Information

Communication

Technologies

澳門資訊傳播科技指標調查2011
Surveying Macao ICT Indicators　2011

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張榮顯

這是一本關於澳門資訊傳播科技指標的年度刊物，自2007年起，計劃每年出版一期。它是「澳門互聯網研究計劃」
過去十年來持續對澳門資訊傳播科技環境進行監察的一個綜合成果，目的是向公眾呈現2001年至2010年期間，
澳門資訊傳播科技發展的一個軌跡。

「澳門互聯網研究計劃」始於澳門大學，乃一項關注新傳播科技與社會關係的長期性研究項目，由張榮顯博士主持。
自2001年始，該計劃對澳門居民的互聯網及其他資訊傳播科技的使用和影響進行研究。過去十年，一共進行了九次
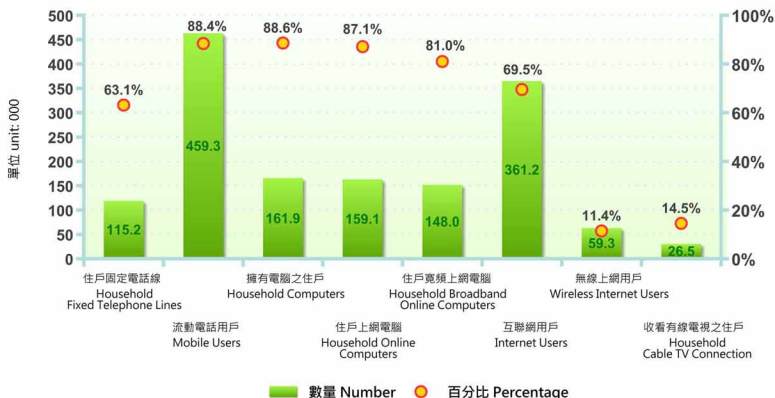大規模的隨機抽樣電話問卷調查。從2003年開始，每年發佈「澳門互聯網使用現狀統計報告」。

「澳門互聯網研究計劃」同時是「全球互聯網研究計劃」的成員之一，以及「亞太地區互聯網研究聯盟」的
創會成員。上述兩組織的成員使用同樣的問卷進行當地之互聯網使用調查，並將調查數據進行跨國間的比較。

This annual booklet on Macao Information and Communication Technology (ICT) Indicators synthesizes research
results from the Macao Internet Project (MIP) across a span of ten years since its first publication in 2007. Its
publication aims at presenting to the public the trajectory of the development of ICT between 2001 and 2010 in Macao.

MIP, founded in the University of Macau and led by Dr. Angus Cheong, is a longitudinal research project focusing on
the complex relationships between new communication technologies and society. Since its inception in 2001, the project
has been investigating the usage of the Internet and other information and communication technologies and their impact.
Nine large-scale random sample telephone surveys have been conducted over the past ten years. As a result, a
Statistical Report on Macao Internet Use has been published annually from 2003.

MIP is one of the research partners of the World Internet Project (WIP) and a founding member of
Asia Pacific Internet Research Alliance (APIRA). Members of these two consortiums adopt the same set of questions
in local surveys to allow cross-national comparisons.

ICT 2010年澳門居民之ICT滲透率
Penetration Rate in Macao 2010

單位 unit: 000

	數值 Number	百分比 Percentage
住戶固定電話線 Household Fixed Telephone Lines	115.2	63.1%
流動電話用戶 Mobile Users	459.3	88.4%
擁有電腦之住戶 Household Computers	161.9	88.6%
住戶上網電腦 Household Online Computers	159.1	87.1%
住戶寬頻上網電腦 Household Broadband Online Computers	148.0	81.0%
互聯網用戶 Internet Users	361.2	69.5%
無線上網用戶 Wireless Internet Users	59.3	11.4%
收看有線電視之住戶 Household Cable TV Connection	26.5	14.5%

數量 Number   百分比 Percentage

	98年12月 Dec 98	99年12月 Dec 99	00年12月 Dec 00	01年12月 Dec 01	02年12月 Dec 02	03年12月 Dec 03	04年12月 Dec 04	05年12月 Dec 05	06年12月 Dec 06	07年12月 Dec 07	08年12月 Dec 08	09年12月 Dec 09	10年12月 Dec 10
.com.mo	44	145	185	300	510	633	881	1108	1352	1550	1778	1949	2118
.edu.mo	11	18	28	35	56	58	67	73	74	70	76	82	95
.gov.mo	25	40	57	57	75	75	97	106	111	111	139	146	158
.org.mo	8	23	25	46	101	145	187	230	255	282	307	368	409
.net.mo	1	3	3	5	5	5	7	7	13	7	7	9	9
.mo	2	3	3	3	3	3	4	60	116	154	207	264	337
總計 Total	91	232	301	446	750	919	1243	1584	1921	2174	2514	2818	3126

* 數據來源：澳門互聯網資訊中心(http://www.monic.net.mo)。　Source: Macau Network Information Centre (http://www.monic.net.mo).

住戶固定電話線、流動電話用戶、收看有線電視之住戶、海外頻寬之增長情況
Growth of household Fixed Telephone lines, Mobile Users, Household Cable TV Connection, Oversea Bandwidth

	住戶固定電話線 Household Fixed Telephone Lines (000)	流動電話用戶 Mobile Users (000)	收看有線電視之住戶 Household Cable TV Connection (000)	海外頻寬[a] Oversea Bandwidth (Mbps)
2003	131.7 (94.5%)	198.7 (44.4%)	24.4 (17.5%)	690
2004	128.9 (89.2%)	228.3 (52.5%)	24.4 (16.9%)	1125
2005	126.0 (83.1%)	259.3 (58.5%)	25.0 (16.5%)	1600
2006	125.4 (78.7%)	301.5 (59.4%)	23.4 (14.7%)	3370
2007	124.5 (74.5%)	356.1 (69.6%)	26.2 (15.7%)	4455
2008	122.2 (73.1%)	386.1 (75.4%)	29.1 (17.4%)[b]	6827
2009	118.3 (69.7%)	420.0 (82.1%)	15.3 (9.0%)[c]	8381
2010	115.2 (63.1%)	459.3 (88.4%)	26.5 (14.5%)	10358

* 流動電話用戶只包括註冊用戶。　The number of mobile use only refers to registered users.
* 括號內之百分比為住戶或用戶擁有ICT之比率。The percentage in the parenthesis indicates the penetration ratio of household or user with ICT.
[a] 數據來源：澳門電訊有限公司。Source: CTM.
[b] 數據來自2008年7月進行的澳門居民資訊科技使用調查。The data is quoted from the Information and Technology Use Survey conducted in July 2008.
[c] 數據來自2009年11月進行的澳門居民資訊科技使用調查。The data is quoted from the Information and Technology Use Survey conducted in Nov 2009.
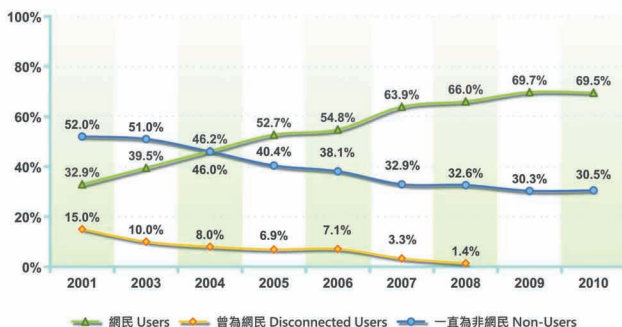
住戶上網電腦增長情況
Growth of Online Household Computers

	上網電腦(台) Online PCs (000)	撥號上網電腦(台) Dial-up PCs (000)	寬頻上網電腦(台) Broadband PCs (000)
2003	79.3 (57.0%)	41.8 (30.0%)	37.6 (27.0%)
2004	85.3 (59.0%)	33.2 (23.0%)	50.6 (35.0%)
2005	94.0 (62.0%)	18.2 (12.4%)	74.3 (49.7%)
2006	114.8 (71.9%)	12.0 (7.5%)	102.0 (64.2%)
2007	128.3 (76.8%)	4.8 (2.9%)	123.0 (73.6%)
2008	136.1 (81.4%)	3.7 (2.2%)	132.1 (79.0%)
2009	140.1 (82.6%)	1.8 (1.1%)	135.3 (79.7%)
2010	159.1 (87.1%)	0	148.0 (81%)

* 括號內之百分比為住戶擁有ICT之比率。The percentage in the parenthesis indicates the penetration ratio of household with ICT.
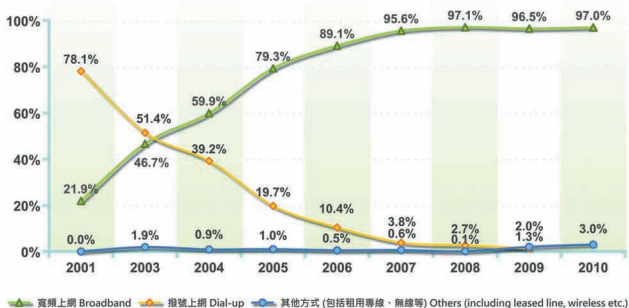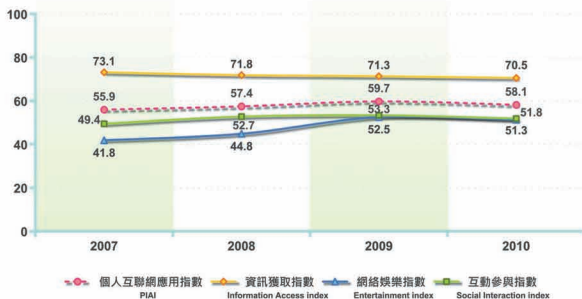
◉S 互聯網擴散之S曲線
S-Shape of Internet Diffusion

年平均增長率 Annual Average Growth Rate (2001-2010)：8.1%
調查時期 Survey Period：2001-2010

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
%	2.6%	4.2%	6.2%	10.0%	16.0%	25.0%	32.9%	36.0%	39.5%	46.2%	52.7%	54.8%	63.9%	66.0%	69.7%	69.5%

◉I 個人上網率
Internet Adoption Rate by Individual

網民 Users — 曾為網民 Disconnected Users — 一直為非網民 Non-Users

◉M 住戶連網方式
Methods of Internet Connection by Household

寬頻上網 Broadband — 撥號上網 Dial-up — 其他方式 (包括租用專線、無線等) Others (including leased line, wireless etc.)

個人互聯網應用指數 PIAI / 資訊獲取指數 Information Access index / 網絡娛樂指數 Entertainment index / 互動參與指數 Social Interaction index

	2007	2008	2009	2010
資訊獲取指數 Information Access index	73.1	71.8	71.3	70.5
個人互聯網應用指數 PIAI	55.9	57.4	59.7	58.1
互動參與指數 Social Interaction index	49.4	52.7	53.3	51.8
網絡娛樂指數 Entertainment index	41.8	44.8	52.5	51.3

網民上網的主要地點
Location of Access to the Internet by Users

家中 Home / 單位/公司 Office / 學校 School / 網吧 Internet Café / 圖書館 Library

2004 / 2005 / 2006 / 2007 / 2008 / 2009 / 2010
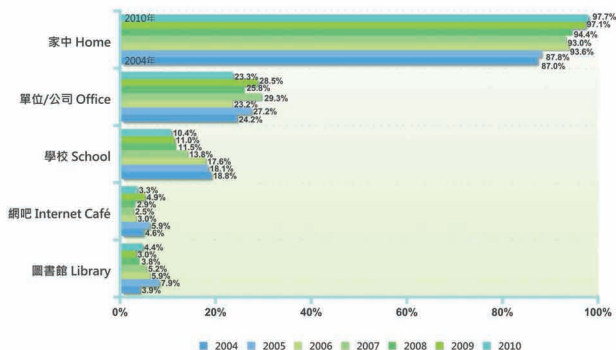
網民平均每週上網時間
Average Hours of Internet Use per Week by Users

	所有網民 All Internet Users (小時 Hours)	6 - 17歲網民 6-17 Years Old (小時 Hours)	18 - 84歲網民 18-84 Years Old (小時 Hours)
2003	12.1	--	12.1
2004	13.2	8.7	14.9
2005	13.3	11.0	14.3
2006	15.9	12.8	17.0
2007	16.1	12.7	17.2
2008	18.6	19.3	18.5
2009	18.6	17.9	18.8
2010	19.9	19.5	20.0

* 2003年所有網民之上網時間不包括6-17歲之網民。
The Internet use time by those age between 6-17 was not included in 2003.

網民的主要網上活動（成年人：18-84歲）
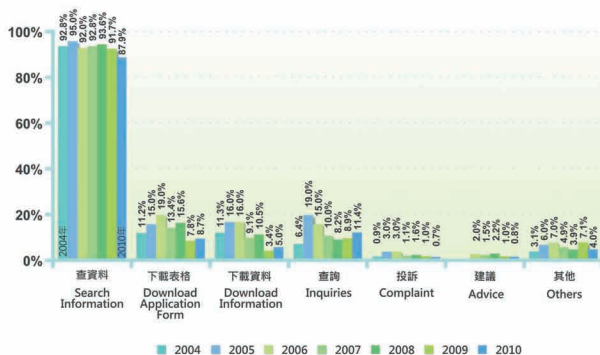## Major Activities by Users (Adults:18-84)

活動 Activity	百分比 %
網上遊戲 Online games	46.2%
上載/下載圖片 Upload/ Download pictures	49.7%
影片網站(Youtube) Video site(Youtube)	49.3%
寫自己的博客 Write blog	15.4%
網上討論區/論壇 Online forum	39.0%
社交網站 Social-networking site	58.3%
使用即時通訊軟體 Instant messaging	56.4%
使用維基百科Wikipedia	38.6%
瀏覽他人博客 Read blogs	48.5%
網上新聞 Online news	86.5%
使用搜尋引擎 Search engine	82.2%

0%   20%   40%   60%   80%   100%

■ 網上訊息 e-Information　　■ 網上溝通 e-Communication　　■ 網上娛樂 e-Entertainment

網民的主要網上活動（青少年：6-17歲）
Major Activities by Users (Youth:6-17)

活動 Activity	百分比 %
網上遊戲 Online games	77.9%
上載/下載圖片 Upload/ Download pictures	58.4%
影片網站(Youtube) Video site(Youtube)	56.4%
寫自己的博客 Write blog	26.0%
網上討論區/論壇 Online forum	37.8%
社交網站 Social-networking site	63.1%
使用即時通訊軟體 Instant messaging	67.1%
使用維基百科Wikipedia	49.0%
瀏覽他人博客 Read blogs	52.1%
網上新聞 Online news	55.4%
使用搜尋引擎 Search engine	82.2%

0%   20%   40%   60%   80%   100%

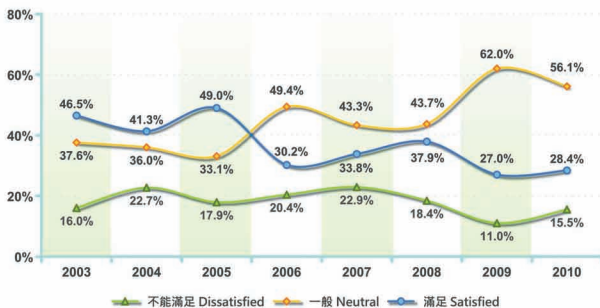■ 網上訊息 e-Information　　■ 網上溝通 e-Communication　　■ 網上娛樂 e-Entertainment
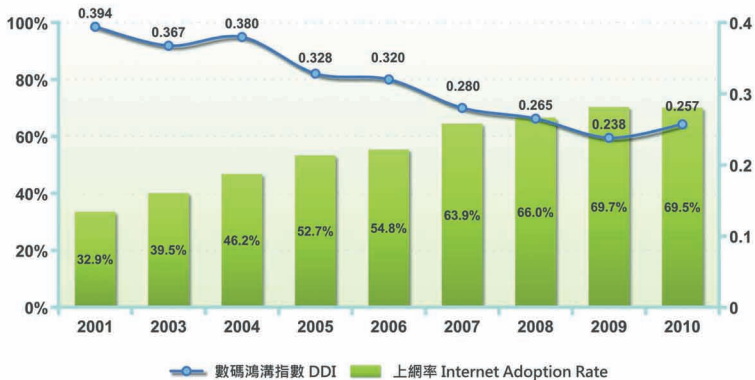
U 網民之政府網頁使用
se of the Government Websites by Users

T 網民使用政府部門網頁的服務
he e-Government Services that Users Used

S 網民對政府網頁是否能滿足需求的評價
atisfaction on Government Websites by Users

	2001	2003	2004	2005	2006	2007	2008	2009	2010
數碼鴻溝指數 DDI	0.394	0.367	0.380	0.328	0.320	0.280	0.265	0.238	0.257
上網率 Internet Adoption Rate	32.9%	39.5%	46.2%	52.7%	54.8%	63.9%	66.0%	69.7%	69.5%

─●─ 數碼鴻溝指數 DDI   ▇ 上網率 Internet Adoption Rate

* 數碼鴻溝指數越大，表示差異越大。 The bigger the DDI is, the larger the divide or inequality.
* 參考數據： DDI < 0.2 表示絕對平等；DDI = 0.2 - 0.3 表示基本上平等；DDI = 0.3 - 0.4表示可接受平等；
             DDI = 0.4 - 0.5 表示嚴重不平等；DDI > 0.5 表示非常嚴重不平等。
Reference: DDI < 0.2: absolute equality; DDI = 0.2 - 0.3: basically equality; DDI = 0.3 - 0.4: acceptable inequality;
              DDI = 0.4 - 0.5: severe inequality; DDI > 0.5: very severe inequality.

	2001	2003	2004	2005	2006	2007	2008	2009	2010
男性 Male	38.8%	42.2%	49.3%	52.7%	58.5%	68.4%	69.3%	73.0%	70.1%
女性 Female	27.8%	37.0%	43.4%	52.8%	51.5%	59.5%	62.7%	66.6%	64.7%

─●─ 男性 Male   ─○─ 女性 Female

不同年齡層之上網率
Internet Adoption by Age

— <=24   — 25-54   — >=55

不同教育程度者之上網率
Internet Adoption by Educational Level

— 高中或以下 High School or below   — 高中以上 Above High School

不同職業者之上網率
Internet Adoption by Occupation

— 工作 Employed   — 學生 Student   — 沒有工作 Non-worker

澳門居民各群體之互聯網普及分佈圖 2010
Distribution of Internet Adoption among Macao Residents 2010

居民 Residents
6-84歲 Age 6-84
69.5%

成人 Adults
18-84歲 Age18-84
63%

青少年 Youth
6-17歲 Age 6-17
95.3%

失業 Unemployed 34.2%	50歲或以下 50 or below 61.1%	50歲以上 Above 50 8.9%
家庭主婦 Housewives 37.3%	50歲或以下 50 or below 47.7%	50歲以上 Above 50 20%
退休 Retired 17.9%		50歲以上 Above 50 16.3%
學生 Students 100%	50歲或以下 50 or below 100%	
荷官 Dealers 85.9%	50歲或以下 50 or below 86.8%	
公務員 Civil Servants 86.4%	50歲或以下 50 or below 94.3%	50歲以上 Above 50 20%
自僱 Self-Employed 60.9%	50歲或以下 50 or below 81.5%	50歲以上 Above 50 31.6%
藍領 Blue-Collar 43.5%	50歲或以下 50 or below 54.6%	50歲以上 Above 50 18.4%
白領 White-Collar 97.3%	50歲或以下 50 or below 98.6%	50歲以上 Above 50 66.7%
管理/專業 Managerial / Professional 94.2%	50歲或以下 50 or below 97.1%	50歲以上 Above 50 84.3%

高中 Senior Middle School 100%		13-17歲 Age 13-17 100%
初中 Junior Middle School 100%	6-12歲 Age 6-12 100%	13-17歲 Age 13-17 100%
小學 Primary School 89.4%	6-12歲 Age 6-12 89%	13-17歲 Age 13-17 100%

● 本冊子所列舉之數據主要來自2001、2003、2004、2005、2006、2007、2008、2009及2010年之「澳門居民之互聯網使用調查」，調查於每年的十二月份透過電腦輔助電話訪問（CATI）系統進行，在95%置信度下，總體抽樣誤差分別為±3.2%、±2.2%、±2.5%、±2.3%、±2.4%、±2.3%、±2.3%、±2.5%及±2.4%。冊子中若干資料來自澳門特區政府統計暨普查局、澳門電訊有限公司及澳門互聯網資訊中心。

● 網民：平均每週使用互聯網至少1小時的6至84歲、會講中文的澳門居民（2001年的調查對象年齡為18至74歲）。

● 無線上網用戶：指一、利用筆記本電腦、平板電腦、口袋電腦或手機直接透過網絡供應商提供的WiFi、HSDPA(WCDMA或CDMA2000制式) 或GPRS等網絡進行網上活動；二、利用上述電腦裝備、透過用戶的路由器自行架設的WiFi無線網絡進行網上活動。

● 上網電腦：指住戶內接入互聯網的桌面電腦和手提電腦，掌上電腦或帶PDA功能的流動電話不在此列。

● 家庭總數乃根據澳門統計暨普查局公佈的09年住戶總數178,000個及2010年對應的人口總數及期末外地僱員數目推估，推估出2010年住戶數為182,683個。有關用戶數據之基數為對應6至84歲之人口總數，於2010年12月，該基數估計值為517,140。

● 互聯網個人應用指數(PIAI)，以網民個體的使用為計算單位，用來評估個人網上活動的行為模式、應用程度及使用趨勢。該指數由資訊獲取、休閒娛樂及社交互動三個子指標組成，不同子指標根據網民評價的重要性賦以不同權值。每一子指標乘以各自權重值，得最終之互聯網個人應用指數。
PIAI =（資訊獲取 x 權重1 + 休閒娛樂 x 權重2 + 社交互動 x 權重3)/3

● 數碼鴻溝指數乃根據基尼系數公式計算而得。其中Yi為網民比重， $G = \sum_{i=1}^{n} W_i Y_i + 2 \sum_{i=1}^{n-1} W_i (1 - V_i) - 1$
代表數碼指標（個人是否採納互聯網），Wi為人口比重，代表鴻溝指標（包括性別、年齡、就業及教育程度），
Vi = Y1 + Y2 + Y3 + ... + Yi。

● 本冊子內容乃「澳門互聯網研究計劃」研究成果的一部分，該計劃由澳門大學研究委員會(2001-2008)及易研網絡研究實驗室(2009-2010)資助經費。所有意見並不代表資助機構的立場。如需引用本冊子的任何資料，請採以下方式：
張榮顯（2011）。《澳門資訊傳播科技指標調查2011》。澳門互聯網研究學會：澳門互聯網研究計劃。

● Figures presented in this booklet are mainly extracted from the Internet Use Survey by Macao Residents in the years of 2001, 2003, 2004, 2005, 2006, 2007, 2008, 2009 and 2010. The survey was conducted every December using a computer-assisted telephone interviewing (CATI) system. At 95% confidence level, the sampling errors of the whole sample are ±3.2%, ±2.2%, ±2.5%, ±2.3%, ±2.4%, ±2.3%, ±2.3%, ±2.5% and ±2.4% respectively. Some of the figures cited in the booklet were made available by the Statistics and Census Service of Government of Macao SAR, CTM and Macao Network Information Centre.

● Internet Users: Chinese-speaking Macao residents, aged between 6 and 84 (age between 18 and 74 in 2001), who use the Internet at least one hour on average per week.

● Wireless Internet Users: People who use Wireless in two different criteria follow. 1) refers to using notebook computers, tablet PCs, Pocket PCs or mobile phones to carry out Internet activities through the WiFi, HSDPA (WCDMA or CDMA2000 system) or GPRS which set up by Internet Service Provider (ISP). 2) is to carry out Internet activities with the above-mentioned computer devices through the WiFi wireless network set up by the users'routers.

● Online Computers: home-based desktop and/or notebook computers that are connected to the Internet. Other Internet-ready handheld devices such as Pocket PCs or mobile phones with PDA functions are excluded.

● Number of households in 2010 is 182683, which is estimated from the figures in 2009 published by DSEC and the number of non-local employees in 2010. For user figures, the base is the total corresponding population aged between 6 and 84. The estimated base in December, 2010 is 517,140 .

● The Personal Internet Application Index (PIAI), taking individual netizen's usage as calculation unit, is a model used to evaluate one's Internet behavior, extent of application and usage tendency. This index consists of three sub-indices which include information access, entertainment and social interaction. Netizens give the three sub-indices different weights according to their rating on importance of corresponding items. The Personal Internet Application Index is the average of the product of the three sub-indices and their corresponding weights.
PIAI = (Information Access x W1 + Entertainment x W2+ Social Interaction x W3)/3

● Digital Divide Index (DDI) is calculated by the Gini coefficient formula, $G = \sum_{i=1}^{n} W_i Y_i + 2 \sum_{i=1}^{n-1} W_i (1 - V_i) - 1$
where Yi denotes group i 's Internet users in the total users of the population, representing the digital indicator (whether an individual adopts the Internet or not); Wi refers to the percentage of group i 's population in the total population, representing the divide indicators (includes gender, age, occupation and educational level); Vi = Y1 + Y2 + Y3 + ... + Yi.

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