the expression of IPv6 addresses, the corresponding number of addresses is $2^{(128-32)}=2^{96}$, similarly, the corresponding number of "/48" is $2^{(128-48)}=2^{80}$.*

Table 5 Number of IPv4 Addresses of All Provinces

| Province | Proportion |
|---|---|
| Beijing | 24.3% |
| Guangdong | 9.1% |
| Zhejiang | 5.4% |
| Jiangsu | 5.1% |
| Shandong | 4.7% |
| Shanghai | 4.6% |
| Liaoning | 3.3% |
| Hebei | 3.1% |
| Henan | 2.7% |
| Sichuan | 2.4% |
| Hubei | 2.4% |
| Fujian | 2.2% |
| Shaanxi | 1.9% |
| Hunan | 1.8% |
| Heilongjiang | 1.7% |
| Anhui | 1.6% |
| Guangxi | 1.5% |
| Jiangxi | 1.5% |
| Tianjin | 1.5% |
| Chongqing | 1.4% |
| Jilin | 1.3% |
| Shanxi | 1.1% |
| Yunnan | 0.9% |
| Inner Mongolia | 0.8% |
| Xinjiang | 0.7% |
| Hainan | 0.7% |
| Guizhou | 0.5% |
| Gansu | 0.4% |
| Ningxia | 0.2% |
| Qinghai | 0.2% |
| Tibet | 0.1% |
| Others | 11.0% |
| Total | 100.0% |

*Note: 1. The provinces where the owners of IPv4 addresses are located rather than the actual provinces where the addresses are used are counted.*

*2. Source: APNIC, CNNIC*

Table 6 Number of Domain Names and CN Domain Names by Province

| Province | Domain | | Including: CN domain names | |
|---|---|---|---|---|
| | Number | Proportion to All Domain Names | Number | Proportion to All CN Domain Names |
| Anhui | 214,616 | 1.3% | 132,631 | 1.0% |
| Beijing | 3,839,778 | 23.6% | 3,446,010 | 26.6% |
| Fujian | 894,675 | 5.5% | 696,904 | 5.4% |
| Gansu | 32,322 | 0.2% | 25,280 | 0.2% |
| Guangdong | 1,720,229 | 10.6% | 1,209,433 | 9.3% |
| Guangxi | 132,390 | 0.8% | 110,933 | 0.9% |
| Guizhou | 90,055 | 0.6% | 81,501 | 0.6% |
| Hainan | 70,509 | 0.4% | 60,450 | 0.5% |
| Hebei | 274,797 | 1.7% | 185,750 | 1.4% |
| Henan | 327,343 | 2.0% | 216,257 | 1.7% |
| Helongjiang | 175,855 | 1.1% | 133,162 | 1.0% |
| Hubei | 370,494 | 2.3% | 272,109 | 2.1% |
| Hunan | 490,066 | 3.0% | 444,661 | 3.4% |
| Jilin | 89,363 | 0.5% | 75,043 | 0.6% |
| Jiangsu | 784,645 | 4.8% | 433,306 | 3.3% |
| Jiangxi | 127,760 | 0.8% | 105,593 | 0.8% |
| Liaoning | 259,346 | 1.6% | 194,518 | 1.5% |
| Inner Mongolia | 49,153 | 0.3% | 41,701 | 0.3% |
| Ningxia | 20,000 | 0.1% | 15,625 | 0.1% |
| Qinghai | 13,510 | 0.1% | 9,781 | 0.1% |
| Shandong | 642,637 | 4.0% | 483,985 | 3.7% |
| Shanxi | 95,369 | 0.6% | 82,160 | 0.6% |
| Shaanxi | 146,709 | 0.9% | 108,016 | 0.8% |
| Shanghai | 1,428,472 | 8.8% | 1,067,984 | 8.2% |
| Sichuan | 509,078 | 3.1% | 284,985 | 2.2% |
| Tianjin | 142,337 | 0.9% | 89,327 | 0.7% |
| Tibet | 12,479 | 0.1% | 10,908 | 0.1% |
| Xinjiang | 40,958 | 0.3% | 34,545 | 0.3% |
| Yunnan | 73,426 | 0.5% | 58,034 | 0.4% |
| Zhejiang | 1,054,257 | 6.5% | 795,249 | 6.1% |
| Chongqing | 197,759 | 1.2% | 127,329 | 1.0% |
| Others | 1,935,655 | 11.9% | 1,926,995 | 14.9% |
| Total | 16,256,042 | 100.0% | 12,960,165 | 100.0% |

Table 7 Number of Websites by Province

| | Number of Websites | Proportion to All Websites |
|---|---|---|
| Anhui | 41,247 | 1.3% |
| Beijing | 340,439 | 11.1% |
| Fujian | 157,546 | 5.1% |

| | | |
|---|---|---|
| Gansu | 7,729 | 0.3% |
| Guangdong | 397,639 | 13.0% |
| Guangxi | 32,676 | 1.1% |
| Guizhou | 10,196 | 0.3% |
| Hainan | 9,188 | 0.3% |
| Hebei | 100,699 | 3.3% |
| Henan | 67,374 | 2.2% |
| Helongjiang | 54,866 | 1.8% |
| Hubei | 114,580 | 3.7% |
| Hunan | 154,720 | 5.1% |
| Jilin | 12,947 | 0.4% |
| Jiangsu | 163,705 | 5.3% |
| Jiangxi | 25,129 | 0.8% |
| Liaoning | 54,741 | 1.8% |
| Inner Mongolia | 10,752 | 0.4% |
| Ningxia | 3,830 | 0.1% |
| Qinghai | 3,621 | 0.1% |
| Shandong | 142,001 | 4.6% |
| Shanxi | 15,269 | 0.5% |
| Shaanxi | 38,646 | 1.3% |
| Shanghai | 201,626 | 6.6% |
| Sichuan | 84,783 | 2.8% |
| Tianjin | 32,337 | 1.1% |
| Tibet | 3,651 | 0.1% |
| Xinjiang | 8,317 | 0.3% |
| Yunnan | 15,536 | 0.5% |
| Zhejiang | 338,738 | 11.1% |
| Chongqing | 54,427 | 1.8% |
| Others | 362,154 | 11.8% |
| Total | 3,061,109 | 100.0% |

Note: The total number of CN websites excludes .EDU.CN websites.

Table 8 Number of .CN Websites on the Chinese Mainland

| | Number | Proportion of .CN Websites |
|---|---|---|
| .cn | 1,542,737 | 64.0% |
| .com.cn | 688,415 | 28.6% |
| .net.cn | 81,217 | 3.4% |
| .org.cn | 45,530 | 1.9% |
| .adm.cn | 23,918 | 1.0% |
| .gov.cn | 27,240 | 1.1% |
| .ac.cn | 1,489 | 0.1% |
| Total | 2,410,546 | 100.0% |

Note: The total number of CN websites excludes .EDU.CN websites.

# Annex 2 Survey Supporting Units

## (I) Survey Supporting Websites (arranged at random)

| | | |
|---|---|---|
| www.peopledaily.com.cn | www.xinhuanet.com | www.cctv.com |
| gb.cri.cn | www.chinadaily.com.cn | www.gmw.cn |
| www.eastday.com | | |

## (II) Survey Portals (arranged in the linking order of websites)

| | | |
|---|---|---|
| www.sina.com.cn | www.sohu.com | www.163.com |
| www.tudou.com | www.gz163.cn | money.hexun.com |
| www.youku.com | www.sznews.com | www.jlonline.com |
| www.hl.cninfo.net | www.360ve.com | www.360ve.com/360_LY |
| www.he-nan.com | | |

## (III) Bandwidth Supporting Units

Beijing Communications Corporation IDC

## (IV) Survey Assisting Unit (arranged at random)

China Telecom Corporation

China Unicom Corporation Limited

China Mobile Communications Corporation

China Education and Research Network Center

China Science & Technology Network Center

China Telecommunications Broadcast Satellite Corp.

China International Electronic Commerce Center (Co., Ltd.)

China Great Wall Network Center

Beijing East.net Information Science & Technology Co., Ltd.

Beijing HiChina Science & Technology Co., Ltd.

Beijing Sinonets Network Communication Technology Co., Ltd.

Beijing Xinnet Science & Technology Co., Ltd.

Beijing Xinnet Digital Information Technology Co., Ltd.

Beijing Sanfront Network Technology Co., Ltd.

Chongqing Zhijia Information Science & Technology Co., Ltd. (CQHOT)

China Enterprise Power Science & Technology Corporation

Guangdong Now Science & Technology Co., Ltd.

Xiamen Huarong Shengshi Network Co., Ltd.

Xiamen Sanwu Hulian Science & Technology Co., Ltd.

Xiamen Zhongziyuan Network Service Co., Ltd.