The 53ʳᵈ Statistical Report on China's Internet Development

China Internet Network Information Center (CNNIC)

March 2024

Preface

Since 1997, China Internet Network Information Center (CNNIC) has regularly organized statistical surveys on Internet development in China and released the Statistical Report on China's Internet Development (hereinafter referred to as the "Report") twice a year. So far, CNNIC has published 52 reports. The Report aims to truthfully reflect the development process of China's Internet through statistical data, providing an important reference for Chinese government departments, domestic and international industry institutions, experts, scholars, and the general public to understand the development of China's Internet.

The year of 2023 marks the beginning to comprehensively implement the spirit of the 20th National Congress of the Communist Party of China, as well as a milestone year in the history of China's industrial development. China's Internet development has made steady progress, providing strong support for accelerating the promotion of new-type industrialization and helping the economy recover and improve. The integration of digital technology and the real economy is accelerating, with 5G applications being integrated into 71 out of 97 major categories of the national economy. The growth rate of Internet business revenue has continued to increase. Internet business revenue of enterprises above designated size in the Internet and related service industries reached RMB 1.7483 trillion, a year-on-year increase of 6.8%; revenue from fixed Internet broadband access services reached RMB 262.6 billion, a year-on-year increase of 7.7%. New technologies and new forms of business have facilitated the rapid recovery of retail markets. Online retail sales reached RMB 15.42 trillion, a year-on-year increase of 11%, making China the world's largest online retail market for 11 consecutive years.

As a witness of the history of China's Internet, a practitioner at present, and a pioneer in the future, CNNIC continues to follow the development of China's Internet, continuously expands the scope of research and deepens the research areas. The Report focuses on six aspects, including basic Internet resources, size of Internet users, Internet applications, and Internet governmental affairs, and works to comprehensively demonstrate the development of China's Internet in 2023 through all-round data

from a multi-pronged perspective.

We hereby express our heartfelt thanks to the Ministry of Industry and Information Technology of PRC, the Cyberspace Administration of China, the National Bureau of Statistics of China, the Central Committee of the Communist Youth League, and other departments and units for their guidance for the Report. We would also like to express our sincere thanks to other institutions and Internet users that have supported this statistical survey on China's Internet development.

China Internet Network Information Center

March 2024

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Core Data

◇ As of December 2023, China had 1,092 million netizens, up 24.80 million over December 2022, and its Internet penetration had reached 77.5%, up 1.9 percentage points over December 2022.

◇ Up to December 2023, the number of mobile Internet users in China had reached 1,091 million, up 25.62 million over December 2022. The proportion of China's netizens accessing the Internet via mobile phones was 99.9%.

◇ As of December 2023, the size of rural Internet users was 326 million or 29.8% of the national total, while that of urban Internet users was 766 million or 70.2% of the national total.

◇ Up to December 2023, the proportions of Chinese netizens accessing the Internet through mobile phones, desktop computers, laptop computers, TVs and tablet computers were 99.9%, 33.9%, 30.3%, 22.5% and 26.6%, respectively.

◇ As of December 2023, the number of China's IPv6 addresses had increased to 68,042 blocks / 32, up 1.0% over December 2022.

◇ Up to December 2023, the number of China's domain names totaled 31.60 million, with 20.13 million of them being ".CN" domain names.

◇ As of December 2023, the user size of online video in China had reached 1.067 billion, up 36.13 million from December 2022, making up 97.7% of all Internet users. Among them, the number of short video users was 1.053 billion, an increase of 41.45 million over December 2022, accounting for 96.4% of all Internet users.

◇ As of December 2023, the user size of instant messaging in China reached 1.06 billion, up 21.55 million from December 2022, making up 97.0% of the total netizens.

◇ As of December 2023, the number of online government service users in China reached 973 million, an increase of 47.01 million over December 2022, accounting for 89.1% of the total Internet users.

◇ As of December 2023, the user size of online payment in China had reached 954 million, up 42.43 million from December 2022, accounting for 87.3% of the Internet users.

◇ As of December 2023, the user size of online shopping in China had reached 915 million, up 69.67 million from December 2022, accounting for 83.8% of all Internet users.

◇ As of December 2023, the size of search engine users in China reached 827 million, an increase of 25.04 million over December 2022, accounting for 75.7% of the total Internet users.

◇ As of December 2023, the user size of live streaming in China had reached 816 million, up 65.01 million from December 2022, accounting for 74.7% of the Internet users.

◇ As of December 2023, the user size of online music in China had reached 715 million, up 30.44 million from December 2022, accounting for 65.4% of all Internet users.

◇ As of December 2023, the user size of online meal ordering in China reached 545 million, an increase of 23.38 million compared with December 2022, accounting for 49.9% of the total Internet users.

◇ As of December 2023, the user size of online car hailing services in China had reached 528 million, up 90.57 million from December 2022, accounting for 48.3% of the Internet users.

◇ As of December 2023, the user size of online literature in China had reached 520 million, up 27.83 million from December 2022, accounting for 47.6% of all Internet users.

◇ As of December 2023, the number of online travel booking services in China reached 509 million, an increase of 86.29 million over December 2022, accounting for 46.6% of the total Internet users.

◇ As of December 2023, the user size of online medical care in China had reached 414 million, up 51.39 million from December 2022, accounting for 37.9% of the Internet users.

Chapter I Basic Internet Resources and Access

I. Development of Basic Internet Resources

As of December 2023, the number of IPv4 addresses in China was 392.19 million, that of IPv6 addresses was 68,042 blocks/32, and that of active IPv6 users reached 762 million. The total number of domain names in China was 31.60 million[1], including 20.13 million ".CN" domain names; the total number of mobile phone base stations in China totaled 11.62 million, that of Internet broadband access ports was 1.136 billion, and the total length of fiber optic cable lines increased to 64.32 million kilometers.

Table 1 Development of Basic Internet Resources by December 2023

Category	Unit	Dec. 2023
IPv4	1	392,192,512
IPv6	block/32	68,042
Number of active IPv6 users	100 million	7.62
Domain name	1	31,595,563
Among them: ".CN"	1	20,125,764
Mobile phone base stations	10,000	1,162
Internet broadband access ports	100 million	11.36
Length of fiber optic cable lines	10,000 km	6,432

(I) IP Addresses

As of December 2023, the number of IPv6 addresses in China had increased to 68,042 blocks / 32, up 1.0% over December 2022. Out of the 23 global key public recursive services with IPv6 support, 14 provided IPv6 public recursive services, accounting for about 60.9%.

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[1] Source: Generic top-level domains (gTLD) and new generic top-level domains (New gTLD) are provided by domestic domain name registration organizations. The number of ".CN" and ".中国" domain names is the quantity registered globally.

Number of IPv6 Addresses
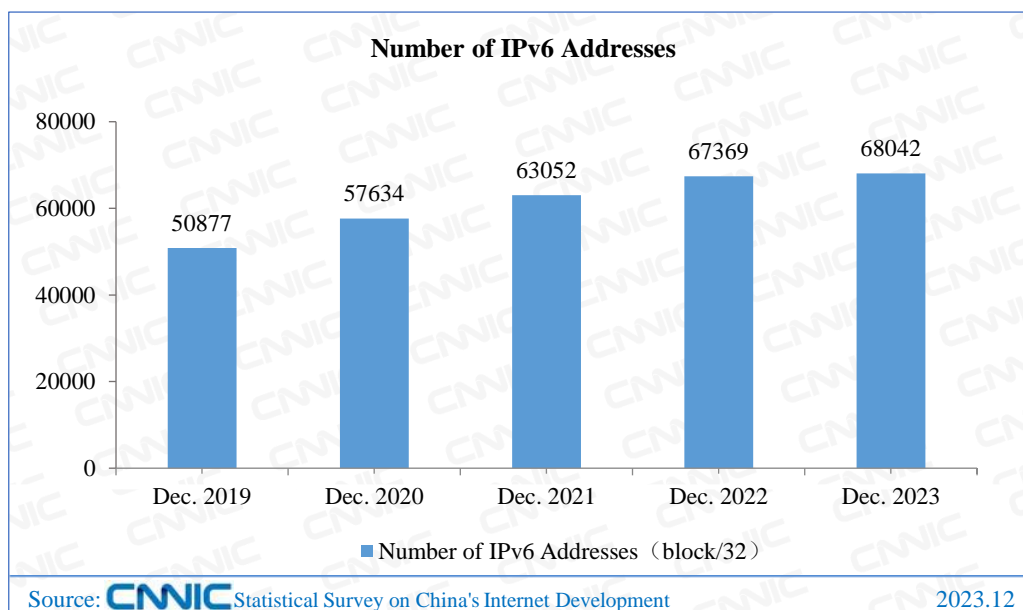
Figure 1   Number of IPv6 addresses[2]

As of December 2023, the number of active IPv6 users in China reached 762 million.

Number of Active IPv6 Users
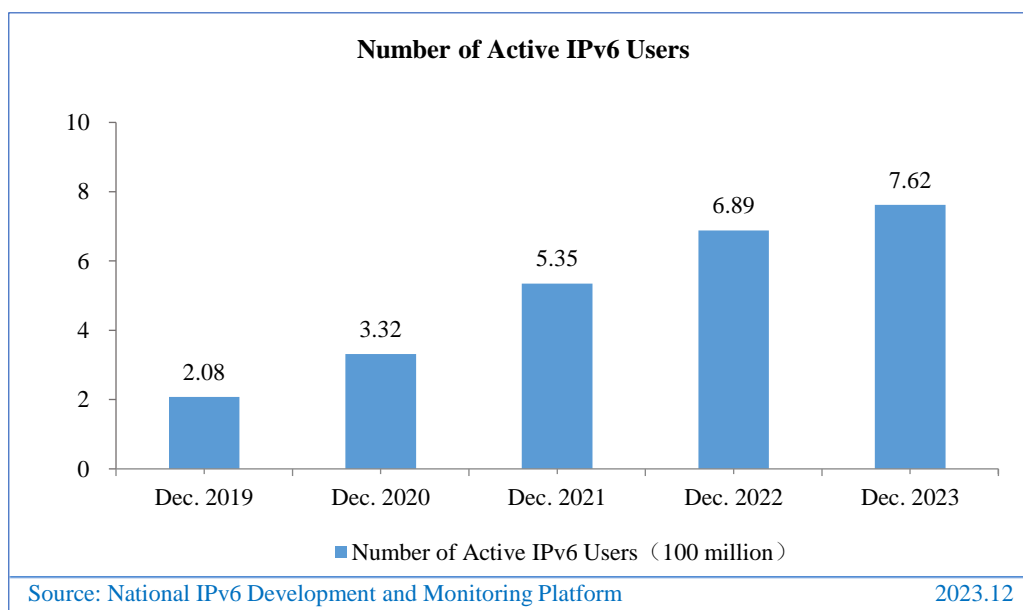
Figure 2   Number of Active IPv6 Users

Up to December 2023, the number of IPv4 addresses in China had amounted to 392.19 million.

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[2] The data cover Hong Kong, Macao and Taiwan.

Number of IPv4 Addresses
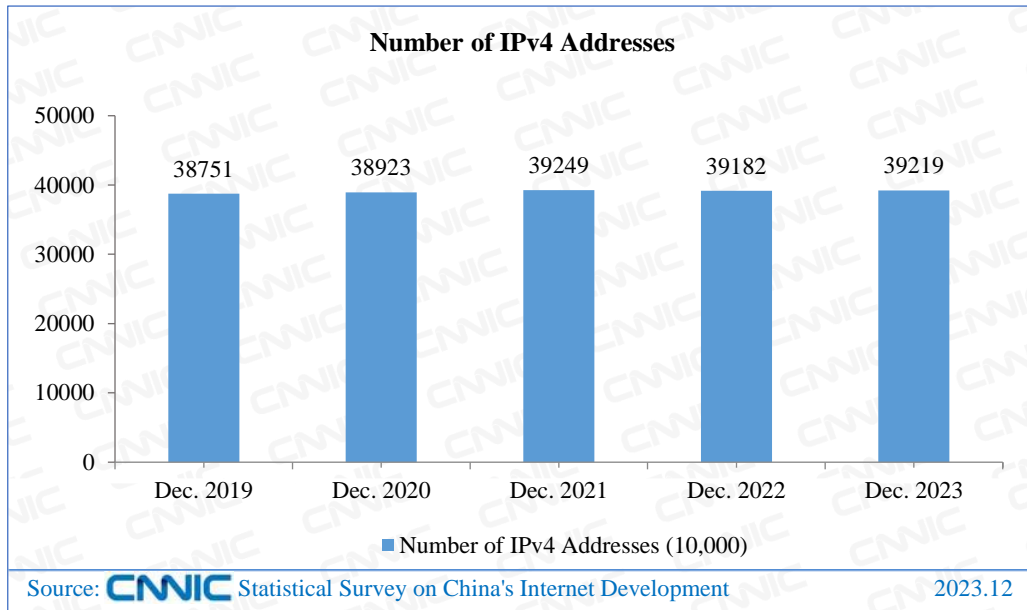
Figure 3   Number of IPv4 Addresses[3]

(II) Domain Name

Up to December 2023, the number of China's domain names totaled 31.60 million. Among them, there were 20.13 million ending with ".CN", 7.93 million ending with ". COM", 0.18 million ending with ".中国" and 2.07 million new generic top-level domains (New gTLDs) .

Table 2   Number of Domain Names by Category[4]

Category	Number
.CN	20,125,764
.COM	7,925,489
.NET	706,674
.中国	177,504
.INFO	75,468
.ORG	29,079
New gTLD	2,066,573
Others[5]	489,012
Total	31,595,563

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[3] The data cover Hong Kong, Macao and Taiwan.
[4] Source: generic top-level domain names and new generic top-level domain names are provided by domestic registration organizations, and the number of ".CN" and ".中国" domain names includes those registered in the whole world.
[5] Others: including ".BIZ", ".CO", ".TV", ".CC", ".ME", ".HK", ".PW" and other domains.

Table 3 Number of Domain Names Ending with ".CN"

Category	Number
.CN[6]	11,137,606
.COM.CN	3,257,583
.ADM.CN[7]	3,490,529
.NET.CN	1,095,044
.ORG.CN	982,823
.AC.CN	141,735
.GOV.CN	13,409
.EDU.CN	6,821
Others	214
Total	20,125,764

(III) Number of Mobile Phone Base Stations

By December 2023, the total number of mobile phone base stations in China reached 11.62 million. Among them, a total of 3.377 million 5G base stations had been built and put into operation, accounting for 29.1% of the total number of mobile base stations, up 7.8 percentage points compared with December 2022.

Number of Mobile Phone Base Stations

Dec. 2019	Dec. 2020	Dec. 2021	Dec. 2022	Dec. 2023
841	931	996	1083	1162

■ Number of Mobile Phone Base Stations（10,000）

Source: The Ministry of Industry and Information Technology   2023.12
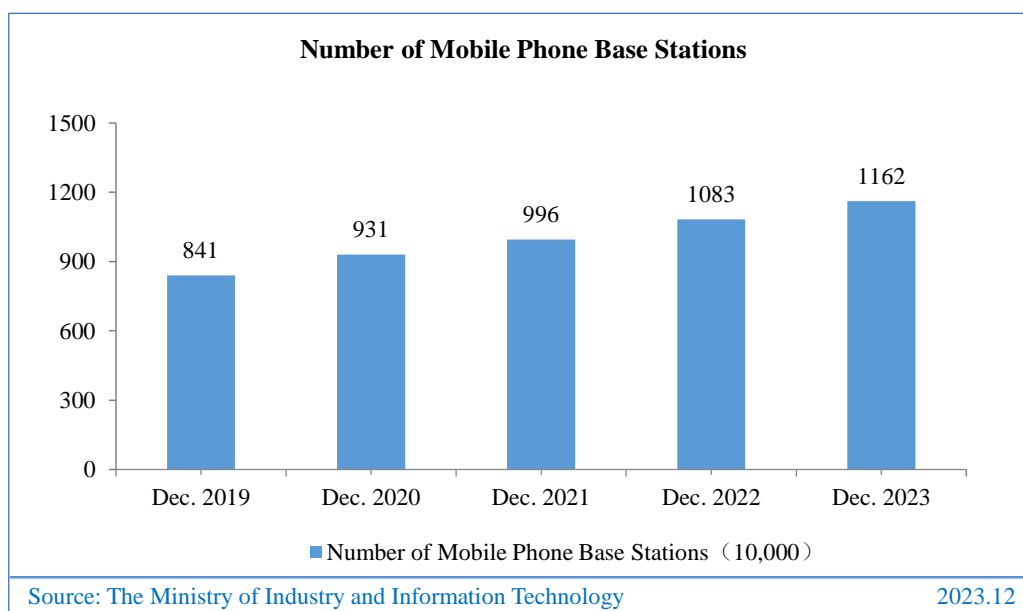
Figure 4 Number of Mobile Phone Base Stations

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[6] ".CN" refers to the second-level domain names registered under ".CN".

[7] .ADM.CN is a virtual second-level domain, and includes all the administrative region domain names (second-level domain names) registered under ".CN".

(IV) Number of Internet Broadband Access Ports

By December 2023, the number of broadband Internet access ports in China had reached 1.136 billion, a net increase of 64.86 million compared with December 2022. Among them, FTTH/O ports reached 1.094 billion, a net increase of 69.15 million compared with December 2022, and the proportion increased from 95.7% to 96.3%. The number of 10G PON ports with gigabit network service capacity reached 23.02 million, a net increase of 7.792 million compared with December 2022.

Number of Internet Broadband Access Ports

Date	Value
Dec. 2019	9.16
Dec. 2020	9.46
Dec. 2021	10.18
Dec. 2022	10.71
Dec. 2023	11.36

■ Number of Internet Broadband Access Ports (100 million)

Source: The Ministry of Industry and Information Technology   2023.12
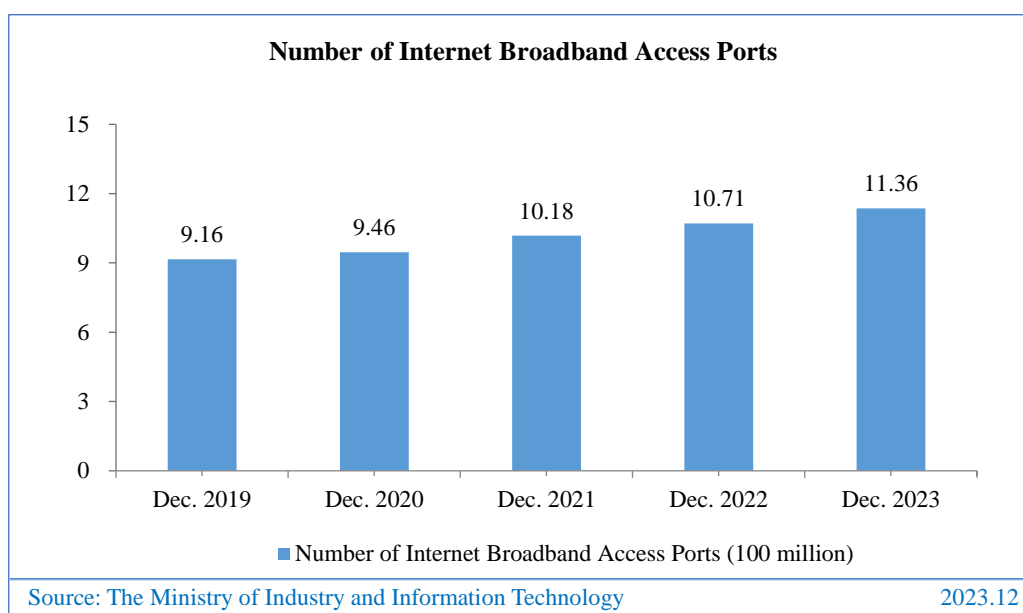
Figure 5   Number of Internet Broadband Access Ports

(V) Total Length of Fiber Optic Cable Lines

By December 2023, the total length of fiber optic cable lines reached 64.32 million kilometers, including 4.738 million kilometers built in the year. Of them, long-distance fiber optic cable lines, local relay fiber optic cable lines and access fiber optic cable lines were 1.14 million km, 23.10 million km and 40.08 million km long, respectively.

Total Length of Fiber Optic Cable Lines

Dec. 2019	4741
Dec. 2020	5169
Dec. 2021	5481
Dec. 2022	5958
Dec. 2023	6432

■ Total Length of Fiber Optic Cable Lines (10,000 km)

Source: The Ministry of Industry and Information Technology   2023.12
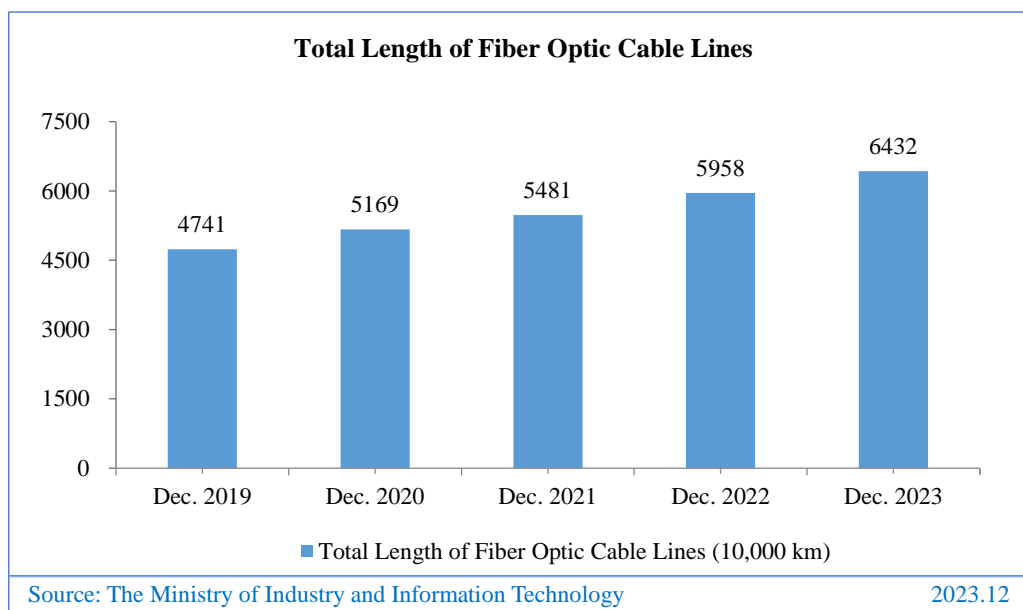
Figure 6   Total Length of Fiber Optic Cable Lines

II. Application of Basic Internet Resources

(I) Websites

As of December 2023, there were 3.88 million websites[8] in China.

Number of Websites

Dec. 2019	497
Dec. 2020	443
Dec. 2021	418
Dec. 2022	387
Dec. 2023	388

■ Number of Websites (10,000)

Source: CNNIC Statistical Survey on China's Internet Development   2023.12
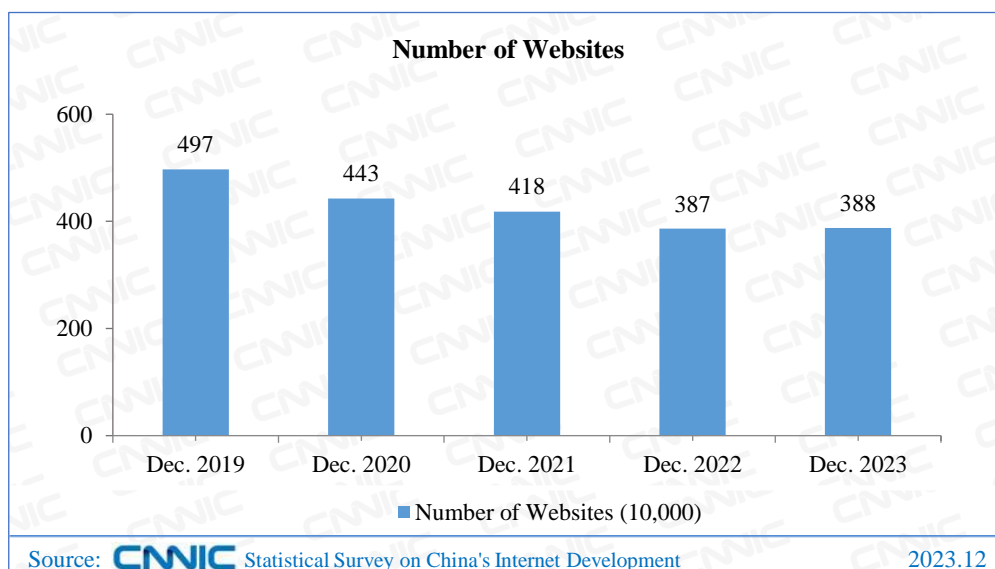
Figure 7   Number of Websites[9]

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[8] Websites: means those whose domain name registrants are within the territory of the P.R.C.
[9] The number of websites does not include websites ending with "EDU.CN".

As of December 2023, there were 2.33 million websites with domain names ending with ".CN".

Number of Global Websites with Domain Names Ending with ".CN"

Source: CNNIC Statistical Survey on China's Internet Development   2023.12

Figure 8   Number of Websites with Domain Names Ending with ".CN"[10]

(II) Webpages

As of December 2023, the number of webpages in China reached 382 billion, marking a 6.5% increase compared to December 2022.

Number of Web Pages

Source: Baidu   2023.12

Figure 9   Number of Web Pages

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[10] The number of global websites ending with ".CN" does not include those ending with "EDU.CN".

Among them, the number of static webpages[11] was 261.8 billion, accounting for 68.5% of the total number of webpages; the number of dynamic webpages[12] was 120.2 billion, accounting for 31.5% of the total number of web pages.

Table 4   Comparison of Web Page Numbers between Dec. 2022 and Dec. 2023

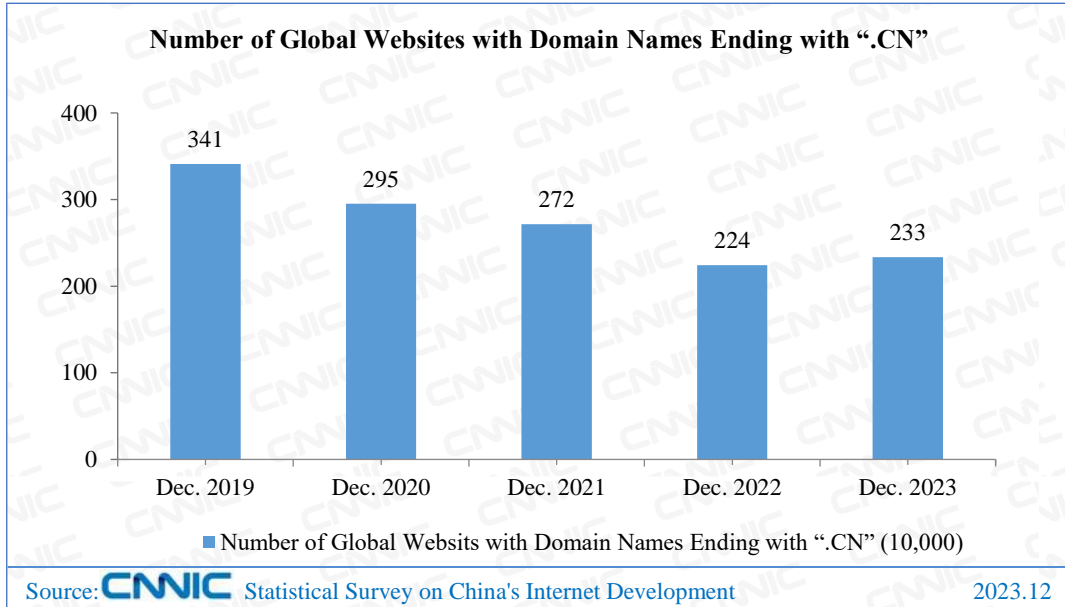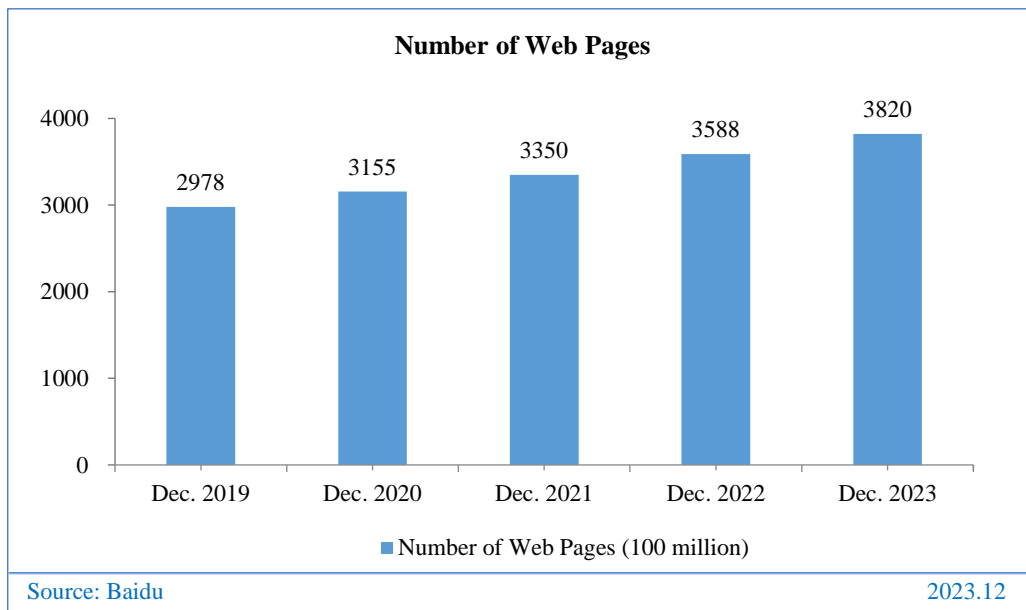| Category	Unit	December 2023	Growth rate from Dec. 2022 (%)
Total web pages	1	382,010,040,764	6.5
Static web pages	1	261,802,218,339	7.4
Proportion in total web pages	%	68.5%	--
Dynamic web pages	1	120,207,822,425	4.4
Proportion in total web pages	%	31.5%	--
Web pages size (total bytes)	KB	32,326,287,366,056	11.2
Average number of bytes per page	KB	85	4.4

Source: Baidu

III. Internet Access Environment

(I) Internet Access Devices

Up to December 2023, the proportions of Chinese netizens accessing the Internet through mobile phones, desktop computers, laptop computers, TVs and tablet computers were 99.9%, 33.9%, 30.3%, 22.5% and 26.6%, respectively.

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[11] Static webpage: refers to a webpage in standard HTML format, with file extensions of .htm and .html , which may include text, images, sounds, FLASH animations, client scripts, ActiveX controls and JAVA applets.
[12] Dynamic webpage: refers to a webpage that integrates basic HTML syntax specification with advanced programming languages such as Java, VB and VC, database programming and other technologies, where the displayed content can change with time, environment or the result of database operation although th -e page codes have not changed.

Usage of Internet Access Devices
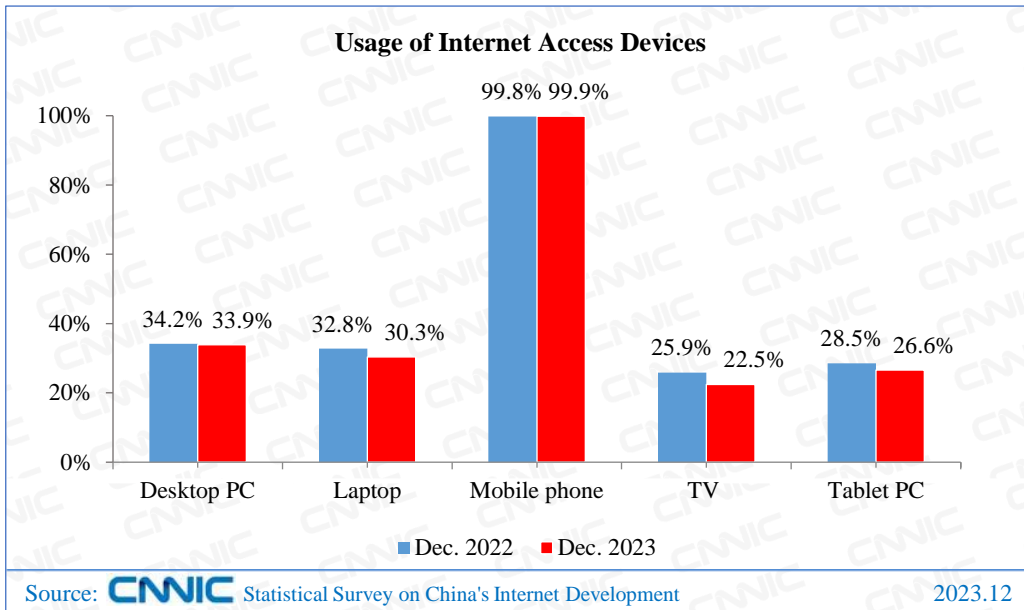
Figure 10   Usage of Internet Access Devices

In 2023, the shipment of domestic mobile phones amounted to 289 million, up 6.5% year-on-year. The shipment of 5G mobile phones was 240 million, up 11.9% year-on-year, accounting for 82.8% of the total mobile phone shipment in the same period.

5G Mobile Phone Shipments and Proportion in All in the Same Period
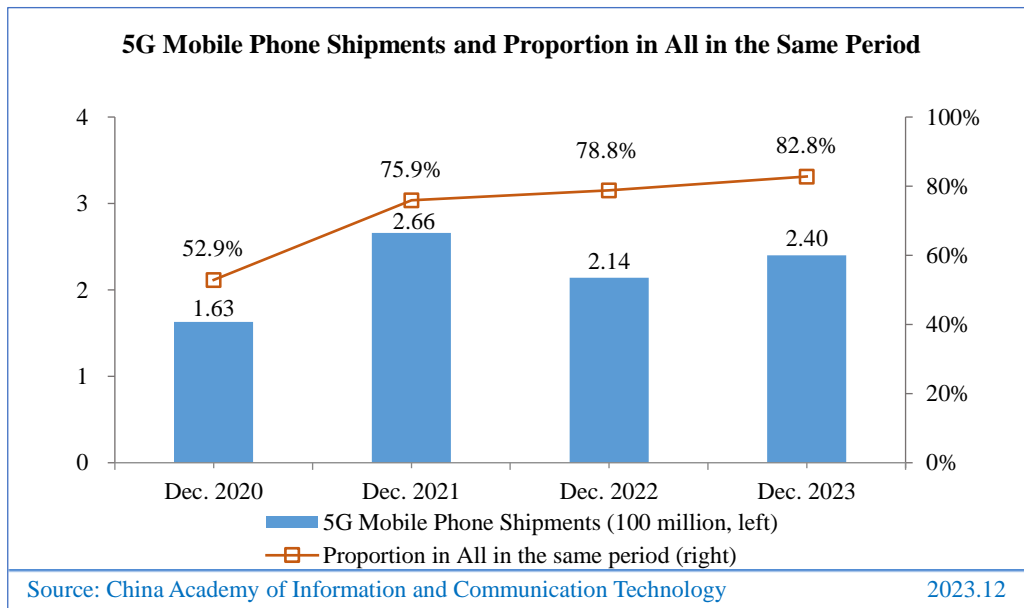
Figure 11   5G Mobile Phone Shipments and Proportion in All in the Same Period

(II) Online Duration

By December, 2023, weekly average online duration[13] of China's Internet users was 26.1 hours.
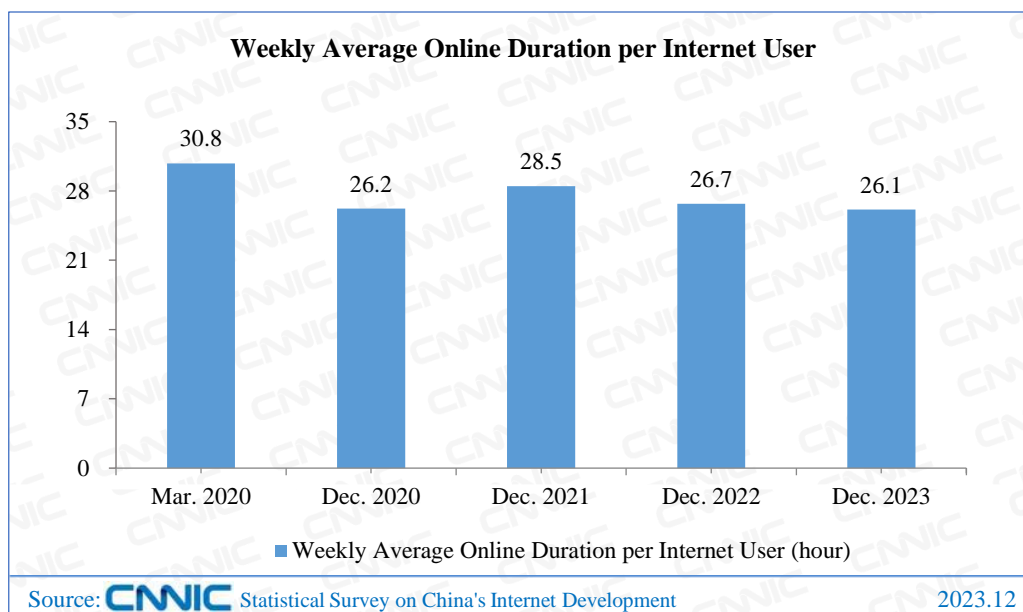
Figure 12   Weekly Average Online Duration per Internet User

(III) Fixed Broadband Access

As of December 2023, the three basic telecommunications operators had 636 million fixed broadband subscribers, a net increase of 46.66 million from December 2022. Specifically, fixed Internet broadband subscribers enjoying an access rate of 100Mbps or above reached 601 million, a net increase of 47.56 million and accounting for 94.5% of the total; those enjoying an access rate of 1,000Mbps or above reached 163 million, a net increase of 71.53 million from December 2022, accounting for 25.7% of all Internet users.

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[13] Weekly average online duration per Internet user refers to the average daily number of hours on the Internet multiplied by 7 days in a week in the past six months.

![CNNIC 中国互联网络信息中心 CHINA INTERNET NETWORK INFORMATION CENTER]

Number of Fixed Broadband Subscribers

Source: The Ministry of Industry and Information Technology   2023.12
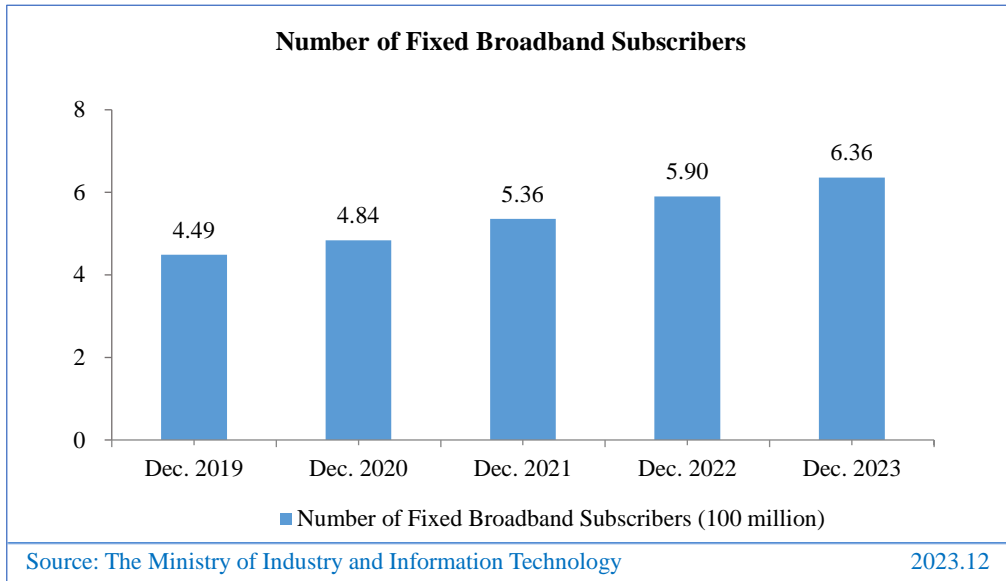
Figure 13   Number of Fixed Broadband Subscribers

Proportion of Fixed Broadband Subscribers with an Access Rate of 100Mbps or Above

Source: The Ministry of Industry and Information Technology   2023.12
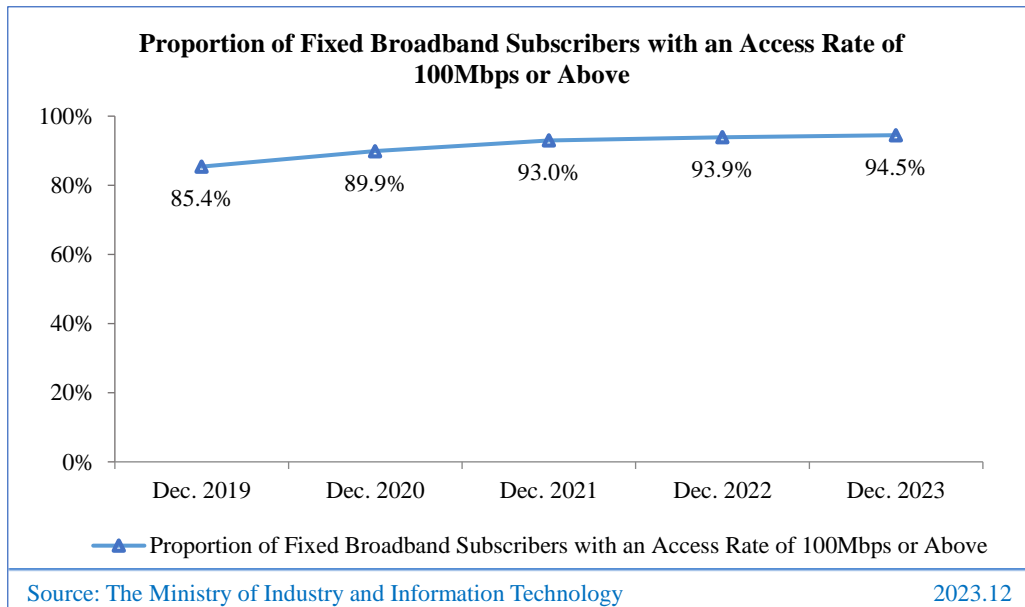
Figure 14   Proportion of Fixed Broadband Subscribers with an Access Rate of 100Mbps or

Above

Number of Fixed Broadband Subscribers with an Access Rate of 1000Mbps or Above

Source: The Ministry of Industry and Information Technology　　　　2023.12
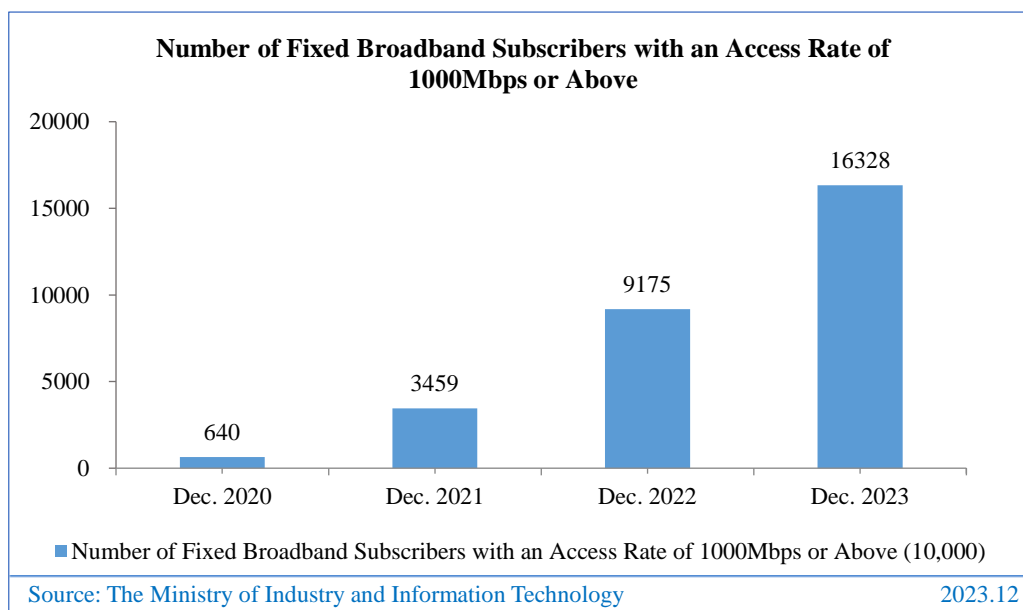
Figure 15　Number of Fixed Broadband Subscribers with an Access Rate of 1000Mbps or Above

(IV) Mobile Internet Access Traffic and Mobile Phone Subscriber Base

In 2023, China's mobile Internet access traffic reached 301.5 billion GB, a year-on year increase of 15.2%.

Mobile Internet Access Traffic

Source: The Ministry of Industry and Information Technology　　　　2023.12
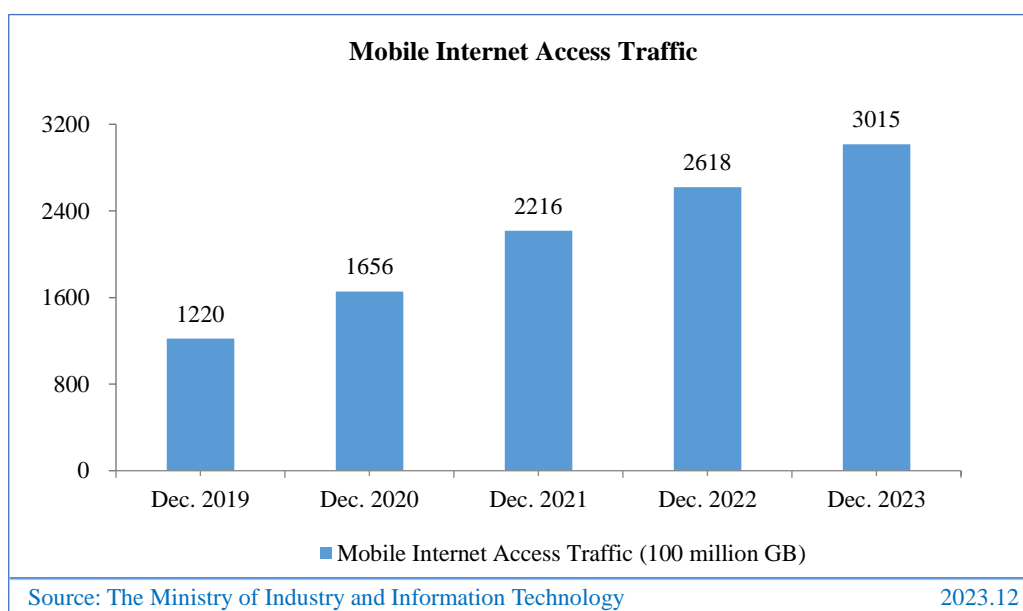
Figure 16　Mobile Internet Access Traffic

As of December 2023, the total number of mobile phone subscribers reached 1.727 billion, a net

increase of 43.15 million compared with December 2022. Among them, 5G mobile phone subscribers reached 805 million, accounting for 46.6% of mobile phone subscribers, up 13.3 percentage points compared to December 2022.

Size of Mobile Phone Subscribers

Source: The Ministry of Industry and Information Technology   2023.12
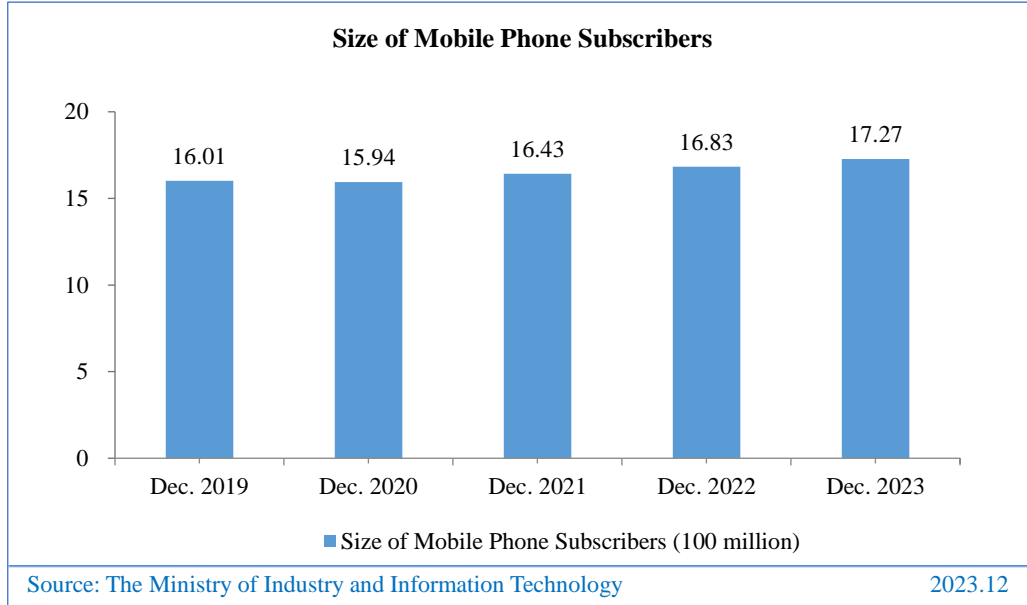
Figure 17   Size of Mobile Phone Subscribers

(V) Number of Cellular IoT Terminal Users

By December 2023, the three basic telecommunications operators had developed 2.332 billion cellular IoT terminal users, a net increase of 488 million compared with December 2022, accounting for 57.5% of the total mobile network terminal connections (covering both mobile phone subscribers and cellular IoT terminal users).

Number of Celluar IoT Terminal Users

Source: The Ministry of Industry and Information Technology   2023.12
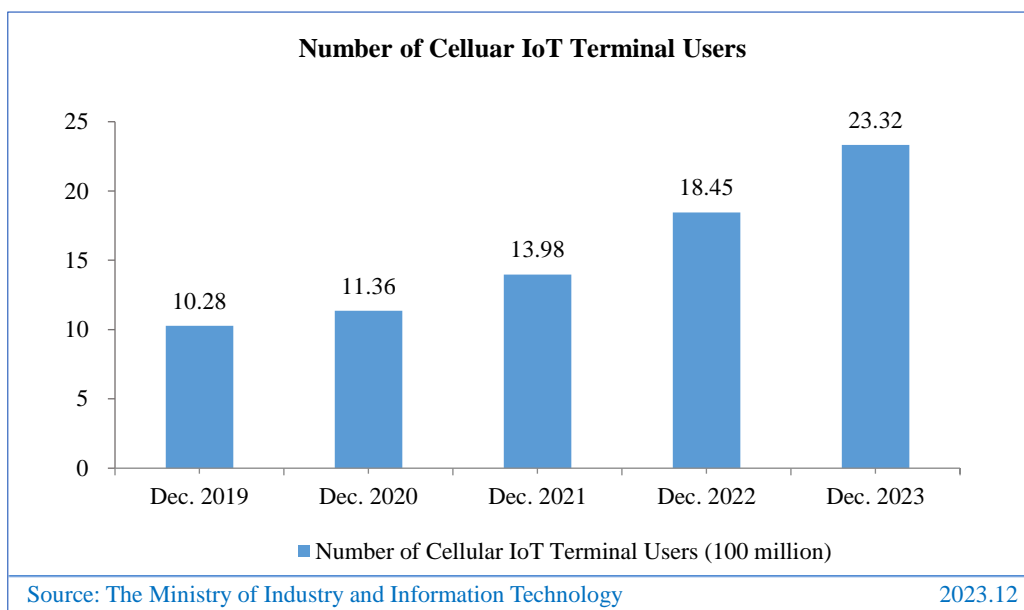
Figure 18   Number of Cellular IoT Terminal Users

The 53rd Statistical Report on China's Internet Development

Chapter II Size and Structure of Internet Users

I. Size of Internet Users

(I) Overall Size of Internet Users

As of December 2023, China had 1,092 million netizens, up 24.80 million over December 2022, and its Internet penetration had reached 77.5%, up 1.9 percentage points over December 2022.

Netizen Size and Internet Penetration from Mar. 2020 to Dec. 2023

Source: CNNIC Statistical Survey on China's Internet Development 2023.12

Figure 19   Netizen Size and Internet Penetration from Mar. 2020 to Dec. 2023

Up to December 2023, the number of mobile Internet users in China had reached 1,091 million, up 25.62 million over December 2022. The proportion of China's netizens accessing the Internet via mobile phones was 99.9%.

Size of Mobile Internet Users and Their Proportion in All Netizens from Mar. 2020 to Dec. 2023
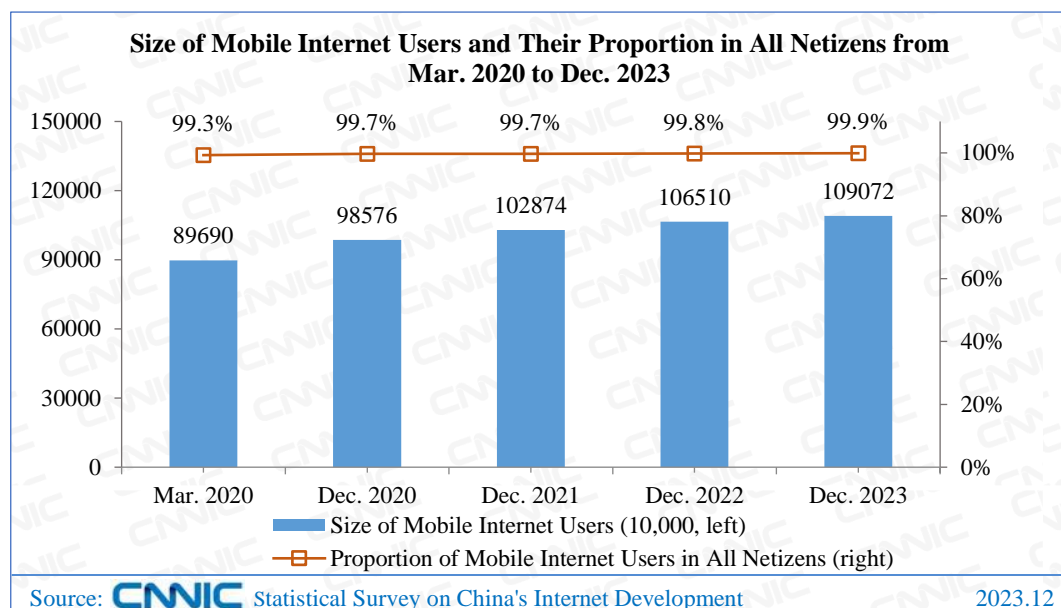
Figure 20 Size of Mobile Internet Users and Their Proportion in All Netizens from Mar. 2020 to Dec. 2023

In 2023, China's development in digitization, network, and intelligence progressed by leaps and bounds, continuously consolidating its digital foundation and steadily enhancing service quality, effectively driving the growth of Internet penetration.

First, the construction of network infrastructure has been continuously strengthened. The "Dual Gigabit" network represented by 5G and gigabit optical networks has entered a rapid development and construction stage, with continuous improvement of network infrastructure. The number of fixed broadband users with speeds of 1 gigabit per second or higher reached 163 million, an increase of 10.1 percentage points compared to the end of the previous year[14]. A total of 3.377 million 5G base stations have been b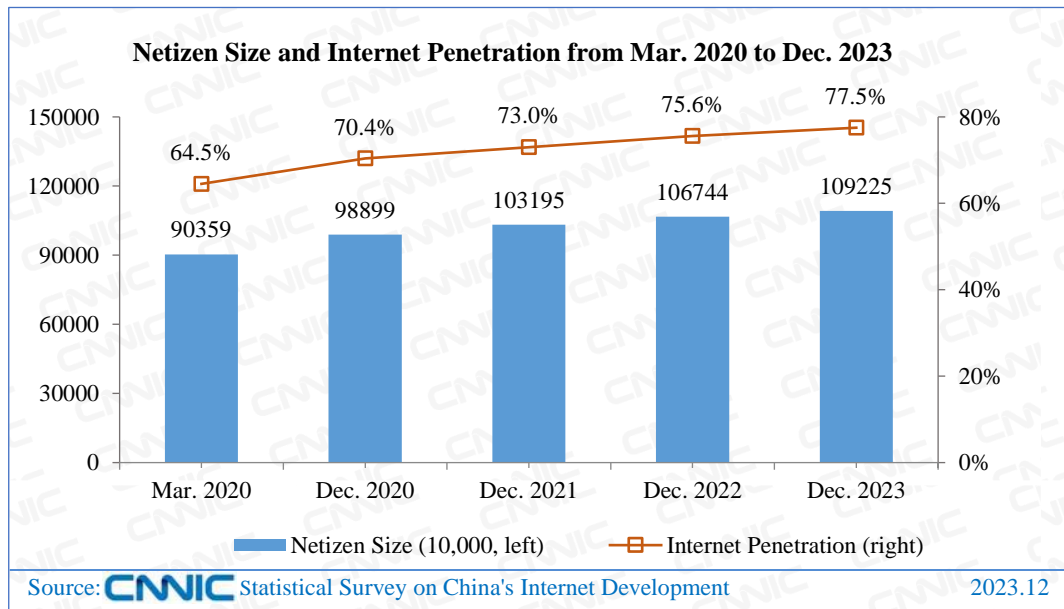uilt, covering all urban areas of prefecture-level cities and county-level urban areas, and the number of 5G mobile phone users has reached 805 million[15].

Second, the communication service quality has been deeply optimized. The facilitation of telecom services has been greatly improved, and the application products of on-shelf services were more abundant. As of September, the proportion of online transactions for the entire year exceeded 80%, with over 20 million users utilizing video customer service[16]. The number of APPs available

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[14] Source: Ministry of Industry and Information Technology, https://wap.miit.gov.cn/gxsj/tjfx/txy/art/2024/art_76b8ecef28c34a508f32bdbaa31b0ed2.html, January 24, 2024.

[15] Source: Ministry of Industry and Information Technology, https://www.miit.gov.cn/xwdt/gxdt/ldhd/art/2024/art_fb1ca760af7c40578600f3a62cfcab22.html, January 19, 2024.

[16] Source: Ministry of Industry and Information Technology, https://wap.miit.gov.cn/zwgk/zcwj/wjfb/tg/art/2024/art_8aad8a995d7f4a2b8b9f359b07eaae54.html, January 29, 2024.

reached 2.61 million, with over 7 million applets[17].

Third, smart life has enhanced netizens' sense of happiness. In 2023, the integration of 5G with all walks of life was accelerating the process of digital construction in China and injecting new energy into economic and social development. "5G+ Smart Travel" and "5G+ Smart Transportation" has developed rapidly. The Department of Culture and Tourism of Heilongjiang Province launched an applet "Travel in Heilongjiang with One Click", allowing visitors to enjoy "Smart Tour in Hei-longjiang". China Mobile was leveraging 5G as a driving force to construct the "One Traffic Smart Transport Platform", effectively enhancing the capabilities to apply intelligent transportation[18].

Fourth, the elderly-oriented transformation of Internet applications was further promoted. The protection for the elderly and the disabled to enjoy digital life has been significantly enhanced. 2,577 websites and APPs that were commonly used by the elderly and the disabled have completed elderly-oriented and barrier-free transformation[19], and more than 140 million smart mobile phones and smart TVs have completed elderly-oriented transformation[20].

(II) Size of Internet Users in Urban and Rural Areas

As of December 2023, the size of urban Internet users in China was 766 million or 70.2% of the national total, while that of rural Internet users was 326 million or 29.8% of the national total.

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[17] Source: Chinese government website, https://www.gov.cn/govweb/lianbo/fabu/202310/content_6911086.htm , October 21, 2023.
[18] Source: China Intelligent Transportation, http://citnet.cn/index.php?m=content&c=index&a=show&catid=134&id=3211, January 26, 2023.
[19] Source: Chinese government website, https://www.gov.cn/lianbo/bumen/202401/content_6927154.htm, January 19, 2024.
[20] Source: Chinese government website, https://www.gov.cn/lianbo/bumen/202310/content_6910609.htm, October 20, 2023.

Urban-Rural Structure of Internet Users
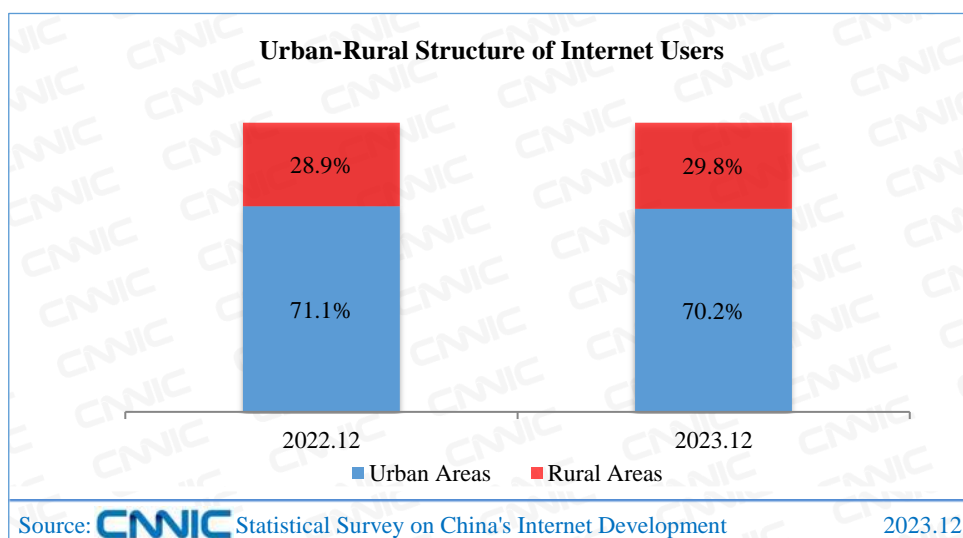
Figure 21　Urban-Rural Structure of Internet Users

Up to December 2023, the Internet penetration in urban China was 83.3%, up 0.2 percentage points over December 2022, while that in rural areas was 66.5%, up 4.6 percentage points over December 2022.
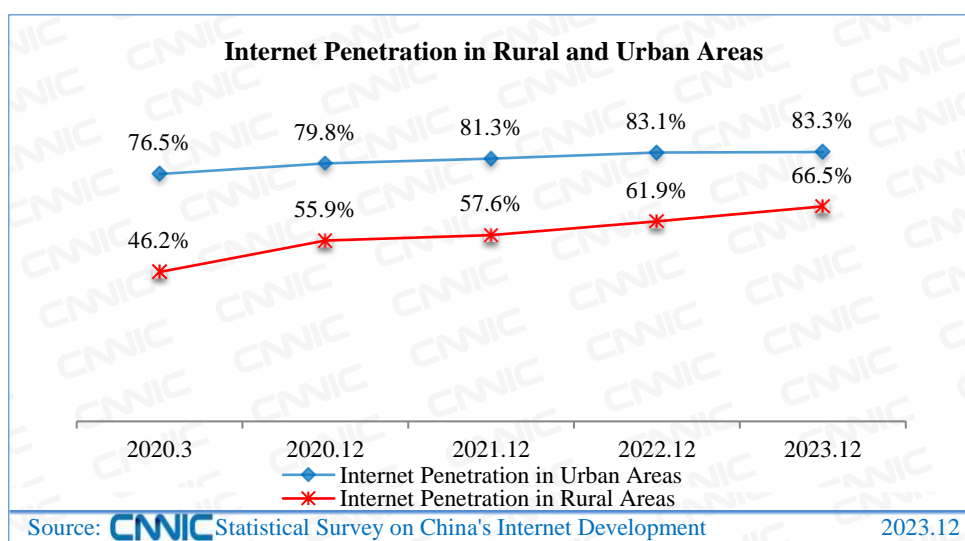
Figure 22　Internet Penetration in Rural and Urban Areas

On the one hand, the rural network infrastructure continued to improve. As at the end of 2023, the total number of rural broadband users in China reached 192 million, a net increase of 15.57 million or 8.8% over the previous year, and the growth rate was 1.3 percentage points higher

than that of urban broadband users[21]. The 5G network had basically covered areas above the township level and administrative villages meeting certain conditions.

Second, rural Internet application scenarios continued to expand. The emergence of new forms of business, new modes and new scenarios had an important lever for further prosperity of the rural economy and increasing income for farmers. China's rural e-commerce developed steadily, and the annual rural online retail sales reached RMB 2.49 trillion[22]. "5G+ Smart Travel" effectively drove rural consumption and increased farmers' income. For example, Qianhu Miao Village in Xijiang, Guizhou relied on 5G network to realize information service integration, which was convenient for tourists to travel. During the Spring Festival in 2023, Xijiang Miao Village achieved a comprehensive tourism income of RMB 140 million, a year-on-year increase of 532.5%[23]。

(III) Size of Non-Internet Users

As of December 2023, the size of non-Internet users in China reached 317 million, down 26.88 million compared to December 2022. From a regional perspective, the majority of China's non-Internet users were still permanent residents in rural areas, and the proportion of non-Internet users in rural areas was 51.8%, which was 3.5 percentage points higher than that in urban areas. In terms of age, the elderly aged 60 and above were the main groups of non-netizens. As of December 2023, the proportion of non-netizens aged 60 and above in China was 39.8%.

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[21] Source: Chinese government website, https://www.gov.cn/lianbo/bumen/202401/content_6928019.htm, January 24, 2024.
[22] Source: Chinese government website, https://www.gov.cn/lianbo/fabu/202401/content_6927911.htm, January 23, 2024.
[23] Source: The State Council Information Office, http://www.scio.gov.cn/live/2023/33065/xgbd/202312/t20231213_821896.html, May 6, 2023.

Non-netizens' Inconvenience in Life Due to Not Being Able to Access the Internet

Inconvenient to buy things	20.1%
Difficult to do errands and pay bills	18.6%
Difficult to contact family and friends	15.3%
Difficult to register with the hospital and buy medicine	14.7%
Lack of leisure and recreational activities	13.7%
Difficult to buy train and airplane tickets	13.4%
Difficult to hail a taxi	13.1%

Source: CNNIC Statistical Survey on China's Internet Development   2023.12

Figure 23   Non-netizens' Inconvenience in Life Due to Not Being Able to Access the Internet

Lack of skills, limited literacy, age factors and insufficient devices were the main reasons why non-netizens were unable to use the Internet. 51.6% of non-netizens were unable to access the Internet because they did not know how to use the computer/Internet; 27.7% because they did not master Pinyin or due to limited literacy; 20.8% because they were too old or too young to use the Internet; 16.7% because they did not have computers or related devices.

Reasons Why Non-netizens don't Use the Internet

Do not know how to use computers/ networks	51.6%
Do not master Pinyin or due to other literacy limitations	27.7%
Too young/ old	20.8%
Do not have the necessary devices, like a computer	16.7%
No need/ interest	13.6%
No time to surf the Internet	10.4%

Source: CNNIC Statistical Survey on China's Internet Development   2023.12

Figure 24   Reasons Why Non-netizens don't Use the Internet

For 29.9%, 26.9% and 25.9% of non-netizens, the primary factor to drive them to use the Internet was: easy access to special information such as medical and healthcare information, facilitating

communication with family or relatives, and increasing income, such as selling agricultural products, respectively.

Primary Factors to Drive Non-netizens to Use the Internet

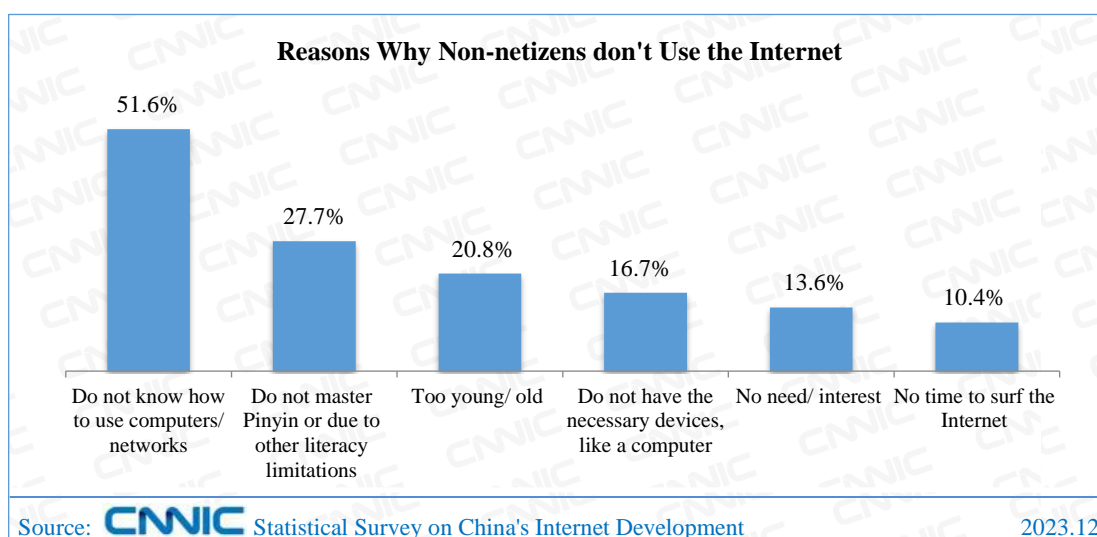| Factor	Percentage
Easy access to special information, such as medical and healthcare information	29.9%
Facilitating communication with family or relatives	26.9%
Increasing income, such as selling agricultural products	25.9%
Availability of barrier-free Internet access devices	24.5%
Free training in Internet use	23.9%
More convenient to buy goods online	22.9%
Reduced cost of Internet access	21.3%

Source: CNNIC Statistical Survey on China's Internet Development   2023.12

Figure 25   Primacy Factors to Drive Non-netizens to Use the Internet

II. Structure of Internet Users

(I) Gender Structure

By December, 2023, the male-to-female ratio of Chinese netizens was 51.2:48.8, roughly the same as that of China's overall population.

Gender Structure of Internet Users

Female 48.8%   Male 51.2%

Source: CNNIC Statistical Survey on China's Internet Development   2023.12
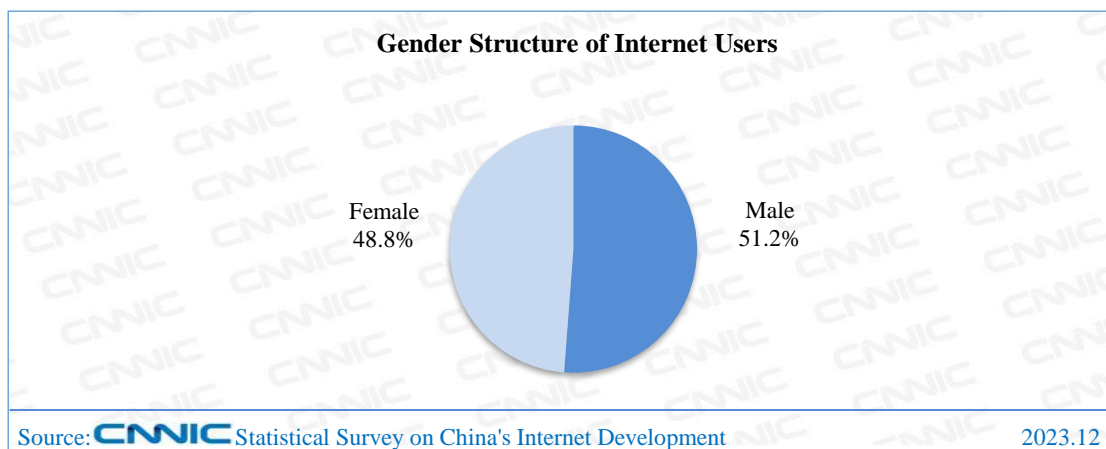
Figure 26   Gender Structure of Internet Users

(II) Age Structure

As of December 2023, the proportion of netizens aged 20-29, 30-39 and 40-49 was 13.7%, 19.2% and 16.0%, respectively. The proportion of netizens aged 50 and above had increased from 30.8% in December 2022 to 32.5%, showing that the Internet further penetrated into the middle-elderly-aged group.

Age Structure of Internet Users

3.8%	14.7%	13.7%	19.2%	16.0%	16.9%	15.6%
Aged under 10	Aged 10-19	Aged 20-29	Aged 30-39	Aged 40-49	Aged 50-59	Aged 60 or above

Source: CNNIC Statistical Survey on China's Internet Development   2023.12

Figure 27   Age Structure of Internet Users

Chapter III Development of Internet Applications

I. Overview of Internet Applications

In 2023, all kinds of Internet applications in China continued to deepen, the scale of users continued to grow, and the proportion of Individuals Using the Internet reached 90.6%[24]. Among them, t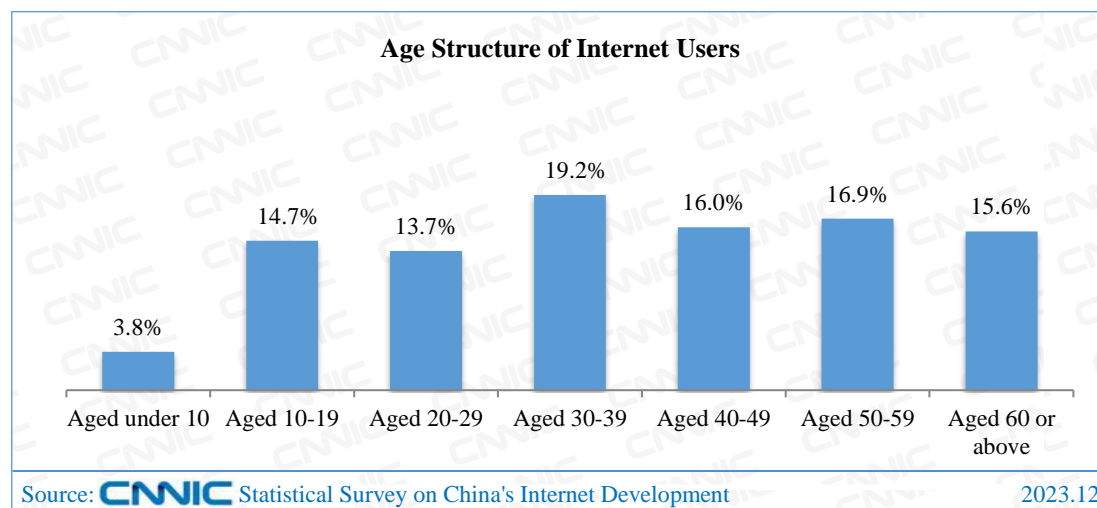he number of users of online car hailing, online travel booking, online shopping, live streaming and Internet medical care increased by 90.57 million, 86.29 million, 69.67 million, 65.01 million and 51.39 million or 20.7%, 20.4%, 8.2%, 8.7% and 14.2%, respectively.

Table 5   User Size and Utilization Ratio of Each Internet Application between Dec. 2022 and Dec. 2023

Application	User Size Dec. 2023 (10,000)	Utilization Ratio Dec. 2023	User Size Dec. 2022 (10,000)	Utilization Ratio Dec. 2022	Growth Rate
Online video (including short video)	106,671	97.7%	103,057	96.5%	3.5%
Instant Messaging	105,963	97.0%	103,807	97.2%	2.1%
Short Video	105,330	96.4%	101,185	94.8%	4.1%
Online Payment	95,386	87.3%	91,144	85.4%	4.7%
Online Shopping	91,496	83.8%	84,529	79.2%	8.2%
Search Engine	82,670	75.7%	80,166	75.1%	3.1%
Live Streaming	81,566	74.7%	75,065	70.3%	8.7%
Online Music	71,464	65.4%	68,420	64.1%	4.4%
Online Meal Ordering	54,454	49.9%	52,116	48.8%	4.5%
Online Car-hailing	52,765	48.3%	43,708	40.9%	20.7%

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[24] Individuals Using the Internet is one of the important indicators for the International Telecommunication Union (ITU) to measure the development of informatization in different countries and regions. Considering the common practice of countries and regions in reporting this indicator and the use of Internet by individuals in China, the data was calculated according to the proportion of individuals using the Internet in China.

Application	User Size Dec. 2023 (10,000)	Utilization Ratio Dec. 2023	User Size Dec. 2022 (10,000)	Utilization Ratio Dec. 2022	Growth Rate
Online Literature	52,017	47.6%	49,233	46.1%	5.7%
Online Travel Booking	50,901	46.6%	42,272	39.6%	20.4%
Online Medical Service	41,393	37.9%	36,254	34.0%	14.2%
Online Audio[25]	33,189	30.4%	31,836	29.8%	4.3%

II. Basic Applications

(I) Instant Messaging

As of December 2023, the user size of instant messaging in China reached 1.06 billion, up 21.55 million from December 2022, making up 97.0% of the total netizens.
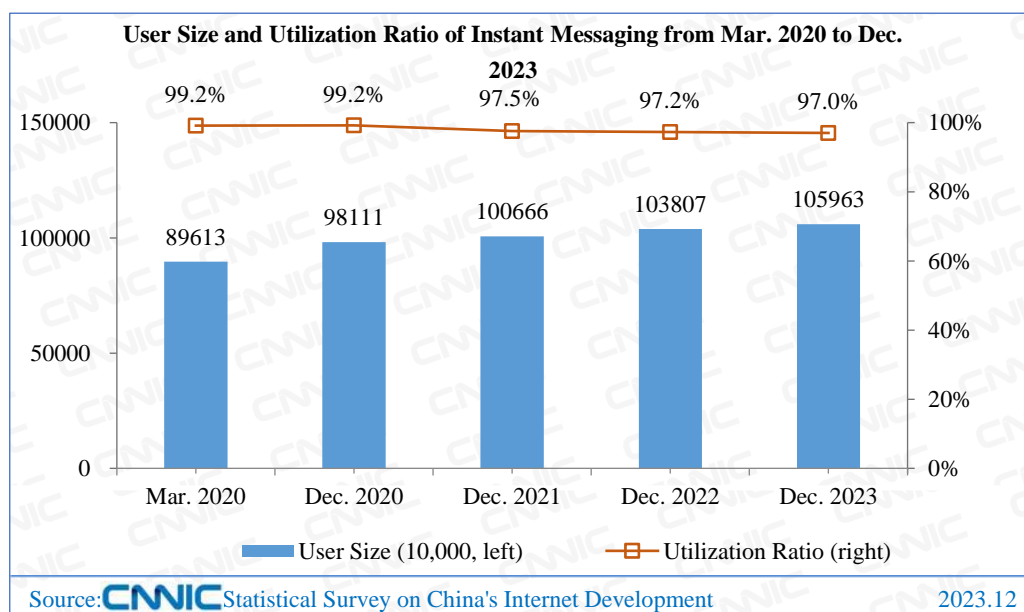

Figure 28　User Size and Utilization Ratio of Instant Messaging from Mar. 2020 to Dec. 2023

In 2023, China's instant messaging services saw a promising development momentum, with accelerated technological innovation and steady progress in the overall industry, contributing to the building of a network power.

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[25] Online Audio includes online book listening and network radio station.

First, the business development showed a good momentum. As a traditional field of instant messaging services, online advertising revenue increased significantly. Take Tencent as an example. In the first three quarters of 2023, online advertising revenue increased by more than 13 billion or 23.5% year-on-year.[26]。 As a new field of instant messaging services, short videos in applications such as WeChat and QQ achieved rapid development. The data showed that the total broadcast volume of WeChat video accounts increased by more than 50%[27] year-on-year, and the usage time increased by nearly 100% year-on-year[28].

Second, technological innovation promoted product iteration. Instant messaging products introduced artificial intelligence technology to quickly realize intelligent upgrade and continuously improve the operational efficiency of enterprises. For instance, DingTalk integrated its large model Tongyi Qianwen into core functions such as group chat and video conferences, enabling users to activate AI services through conversational interactions. Feishu launched a new product called Feishu Intelligent Partner, which offered innovative services such as smart translation and automatic Q&A in various scenarios such as content creation, data analysis, and system building, effectively enhancing the intelligence level of instant messaging products.

(II) Search Engines

As of December 2023, the size of search engine users in China reached 827 million, an increase of 25.04 million over December 2022, accounting for 75.7% of the total Internet users.

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[26] Source: Tencent's Financial Report 2023 Q1-Q3, https://www.tencent.com/zh-cn/investors/quarter-result.html, November 16, 2023.
[27] Source: Tencent's Financial Report 2023 Q3, https://static.www.tencent.com/uploads/2023/11/15/b19d7d117c9d29d7b7cf05cbc4cf0c83.PDF, November 16, 2023.
[28] Source: Tencent's Interim Report 2023, https://static.www.tencent.com/uploads/2023/08/29/1d726a2226130c610975c21480cf1890.PDF, August 16, 2023.

User Size and Utilization Ratio of Search Engins from Mar. 2020 to Dec. 2023
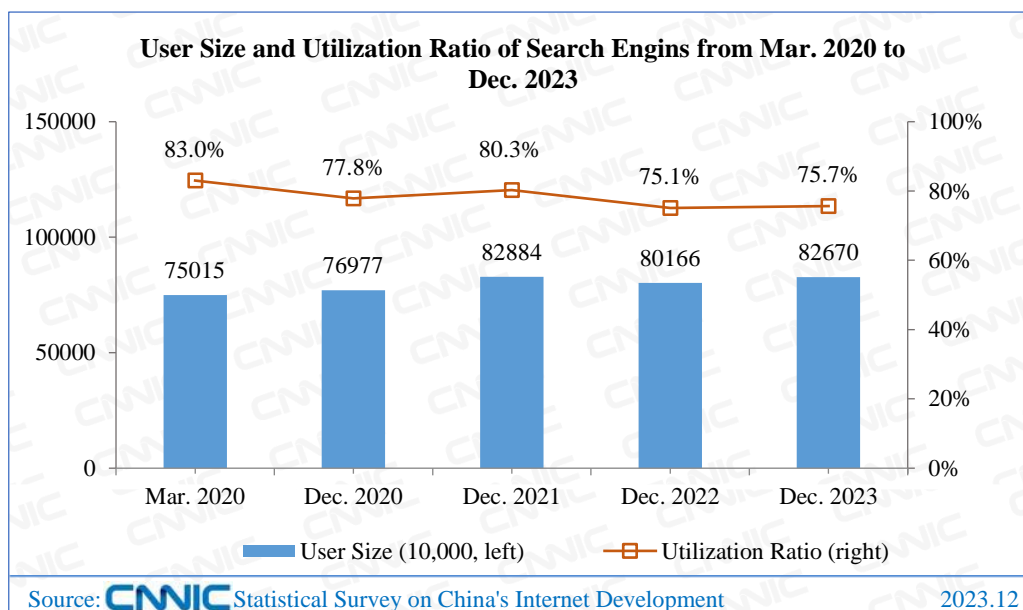
Figure 29   User Size and Utilization Ratio of Search Engines from Mar. 2020 to Dec. 2023

In 2023, the intelligent level of search engine products in China was continuously improved, and the application scenarios were gradually enriched, showing a good trend of deepening in both individuals and enterprises.

First, intelligent search products were launched. The rapid development of generative artificial intelligence technology promoted the evolution of traditional search to question-and-answer search, and continuously improved user search experience. For example, Opera browser launched its artificial intelligence service Aria to help users generate text or code and answer questions; 360 Search accessed 360 Zhinao and was upgraded to a conversational search service based on artificial intelligence to provide users with more accurate and personalized search results.

Second, intelligent manufacture applications were explored. Search engine enterprises promoted the combination of large models and industrial fields, gradually improving the intelligent level of the manufacturing industry, and constantly enriched and expanded new application scenarios. For example, Baidu's Kaiwu platform was reconstructed and upgraded based on a large model. At present, it served 220,000 enterprises and precipitated over 40,000 industrial models[29], covering work safety, smart logistics, smart quality inspection and other fields to help enterprises reduce costs and increase efficiency.

[29] Source: Baidu Yunzhi Conference 2023, https://cloud.baidu.com/summit/AIcloudsummit_2023/forum8/index.html, September 5, 2023.

(III) Online Office

As of December 2023, the user size of online office in China was 537 million, accounting for 49.2% of all Internet users.
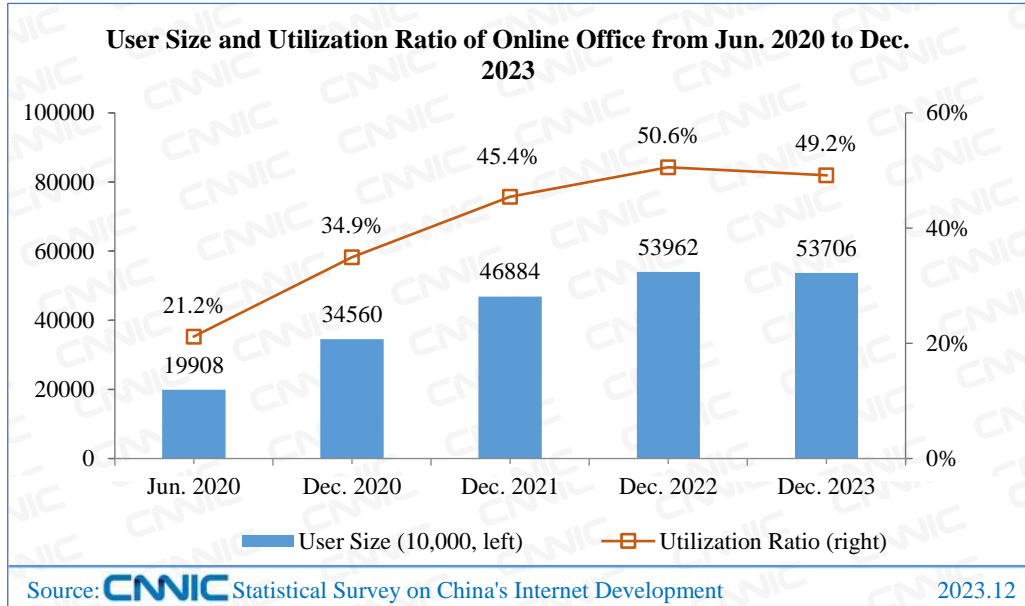

Figure 30　　User Size and Utilization Ratio of Online Office from Jun. 2020 to Dec. 2023

In 2023, China's online office sector continued to introduce emerging technologies and made positive progress in improving product intelligence and user interaction experience.

First, the level of product intelligence improved. By introducing artificial intelligence technologies, the intelligent level of online office products was effectively improved, helping users to improve office efficiency. For example, Kingsoft Office's intelligent application WPS AI can generate texts such as weekly reports and job postings, and it can also create PowerPoint presentations with just one click. DingTalk completed intelligent transformations in over 20 product lines and more than 80 scenarios, and it has been widely used in over 700,000 enterprises[30]。

Second, the interactive experience constantly upgraded. By introducing technologies such as

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[30] Source: Sina Technology, https://finance.sina.com.cn/tech/roll/2024-01-09/doc-inaaxhha5358785.shtml, January 9, 2024.

naked-eye 3D[31] and AR[32], online office products were able to help users view the design and man-ufacturing processes more intuitively and accurately, thus improving the interactive experience. For example, Tencent Conference launched the naked-eye 3D video conference function, so that users can see stereoscopic content from different perspectives by moving left and right, providing more realistic experience; Rokid, a domestic AR glasses company, released its product Rokid AR Studio, which can realize an immersive interactive experience of office scenes through gestures, voice and other interactive modes.

III. Business Transaction Applications

(I) Online Payment

As of December 2023, the user size of online payment in China had reached 954 million, up 42.43 million from December 2022, accounting for 87.3% of the Internet users.

User Size and Utilization Ratio of Online Payment from Mar. 2020 to Dec. 2023

Source: CNNIC Statistical Survey on China's Internet Development   2023.12

User Size (10,000, left) — Utilization Ratio (right)

Figure 31   User Size and Utilization Ratio of Online Payment from Mar. 2020 to Dec. 2023

In 2023, China's online payment industry had made steady progress with increasingly expanding size of users, and more abundant payment methods, helping the national economy to operate effi-ciently.

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[31] Naked 3D: means that you can feel the three-dimensional space effect without wearing any auxiliary e quipment.
[32] AR means Augmented Reality, an interactive experience that combines the real world and computer-ge nerated content.

First, the size of users reached a record high. With the improvement of top-level design and the continuous enrichment of service supply, the size of online payment users in China continued to expand, and the transaction amount increased significantly, helping the national payment system to develop in high quality. The number of online payment users reached 954 million, which maintained a growth trend for ten consecutive years. In the first three quarters, the number of online payment transactions[33] reached 1,107.7 billion, and the amount of transactions reached RMB 2,728 trillion, up by 15.7% and 9.7%[34], respectively.

Second, the payment method further expanded. As a new way of online payment, the usage rate of digital RMB was continuously improved, and the pilot work had been continuously deepened. By the end of December, 15.3% of netizens said they had used digital RMB, up 1.2 percentage points year-on-year. The pilot scope of digital RMB was extended to 26 regions in 17 provinces and cities[35]. The application scenarios have expanded from personal consumption services to corporate services such as inclusive loans, as well as government services such as taxation and agricultural assistance, providing strong support for the development of the real economy.

(II) Online Shopping

As of December 2023, the user size of online shopping in China had reached 915 million, up 69.67 million from December 2022, accounting for 83.8% of all Internet users.
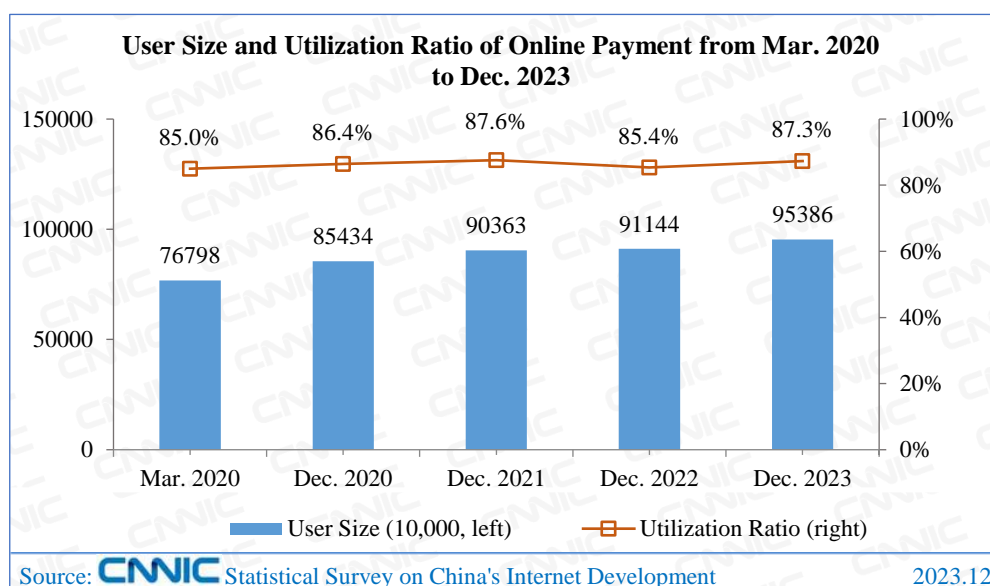
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[33] Online payment: including the number and amount of transactions initiated by customers through bank settlement accounts using computers and other electronic devices, as well as online payment business involving bank accounts and online payment business initiated by payment institutions.

[34] Source: Calculated according to the People's Bank of China's General Situation of Payment System Operation for 2022 and the first three quarters of 2023.

[35] Source: China National Radio, https://news.cnr.cn/native/gd/20230408/t20230408_526210986.shtml, April 8, 2023.

User Size and Utilization Ratio of Online Shopping from Mar. 2020 and Dec. 2023

Source: CNNIC Statistical Survey on China's Internet Development   2023.12
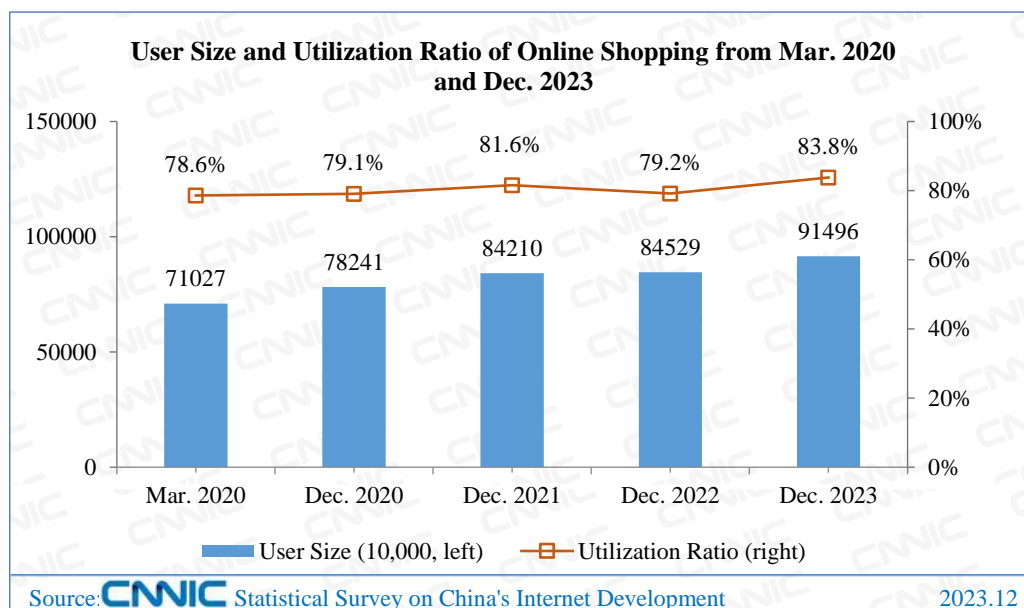
Figure 32   User Size and Utilization Ratio of Online Shopping from Mar. 2020 to Dec. 2023

In 2023, China's online shopping sector continued to develop healthily, and further played the role of stabilizing growth and promoting consumption, advancing the recovery of the national economy.

First, new highlights emerged in user consumption. The data showed that users who bought green energy-saving products online in the past six months accounted for 29.7% of the total online shopping users, and users who bought domestic products accounted for 58.3%. In addition, new products and brands led the new fashion of consumption. In the past six months, 19.7% of users bought new products or brands launched for the first time, such as brand-new categories and brands.

Second, platform enterprises expanded into new fields. Online shopping companies such as Taobao, Tmall and JD.COM had accelerated the creation of one-stop purchasing platforms for industrial products, promoted the digital transformation of upstream and downstream enterprises, and helped build a smooth industrial product circulation market. The data showed that the industrial products market at Taobao and Tmall attracted more than 90 million people to buy every year with the annual amount of transactions exceeding RMB 100 billion[36]. JD.COM Industrials effectively improved the efficiency of users' procurement by developing online sales of industrial products and exploring industrial supply chain services, and served about 6,900 key enterprises and more than 2.6 million SMEs[37].

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[36] Source: China Economic Net, https://www.cet.com.cn/xwsd/3450534.shtml, September 25, 2023.
[37] Source: Guangming Net, https://economy.gmw.cn/2023-11/24/content_36987493.htm, November 24, 2023.

(III) Online Meal Ordering

As of December 2023, the user size of online meal ordering in China reached 545 million, an increase of 23.38 million compared with December 2022, accounting for 49.9% of the total Internet users.

User Size and Utilization Ratio of Online Meal Ordering from Mar. 2020 to Dec. 2023

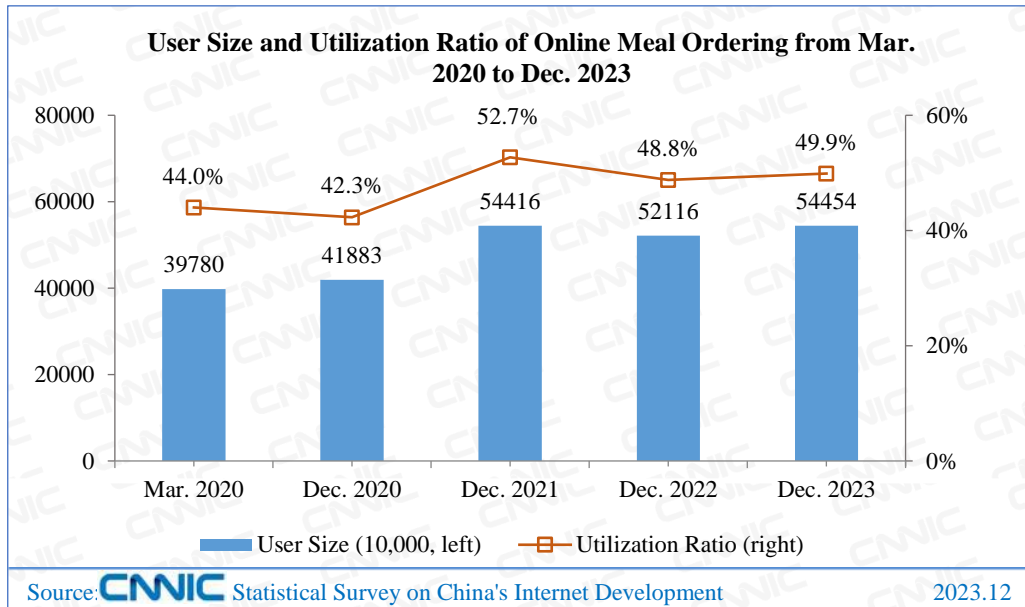Source: CNNIC Statistical Survey on China's Internet Development   2023.12

Figure 33   User Size and Utilization Ratio of Online Meal Ordering from Mar. 2020 to Dec. 2023

In 2023, China's Internet platform companies accelerated their investment in online meal ordering services, expanding their operational areas extensively, and continuously driving the life service industry towards higher quality and diversification.

First, market players became more diverse. Internet platforms such as Douyin and WeChat accelerated their investment and deployment of online meal ordering business. Douyin launched self-operated mode and regional agent take-out mode; Wechat provided interfaces for merchants with online meal ordering services through applet, and extended its business to the online meal ordering field; Kuaishou was also gradually developing online meal ordering services. The participation of diverse market players promoted more intense market competition.

Second, business area developed in depth. As the growth rate of usage in large and medium-sized cities gradually slows down, small and medium-sized cities as well as county-level areas have be-

come important regions for platforms to expand their online meal ordering business. In July, Meituan announced the launch of online meal ordering business in towns, scenic spots and other scenes, and at the same time attracted catering businesses and users by lowering the commission ratio and subsidizing promotions. The continuous expansion of the online meal ordering business helped drive the continuous improvement of digital services in small and medium-sized cities as well as county-level areas, enriching the digital life service scenarios.

(IV) Online Travel Booking

As of December 2023, the number of online travel booking services in China reached 509 million, an gradually increase of 86.29 million over December 2022, accounting for 46.6% of the total Internet users.
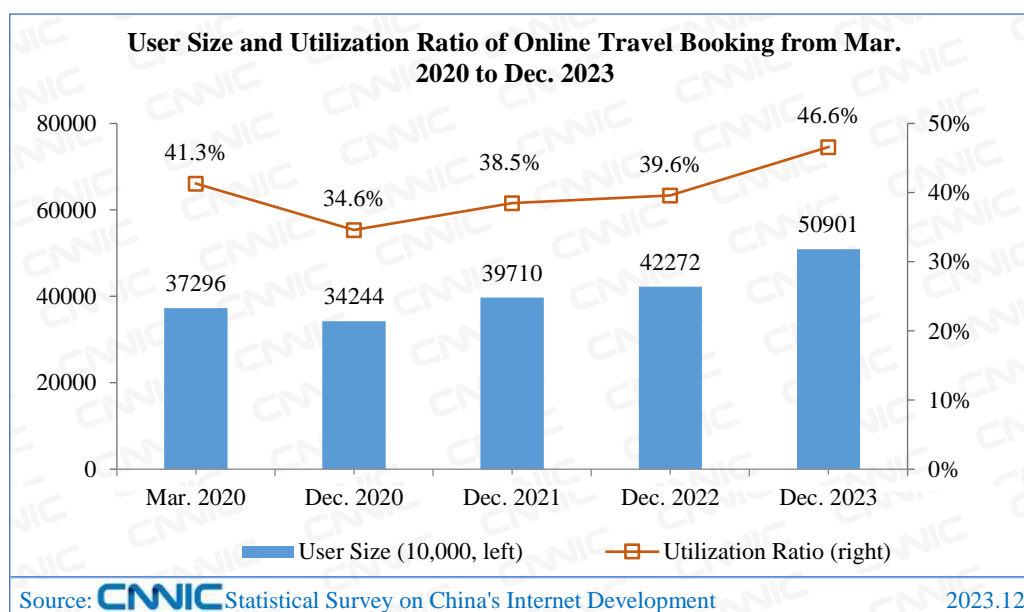
Figure 34　User Size and Utilization Ratio of Online Travel Booking from Mar. 2020 to Dec. 2023

In 2023, China's cultural and tourism policy guidance continued to exert its strength to promote the rapid growth of online travel booking enterprises, and the industry development achieved remarkable results.

With the rapid recovery of the domestic tourism economy, the number of tourists on major holidays, tourism income and other indicators exceeded the same period in 2019, driving the performance of online travel booking companies to increase significantly. For example, in the third quarter, Ctrip

Group's domestic hotel bookings increased by over 90% year-on-year, exceeding a 70% growth compared to the same period in 2019. Its net operating income increased by 99% year-on-year, with accommodation bookings, ticketing, and tourism vacation revenue increasing by 92%, 105%, and 243% respectively compared to the same period of the previous year[38]. Furthermore, enterprises such as Tongcheng-Elong and Fliggy Travel have also achieved rapid growth in performance.

IV. Online Entertainment Applications

(I) Online Video

As of December 2023, the user size of online video had reached 1.067 billion, up 36.13 million from December 2022, making up 97.7% of all Internet users. Among them, the number of short video users was 1.053 billion, an increase of 41.45 million over December 2022, accounting for 96.4% of all Internet users.
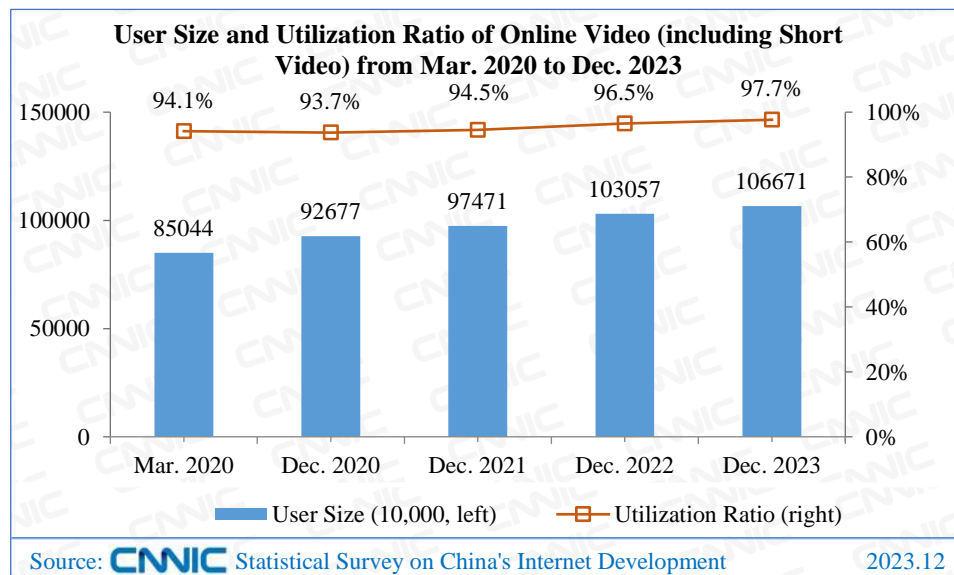
Figure 35   User Size and Utilization Ratio of Online Video (including Short Video) from Mar. 2020 to Dec. 2023

As the most attractive Internet application to new netizens, China's online video (including short video) content supply was constantly enriched, pushing the industry development to a new level.

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[38] Source: Ctrip's Financial Report 2023 Q3, https://investors.trip.com/static-files/29651e4c-21e0-433d-94e9-a858fb52c7f6, November 20, 2023.

The flourishing development of online video content represented by miniseries[39] had achieved both increased quantity and improved quality. **First of all, the number of miniseries continued to grow.** Online video platforms increased their support in shooting, publicity and other aspects to promote the further growth of the number of miniseries. The data showed that a total of 3,574 miniseries containing 97,327 episodes were recorded in the whole year, up 9% and 28%, respectively.[40]. **Second, the quality of miniseries improved steadily.** Online video platforms launched quality support programs to encourage the creation of high-quality miniseries. Platforms like Tencent Video's Ten-Minute Theater and Kuaishou's Xingmang Miniseries Program produced numerous high-quality miniseries, earning high recognition from mainstream media and audience. **Third, miniseries became more popular in foreign countries.** Online video platforms sped up the pace of going abroad, combined the overseas local themes with the narrative structure of China's short plays, and promoted the excellent Chinese culture to go overseas in a more novel and dynamic way. For example, Reel Short, a miniseries application owned by COL Group, was very popular in overseas markets, ranking first in the downloads of entertainment applications in the US App Store[41]。

(II) Live Streaming

As of December 2023, the user size of live streaming in China had reached 816 million, up 65.01 million from December 2022, accounting for 74.7% of the Internet users. Among them, the number of e-commerce live streaming users was 597 million, an increase of 82.67 million compared with December 2022, accounting for 54.7% of the total netizens. The number of game live streaming users was 297 million, an increase of 31.33 million compared with December 2022, accounting for 27.2% of the total netizens. The number of users of live streaming of reality shows was 200 million, an increase of 12.59 million compared with December 2022, accounting for 18.3% of the total netizens. The number of concert live streaming users was 223 million, an increase of 15.96 million compared with December 2022, accounting for 20.4% of the total netizens. The number of users of

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[39] Miniseries refer to online series with a single episode of less than 15 minutes.
[40] Source: National Radio and Television Administration, https://file.enlightent.com/20240117/2023%E5%B9%B4%E5%BA%A6%E7%9F%AD%E5%89%A7%E6%8A%A5%E5%91%8A%E3%80%90%E4%BA%91%E5%90%88%E6%95%B0%E6%8D%AEx%E6%B8%85%E5%8D%8E%E5%BD%B1%E4%BC%A0%E4%B8%AD%E5%BF%83x%E8%85%BE%E8%AE%AF%E8%A7%86%E9%A2%91%E3%80%91.pdf, January 17, 2024.
[41] Source: Sensor Tower，https://www.thepaper.cn/newsDetail_forward_25415219, November 27, 2023.

sports live streaming was 345 million, a decrease of 28.47 million compared with December 2022, accounting for 31.6% of the total netizens.
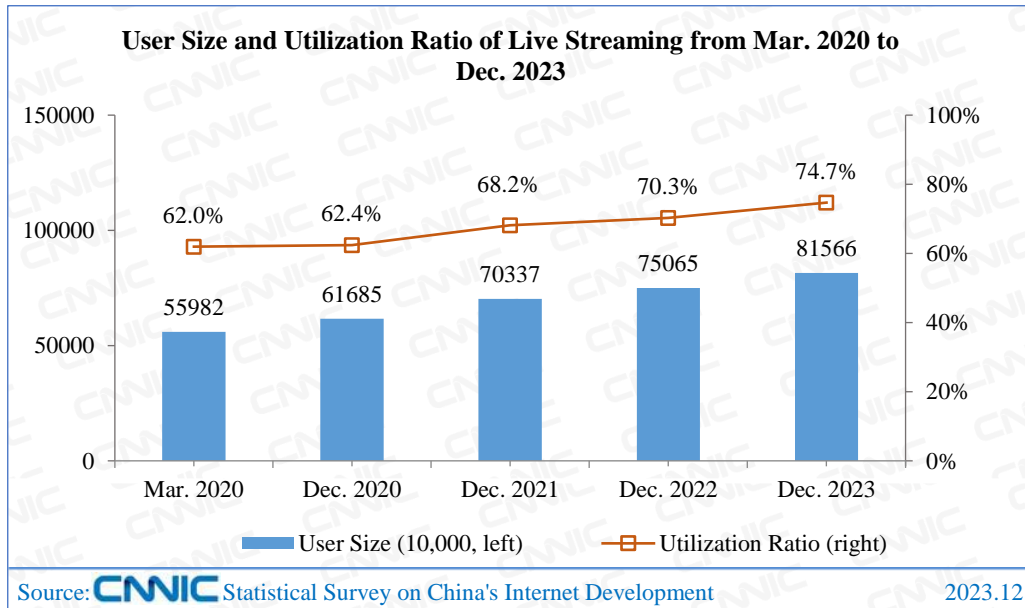

Figure 36　User Size and Utilization Ratio of Live Streaming from Mar. 2020 to Dec. 2023

In 2023, China placed equal importance to regulatory compliance and development promotion, continuously enhancing the user experience of online live streaming platforms. Diverse and vibrant specialty live broadcasts flourished, gradually constructing new economic models based on Internet platforms.

First, the user experience was continuously optimized. With China's strict supervision and standardized guidance on the online live streaming industry, lowbrow and harmful content on online live streaming platforms had been effectively cleaned up, leading to a continuous improvement in the quality of online live streaming content. Meanwhile, platforms enhanced user immersion by introducing streaming media and other technical means, and also provided more precise content recommendation algorithms to meet users' personalized needs, thereby improving their service quality.

Second, featured live streaming modes were constantly emerging. In order to win differentiated competition and improve the efficiency of online live streaming, featured live streaming models had emerged all over the country. For example, as the seasons changed, the online live streaming industry responded to users' urgent needs for "seasonal purchases" by introducing typical seasonal products such as down jackets through live streaming. In addition, some anchors made live streaming directly from fields, farms, or processing workshops, using forms like "I endorse for my

hometown" to evoke emotional resonance among viewers towards rural areas and farmers. This approach brought new highlights to agricultural live streaming.

(III) Online Music

As of December 2023, the user size of online music in China had reached 715 million, up 30.44 million from December 2022, accounting for 65.4% of all Internet users.

Figure 37　User Size and Utilization Ratio of Online Music from Mar. 2020 to Dec. 2023

In 2023, China's online music users' willingness to pay increased steadily, which led to a significant increase in business revenue.

First, the number of paying users had steadily increased. The data showed that in the first half of the year, NetEase Cloud Music's monthly paying users for online music services reached 41.7509 million, with a year-on-year growth of 11.0%[42]. In the first three quarters, Tencent Music Entertainment Group's paying users for online music services reached 103 million, with a year-on-year growth of 20.8%[43]。

Second, business revenue increased significantly. The data showed that in the first half of the year, NetEase Cloud Music's online music service achieved a revenue exceeding RMB 2 billion, a

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[42] Source: NetEase Cloud Music's Financial Report 2023 Q2, https://manager.wisdomir.com/files/627/2023/0921/20230921171501_58280926_tc.pdf, September 21, 2023.
[43] Source: Tencent Music Entertainment Group's Financial Report 2023 Q3, https://ir-sc.tencentmusic.com/Financial-Results, November 14, 2023.

year-on-year increase of 13.3 percentage points[44]. In the first three quarters, Tencent Music Entertainment Group's online music service achieved a revenue of RMB 12.303 billion, a year-on-year increase of 37.9 percentage points[45].

(IV) Online Literature

As of December 2023, the user size of online literature in China had reached 520 million, up 27.83 million from December 2022, accounting for 47.6% of all Internet users.
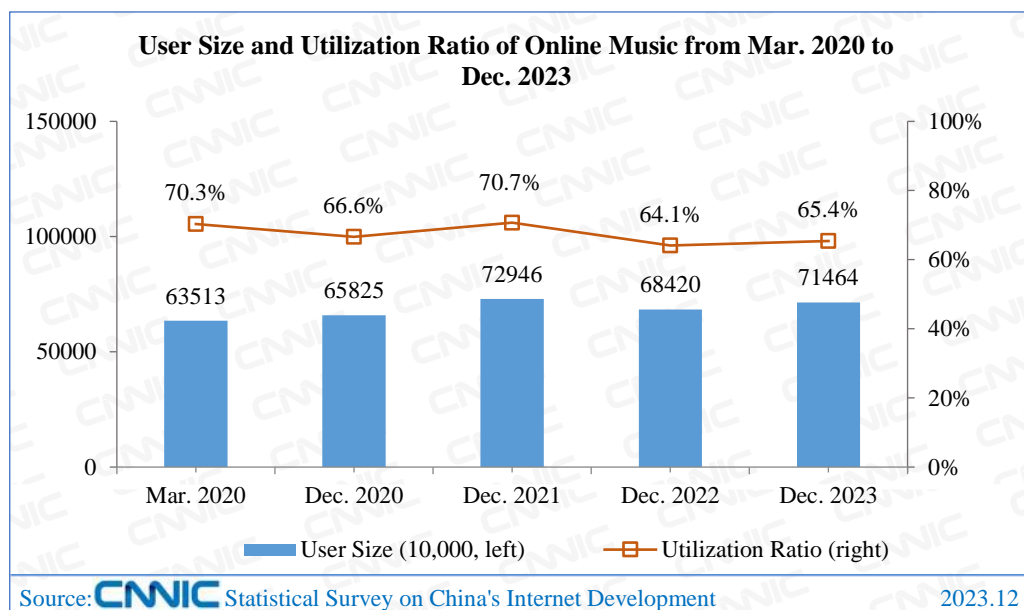

User Size and Utilization Ratio of Online Literature from Mar. 2020 to Dec. 2023

Source: CNNIC Statistical Survey on China's Internet Development   2023.12
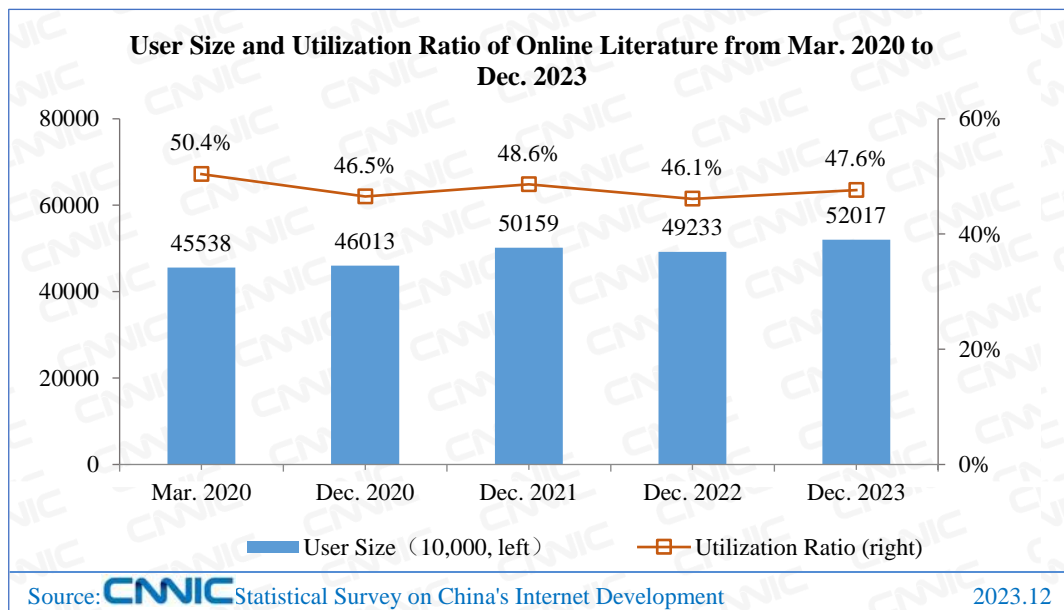
Figure 38   User Size and Utilization Ratio of Online Literature from Mar. 2020 to Dec. 2023

In 2023, China's online literature market thrived even more overseas, with emerging technologies accelerating their application and the industry's ecosystem continuously improving.

First, the scale of export continued to expand. Online literature platforms accelerated their expansion of overseas business and increased the number of works and writers going global to a new high. As of October, the overseas website of China Literature Limited, Webnovel, had launched approximately 3,600 translated works of Chinese online literature and introduced about 610,000 original works from overseas[46]. In addition, Webnovel trained about 400,000 overseas writers, who

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[44] Source: NetEase Cloud Music's Financial Report 2023 Q2, https://manager.wisdomir.com/files/627/2023/0921/20230921171501_58280926_tc.pdf, September 21, 2023.

[45] Source: Tencent Music Entertainment Group's Financial Report 2023 Q3, https://ir-sc.tencentmusic.com/Financial-Results, November 14, 2023.

[46] Source: National Press and Publication Administration, https://www.nppa.gov.cn/xxfb/dfgz/202312/t20231207_821051.html, December 7, 2023.

were widely distributed in more than 100 countries and regions around the world[47].

Second, the writing efficiency continued to improve. Online literature platforms introduced artificial intelligence models to help the industry develop, improving both quality and efficiency. In July, China Literature Group released its large language model Yuewen Miaobi and application product the Miaobi version of Writer's Assistant to provide writers with writing services, data operation and other auxiliary tools[48], to help writers inspire, enrich details and improve efficiency.

V. Public Service Applications

(I) Online car-hailing

As of December 2023, the user size of online car hailing services in China had reached 528 million, up 90.57 million from December 2022, accounting for 48.3% of the Internet users.
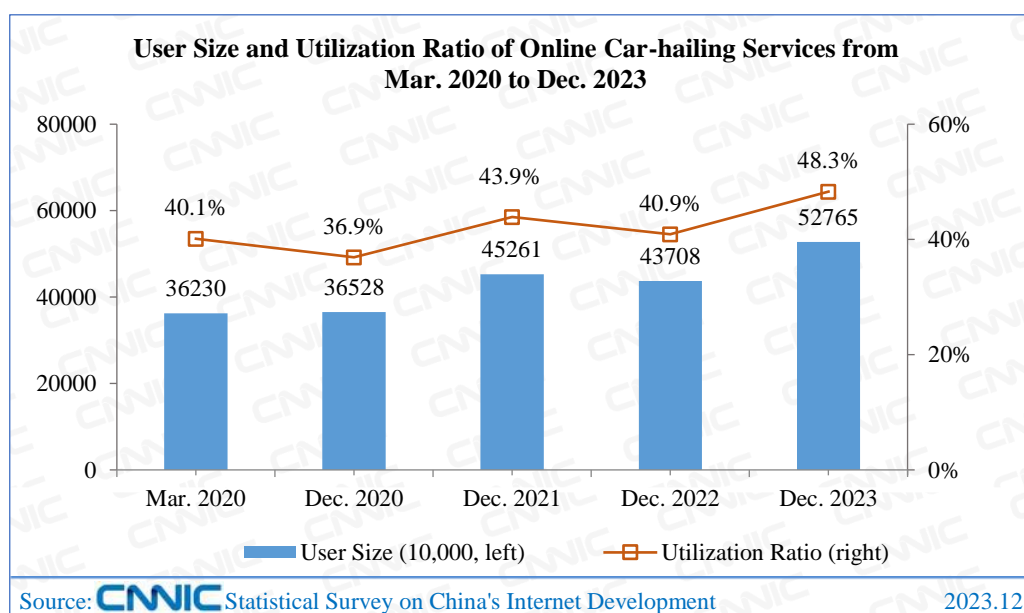
Figure 39   User Size and Utilization Ratio of Online Car-hailing Services from Mar. 2020 to Dec. 2023

In 2023, China's online car-hailing companies experienced strong revenue growth, with the commercialization of autonomous driving accelerating, thus propelling the industry into a new phase of

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[47] Source: http://www.chinawriter.com.cn, http://www.chinawriter.com.cn/n1/2023/1208/c404023-40134471.html, December 8, 2023.

[48] Source: http://www.chinawriter.com.cn, http://www.chinawriter.com.cn/n1/2023/0719/c404023-40039252.html, July 19, 2023.

development.

First, the industry achieved rapid development. The number of online car-hailing platforms and orders had increased significantly. The data showed that as of December 31, 2023, a total of 337 online car-hailing platform companies across the country had obtained business licenses for online car-hailing platforms, an increase of 39 over the same period of last year[49]. In the whole year of 2023, the online car-hailing supervision information interaction system received 9.114 billion orders, up 30.76% year-on-year[50]. In this context, the performance of online car-hailing platform enterprises had achieved rapid growth. For example, in the first three quarters, Didi achieved a total revenue growth of 31.2% year-on-year, with its domestic and international car-hailing business growing by 32.8% and 33.9% respectively compared to the same period last year[51].

Second, the commercialization of self-driving taxis progressed steadily. Online car-hailing platforms actively deployed commercial self-driving taxi business to provide intelligent travel services. In August, Baidu Apollo's self-driving travel service platform Apollo Go officially landed in Dongxihu District, Wuhan City, providing residents with self-driving travel services, achieving a breakthrough in cross-regional traffic and unmanned night operation[52]. In September, Pony.ai obtained the first unmanned demonstration application license in Shenzhen, and nearly 150 self-driving travel service stations covered a great number of high-frequency travel destinations, with the operation time covering morning and evening peaks[53]. Technological progress promoted the market to shift from traffic competition to service competition, and pushed the online car-hailing industry into a new stage of development.

(II) Online Medical Services

As of December 2023, the user size of online medical care in China had reached 414 million, up 51.39 million from December 2022, accounting for 37.9% of the Internet users.

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[49] Source: The Ministry of Transport's WeChat official account, https://mp.weixin.qq.com/s/zZVh_glKuFDh 8UnYK7uQog, January 19, 2024.
[50] Source: Calculated according to the monthly order information received from 2022 to 2023 by the onl ine car-hailing supervision information interaction system.
[51] Source: Didi's Financial Report 2023 Q3, https://ir.didiglobal.com/financials/quarterly-results/default.aspx, November 13, 2023.
[52] Source: Website of Wuhan Dongxihu District People's Government, https://www.dxh.gov.cn/XWZX/MTB D/202402/t20240203_2356039.shtml, February 2, 2024.
[53] Source: Chinanews.com Guangdong, https://www.gd.chinanews.com.cn/2023/2023-09-25/430680.shtml, Se ptember 25, 2023.

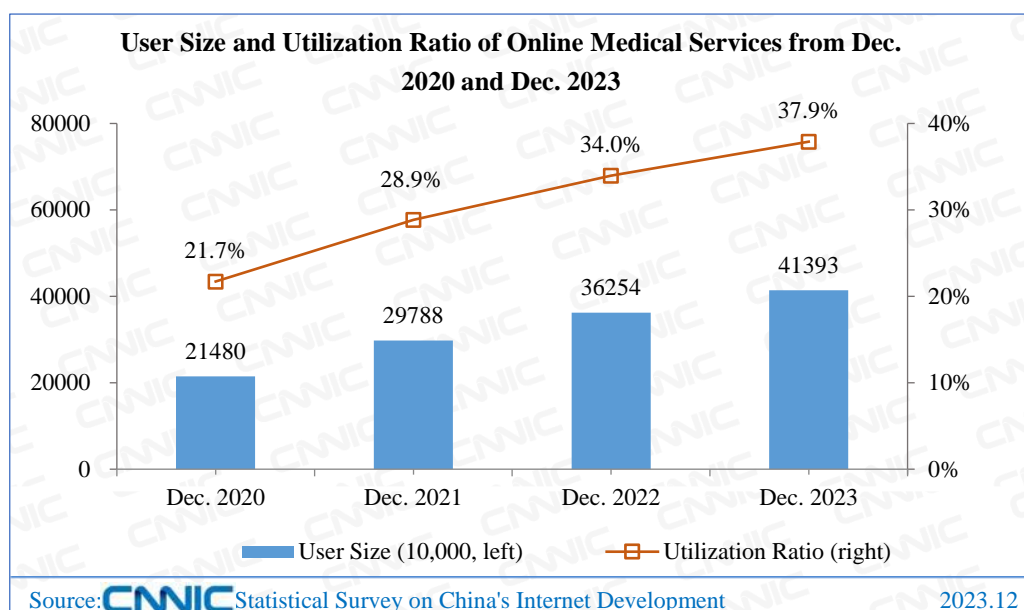**User Size and Utilization Ratio of Online Medical Services from Dec. 2020 and Dec. 2023**

Figure 40　User Size and Utilization Ratio of Online Medical Services from Dec. 2020 and Dec. 2023

In 2023, China' companies in the online medical service sector experienced significant revenue growth, with accelerated application of digital technologies, leading to an overall positive development trend.

First, business revenue increased significantly. Online medical service companies continued to expand their business areas, which promoted a significant increase in revenue. In the first half of the year, JD Health covered more than 400 cities and more than 100,000 stores nationwide, driving revenue growth of 34.0% year-on-year[54]. From March to September, Alibaba Health saw its revenue and profits increase by 12.7% and 172.2% respectively compared to the same period last year. Tmall Health platform served over 32,000 merchants, a year-on-year increase of over 4,000[55].

Second, digital technologies accelerated their implementation. Digital technology represented by artificial intelligence and cloud computing was deeply integrated with the medical industry, and intelligent products such as AI medical model and AI medical information platform were initially established. In July, SenseTime launched a comprehensive solution "SenseCare Smart Hospital", providing one-stop services for hospitals and other institutions in respect of smart diagnosis and

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[54] Source: JD Health's Interim Report 2023, https://ir.jdhealth.com/sc/ir_report.php, September 14, 2023.
[55] Source: Ali Health's Interim Report for Fiscal Year 2024, https://cloudpharmacistpictures.oss-cn-zhangjia kou.aliyuncs.com/alihealth_official_website_manager/financial_files/2023121900592_c-69574b9b4d21.pdf, November 28, 2023.

treatment, medical research, and other scenarios, which aimed to enhance diagnosis and treatment effectiveness, optimize patient medical experiences, and support hospitals in their transformation towards intelligence.

Appendix 1 Survey Methodology

I. Survey Methodology

(I) Telephone Survey

1.1 Survey Population

Chinese permanent residents at the age of 6 or above who have residence fixed-line telephones (including home phones and dormitory telephones) or mobile phones

◇ Sample scale

30,000 samples were included, covering 31 provinces, autonomous regions and municipalities in Chinese mainland, excluding Chinese Hongkong, Macao and Taiwan.

◇ Division of survey population
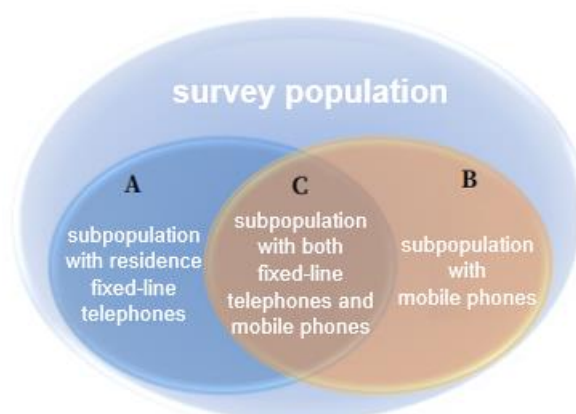
The survey population can be divided into three categories:

Subpopulation A: Survey subpopulation using residence fixed-line telephones (including residents with home phones, students with dormitory telephones, and other users with dormitory telephones);

Subpopulation B: Survey subpopulation with mobile phones;

Subpopulation C: Survey subpopulation with both residence fixed-line telephones and mobile phones (there is an overlap between subpopulation A and subpopulation B, and the overlapped part is subpopulation C), C=A∩B.

1.2 Sampling Method

CNNIC surveys subpopulation A, B and C. Double sampling is adopted for the survey so as to cover as many Internet users as possible. The first sampling frame is subpopulation A, the people with residence fixed-line telephones. The second sampling frame is subpopulation B, the people with mobile phones.

For the survey population with fixed-line telephones, stratified two-stage sampling is adopted. To ensure the sufficient representativeness of samples, the whole country is divided into 31 tiers according to the province, autonomous region and municipality directly under the central government and the sampling is made independently at each tier.

The self-weighted sampling method is adopted for each province. The sample sizes for each district, city and prefecture (including the governed districts and counties) are allocated in accordance with the proportion of the people at the age of 6 or above covered by residence fixed-line telephones in the local area compared to the total covered population in the whole province.

Sampling in subpopulation B is similar to that in subpopulation A. The whole country is divided into 31 tiers according to the provinces, autonomous regions and municipalities directly under the central government, and sampling is made independently in each tier. Samples are allocated in accordance with the proportion of the residents in each district or city, in order to make the sample allocation in each province conform to the self-weighting method.

To ensure the telephones are taken with almost the same probability in each district, city or prefecture, that is, the local bureau number with more telephones will more likely be taken, and to make the phone visit more feasible, the telephone numbers in each district, city and prefecture are taken according to the following procedures:

For mobile phone user groups, all the mobile bureau numbers in each district, city and prefecture are sampled; a certain quantity of 4-digit random numbers are generated according to the valid sample size in each district, city or prefecture, and then combined with the mobile bureau numbers in each district, city or prefecture to form a number library (local bureau number + the random 4-digit number); randomly order the number library; dial and visit the randomly ordered number library. Survey of the subpopulation with fixed-line telephones is similar to that of the subpopulation with mobile phones: a random number is generated and combined with the local bureau number to form a telephone number, and then such number is dialed and visited. To avoid repeated sampling,

only residence fixed-line telephones are visited.

According to the latest population attribute structure published by the provincial statistical bureaus, we use the method of multi-variable joint weighting to estimate the size of netizens. The data published by statistical bureaus are annual census data projections or annual population sample survey projections. Such data are used in this report as the basis for adjusting the weights of the semi-annual survey data, ignoring the differences between survey periods.

1.3 Sampling Error

Based on the design, analysis and calculation of sampling, 0.48 percentage point is the estimated maximum allowable absolute error of the proportional target quantity (e.g. the popularity rate of netizens) among the individual netizen survey results, when the confidence is 95%. From this, we can deduce the error range of estimating other kinds of target quantities, such as the scale of netizens.

1.4 Survey Method

The Computer-assisted Telephone Interviewing (CATI) system is adopted for the survey.

1.5 Differences between Survey Population and Targeted Population

A study for the subpopulation who are not covered by telephones, conducted by CNNIC at the end of 2005, shows that Internet users are very few in this subpopulation. Currently, the subpopulation is downsizing gradually with the development of our telecom industry. In this survey, there is an assumption, i.e., Internet users who are not covered by fixed-line telephones or mobile phones are negligible.

(II) Automatic Online Search and Statistical Data Reporting

Automatic online search mainly makes technical statistics on the number of websites, and the reported data mainly includes the number of IP addresses and domain names.

2.1 Number of IP Addresses

The data of IP addresses counted by province come from the IP address databases of Asia-Pacific Network Information Center (APNIC) and CNNIC. Registered data in each database, that can be distinguished by the province which the addresses belong to, can be added respectively by

province to generate data of each province. As address allocation is a dynamic process, the statistical data are only for reference. The Ministry of Industry and Information Technology, as the national competent department for IP addresses, also requires IP address allocation organizations to report the quantity of IP addresses they own semiannually. To ensure the accuracy of IP data, CNNIC will compare and verify APNIC statistical data with the reported data to confirm the final quantity of IP addresses.

2.2 Number of Websites

The number of websites is detected and obtained by CNNIC according to domain name lists.

The lists of ".CN" and ".中国" are obtained though the database of CNNIC, while the list of gTLD is provided by international relevant registries.

2.3 Number of Domain Names

The numbers of domain names under ".CN" and ".中国", which are registered globally, are derived from CNNIC database, while those under gTLD, New gTLD, ".CO", ".TV", ".CC", ".ME", ".HK", and ".PW" are provided by domestic domain name registration units.

II. Definitions of Terms in the Report

◇ **Internet Users or Netizens:** Chinese residents at the age of 6 or above who have used the Internet in the past 6 months.

◇ **Mobile Internet Users:** Internet users who have used mobile phones to access and surf the Internet in the past 6 months.

◇ **Computer Internet Users:** Internet users who have used computers to access and surf the Internet in the past 6 months.

◇ **Rural Internet Users:** Internet users who have been living in rural areas of China in the past 6 months.

◇ **Urban Internet Users:** Internet users who have been living in urban areas of China in the past 6 months.

◇ **IP Address:** As the basic resource on the Internet, the IP address functions to identify computers, servers and other devices connected to the Internet. Connection with the Internet can be realized only when an IP address (in any form) is acquired.

◇ **Website:** It refers to a web site with a domain name itself or "www. + domain name". Such domain names include those, which are registered under China's ccTLDs, namely ".CN" and ".中国", or gTLDs, and whose registrants are within the territory of China. For example, the domain name of "cnnic.cn" has only one website and the corresponding web address is "cnnic.cn" or "www.cnnic.cn". Other web addresses with such domain name as the suffix, like "whois.cnnic.cn" and "mail.cnnic.cn", are regarded as different channels of the website.

◇ **Scope of Survey:** Unless otherwise expressly indicated, data in this Report only refer to Chinese mainland, excluding Hong Kong, Macao and Taiwan.

◇ **Deadline of Survey Data:** The deadline of the statistical survey data is Dec. 31, 2023.

◇ **Data Explanation**：Most of the data in this Report are approximate values after rounding and retaining significant digits.

Appendix 2 Attached Tables of Basic Internet Resources

Table 1 Number of IPv4 Addresses in Different Regions of China

Region	Number of Addresses	Equivalence
Chinese mainland	343,128,576	20A+115B+186C
Hong Kong	13,012,736	198B+143C
Macau	337,664	5B+39C
Taiwan	35,713,536	2A+32B+242C

Table 2 Allocation of IPv4 Addresses among Organizations in Chinese mainland

Organization Name	Number of Addresses	Equivalence
China Telecom	125,763,328	7A+126B+255C
China Unicom	69,866,752 [note 1]	4A+42B+21C
IP Address Allocation Alliance of CNNIC	62,927,872 [note 2]	3A+192B+18C
China Mobile	35,294,208	2A+26B+140C
China Education and Research Network	16,649,984	254B+16C
China Mobile Tietong	15,796,224 [note 3]	241B+8C
Others	16,830,208 [note 4]	256B+207C
Total	343,128,576	20A+115B+186C

Data sources: APNIC and CNNIC

Note 1: The addresses of China Unicom include the addresses of former China Unicom and former China Netcom. Specifically, the IPv4 addresses 6316032（96B+96C）of former China Unicom are assigned by CNNIC.

Note 2: As a national Internet registry (NIR) approved by APNIC and national competent authorities in China, CNNIC has organized ISPs, enterprises and public institutions of certain size in China to set up IP Address Allocation Alliance. So far, the total number of IPv4 addresses held by the members of IP Address Allocation Alliance is 85.04 million, equivalent to 5.1A. The IPv4 addresses of the IP Address Allocation Alliance listed in the above table do not include those IPv4 addresses already assigned to former China Unicom and China Mobile Tietong.

Note 3: The IPv4 addresses of China Mobile Tietong are assigned by CNNIC.

Note 4: Others refer to enterprises and institutions that apply for IPv4 addresses directly from APNIC.

Note 5: The deadline for the above statistical data is Dec. 31, 2023.

Table 3 Number of IPv6 Addresses in Different Regions of China (unit: /32[note1])

Region	Number of Addresses
Chinese mainland	64,403
Hong Kong	1,016
Macau	9
Taiwan	2,614

Table 4 Allocation of IPv6 Addresses among Organizations in Chinese mainland

Organization Name	Number of IPv6 Addresses
IP Address Allocation Alliance of CNNIC	26,689 [note 2]
China Telecom	16,387
China Education and Research Network	10,258
China Unicom	4,097
China Mobile	4,097
China Mobile Tietong	2,049 [note 3]
Others	826 [note 4]
Total	64,403

Data sources: APNIC and CNNIC

Note 1: /32 as shown in the IPv6 address tables is a method to present IPv6 addresses, and the corresponding number of addresses is $2^{(128-32)} = 2^{96}$.

Note 2: At present, the number of IPv6 addresses held by the members of IP Address Allocation Alliance of CNNIC is 28738/32. The IPv6 addresses held by the members of IP Address Allocation Alliance listed in the above table do not include those IPv6 addresses already assigned to China Mobile Tietong.

Note 3: The IPv6 addresses of China Mobile Tietong are assigned by CNNIC.

Note 4: Others refer to enterprises and institutions that apply for IPv6 addresses directly from APNIC.

Note 5: The deadline for the above statistical data is Dec. 31, 2023.

Table 5 Proportion of IPv4 Addresses in Each Province / Autonomous Region / Municipality

Directly under the Central Government

Province / Autonomous Region / Municipality Directly under the Central Government	Proportion
Beijing	25.19%
Guangdong	9.43%
Zhejiang	6.39%
Shandong	4.83%
Jiangsu	4.70%
Shanghai	4.47%
Liaoning	3.29%
Hebei	2.81%
Sichuan	2.74%
Henan	2.60%
Hubei	2.37%
Hunan	2.33%
Fujian	1.92%
Jiangxi	1.71%
Chongqing	1.66%
Anhui	1.63%
Shaanxi	1.61%
Guangxi	1.36%
Shanxi	1.26%
Jilin	1.20%
Heilongjiang	1.19%
Tianjin	1.04%
Yunnan	0.96%
Inner Mongolia	0.77%
Xinjiang	0.60%
Gansu	0.47%
Hainan	0.47%
Guizhou	0.44%
Ningxia	0.27%
Qinghai	0.17%
Tibet	0.13%
Others	10.00%
Total	100.00%

Data sources: APNIC and CNNIC

Note 1: The above statistics are made on the basis of the location of the IP address owners.

Note 2: Others refer to countries or regions other than the Chinese mainland.

Note 3: The deadline for the above statistical data is Dec 31, 2023.

Table 6 Number of Domain Names in Each Province / Autonomous Region / Municipality

Directly under the Central Government

Province / Autonomous Region / Municipality Directly under the Central Government	Total Domain Names	".CN" Domain Names	".中国" Domain Names
	Number	Number	Number
Guangdong	7692642	5758814	15106
Beijing	5898856	4334760	24002
Fujian	2042971	1412117	5650
Guizhou	1752297	1655510	3170
Shandong	1514528	889725	28510
Jiangsu	1232520	461135	7699
Shanghai	1212344	540898	6717
Zhejiang	1201396	403902	6775
Sichuan	970924	458340	11405
Henan	918676	501946	4159
Hunan	782118	379781	2533
Anhui	738076	247393	3045
Hubei	676685	352416	2998
Hebei	529617	251989	5318
Guangxi	526108	340043	1414
Jiangxi	449364	257385	1976
Shaanxi	390683	171864	7548
Chongqing	388683	211058	4760
Liaoning	362846	151946	5566
Shanxi	348421	227165	1694
Yunnan	272675	142287	4690
Heilongjiang	264818	135507	2007
Tianjin	207089	81820	1181
Gansu	196094	137074	1222
Jilin	167921	90860	1198
Hainan	132358	67936	858
Inner Mongolia	121929	55287	1599
Xinjiang	79849	41934	740
Ningxia	40520	20789	477
Qinghai	17257	9115	285
Tibet	12264	5927	497
Others	453034	329041	12705
Total	31595563	20125764	177504

Data sources: CNNIC

Note 1: Others refer to countries or regions other than the Chinese mainland, or the location of domain name registrants can not be identified.

Note: The deadline for the above statistical data is Dec 31, 2023.

Table 7 Web Pages Classified by Suffix Form

Web Suffix Form	Proportion
html	52.77%
/	23.97%
php	6.45%
htm	4.22%
shtml	3.60%
aspx	2.10%
asp	1.21%
jsp	0.33%
Other suffix forms	5.35%
Total	100.00%

Data sources: Baidu Online Network Technology (Beijing) Co., Ltd

Table 8 Number of Webpages in Each Province / Autonomous Region / Municipality Directly under the Central Government

	Total Number of Webpages after Duplicated Ones Are Removed	Static Webpages	Dynamic Webpages	Static-to-dynamic Ratio
Beijing	140900566728	89998590982	50901975746	1.77
Guangdong	48650598537	33099872612	15550725925	2.13
Zhejiang	45827690817	32710387373	13117303444	2.49
Shanghai	26948528206	19711970246	7236557960	2.72
Henan	22753177827	18058629509	4694548318	3.85
Jiangsu	16767820085	10266014547	6501805538	1.58
Hebei	14686722565	10937447821	3749274744	2.92
Fujian	11608969105	8903932629	2705036476	3.29
Shandong	7422825898	4998242517	2424583381	2.06
Sichuan	6514550203	4446410932	2068139271	2.15
Tianjin	6344266941	4129261931	2215005010	1.86
Shanxi	4365619662	3335481374	1030138288	3.24
Liaoning	3490354104	2570404049	919950055	2.79
Hubei	3353159008	2159019437	1194139571	1.81
Anhui	3221252090	2487016479	734235611	3.39
Jiangxi	2976122772	2442474935	533647837	4.58
Guangxi	2739829719	2059731190	680098529	3.03
Hunan	2194649090	1552425721	642223369	2.42
Jilin	2106935581	1483558578	623377003	2.38
Heilongjiang	1997694526	1621898980	375795546	4.32
Shaanxi	1987243782	1174576929	812666853	1.45
Hainan	1915806900	1545090747	370716153	4.17
Yunnan	1857061952	1276057807	581004145	2.20
Chongqing	618556539	394842762	223713777	1.76
Inner Mongolia	244201704	129438387	114763317	1.13
Gansu	206152228	104775838	101376390	1.03
Guizhou	148348655	103975743	44372912	2.34
Xinjiang	96902873	52739134	44163739	1.19
Qinghai	36772123	26377675	10394448	2.54
Ningxia	22283395	17372806	4910589	3.54
Tibet	5377149	4198669	1178480	3.56
The Whole Country	382010040764	261802218339	120207822425	2.18

Data sources: Baidu Online Network Technology (Beijing) Co., Ltd

Table 9 Number of Webpage Bytes in Each Province / Autonomous Region / Municipality

Directly under the Central Government

	Total Webpage Size	Average Webpage Size (KB)
Beijing	13419107757582	95.24
Zhejiang	3708284168566	80.92
Guangdong	3560806745657	73.19
Shanghai	2867558504828	106.41
Henan	1620054168668	71.20
Hebei	1442000397520	98.18
Jiangsu	1181039777122	70.43
Shanxi	886154037212	202.98
Fujian	762237966685	65.66
Shandong	533281324281	71.84
Tianjin	455414633246	71.78
Sichuan	347034485397	53.27
Hubei	186836019975	55.72
Liaoning	165133489548	47.31
Anhui	159052889158	49.38
Guangxi	151582808813	55.33
Heilongjiang	151151885588	75.66
Jiangxi	144731432275	48.63
Hunan	136026391232	61.98
Shaanxi	106537099041	53.61
Yunnan	94287272637	50.77
Jilin	88492110115	42.00
Hainan	69064677570	36.05
Chongqing	41379508696	66.90
Gansu	16926743720	82.11
Inner Mongolia	16344092990	66.93
Guizhou	7195391454	48.50
Xinjiang	4601016902	47.48
Qinghai	2994179424	81.43
Ningxia	780061482	35.01
Tibet	196328672	36.51
The Whole Country	32326287366056	84.62

Data sources: Baidu Online Network Technology (Beijing) Co., Ltd

Appendix 3 Supporting Organizations

We would like to express our heartfelt thanks to the following organizations that have supported the collection of data in this report. (Not listed in any particular order)

Ministry of Industry and Information Technology

Office of the Central Cyberspace Affairs Commission

National Bureau of Statistics

Central Committee of the Communist Young League

China Organizational Name Administration Center

E-governance Research Center of Party School of the Central Committee of C.P.C (National Academy of Governance)

China Academy of Information and Communications Technology

Reporting Center for Illegal and Inappropriate Internet Information of Cyberspace Administration of China（12377）

Computer Network Information Center of Chinese Academy of Sciences

Network Center of China Education and Research Network

China Mobile	China Telecom
China Unicom	Beijing Ucap Information Technology Co., Ltd.
CTR Market Research Co., Ltd.	Baidu Online Network Technology (Beijing) Co., Ltd.
Tencent Cloud Computing (Beijing) Co., Ltd.	Beijing Micro Dream Network Technology Co., Ltd. (Micro-blog)
Beijing ByteDance Technology Co., Ltd.	Alibaba Cloud Computing (Beijing) Co., Ltd.
Alibaba Cloud Computing Co., Ltd.	Beijing Baidu Netcom Technology Co., Ltd.
Beijing Oriental Wangjing Information Technology Co., Ltd.	Beijing Guoke Cloud Computing Technology Co., Ltd.
Beijing Guoxu Network Technology Co., Ltd.	Beijing Huarui Wireless Technology Co., Ltd.
Beijing Shouxinwangchuang Network Information service Co., Ltd.	Beijing Wanweitonggang Technology Co., Ltd.
Beijing Xinnet.com Co., Ltd.	Beijing ZW.cn Co., Ltd.
Beijing BrandCloud.cn Co., Ltd.	Beijing Zhuoyueshengming Technology Co., Ltd.
Beijing Zihai Technology Co., Ltd.	Chengdu Feishu Technology Co., Ltd.
Chengdu 51web.com Co., Ltd.	Chengdu West Digital Technology Co., Ltd.
Daqing dqzc.com Co., Ltd.	Doumai (Shanghai) Network Technology Co., Ltd.
Fanxi Corporation Service (Shanghai) Co., Ltd.	Foshan Yidong Network Co., Ltd.
Fujian Litian Network Technology Co., Ltd.	Fuzhou Zhongxu Network Technology Co., Ltd.
Guangdong HUYI Internet & IP Services Co., Ltd.	Guangdong Jinwanbang Technology Investment Co., Ltd.

Guangdong Now.cn Co., Ltd.

Guangzhou Mingyang Information Technology Co., Ltd.

Guangzhou Yunxun Information Technology Co., Ltd.

Guest Internet Industry Co., Ltd.

Guizhou BrandCloud.cn Co., Ltd.

Hefei Juming Network Technology Co., Ltd.

Heilongjiang E-link Network Co., Ltd.

ZDNS Beijing Engineering Research Center Co., Ltd.

Global Business Domain Technology Co., Ltd.

Jiangsu Bangning Science & Technology Co., Ltd.

MarkMonitor Information Technology (Shanghai) Co., Ltd.

Xiamen Dianmei Network Technology Co., Ltd.

Xiamen Nawang Technology Co., Ltd.

Xiamen 35.Com Technology Co., Ltd.

Xiamen ZZY.cn Co., Ltd.

Xiamen Shusheng QYT Technology Co., Ltd.

Xiamen eName Technology Co., Ltd.

Shangzhong Online Technology Co., Ltd.

Shanghai Oray Co., Ltd.

Shanghai CNDNS.com Co., Ltd.

Shanghai Yovole Network Co., Ltd.

Shenzhen idcicp.com Co., Ltd.

Shenzhen Internet Works Online Co., Ltd.

Shenzhen EIMS Information Technology Co., Ltd.

Sichuan Cloud Yuqu LLC Co., Ltd.

Tianjin Zhuiri Technology Development Co., Ltd.

Vantage of Convergence (Chengdu) Co., Ltd.

WangJu Brands Management Co., Ltd.

Xi'an Qianxinet Technology Co., Ltd.

Yantai DNSpod Network Technology Co., Ltd.

Zhejiang 22net Inc.

Zhengzhou Shanglv Technology Co., Ltd.

Zhengzhou Shijichuanglian E-Technology Co., Ltd.

Knet Registrar (Tianjin) Co., Ltd

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