

.mo

Macau

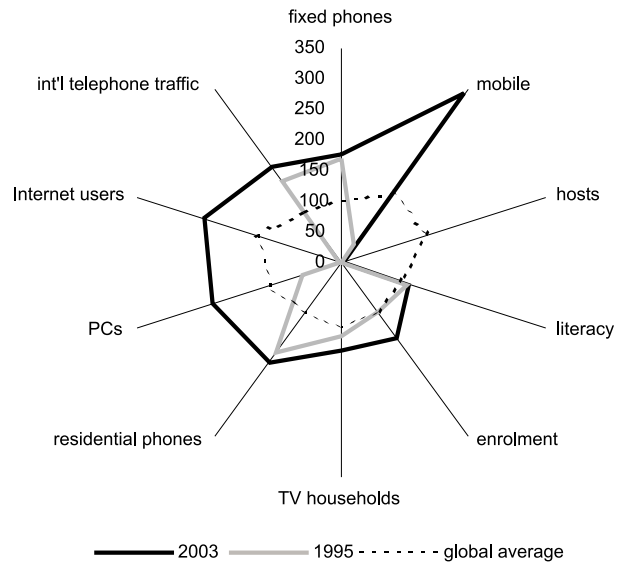
Eric Sautédé

Overview

It is no secret that the economy of Macau is growing, and it is growing fast: it surged 15.6 percent in real terms in 2003, and more than 25 percent in 2004. The driving forces behind this spectacular boom are a mix of gambling, tourism, and construction, both public and private, as Macau is hosting the East Asian Games in November 2005 and also wants to become the Las Vegas of Asia by 2006. Gambling is a big thing in Macau, and this shows both in the city landscape – there are now 17 casinos! – and in the weight of gambling in the economy of the territory: gambling-recorded gross revenue climbed by 40 percent to a total of 42.5 billion patacas¹ in 2004, and taxes on casinos' revenue account for more than 75 percent of the Macau Special Administrative Region (SAR) government earnings. Tourism is of course partly fuelling this growth frenzy, and tourists from China have now replaced Hong Kong people as the main source of visitors: 16.7 million people visited Macau in 2004, an increase of 40 percent over the previous 12 months, and 57 percent of them came from mainland China.²

Macau is a small place of 27.3 square kilometres and the home of 465,000 inhabitants. A “Chinese territory under Portuguese administration” since the 16th century, it was returned to China under the “one country, two systems” formula in December 1999 and thus became the second SAR after Hong Kong. Remnants of 450 years of encounter between the West and the East can be seen everywhere in the territory: lifestyles are diverse and cultures have gotten used to a tolerant cohabitation. However, although Chinese and Portuguese are the two official languages, over 97 percent of the population speaks Chinese and less than 1 percent Portuguese. Cantonese is the main dialect, but Mandarin is gaining ground. Identity-wise, only 45 percent of the residents were actually born in Macau, even though more than 80 percent of the population has been living in the territory for more than ten years.

All in all, if the prospects have never been so promising since the middle of the 19th century, when Macau waned in the shadow of Hong Kong, the challenges have equally never



Source: Monitoring the Digital Divide. © Orbicom 2004

been so great: Macau's true identity has still to be carved – it cannot rely solely on its role as a bridge to a China that has been “opening up” for the past 25 years – and the gambling industry with all its negative mores has yet to successfully become an entertainment industry that truly capitalises on the territory's unique value-added character.

In many respects, the development of ICT in Macau reflects these dilemmas and challenges: partial telecommunications liberalisation in 2000 led to great expectations, some of which have already proven to be disappointing. However, the potential remains and can easily be activated to the full.

Local online content

Local news content is widely available in both Portuguese and Cantonese. Teledifusiao de Macau (TDM), established in 1982, broadcasts free-to-air radio and television programmes in the two languages. There are no fewer than eight newspapers in Chinese and four others in Portuguese. In addition, there are now a daily, *Macau Post*, and a business-oriented monthly, *Macau Business*, in English, both started in 2004.³ For better or for worse, most of these titles are heavily subsidised by the government, and the content – rarely critical – does not really go beyond neighbourhood concerns. The great majority of the people in Macau are more easily seen reading the *Apple Daily* or *Mingbao*, the two main dailies from Hong Kong. Currently, one of the worst fears in the territory is a plan, which is still under discussion, by *Apple Daily* to publish a Macau edition, a move widely seen as prefiguring the end of many “genuine” titles from Macau. Hong Kong magazines are already flooding the news stands, and local residents tend to watch Hong Kong television channels. TDM's successive losses over the years – close to MOP\$60 million in 2004 alone – have forced the company to sell its own stake to the government in March 2005, meaning the government now fully owns it.

In general, the same “detrimental” Hong Kong proximity can be felt when examining web surfing in Macau. According to the latest survey conducted by Angus Cheong Weng Hin and his team from the University of Macau,⁴ Macau netizens when asked “what are the websites you most often visit (multiple choices possible)” replied “Macau websites” for 40 percent of them but “Hong Kong websites” for 78 percent! Nevertheless, a fast-growing economy and an overall tertiarisation of economic activities, especially tourism and gambling, seem to be conducive to “more” local content. The few examples that follow illustrate this trend and provide a glimpse of Macau’s real potential. One should be aware that a growing number of websites in Macau – if one excludes the official portals – are using only Chinese, or a combination of rich content in Chinese and summarised parts in English, while Portuguese is progressively being sidelined.

Government and government-run cultural and tourism institutions

The impressive and just revamped government portal (<http://www.gov.mo>) catering to “the citizen, the tourist, and the merchant” publishes content in simplified and traditional Chinese, Portuguese and English. The main website for local and international arts is run by the Macau Museum of Art (<http://www.artmuseum.gov.mo>). The beautifully designed and ever-resourceful Cultural Institute (<http://www.icm.gov.mo>) also offers ideas for cultural tours in Macau at <http://www.macauseritage.net>. Users can check up programmes and purchase tickets to exhibitions, films, music shows and other events online at Macauticket (<http://www.macauticket.com>). Art lovers can catch up on the arts with a regional reach at Macauart (<http://www.macauart.net>). And visitors can download tourism-related information in six scripts, including Japanese and Korean, at the Macau Government Tourist Office website (<http://www.macaoutourism.gov.mo>).

Information and entertainment content

The Macau Yellow Pages (<http://www.yip.com.mo>) is a vital starting point to search for suppliers of goods and services. Macaustreet (<http://www.macaustreet.com>) is a local lifestyle portal for young people. The local version of Sina.com, a news and information website from China, may be reached at <http://macau.sina.com>. Macau’s “main” ISP and sole broadband access provider, CTM, offers news, entertainment content and customer service at <http://www.cyberctm.com>.

Higher and continuing education

The main institutions of higher education all have an online presence, including the University of Macau (<http://www.umac.mo>), the University of Science and Technology of Macau (<http://www.must.edu.mo>), the Polytechnic Institute of Macau (<http://www.ipm.edu.mo>), the Inter-University

Institute of Macau (<http://www.iium.edu.mo>) and the Institute for Tourism Studies (<http://www.ift.edu.mo>). The Macau Productivity and Technology Transfer Centre (CPTTM, <http://www.cpttm.org.mo>) is a non-profit organisation established with the help of the government and the private sector to promote higher productivity and greater competitiveness in Macau. It offers ICT training modules and degrees.

Local news

The *Macao Daily News* (<http://www.macaodaily.com>) has the largest circulation among Chinese newspapers in Macau. It is read by Macanese at home and abroad. *Va Kio Daily* (<http://www.vakiodaily.com>) is the other major Chinese newspaper. Two of the most well-known Portuguese newspapers are *Ponto Final* (<http://www.pontofinalmacau.com>) and *Jornal Tribuna de Macau* (<http://www.jtm.com.mo>). TDM, the only free-to-air television and radio broadcaster, runs a website (<http://www.tdm.com.mo>) which provides real-time streaming videos. Macau Cable TV (<http://www.macaucabletv.com>) was awarded a 15-year franchise to provide cable television services in Macau. At present, it offers more than 55 channels to its subscribers. Two interesting independent English weblogs about Macau are found at <http://www.macau.org.uk> and <http://macau.blogharbor.com/blog>.

Online gambling

Dr Ho 888 (<http://www.drho888.com>) is the online casino operated by Dr Stanley Ho, the territory’s richest man, who used to have the monopoly on gambling in Macau and who still holds one of the three casino franchises through Sociedade de Turismo e Diversões de Macau (STDM). Macauslot (<http://www.Macauslot.com>) belonging to Sociedade de Lotarias e Apostas Mutuas de Macau (SLOT) is a subsidiary of STDM. Founded in 1989, SLOT is the first government-franchised company to sell instant-winning lottery tickets on passenger ferries running between Hong Kong and Macau. In 1998, prior to the World Cup, SLOT was granted the franchise by the Macau government to offer soccer betting, thus becoming the first government-franchised company in Asia to operate a sports betting business. This was followed by a government franchise for basketball betting in December 2002.

Online services and industry

Commercial Internet services have been provided by Companhia de Telecomunicações de Macau (CTM), a former monopoly, since 1995. Starting in 2000, a handful of other companies also began to provide public Internet access. They included Macauweb, CPCNET Macau, Ideasys Company, Netel and MacauNet. Despite partial liberalisation, however,

all these access providers, except for CTM, have today either ceased to exist or have reoriented their business towards content hosting. Meanwhile, Macau Cable TV seems to have no plans to provide broadband access. As such, CTM is de facto the only provider of broadband services in Macau. Broadband has become the most popular way of accessing the Internet since August 2004 and connects about 60 percent of all Macau Internet users.⁵

Macau adopted early on an interesting public tariff structure where service quality levels are a full part of the service licensing criteria of both Internet and telecommunications services. Internet service tariffs, which are reviewed regularly, are posted on the websites of the ISPs as well as on the website of the Office for the Development of Telecommunications and Information Technology (GDTTI).⁶ GDTTI was established in June 2000.

These licensing requirements have led to a transparent market for Internet services, where “elementary” broadband services are available for MOP\$110 per month (60 hours, 512 Kb downstream, 128 Kb upstream), with each additional hour costing MOP\$1.8.⁷

Because liberalisation of the ISP sector in 2000 did not bear the expected fruit of introducing competition into the market, CTM has pretty much recovered its status as a monopoly. Only SmarTone and Hutchison, two Hong Kong mobile service companies that entered the market in March 2001, are posing a true challenge to CTM in providing mobile Internet services, based exclusively on the GPRS standard for the time being.

According to GDTTI, as of February 2005, there were 30,583 registered subscribers to dial-up Internet services in Macau, clocking up a total of 684,405 hours per month. There were also 48,251 registered subscribers to broadband services, consuming a total of 4,199,850 hours per month.⁸

More interesting are the data collected via the survey conducted by Angus Cheong. As of December 2004, the penetration rate of the Internet in the population was as high as 46 percent (among people 6–84 years old), or 43 percent going by the more conservative World Internet Project definition (among those 18–74 years old). The majority of Internet users (51 percent) were below 24 years of age, who on average connected for 13.2 hours per week, with 87 percent of the users connecting from home and only 24 percent connecting from the office and 19 percent from their school or university. Most of the time spent online was dedicated to firstly “writing/reading/exchanging e-mail” (2.7 hours), secondly “looking for information/news” (2.5 hours), thirdly “participating in chatrooms and forums (ICQ/MSN included)” (1.9 hours), and coming a distant fourth “online gaming” (1.1 hours).⁹

As for the usage of IT in the business sector, a report released by the government in 2004 indicates that the overall usage rate among businesses had held steady at 33 percent in 2002 and 2003. Service-oriented businesses (including travel agencies) and larger companies registered the highest

rates. According to the same report, there were only 325 business establishments that had a webpage or website, but more than 36 percent of companies with more than 100 employees acknowledged having a website or webpage.¹⁰ This seems to be in line with information provided by Directel,¹¹ which disclosed that it has about 1,000 clients for mailboxes and webpages at the Macau Yellow Pages (accounting for about 5 percent of all companies in Macau). Half of the companies are for now only interested in what is referred to as an “e-copy”, a simple webpage posting of a digitised version of the company’s promotional material without any clickable links.

Key initiatives and enabling policies

Many institutions and organisations are involved in fostering distance learning in Macau. The Macau Schoolnet project was launched as early as March 1997, linking eight schools via dial-up Internet access. In 1999, CTM began its i.Campus project, providing high-speed Internet access with free leased lines, the necessary equipment and technical support to participating academic institutions.¹² Over 110 local institutions have participated in this programme. In addition, CTM launched its i.Campus card in June 2002 granting special access to students so that they can seek knowledge on the Web at their own leisure. Also, CTM’s website MACAUeLearning (<http://www.macaulearning.com>) offers links to online courses, course enrolment and other e-learning services, as does the Macau Central Library (<http://www.library.gov.mo>).

Many signs indicate that Edmund Ho Hau Wah’s administration is committed to fostering IT use and IT training in Macau. The Chief Executive stressed in his policy address of November 2004 that getting young people online would be among his priorities in the years to come.¹³

The partial liberalisation of the gambling and telecommunications industries represents the most significant enabling policy issued since 2000, despite the quasi-monopoly reclaimed by CTM via the popularity of its broadband services. However, CTM is coming under tremendous pressure, due mainly to dissatisfaction with the quality of its services and management among many ICT professionals.

Regulatory environment

Prior to 1981, before CTM was established as Macau’s incumbent telecommunications provider, “residents had to wait many months simply to have a telephone connected. Direct dialing was not an option and a telephone call to nearby Hong Kong was a lengthy procedure and had to be placed through an operator.”¹⁴

CTM was established in October 1981. It is now a joint venture between Cable and Wireless PLC (51 percent), Portugal Telecom International (28 percent), CITIC Pacific

(20 percent) and the Macau SAR government (1 percent). As a private company, CTM had enjoyed a monopoly on telecommunications via a concession contract granted by the government. This exclusive licence was valid for 20 years and was only revised by the Sino-Portuguese Liaison Group during the negotiations over Macau's return to Chinese sovereignty. In October 1999, CTM's concession was thus renewed for local, international and transit fixed telephone services, telegram service, fixed telex service, fixed service for data transmission, and rental circuit services for a period of 12 years, up to 31 December 2011.¹⁵ According to this new concession contract, CTM has to pay the Macau government a royalty amounting to 9 percent of its total operating revenue and “shall transfer to the Territory the whole of the facilities involved in the franchised services free of any charges, encumbrances and liabilities” at the end of the concession. This revision thus paved the way for the liberalisation of Internet services, mobile phone services, long-distance voice telephony and other value-added services by 2001.

In June 2000, telecommunications regulations were separated from those for postal services with the establishment of GDTTI, the new regulating body for telecommunications and IT.

In March 2001, two new entrants, both of them from Hong Kong, were selected along with CTM to provide GSM 900/1800 mobile services. They were Hutchison Telephone (Macau) Company (with a minority stake from Japan's NTT DoCoMo) and SmarTone Mobile Communications (Macau). Most people in Macau acknowledge that liberalisation has led to very healthy competition benefiting consumers in terms of quality of service and pricing. GDTTI has been forced to lower its indicative (and bounding) prices to take into consideration market forces. It is reported that CTM has only 51 percent share of the mobile market (down from 80 percent in 2004). As of February 2005, there were 233,269 subscribers of public mobile phone services, representing more than 50 percent of the population. The figure did not include users of prepaid services.¹⁶

China Unicom was awarded the first Macau CDMA licence in March 2005 in what is widely seen as a trade-off at a time when it was still negotiating with Portugal Telecom over a possible partnership deal to redistribute the ownership of CTM. Portugal Telecom wanted to increase its share in CTM from 28 to 45 percent, while China Unicom was set on acquiring 49 percent of the shares from Cable and Wireless and CITIC Pacific. China Unicom is the only CDMA operator in mainland China. Its successful bid for the CDMA licence in Macau did not come as a surprise within the industry. The three mobile operators – CTM, Hutchison and SmarTone – nevertheless each issued statements expressing their concern that a fourth mobile operator in Macau “will affect the healthy development of the market” and that it would create a lose-lose situation for all four operators. Bidding for 3G licences is scheduled for 2006.¹⁷

The long-awaited digital certification to be offered by the Macau Post Office should become a reality soon, as a digital certification law is expected to be passed before the end of April 2005, thus facilitating the development of e-government.

Among the recent bills debated, one must mention the new rules for cyber cafés that were passed as a law in July 2003. Although intended to protect the youth from online pornography and violence, this law is very restrictive on minors aged from 12 to 16 years. They are allowed in cyber cafés only between 4 p.m. and 10 p.m. during weekdays and after 8 a.m. on Saturdays, Sundays and public holidays. Such a preemptive move may not be the best approach to encouraging “youth online”.

The Macao Network Information Center (MONIC), a department of the University of Macau managing “.mo” domain name registration, announced on 26 February 2005 that it had revised its rules for domain name registration with effect from 1 March 2005. Under these new rules, existing domain name holders are now required to pay annual subscription fees for their registered domain names and to confirm the accuracy of their domain information in MONIC's database. Existing “.mo” domain name holders have been permitted to subscribe to an additional second-level domain name which is consistent with their existing domain names in a trial service. For example, the holder of the domain “xyz.com.mo” may also register the name “xyz.mo” on a first-come-first-served basis. This trial service is scheduled to end on 31 August 2005. MONIC only allows third-level domain name registrations for “.com.mo”, “.net.mo”, “.org.mo” and “.edu.mo”. An annual fee of MOP\$200 is now levied for each registered domain name.¹⁸

The new rules are justified by MONIC on its website as an enhancement of its services to respond to “a higher demand for Macao domain name registrations and inquiries”. However, this cannot hide the sad truth that the number of Internet hosts in Macau is on the decline. According to the Internet Systems Consortium's Internet domain survey, the number of Internet hosts under the “.mo” domain dropped from 152 in July 2002 to a mere 70 in January 2005. This places Macau in between Tajikistan (72) and Djibouti (58), and far behind Taiwan (ranking 11th worldwide with 3,516,215 Internet hosts), Hong Kong (25th with 856,244 hosts) and China (43rd with 163,626 hosts).¹⁹ Since the number of Internet hosts is one of the main indicators of the status of Internet infrastructure and the development of an Internet economy, one has to worry for Macau. The obvious reason for the decline in this number is once again the detrimental effect of the territory's proximity to two dynamic Chinese-speaking entities: Hong Kong and Taiwan.

Open source movement and ICT research

Open source software is being actively promoted by local ICT-related associations and educational bodies. It is particularly true of CPTTM, which is providing specific and lengthy training to support Red Flag Linux, a Chinese version of Linux developed by the Chinese Academy of Sciences.²⁰ CPTTM is even organising an annual Open Source Software Forum and OSS Application Competition.

Macau, being a small territory and having no established history in engineering training, conducts limited research into ICT. The United Nations University's International Institute for Software Technology (<http://www.iist.unu.edu>) is about the only institution that offers a research and training programme in computer science and software engineering that is focused on the software technology needs of developing countries. Cisco Systems has also partnered with CPTTM and its Cyber-Lab to establish the first Local Network Academy.²¹ There are also frequent collaborations in this area between higher education institutions, such as the University of Macau, the University of Science and Technology of Macau or the Polytechnic Institute of Macau, and local associations, especially the Macau Information Technology Association (<http://www.ita.org.mo>).

Prospects

Partial liberalisation of the telecommunications sector has raised the expectations of Macau people and particularly IT specialists. Unfortunately, with the exception of mobile services, liberalisation has not lived up to its promises.

The popularity of Hong Kong websites among Macau Internet users coupled with the steady decline in the number of Internet hosts in Macau is a clear indication that there is a lack of confidence in and recognition of local online services among Macau residents. The cause of this is not a lack of training and expertise. Macau has access to good teaching facilities and some very talented web designers. At the same time, GDTTI has proven its ability to respond to needs and enact strict and fair regulations.

Some put the blame on the lack of knowledge of the old generation, or on the tendency of businesses to consider ICT as a somewhat superfluous way of advertising. The lack of promotion and awareness building may be another reason: Internet- and ICT-related articles are almost non-existent in newspapers and magazines published in Macau, and most activities organised to promote ICT are one-time events. There is a lack of sustained promotional and educational programmes.

Las Vegas-style casinos and monster events like the East Asian Games are full of possibilities, but will they prove sustainable for the Macau ICT sector? Macau's mixed heritage (Macanese, Cantonese and Portuguese) along with its manifest Chinese destiny is the key to much-needed

“glocalisation”: a global reach with local characteristics that will root the confidence of Macau people in their own abilities and capacities.

Notes

1. The pataca (MOP\$), the local currency, is pegged to the Hong Kong dollar and thus indirectly to the US dollar (HK\$1 = MOP\$1.03 and US\$1 = MOP\$8.03).
2. For all economic data, see the quarterly *Macao Economic Bulletin* and the *Monthly Bulletin of Statistics*, both published by the Macau government (see http://www.dsec.gov.mo/index.asp?src=/english/html/e_sitemap.html), and also the new English monthly *Macau Business*.
3. The *Macau Post* is a sorry and bound-to-fail attempt at independent journalism, while the *Macau Business* is certainly the most interesting and most focused English publication to date.
4. A.W.H. Cheong, Survey Report on the State of the Development of the Internet in the Macau Area (in Chinese), January 2005, unpublished report given by the author. These surveys conducted (and enriched) since 2001 are certainly the most interesting pieces of data collected on the use of the Internet in Macau. Angus Cheong is the local correspondent of Beijing's China Internet Network Information Centre (see <http://www.cnnic.net.cn>).
5. Cheong's study (see note 4 above), p. 3, and official figures at <http://www.gdtti.gov.mo/eng/Facts/stat.html>.
6. The latest revision of tariffs was made in February 2005. See http://www.gdtti.gov.mo/por/laws/9_2005.html.
7. http://www.cyberctm.com/en/cs/tariff_bb.en.php.
8. See <http://www.gdtti.gov.mo/eng/Facts/stat.html> for details.
9. Cheong (see note 4 above), p. 8.
10. See Census and Statistics Service of Macau, <http://www.dsec.gov.mo>.
11. Personal interviews with managing director Oscar Sousa Marques and sales and marketing manager Sophia F. Lei, 25 January 2005.
12. <http://www.ctm.net/cgi-bin/ctm/jsp/cn/NHS/iCampus/index.jsp>.
13. <http://www.gov.mo/egi/Portal/rkw/public/view/area.jsp?id=21>.
14. <http://www.ctm.net/cgi-bin/ctm/jsp/NHS/demo/main.jsp>.
15. http://www.gdtti.gov.mo/eng/laws/concession/ctm_chap1.htm.
16. See note 8.
17. <http://macau.blogharbor.com>.
18. <http://www.monic.net.mo/page.php?m=5&n=1>.
19. <http://www.isc.org/index.pl?/ops/ds>.
20. <http://www2.cpttm.org.mo/training/sdb/searchCourses.do?subjarea=cm&keyword=&l=e>.
21. <http://www2.cpttm.org.mo/cyberlab/partner/cisconetacad/index.html.en>.