

Surveying Macao ICT Indicators 2010

澳門資訊傳播科技指標調查 2010

2010



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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」過去九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2009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。過去九年，一共進行了八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」的二十幾個成員之一及「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 nine 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 2009 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. Eight large-scale random sample telephone surveys have been conducted over the past nine years. As a result, a Statistical Report on Macao Internet Use has been published annually from 2003.

MIP is one of the 20 strong 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 2009年澳門居民之ICT滲透率 Penetration Rate in Macao 2009



以“mo”登記之互聯網域名數量 Number of Registered Domain Name of “mo”

	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
.com.mo	44	145	185	300	510	633	881	1108	1352	1550	1778	1949
.edu.mo	11	18	28	35	56	58	67	73	74	70	76	82
.gov.mo	25	40	57	57	75	75	97	106	111	111	139	146
.org.mo	8	23	25	46	101	145	187	230	255	282	307	368
.net.mo	1	3	3	5	5	5	7	7	13	7	7	9
.mo	2	3	3	3	3	3	4	60	116	154	207	264
總計 Total	91	232	301	446	750	919	1243	1584	1921	2174	2514	2818

* 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

* 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

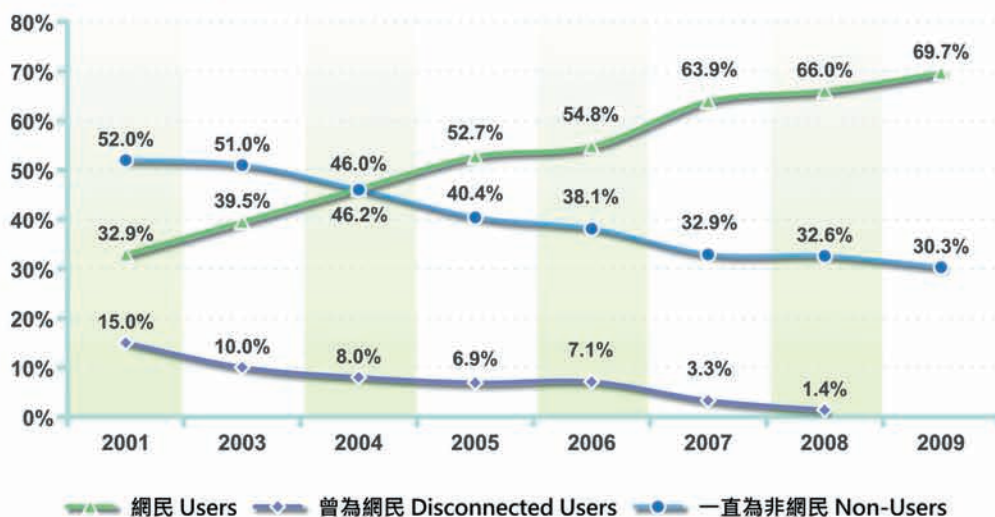
	上網電腦(台) Online PCs (000)	撥號上網電腦(台) Dial-up PCs (000)	寬頻上網電腦(台) Broadband PCs (000)
2003	79.3 (57.0%)	41.8 (30.0%)	37.6 (27.0%)
2004	85.3 (59.0%)	33.2 (23.0%)	50.6 (35.0%)
2005	94.0 (62.0%)	18.2 (12.4%)	74.3 (49.7%)
2006	114.8 (71.9%)	12.0 (7.5%)	102.0 (64.2%)
2007	128.3 (76.8%)	4.8 (2.9%)	123.0 (73.6%)
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%)

* 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.

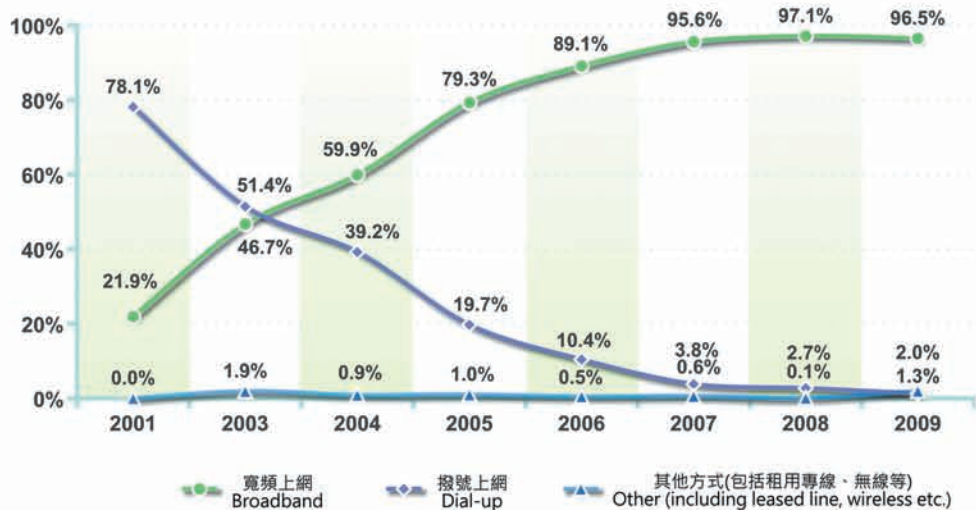
S-Shape of Internet Diffusion



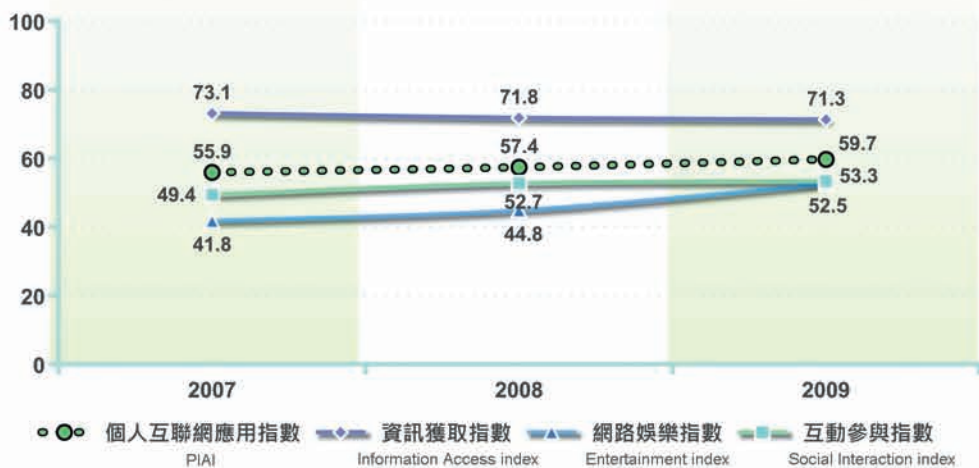
Internet Adoption Rate by Individual



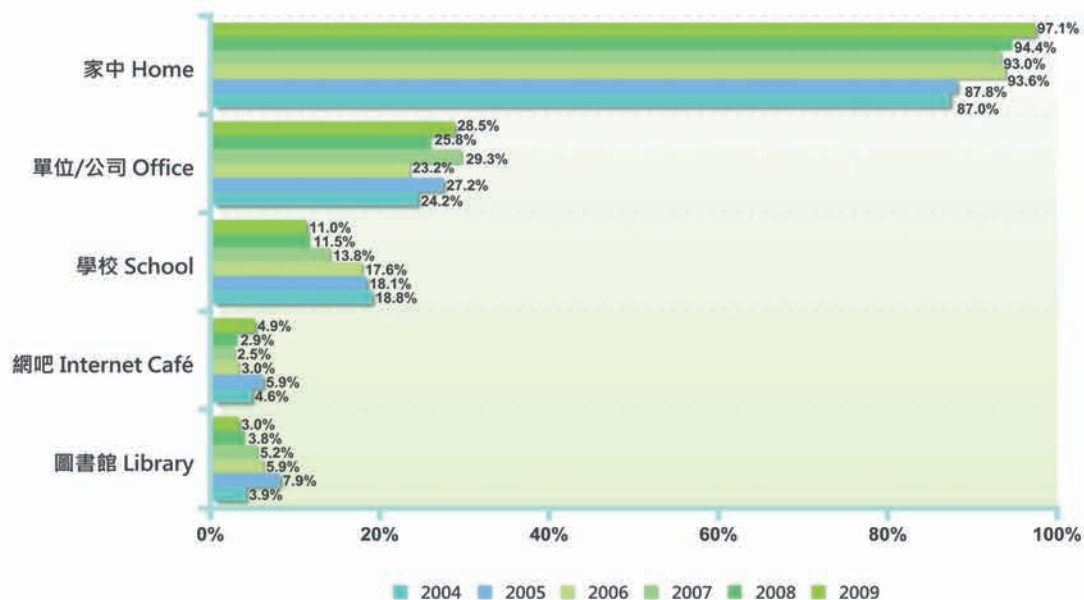
Methods of Internet Connection by Household



個人互聯網應用指數(PIAI) Personal Internet Application Index (PIAI)



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

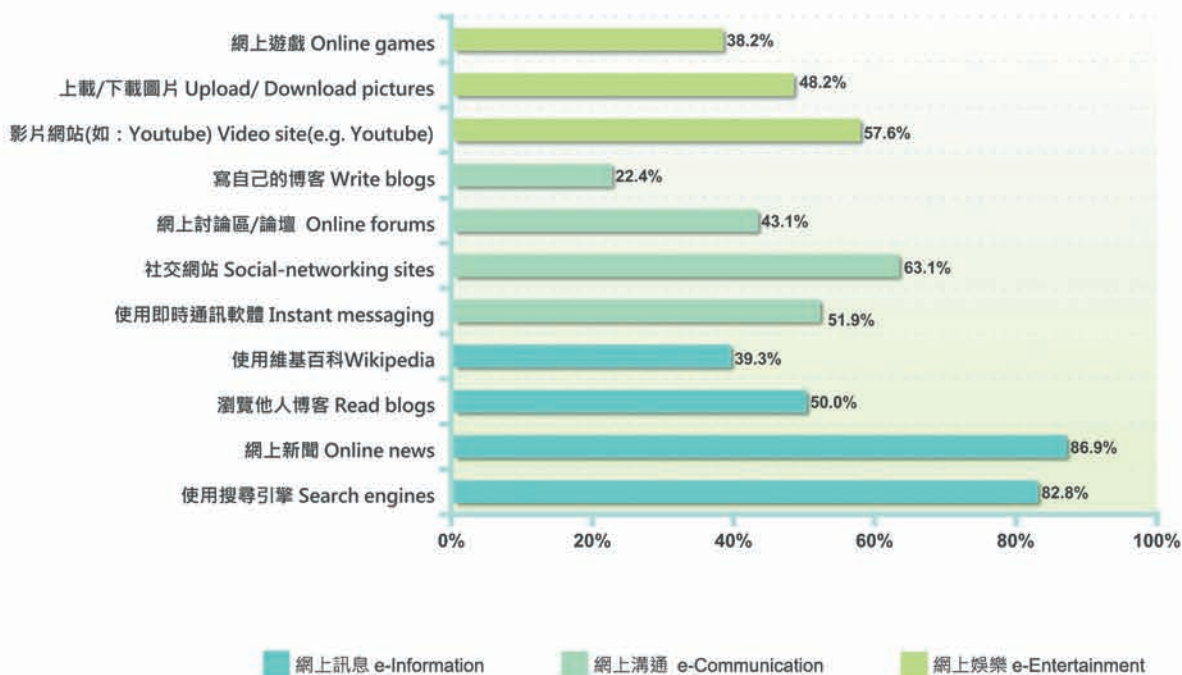


網民平均每週上網時間 Average Hours of Internet Use per Week by Users

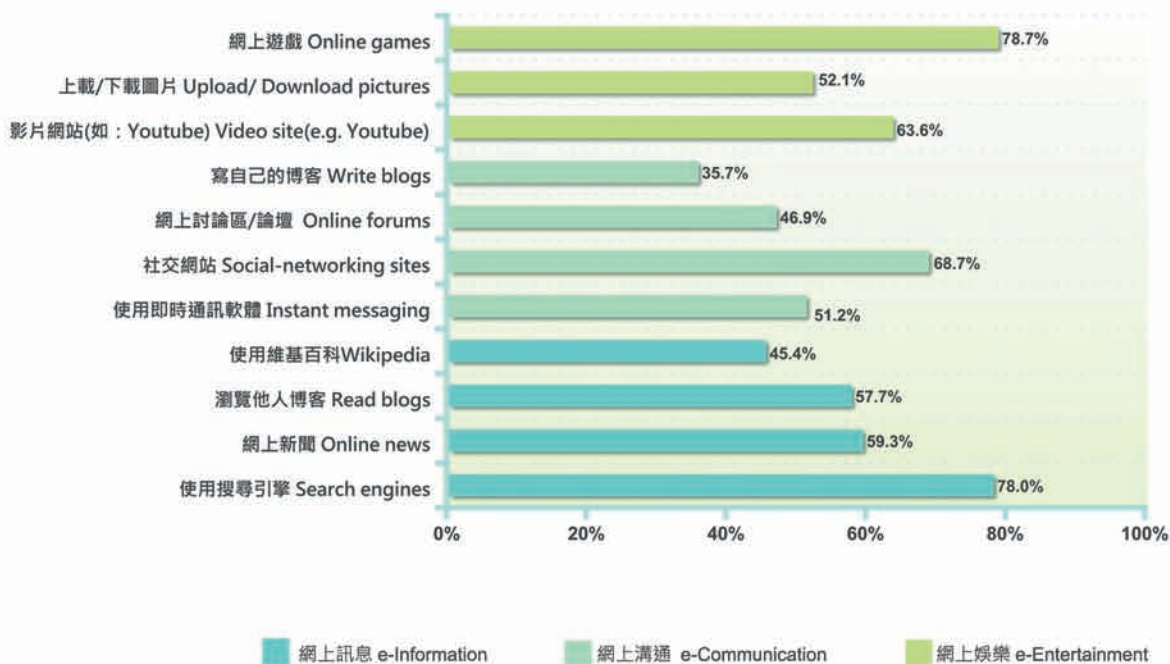
	所有網民 All Internet Users (小時 Hours)	6 - 17歲網民 6-17 Years Old (小時 Hours)	18 - 84歲網民 18-84 Years Old (小時 Hours)
2003	12.1	--	12.1
2004	13.2	8.7	14.9
2005	13.3	11.0	14.3
2006	15.9	12.8	17.0
2007	16.1	12.7	17.2
2008	18.6	19.3	18.5
2009	18.6	17.9	18.8

* 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.

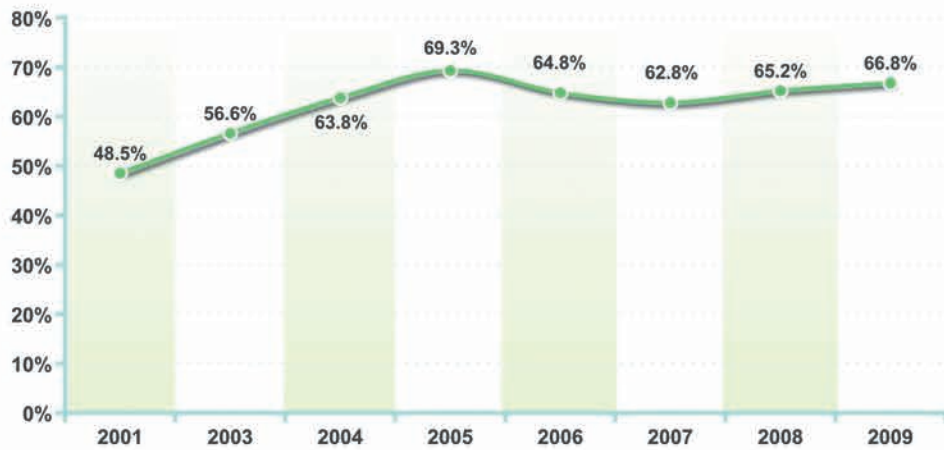
網民的主要網上活動 (成年人: 18-84歲)
Major Activities by Users (Adults: 18-84)



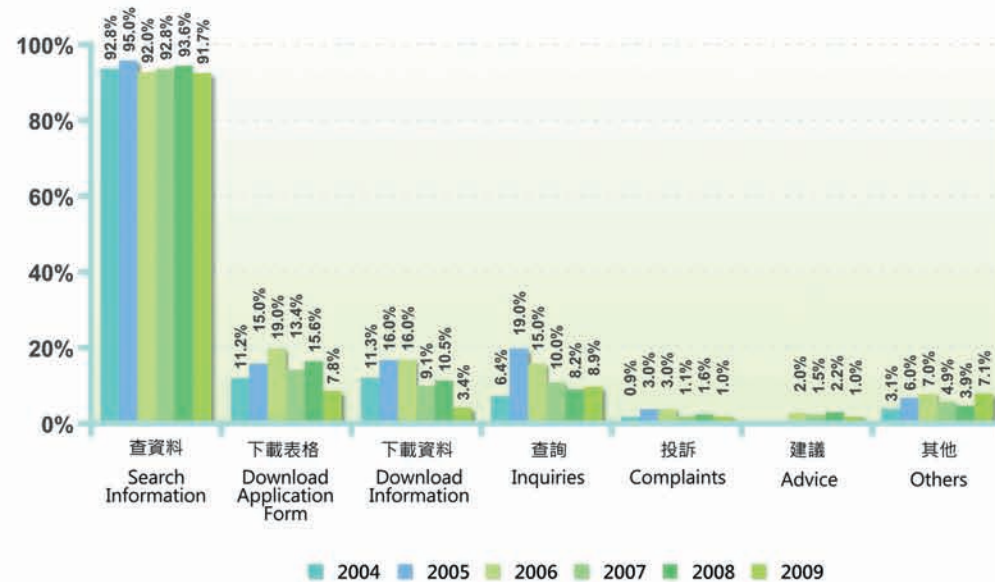
網民的主要網上活動 (青少年: 6-17歲)
Major Activities by Users (Youth: 6-17)



U 網民之政府網頁使用
Use of the Government Websites by Users



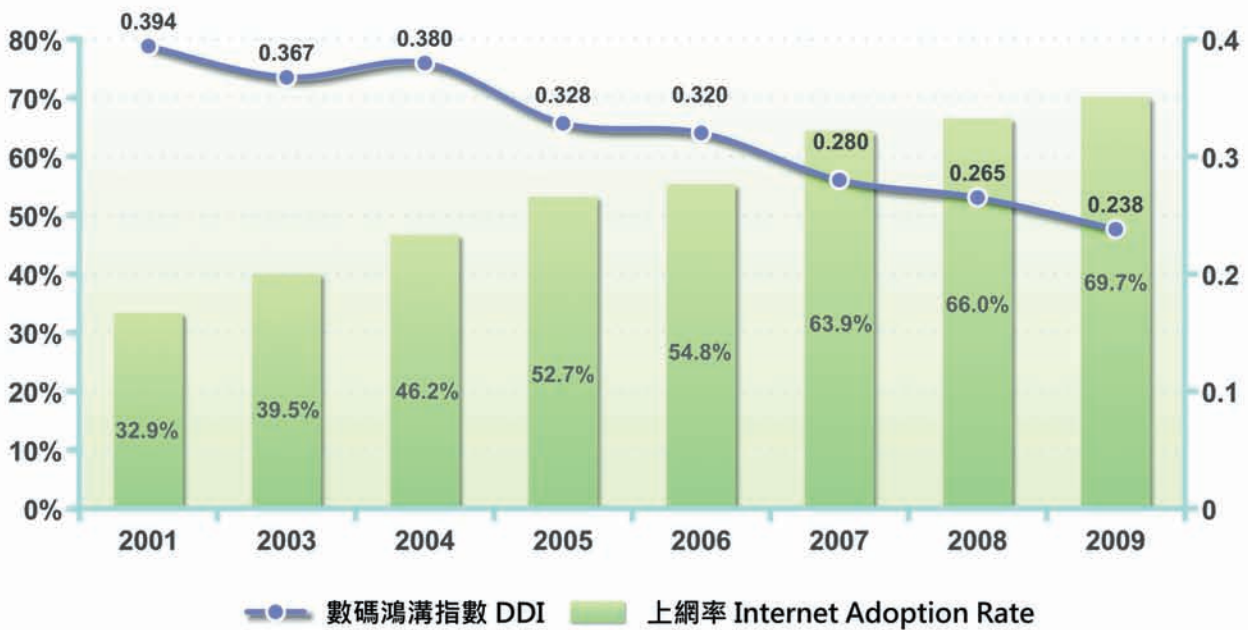
T 網民使用政府部門網頁的服務
The e-Government Services that Users Used



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

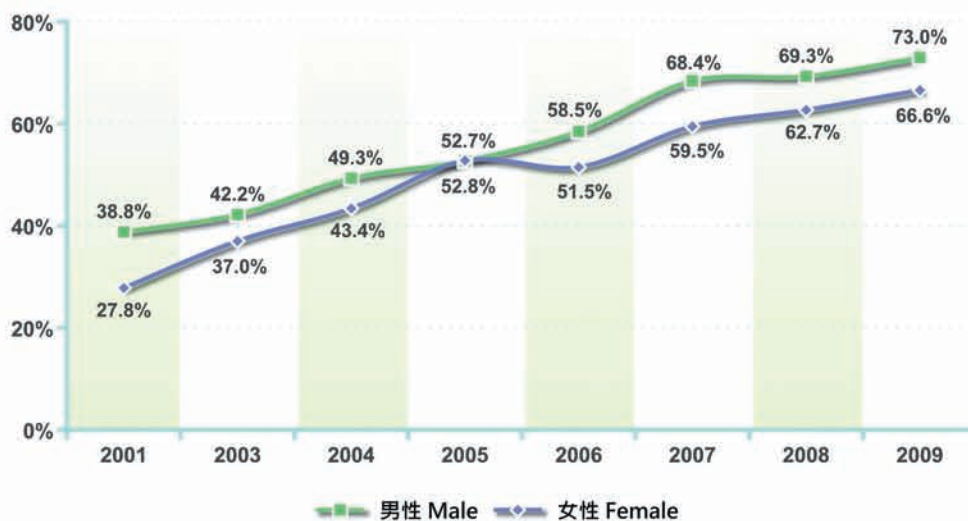


數碼鴻溝指數(DDI) Digital Divide Index (DDI)

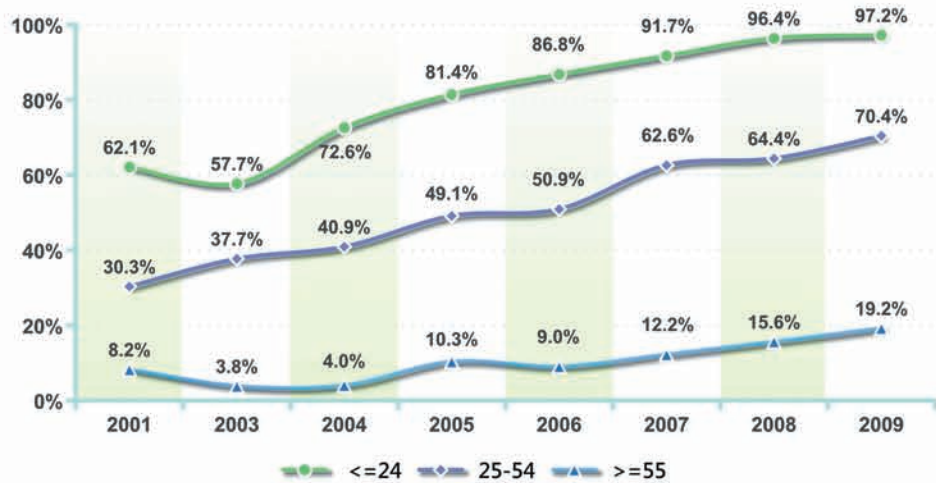


- * 數碼鴻溝指數越大，表示差異越大。 The bigger the DDI is, the larger the divide or inequality.
 - * 參考數據： DDI < 0.2 表示絕對平等； DDI = 0.2 - 0.3 表示基本上平等； DDI = 0.3 - 0.4 表示可接受平等； DDI = 0.4 - 0.5 表示嚴重不平等； DDI > 0.5 表示非常嚴重不平等。
- Reference: DDI < 0.2: absolute equality; DDI = 0.2 - 0.3: basically equality; DDI = 0.3 - 0.4: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

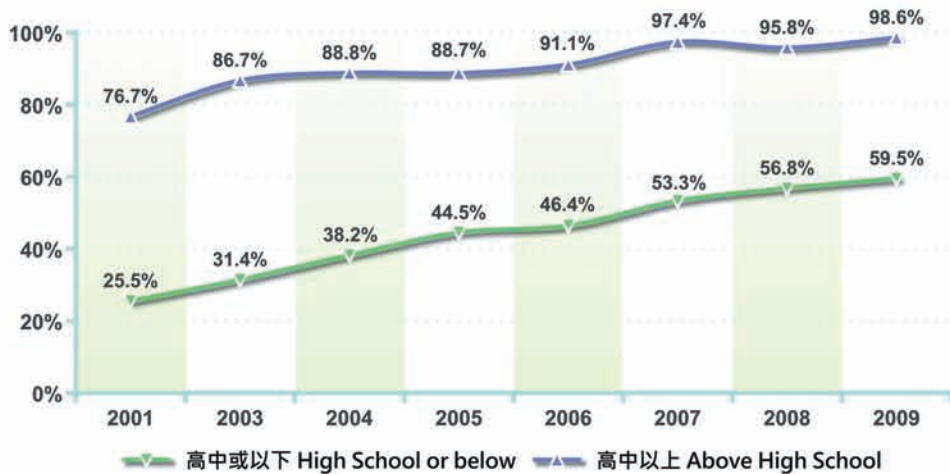
男女上網率 Internet Adoption by Gender



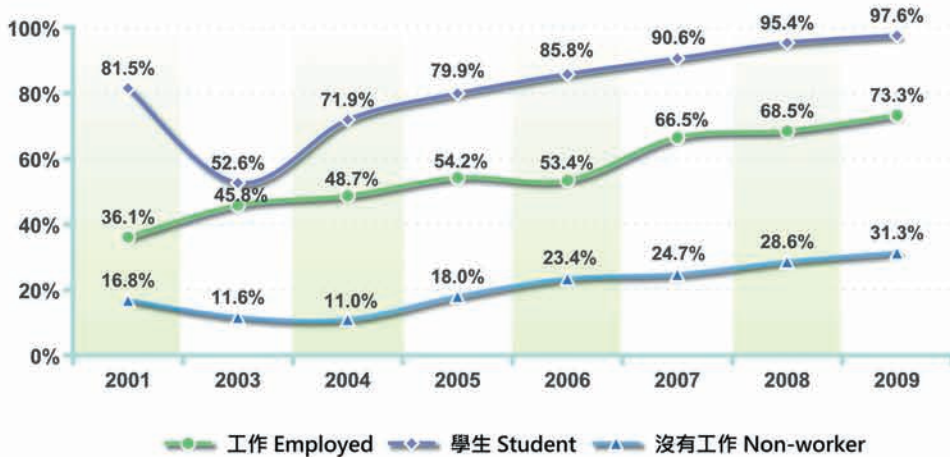
I 不同年齡層之上網率 Internet Adoption by Age



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

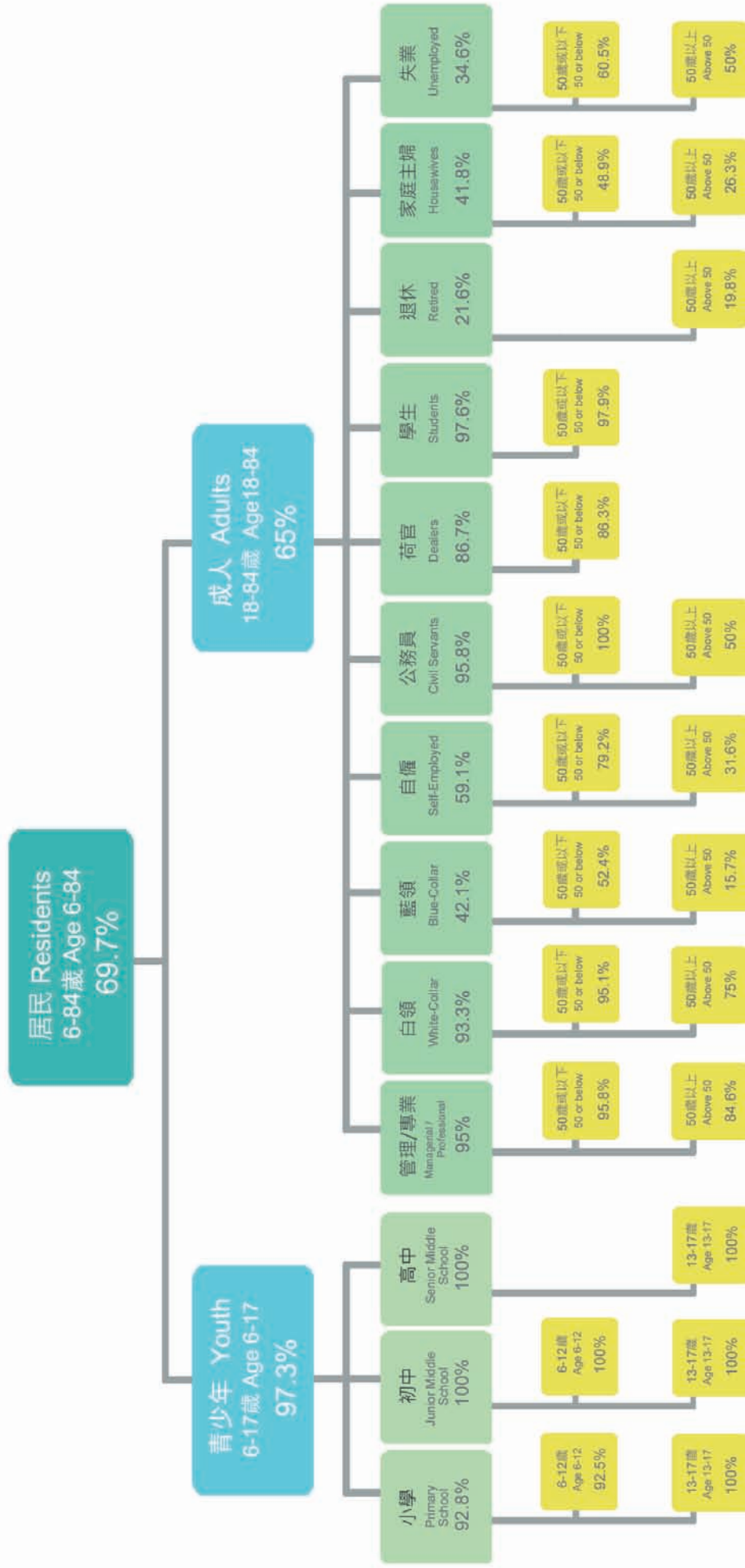


I 不同職業者之上網率 Internet Adoption by Occupation



* 2001年之受訪者年齡為18歲至74歲。 Respondents' age between 18 and 74 in 2001.

D 澳門居民各群體之互聯網普及分佈圖 2009 Distribution of Internet Adoption among Macao Residents 2009



● 本冊子所列舉之數據主要來自2001、2003、2004、2005、2006、2007、2008及2009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%及±2.5%。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、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之07-08年間住戶總數167,187個及08年和09年對應的人口總數及期末外地僱員數目推估，推估出09年住戶數為169,719個。有關用戶數據之基數為對應6至84歲之人口總數，於2009年12月，該基數估計值為521,513。

● 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。每一子指標乘各自權重值，再取三者的平均值，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)， $V_i = Y_1 + Y_2 + Y_3 + \dots + Y_i$ 。

● 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)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 (2010)。《澳門資訊傳播科技指標調查2010》。易研網絡研究：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 and 2009. 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% and ±2.5% 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, 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.

● For household figures, according to DSEC, there were 167,187 households in 2007-2008 in Macau. The estimated number of household in 2009 in Macau is 169,719 which is estimated based on the following three data: a) the number of households in 2007-2008, b) the total number of citizens in Macau in 2008 and 2009, c) the number of non-local employees in the end of 2008 and 2009. For user figures, the base is the total corresponding population aged between 6 and 84. The estimated base in December, 2009 is 521,513.

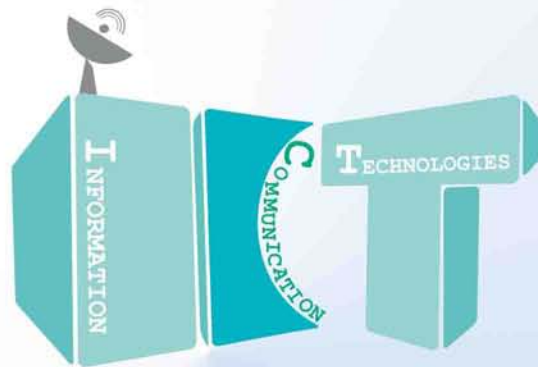
● The Personal Internet Application Index (PIAI), taking individual netizen's usage as calculation unit, is a model used to evaluate one's Internet behavior, extent of application and usage tendency. This index consists of three sub-indices which include information access, entertainment and social interaction. 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); $V_i = Y_1 + Y_2 + Y_3 + \dots + Y_i$.

● The content of this booklet is part of the MIP research findings. The entire project is funded by the Research Committee of the University of Macau (2001-2008) and ERS e-Research Lab (2009). Views expressed in the booklet do not represent those of the funding organization. For citation, please use the following format. Cheong, W.H. (2010). *Surveying ICT Indicators 2010*. ERS e-Research: Macao Internet Project.



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<http://www.macaointernetproject.net>