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Volume 5

Trends and Markets in Malaysian Mobile Service

Suruhanjaya Komunikasi dan Multimedia Malaysia
Malaysian Communications and Multimedia Commission

About the Cover

The Kuda Kepang is a highly-spirited traditional dance performance from Malaysia's southern state of Johor. Usually performed by nine dancers sitting astride two-dimensional horses, the dance forges the image of great determination with stories of historical and victorious battles told in various vigorous yet graceful movements.
The Kuda Kepang image is set against the background of the Istana Budaya, the icon of Malaysian traditional performances and regarded as among the 10 most sophisticated theatres in the world. Much like the dance, the SKMM identifies and weaves the spirit, synergy and story depicted by the Kuda Kepang and the grandiose of the Istana Budaya with our own commitment in bringing about the progressive development of the communications and multimedia industry.

Suruhanjaya Komunikasi dan Multimedia Malaysia
Off Persiaran Multimedia, 63000 Cyberjaya,
Selangor Darul Ehsan, Malaysia.
Tel: (603) 8688 8000 Fax: (603) 8688 1000
Freephone Number: 1-800-888-030 http://www.mcmc.gov.my

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FOREWORD

On behalf of the Malaysian Communications and Multimedia Commission (SKMM), it is my pleasure to present to our readers the Report on Trends and Markets in Malaysian Mobile Services.

The scope of this report includes discussion on the communications services development in respect of mobile voice and data markets. Various trends in revenue and subscriber growth are described, with indication on the relative pace of development in various markets by region. Industry forecasts on world and regional mobile services market are included as well. The key drivers to the mobile market growth is assessed and discussed together with an analysis of the trend of the mobile market going forward.

There is also an analysis of the recent trend in acceleration of data services and the increasing development of web-based applications in the mobile services market globally. Other developments in the communications services market such as standards, security, delivery networks and handset development, including the concept of convergence in the mobile service development are also discussed.

A look at the development of the mobile services market in Malaysia is made, relating the status of the market in terms of market players, revenue growth, market share and basic services offered. A comparison with other countries in the region and globally is done to identify the status of Malaysia on mobile.

A soft copy of this report can be obtained from the SKMM website at:

http://SKMM.gov.my/what_we_do/Research/industry_studies.asp

I trust this document will provide useful information to readers and indeed can serve as a catalyst to constructive business ideas and perspectives that can further propel the communications and multimedia industry development. We welcome feedback that will help us improve our industry reports in the future. Please send your comments to webmaster@cmc.gov.my

Thank you.

Datuk Dr. Halim Shafie
Chairman
Malaysian Communications and Multimedia Commission (SKMM)

EXECUTIVE SUMMARY

Mobile services development in the developed countries of Europe, US and Asia Pacific are moving into more integrated applications apart from voice on the handset such as mobile payments, mobile TV, video and music on-the-go. While mobile voice is expected to continue as a "cash cow" on revenue source, higher growths are expected on data revenues, especially in countries where voice services are already firmly established. The world of "recurring revenues" in mobile applications is tenaciously being worked on through innovative services facilitated by mobility.

Mobile telephony penetration at a global level is expected to rise to 45% in 2007 (2006: 36%) while fixed line penetration is expected at less than 20% of the population worldwide. In 2009, the global subscriber base is expected to reach 2.8 billion (2004: 1.9 billion), with Asia Pacific taking 52% of the pie (2004: 46.3%), Western Europe 14.2% (2004: 19.3%) and North America at 8.6% (2004: 8.6%). Overall growth of mobile subscriber based on 2004-2009 Compound Annual Growth Rate (CAGR) is 8.1%. Industry reports indicate that 3G subscribers take up is finally building momentum, doubling to nearly 120 million in 2006. The growth of 3G is observed as much facilitated by the ability of the handset vendors finally to put a variety of 3G phones in the market.

In 2006, the total mobile and fixed revenue worldwide was USD1,309 billion. The proportion of fixed to mobile voice revenue was 50:50. This is a significant contrast from the situation in 2003 where mobile contributed 41% to total revenue of USD1,038 billion and fixed revenue contribution 59%.

In terms of data and voice breakdown for fixed and mobile services respectively, mobile voice revenue contributed 42% in 2006 compared to 36% in 2003. Mobile data revenue contribution was 8% in 2006 (2003: 5%). Fixed data revenue contribution was 20% in 2006 (2003: 17%). This is likely due to the incumbent operators offering Voice over Internet Protocol (VoIP) and increasing broadband services recently to counter the declining revenue on the fixed voice service as competition from virtual VoIP operators and mobile operators intensified. However, fixed voice revenue proportion has decreased significantly to 30% in 2006 from 42% in 2003.

On a global basis, the driving forces for mobile industry growth are the continued market demands, especially from emerging markets, for mobile and wireless broadband services. Cost of ownership is now lower on basic usage due to fierce market competition. Demand is also boosted by availability of more mobile applications services such as m-commerce, m-payment and mobile health services, music and TV reception on mobiles, bringing new avenues for potentially lucrative advertising revenues into the mobile equation; prospect of personalisation and more user control; advancement and introduction of technologies such as High Speed Packet Access (HSPA), Wireless Fidelity (Wi-Fi), and WiMAX which offer lower capital investment to the service providers and the availability of low end/low cost devices which are highly in demand in emerging markets.

Demand for laptops in the emerging markets is expected to outpace that for developed markets in the ratio of 2:1. More spectrum allocation for wireless services such as WiMAX globally, and industry dynamics such as fixed mobile convergence which enable users to receive both fixed and mobile services on a single dual/multimode device and thus lowering usage cost for the consumer, are driving demand as well.

Going forward, voice revenue is expected to remain as the main revenue earner. Data revenue for mobile services is expected to increasingly be from non-SMS or messaging orientation to web based

applications such as entertainment (music and video download, video on demand, and games); consumer centric financial services such as mobile payments and mobile wallets; and e-Education. These are traditionally non-telco based services that are today facilitated by collaborative efforts across value chain partners to succeed in new business models. The availability of higher speed delivery; and increased storage capacities also have impact. Other developments impacting mobile services worldwide are developments on standards, security, devices or handsets, enhancement of the mobile network and convergence (to name a few) to provide their customer the mobile services they would need and are willing to pay for.

Malaysia embraced mobile cellular services in mid 1980s, with subscriber numbers surpassing that of fixed line in 2000. This fixed-mobile substitution advances even today. However, mobile penetration rates are levelling off, and operators are shifting focus and approach from customer acquisition to customer retention, as well as to ramping up revenues per subscriber by driving up data usage.

The cellular mobile services landscape in Malaysia is essentially an oligopoly market comprising Celcom (Malaysia) Berhad (Celcom), Maxis Communications Berhad (Maxis) and DiGi.Com Berhad (DiGi). Maxis has a subscriber market share of 42%, while Celcom and DiGi market shares are at 31% and 27% respectively. As at end of September 2007, the cellular mobile service providers have a combined total of 22.1 million subscriptions in a country with a population of 27.3 million. The mobile cellular service market is among the more matured markets in the region with a penetration rate of 80.8 per 100 inhabitants.

Malaysia's fixed line rates are regulated. Mobile rates are regulated in respect of wholesale rates for the carriage of voice communications vis-à-vis Mandatory Access Pricing. Price wars are intense as a result, especially on prepaid starter kits and prepaid services. The prepaid segment began in 1998. In 2006, the country's lowest priced prepaid starter pack was at RM4.99. Flat rate charges for calls to anyone on any network, at any time to anywhere started in 2006.

The Malaysian environment is considered vibrant, and new services are expected to come on board similar to the developments in overseas mobile markets. Already collaborative arrangements are starting off in many ways to differentiate the mobile market further for economic, competitive and service advantages. The main thing to keep in mind as is being done by overseas players is the fact that in order for the customer to fork out their ringgit, the content and applications developed, including its delivery, have to suit their needs.

ACRONYMS

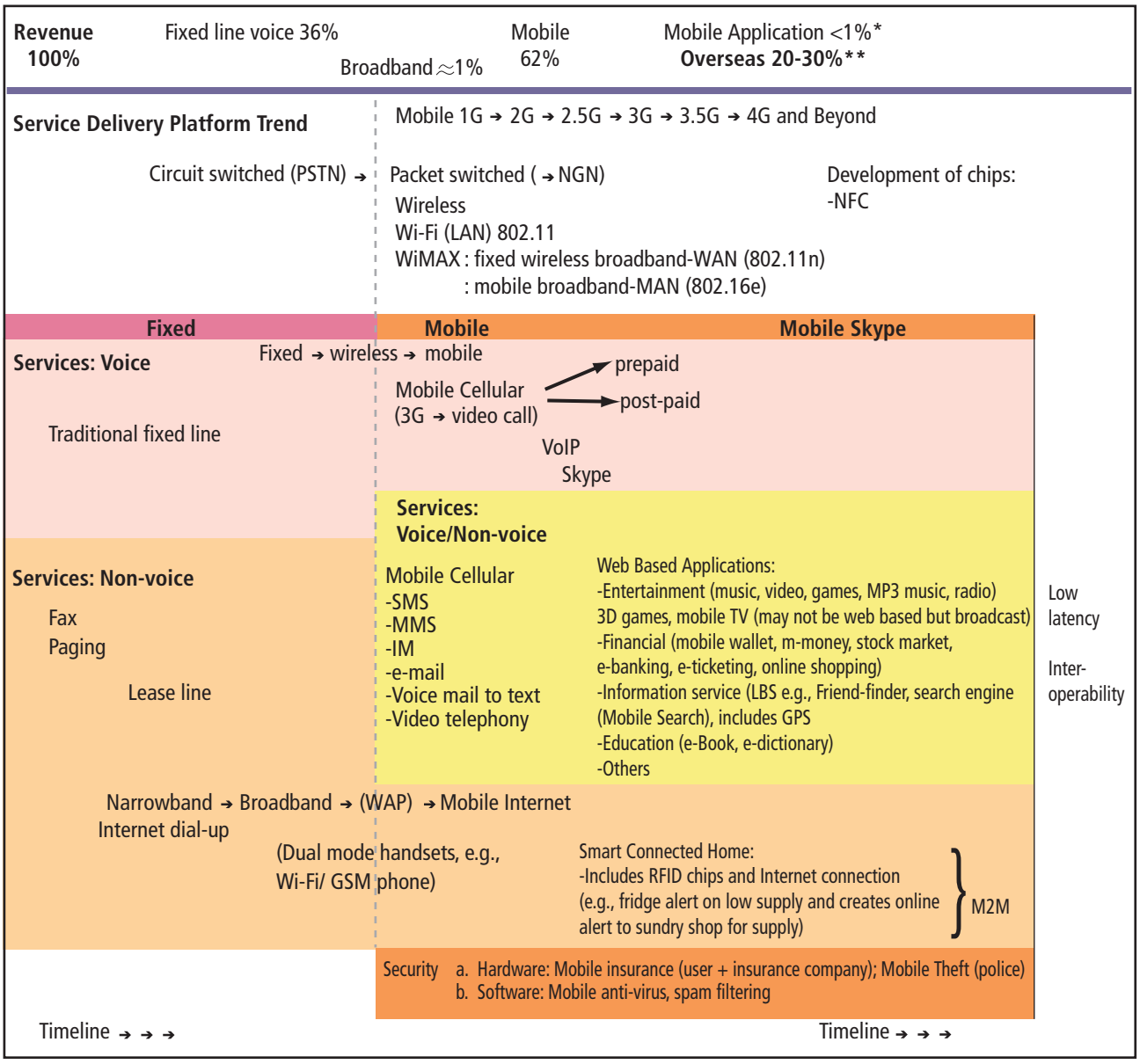
EBIT	Earnings Before Interest and Taxes
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
EDGE	Enhanced Data rates for GSM Evolution
GNI	Gross National Income
GPRS	General Packet Radio Service
GPS	Global Positioning System
GSM	Global System for Mobile communications
HSDPA	High Speed Downlink Packet Access
HSPA	High Speed Packet Access
IDC	International Data Corporation
IM	Instant Messaging
IMS	IP Multimedia Subsystem
MMS	Multimedia Messaging Service
LBS	Location-Based Services
LBS	Location-Based Services
M2M	Machine-to-Machine
NFC	Near Field Communication
NGN	Next Generation Networking
OECD	Organization for Economic Cooperation and Development
PSTN	Public Switched Telephone Network
RFID	Radio-frequency identification
SIP	Session Initiation Protocol
SIP A/S	SIP Application Server
SIP SOA	SIP Service Oriented Architecture
SMS	Short Message Service
TAC	Transaction Authorisation Code
VoIP	Voice over Internet Protocol
WAP	Wireless Application Protocol
IMS PoC	IP Multimedia Subsystem Push-To-Talk over Cellular
W-CDMA	Wideband Code Division Multiple Access
Wi-Fi	Wireless Fidelity
WiMAX	World Interoperability for Microwave Access

INTRODUCTION TO MOBILE SERVICES

Mobile services development and growth has been phenomenal across the world. The developed countries of Europe, US and those in the Asia Pacific are moving into more integrated applications apart from voice on the handset such as mobile payments, recreational mobile TV and entertainment in the form of video and music on-the-go. They are moving towards achieving seamless mobility in the digital or smarthome environment. Smartphone services are also supporting business e-mails and working-on-the-go.

While mobile voice is expected to continue to be a "cash cow" in terms of revenue source, higher growths are expected on data revenue, especially in the developed countries where voice services is already firmly established. The world of "recurring revenues" in mobile applications is tenaciously being worked on through innovative services facilitated by mobility. This is yet limited by the hardware and software capabilities to unleash bandwidth, potentialities of interoperability, integration, riskproof security and innovativeness in consumer centric services to attract the individual and enterprise dollar.

Communications Services Development – Past, Today and To Come



**Malaysian revenue breakdown 2006*
***Europe and Japan data revenue as percent of total revenue*
Source: Company websites, Research On Asia Group, MobileWorld, Industry Performance Report 2006

MOBILE SERVICE GROWTH

Subscribers

Global Mobile Penetration Rate

Industry expects mobile telephony penetration at a global level to rise to 45% in 2007 from 36% in 2006. Meantime, fixed line penetration is expected at less than 20% worldwide.

The number of mobile phone subscribers worldwide is reported at 1.9 billion in 2004[1], out of which Asia Pacific has 46.3%, Western Europe 19.3% and North America 8.6%. In 2009, the subscriber base is expected to grow at 2.8 billion, with Asia Pacific dominates 52% of the pie, Western Europe 14.2% and North America at 8.6%. Overall growth of mobile subscriber base is 8.1% based on 2004-2009 Compound Annual Growth Rate (CAGR).

Mobile Phone Subscribers Worldwide by Region (2004, 2009 and CAGR)					
Region	**2004**		**2009**		**2004-2009 CAGR**
Total Subscribers (billion)	1.9		2.8		8.1%
Regions	**Percent by Region**	**No. of subscribers by Region (billion)**	**Percent by Region**	**No. of subscribers by Region (billion)**	
Asia Pacific	46.3	0.879	52.0	1.456	10.6%
Western Europe	19.3	0.367	14.2	0.397	1.6%
North America	8.6	0.163	8.6	0.240	8.0%
Eastern Europe	8.5	0.161	8.3	0.232	7.6%
Middle East and Africa	8.3	0.157	8.8	0.246	9.4%
Latin America	7.7	0.146	7.5	0.210	7.5%

Source: The Mobile TV Revolution by Sony Pictures Television International, Asia in CommunicAsia 2007

Asia Pacific Mobile to Accelerate

In a separate study, industry estimates that developed markets are to account for more than half of projected revenue growth from 2006 to 2010. The emerging markets of Asia Pacific (developing), Latin America, and Eastern Europe are expected to drive the growth mainly in subscriber take up.

In terms of subscriber growth, the Asia Pacific emerging countries are expected to contribute 55.1% or close to 660 million subscribers out of the total of 1.197 billion subscriber growth between 2006 and 2010. This is mainly expected from the densely populated countries of China and India, where telecommunications services are burgeoning in take up. Meanwhile, profit growth from Asia Pacific (emerging) region is expected at USD13 billion during 2006 to 2010, while the Middle East and Africa region is at USD22 billion.

[1] *The Mobile TV Revolution by Sony Pictures Television International, Asia in CommunicAsia 2007*

Contribution to Growth 2006 to 2010						
2006 to 2010 Quantum of Growth (100%)	**Subscriber Growth**		**Revenue Growth**		**Profit Growth****	
	+1,197 million		**+USD214 billion**		**+USD82 billion**	
Percent by Regions: Asia Pacific (emerging)	55.1%	660	13%	28	15.7%	13
Middle East and Africa	16.2%	194	22%	47	27.2%	22
North America	7.3%	87	26%	55	22.8%	19
Latin America	6.6%	79	6%	13	4.8%	4
Eastern Europe	5.9%	71	5%	11	5.9%	5
Asia Pacific (developed)*	5.3%	63	10%	21	7.4%	6
Western Europe	3.6%	43	18%	39	16.2%	13

**Japan, Korea, Australia, Hong Kong*
***Based on average EBITDA margin 2006 for major markets in each region weighted by regional share*
Source: Gartner, Yankee Group, Merrill Lynch, McKinsey Analysis, GSMA 2007

Subscribers in 3G Services

With Third-generation (3G) networks operational in much of the developed countries, industry reports 3G subscriber take up is finally expected to build momentum. Worldwide 3G subscribers are expected to double in 2006 to nearly 120 million[2].

The growth of 3G is observed as much facilitated by the ability of the handset vendors finally to put a variety of 3G phones in the market. Late 2005 cited 200 new 3G handsets models and all new terminals are 3G-enabled. IDC indicated in 2006 that 3G phones will account for 18% of the global mobile phone market in 2006 and 25% in 2007.

Revenue

Global Mobile and Fixed Voice Revenue

In 2006, the total mobile and fixed revenue worldwide was USD1,309 billion. The proportion of fixed to mobile voice revenue was 50:50. This is a significant contrast from the situation in 2003 where mobile contributed 41% to total revenue of USD1,038 billion and fixed service contributed 59% revenue.

Mobile Revenue at 50% Telecoms Pie					
Service	**Percent Revenue (%)**		**Voice versus Data**	**Percent Revenue (%)**	
	2003	**2006**		**2003**	**2006**
Mobile	41	50	Data	5	8
			Voice	36	42
Fixed	59	50	Data	17	20
			Voice	42	30
Revenue (USD billion)	1,038	1,309	Revenue (USD billion)	1,038	1,309

Source: GSMA Association 2007, Gartner, McKinsey Analysis

[2]*2006 KPMG International Report on Convergence Takes Hold – The Global Outlook for Information and Communications Technology Markets*

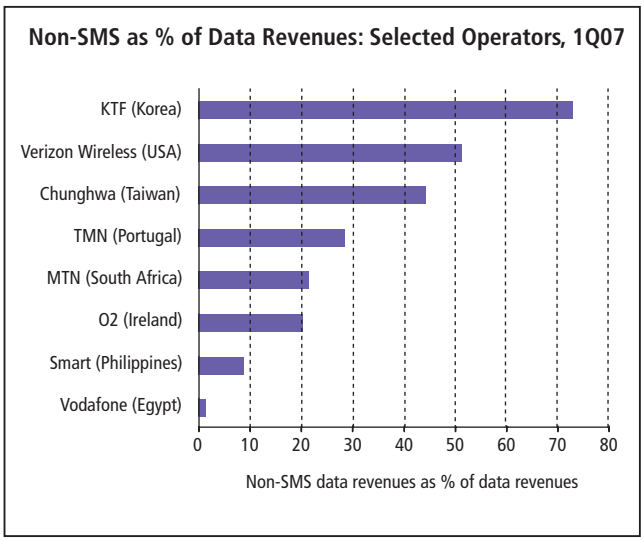
Data Versus Voice Revenue

In terms of data and voice breakdown for fixed and mobile services respectively, mobile voice revenue contribution has increased from 36% in 2003 to 42% in 2006. As indicated from the table, mobile data revenue contribution has risen from 5% in 2003 to 8% in 2006. However, the fixed voice revenue proportion has decreased significantly from 42% in 2003 to 30% in 2006.

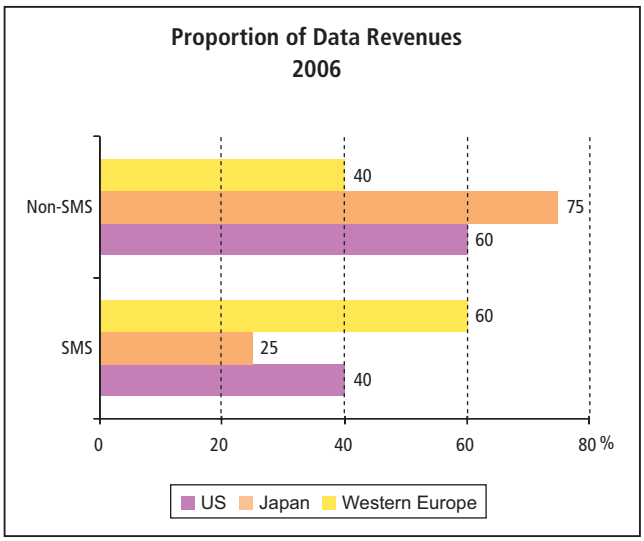
Meanwhile, fixed data revenue contribution has increased from 17% in 2003 to 20% in 2006. This is likely due to the incumbent operators offering Voice over Internet Protocol (VoIP) and increasing broadband services recently to counter declining revenue as competition from virtual VoIP operators and mobile operators intensified.

Mobile Revenue (Regional Split by Percentage)		
	2003 (%)	2006 (%)
Latin America	5	7
Eastern Europe	5	7
Middle East and Africa	6	9
Asia Pacific (emerging)	11	13
Asia Pacific (developed)*	18	14
North America	24	22
Western Europe	31	28
Revenue (USD billions)	434	647

**Japan, South Korea, Australia, Hong Kong*
Source: GSMA Association 2007, Gartner, McKinsey Analysis



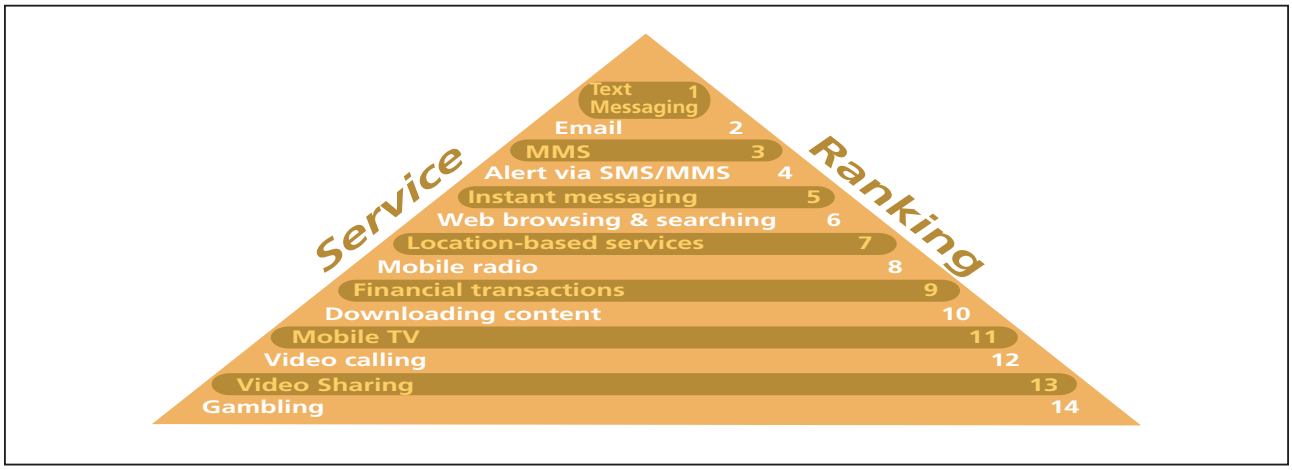
Source: Informa Telecoms & Media's World Cellular Data Metrics



Source: Global Wireless Data Market 2006 Update, Chetan Sharma Consulting, April 2007

Whether prepaid or post-paid, be it 3G or not, mobile consumers are still opting for SMS as one of the most preferred basic mobile services. Based on a GSM Association commissioned survey in 2006, text messaging tops the list ahead of e-mail and MMS. North American respondents ranked mobile messaging such as text messaging and mobile instant messaging as most indispensable services, compared to Asian and European respondents who favour text messaging most before mobile e-mail and MMS.

Preference for Mobile Data Services



Source: Adapted from : Wireless Asia November 2006 (2006 survey of 3,061 consumers in Europe, Asia and North America by Circle Research for the GSMA)

Mobile Average Revenue Per User (ARPU) levels differ widely across the regions in the world. Overall, all regions are reported to experience declining ARPU over the last few years. Reasons for this include cut in tariff rates on strong competition and the trend towards voice-data substitution.

Global Mobile ARPU Trends		
Period	**ARPU Profile**	**Remarks**
1993-2000	Early ARPU	Globally, ARPU more than halved during this period due to increasing competition
Early 2000s	Stabilisation	Mobile calls began to match fixed call charges, and stimulation from value added mobile services such as voicemail, SMS and features such as call barring, filtering and calling line identification.
Mid 2000s	Voice ARPU declining	By end 2005, the majority of carriers worldwide saw drop in ARPU, even though mobile subscribers and overall revenues continued to grow.
2006	Mobile data ARPU on the rise	While voice contributes majority of mobile traffic, estimates are that mobile data contributes more than 10% of global ARPU. Mobile content and services and mobile advertising are being considered for further increasing ARPU.

Source: Paul Budde Communication Pty Ltd, 2007

DEVELOPMENTS IN THE GLOBAL MOBILE MARKET

There are many developments that support the growth of mobile services market. This basically can be seen simply in the form of supply and demand perspectives. For example, the development of web based applications and content can be seen as catering to consumer needs in terms of its service provision. From the supply side, one could include the developments of standards, security, devices or handsets, enhancement of the mobile network and convergence to provide their customer the mobile services they would need and are willing to pay for.

Web Based Applications

There is much planning and education ahead in preparation to take on new ways of business operations in the future. This is reflected from the development in web-based applications for mobile and broadband services today. Such development in product and service serves to counteract the declining ARPU from traditional pure voice services provision. There is also prospect of new avenues for potentially lucrative advertising revenues into the mobile equation.

In this respect, the GSM Association (GSMA) advises that active positioning in the mobile industry is required. For example, in the stance to take on different and new opportunities, and in smaller and more diverse areas, exploring new business models, and engaging in partnerships to secure new skills apart from organic skills set development.

One could say that web based applications are innovative mobile applications service provisioning that caters to, as close as possible, the needs of the consumer. These are traditionally non-telco based services that are today facilitated by the increased collaborative efforts across value chain partners to succeed in new business models; the availability of higher speed delivery; and increased storage capacities. The examples of the services are as follows:

- Entertainment - music, video, games, MP3 music, radio, 3D-games, mobile TV (may not be web based but broadcast mode)
- Financial (mobile wallet, m-payments, stock market, e-Banking, e-Ticketing, online shopping)
- Information service (LBS e,g., Friend-finder, search engine (Mobile Search), includes GPS
- Education (e-Book, e-Dictionary)

Entertainment

Scheduled entertainment, for example through Free-To-Air TV in the home, is today mixed with Video on Demand (VoD) from Pay TV options as well. The next phase of development[3] is portable entertainment on demand, which is time and place independent, where consumers can watch "what, where and when they want". Mobile entertainment offers the choice, control and convenience, including "personalisation of their mobile space" sought by consumers of today and facilitated by advanced technology and communications services.

With bandwidth capacities going from 2G to HSDPA 3.5G, Sony Pictures for example provides a range of mobile content on mobile handsets from the more familiar wallpapers, ringtones, screen savers and such like static displays to interactive and moving picture orientation. That is, from mobile games to branded video clips and minisodes to streamed branded mobile channels and eventually full length movies.

Minisodes are Re-Purposed Content for Mobile TV Entertainment	
Traditional TV (reference to analogue TV)	**Mobile World (digital format)**
Standard Long Form Format	Bite size content that has to be compelling
30 minute comedies, including animated cartoons	Four to six minutes format in length
60 minute movies (drama, TV series)	Capture storyline, while retaining key areas such as humour and action
Home television experience	Made for mobile content for snacking purposes (viewing on the go)
Scheduled viewing	Offers on demand entertainment

Source: The Mobile TV Revolution by Sony Pictures Television International, Asia in CommunicAsia 2007, Websites

The introduction of entertainment in the form of mobile video streaming and mobile TV is considered a relatively recent development over last few years and the expectation of this business taking off is more real today than before. Industry expectations are for mobile TV and video revenues to grow at CAGR of 28% from 2006-2011, with revenue of USD4.2 billion from the Asia Pacific region alone by 2011.

[3] *The Mobile TV Revolution by Sony Pictures Television International, Asia in CommunicAsia 2007*

Among the critical success factors in the provision of mobile TV and video today are the provision of TV as a recreational experience; affordability; transparency in pricing and flat rate or no data charge options; picture quality; multichannel and on-demand options; branded content or made for mobile content; strong partnerships between content providers and network operators; and cross platform marketing.

Financial Applications

The mobility provision of communications services through the mobile phone is a crucial development in the business today. This enables new business models for traditional businesses such as credit or debit card payments in e-Banking transactions going into the mobile arena. These opportunities are provided by the "secure element" aspect of SIM cards, which has made financial institutions feel more secure about the potential for adoption of m-payment systems or ecosystems.

Sectors starting to seek out m-payment opportunities include[4]:

- Transportation companies offering "touch and pay" access to ticket barriers where a store-value card is either attached to the handset, or embedded in the SIM;
- Retailers are offering loyalty cards in similar manner;
- Credit card companies see mobile handsets as a means to widen their catchment for commercial transactions;
- Vending machines operators sell soft drinks and other consumables by enabling payment through mobile phone;
- Advertisers are building web-links into posters in trains and buses and on buildings that can be activated by 3G+ phones from a short distance, leading to more website visits and more purchases through mobile phones; and
- Content providers, including music and information sites, auction sites and rapidly growing Web 2.0 community sites such as MySpace and YouTube are becoming globally accessible to paying customers.

Mobile Wallet Developments in Japan and Korea

In Japan, Sony's FeliCa is a contactless IC card which NTT DoCoMo is using for mobile wallet purposes. The industry observes that a brand name such as Sony in this space has created technology legitimacy and confidence backing to this service. The card is a credit card-sized card for payment purposes and a miniature version is possible for embedding into a mobile phone. So far, Sony indicated 200 million of FeliCa cards shipped. This card in the wallet or mobile phone can be integrated for payment, ID and access control mode. That is, the holder can exit an ID access controlled office and also pay for a meal in a restaurant using the same card/mobile phone. Facilitating such development is the computing power offered by 2.5G and 3G phones that now allows for greater security protocols; previously a limiting factor in wider mobile payment use.

In South Korea, Visa International and SK Telecom launched in February 2007 a mobile phone payment system using Universal Subscriber Identification Module (USIM) cards for 3G networks. The system turns the user's USIM card into a Radio Frequency Identification (RFID) tag that is used as a contactless payment card.

[4] *M-payments in Asia Pacific 2007 by KPMG*

Mobile Wallet Developments in Japan and Korea (Cont'd)

Besides the telecommunication application (USIM), digital signature applications or monetary transactions are also possible. This is facilitated by the chip card called Universal Integrated Circuits Card (UICC) that allows the storage of more than one application on the same chip. The applications are independent, and can be simultaneously executed. This provides possibility to store more than one application that operators can offer.

Source: "Mobilising the Wallet" in Enterprise Innovation August/ September 2007, AUSTRIA CARD article on USIM

Juniper Research expects the mobile payment market to generate about USD22 billion by 2011 due to the widening range of mobile phones and devices available. This rapid market growth is also expected to be from increased adoption of person-to-person fund transfers and developments in the mobile phone payment techniques using Near Field Communications (NFC).

Countries involved in Pay-Buy-Mobile End-To-End trials under the GSMA project on E2E USIM based, NFC contactless technology include Australia, France, Korea, Malaysia, Philippines, Singapore, Taiwan and USA.

Information service

Information service via the mobile phone is no longer limited to still pictures anymore and limited content availability. Search engines can find the information you need when you are looking for it, and this on-the-go as well - at least in an emerging scenario today. Cellcos like T-Mobile, Vodafone, China Mobile and KDDI have partnered with Google to include its Internet search engine in their wireless portals. In July 2006, NTT DoCoMo added a keyword search to its i-mode portal that includes links to nine Internet search engines, including MSN and Infoseek, for non-official i-mode sites and the Internet.

Meanwhile, major handset players like Nokia and Motorola have started to include Google and Yahoo icons in their phones. Earlier 2006, Nokia began collaborating with Chinese search engine Baidu.com to make mobile search easier and more convenient in Chinese-language markets, including mainland China, Hong Kong, and Taiwan.

In Malaysia, there is SMS-based service that allows Muslims to confirm the halal status (which is to say "permissible" under Islamic law) of products. This service was launched in earlier 2006 by the Islamic Development Department of Malaysia (JAKIM). The service works by users sending an SMS with the word halal and the product's bar code number to a short-code number. The product information is then sent back to the user.

Education

Distance learning has a whole new twist today as books are electronically delivered. Soon, e-Book[5] can be read more readily through the handset while, for example, telecommuting. E-Book eliminates the need for reading bulky binders and hard-to-read PC screens for lengthy documents, financial reports, policy and procedures and training and technical manuals. In 2006, governments and businesses, in every sector from retail to health care, have used e-Books as a cost effective means of distributing critical information.

[5] *MobileInfo.com*

As technology becomes more affordable, e-Books are expected to be more and more integrated into an enterprise's current operations, making the method of choice for delivering information in electronic form easy to access, convenient to use, and available anywhere. Type of content and format of presentation is expected to be improved over time though, especially as delivery speeds and storage capacities increase.

Specifically, e-Book is an electronic book which consists of some form of information reading device and a method of updating or refreshing the information from another source, for example from the Internet. It is a modified form of Adobe's Reader that has been stored in some form of memory (permanent or semi-permanent) in a pen type tablet. It has instant-on capability like a handheld pen computer.

Other Developments Impacting Mobile Development

Standards

Standards development has a major impact on the rapid advancement and introduction of technologies such as High Speed Packet Access (HSPA), Wireless Fidelity (Wi-Fi), and WiMAX which offer lower capital investment to the service providers and the availability of low end/low cost devices which are highly in demand in emerging markets.

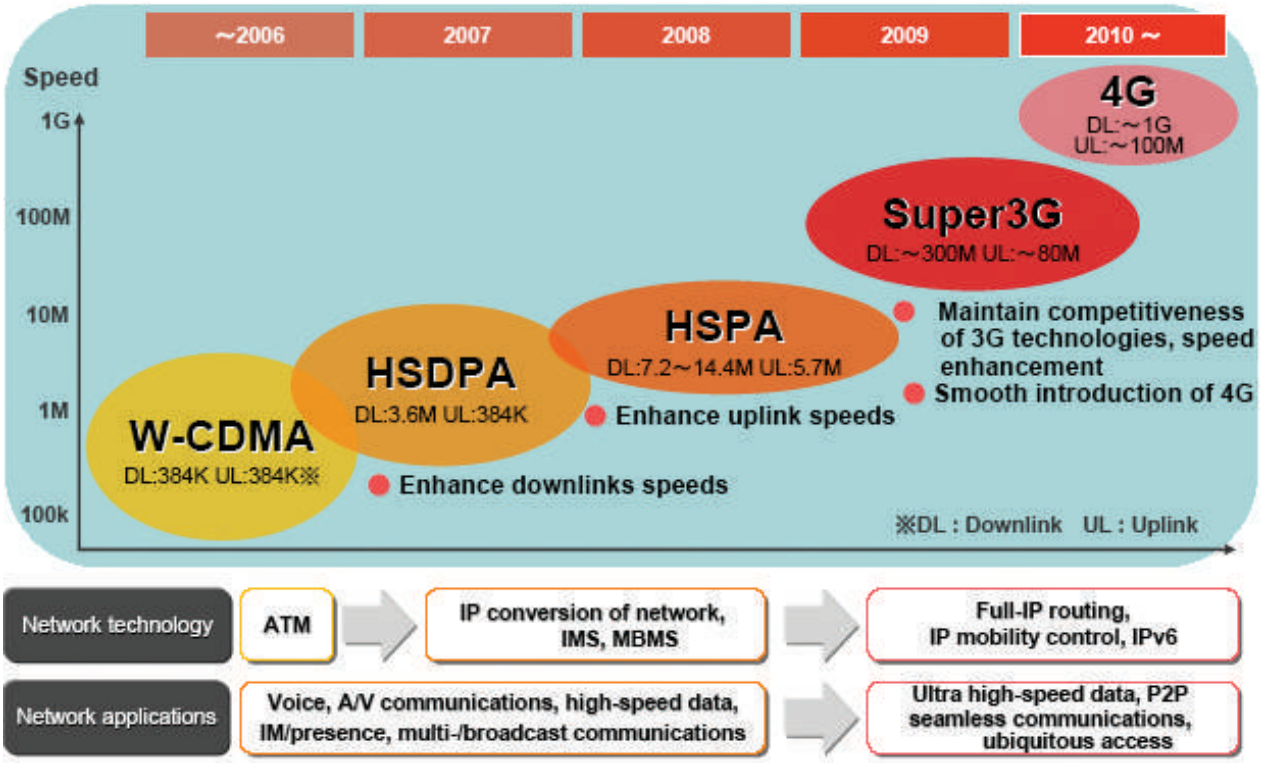
The development of standards requires a standards body or an alliance of the stakeholders to ensure the objective and continual development of a standard for mutual benefit. Standards bodies today are increasingly international in its stakeholder participation. For example, GSM Association (GSMA) is a global standards body overseeing the standards development in mobile communications in the GSM family.

The development of standards has a significant role to play in mobile subscriber growth, and its impact is expected to increase in respect of delivery of mobile services to the mass market, which is happening today. For example, the first second generation (2G) call was made in 1991. The GSM family developed further to launch GPRS in 2000, 3G in 2001, EDGE in 2003, HSDPA in 2005, and HSUPA in 2007. GSM phones total two billion in 2006. By 2010, GSMA expects for there to be more 3G subscribers than 2G subscribers.

The GSMA recently went into collaborating with Microsoft to research consumer trends and the mass market potential for notebook PCs with embedded 3G mobile broadband. The 13 mobile operators participating in this research are Telefonica/O2; AT&S Mobility; China Mobile; DTAC; Maxis; MTN; Orange; SingTel; Smart Communications; TeliaSonera; Turkcell; Vodafone; and the Wind.

In October 2006, GSMA published guidelines prescribing a common approach for PC manufacturers to integrate HSDPA 3G into their product ranges. Nevertheless, the industry cautions that today's HSDPA is not yet fast enough to replace a broadband connection and other faster chipsets supporting HSUPA may be a better alternative. HSUPA was launched in 2007. Therefore, the synchronisation of parallel developments is a factor to consider by both the supply and demand side stakeholders. In short, these developments show the level of cooperation amongst the supply side players and this collaboration for mutual benefit is expected to be one of the main facilitating features of communications services to come. Consumer centricity in service or product delivery is another factor.

Phased Evolution from 3G to 4G

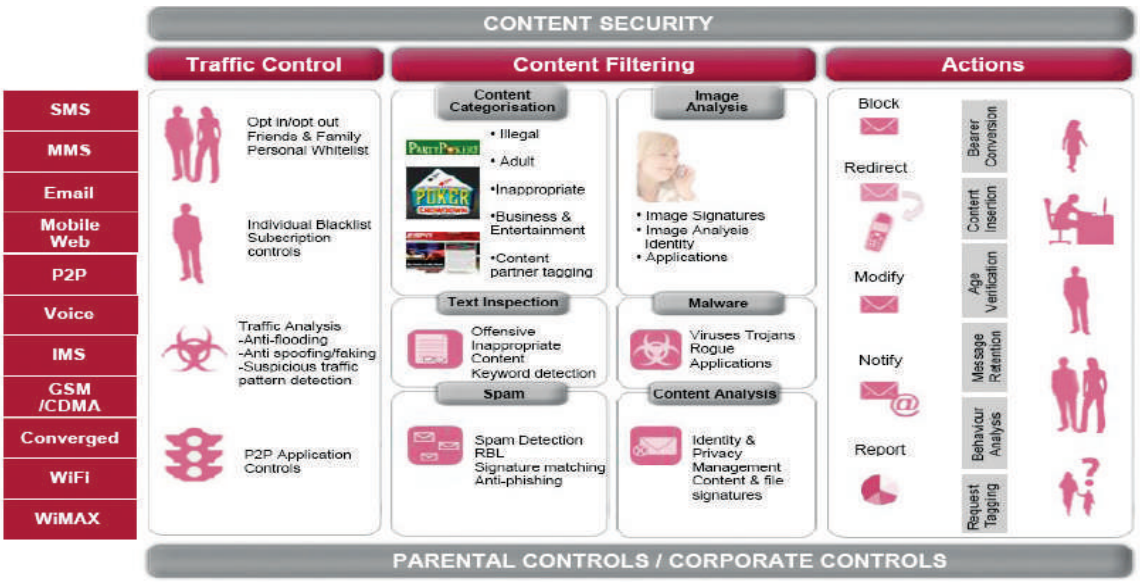


Source: Copyright 2008 NTT DoCoMo, Inc. All Rights Reserved

Security

As the mobile and broadband markets develop and more of the population gets connected, there is increased demand for security such as messaging security for MMS, SMS and e-mail, mobile web filtering to block illegal or inappropriate content and anti-fraud, and requirements to enforce and report on individuals in parental control and corporate portals.

Software package players such as Adaptive Mobile Security Ltd provide a range of content filtering capabilities as follows:



Source: Adaptive Mobile Security Ltd 2007

The provision of security is increasingly seen as a lucrative market in view of its size going into the future. Analysts forecast the mobile security product revenues to reach USD5 billion by 2011. Juniper Research cites the biggest mobile security market sector to be the secure mobile content sector that concerns anti-virus, anti-spam, anti-spyware and content filtering, with 40% of the market in 2011. Revenues from the mobile data and file encryption products are expected to outstrip the PC market in 2011. ABI Research forecasts mobile device security managed services market will increase from USD100 million in 2006 to over USD500 million in 2011.

Nevertheless, the biggest risk to security is cited as human error wherein the user has poor password discipline and users losing their phones[6]. Furthermore, those users whose devices cost more and are most likely to have greater access to corporate data tend to lose their phone 40% more frequently that those with a regular handset. Indications are that there is lip service paid to security issues and many of these users are unwilling to support even basic efforts to secure data, if it involves any degree of inconvenience. In such a case, they hold others such as carriers and their e-mail provider, responsible for improving security.

Devices/Handsets

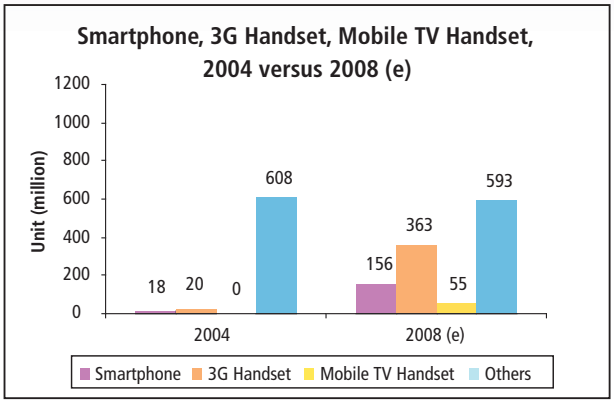
On a global basis, the driving force[7] for mobile industry growth are the continued market demand, especially from emerging markets in mobile and wireless broadband services, as price of ownership decreased on basic usage due to strong competitive in the communications services arena. For example, low cost handsets in Sub-Saharan Africa[8] costs about USD30-100 each; and in Thailand, Malaysia and Eastern Europe there are the mid range handsets at USD100-200, and PCs and laptops between USD300-2,000 each.

The demand for laptops in the emerging markets is expected to outpace that for the developed markets in the ratio of about 2:1. More spectrum allocation for wireless services such as WiMAX globally, and industry dynamics such as fixed mobile convergence which enable users to receive both fixed and mobile services on a single dual/multimode device and thus lowering usage cost for the consumer, are driving demand as well.

The industry expects to ship 33 million consumer mass-market notebooks in 2008. GSMA indicated latent demand to exceed industry expectations wherein their recent market research indicated that 80 million individuals plan to buy a notebook PC in 2008; 70 million would like a notebook with Mobile Broadband Capabilities (MBPC) and 55 million prefer budget-priced MBPC over their original purchase intention.

On high end market demand-side, according to a recent research published by Deutsche Bank Research, the market share of 3G handsets, smartphones and mobile TV handsets is expected to reach 50% of the global mobile handset market in 2008. In year 2004, total market size for all handset was estimated at 646 million. Smartphone carried 18 million from the total market size, 20 million for 3G handset and 608 million for the "others" category. At that time in 2004, mobile TV handset was not in the market yet. In 2008, total market size is expected at 1,167 million units which consist of 156 million for Smartphone, 363 million for 3G handset, 55 million for mobile TV handset and 593 for "others" category.

[6] A Survey by Ireland based analyst, Research and Markets reported in Mobile Communications International, June 2007
[7] GSMA 2007: After interviews with executive and experts
[8] GSMA 2007: HSPA – Unleashing the Mobile Broadband Ecosystem in Emerging Markets by Booz, Allen & Hamilton



Category (Unit: million)	2004	2008 (e)	Expected 2004 - 2008 CAGR
Smartphone	18	156	71.6%
3G Handset	20	363	106.4%
Mobile TV Handset	0	55	-
Others	608	593	-0.6%
Market Size (All Handset)	646	1167	15.9%

e: estimate
Source: Deutsche Bank Research, ROA Group

Smartphone in a market that has recently taken off are continually having their capabilities and service offerings enhanced. For example, Research In Motion (RIM)'s recent launch of its dual mode Blackberry device that offers voice and data services over both the cellular and Wi-Fi networks using the 802.11a/b/g standards. Blackberry 8820 has full QWERTY keyboard, a 320x240 pixel display, a track ball navigation system and built-in GPS support.

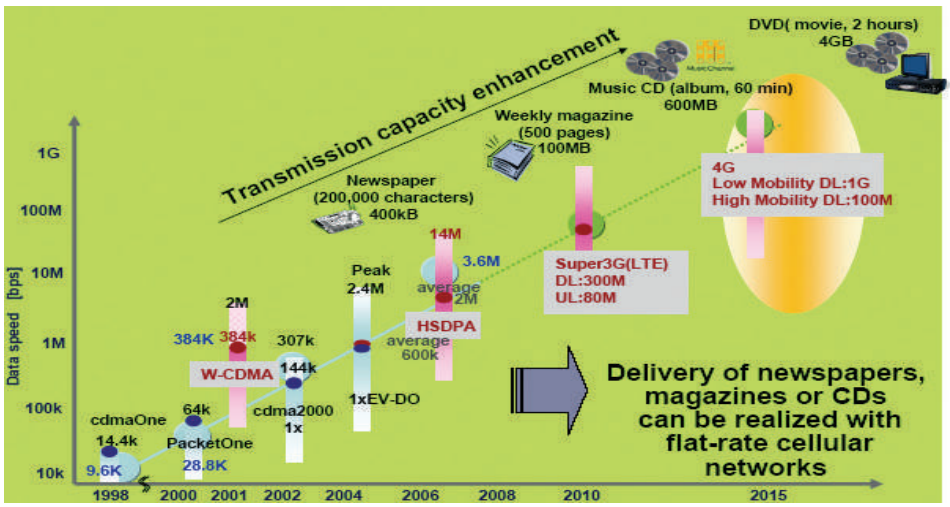
Enhancement of Mobile Network

As indicated from the standards development in mobile services, the network for delivery is continuously being enhanced and upgraded to reap new business opportunities or even rejunevate traditional services. For example, the development in delivery speeds in HSPA standard, and the changes associated with radio access capacity enhancement.

The HSPA User Experience			
Download	**WCDMA 384Kbps**	**HSPA 3.6Mbps**	**HSPA 7.2Mbps**
3MB Song	1.3 min	8.3 sec	4.2 sec
5MB Video Clip	2.2 min	13.9 sec	6.9 sec
10MB Powerpoint Presentation	4.3 min	27.8 sec	13.9 sec

Source: GSMA 2007

Changes Associated with Radio Access Capacity Enhancement



Next Generation Networks

One of the questions the network operators are likely asking today is "to invest or not to invest" in next generation networks as competition in the data and voice market heightens. Legacy systems can only take the network operator to a certain extent. Next generation networks can cater to future needs for increase capacity, seamless connectivity and interoperability, and offer savings in capex and opex over the longer term.

Today, there are many drivers[9] for implementation of IMS. These include accelerating mobile data usage and 3G take up worldwide; the recent IMS developments whereby Vodafone picks Ericsson and Nokia, and Telefonica picks Alcatel-Lucent in their NGN deployments; the development of Enterprise IMS in IP Centrex and residential VoIP services; and the increasing use of IMS clients and handsets such as NTT DoCoMo using IMS PoC client for its Push-To-Talk service.

The adoption of IMS is seen as an evolutionary deployment to address revolutionary changes in the communications services market. Today, SIP A/S and SIP SOA are being deployed as a forerunner to IMS. SIP applications are reported already earning money today and the ultimate deployment of IMS is expected to be application centric.

CGI SIP Applications - Examples				
No.	Applications	Availability For:		
		Enterprise	SMB*	Consumer
1	Home surveillance/virtual Nanny/Hotspot video monitoring	yes	yes	yes
2	TV manager			yes
3	Presence-based call routing	yes	yes	yes
4	Honey, I'm Home	yes	yes	yes
5	Personal Assistant	yes	yes	yes
6	Click to dial	yes	yes	yes
7	Click to conference	yes	yes	yes
8	Ringback tones	yes	yes	yes
9	Virtual city guide	yes		
10	Virtual voice mail/Outgoing/Broadcast			yes
11	Web Podcast	yes		yes
12	VIP Do Not Disturb	yes	yes	yes
13	Find Me/Follow Me	yes	yes	yes

**Small and Medium Sized Business*
Source: Ubiquity Software Corporation Plc

Convergence

Industry observation today[10] is that there is more Fixed Mobile Substitution (FMS) than the take up of convergent fixed mobile services. Examples of fixed mobile substitution are Vodafone Germany offering "At Home" services, which provides fixed network alternatives at preferential rates. Germany's O2 offers Genion, a FMS service offering customers the convenience of mobile, but also landline option in their "homezone".

[9] *"The IMS Dilemma – What's Next … and When?" by Ubiquity Software Corporation Plc, an AVAYA Company*
[10] *Accenture Global Convergence Forum 2006*

Yet, Fixed Mobile Convergence (FMC) services are expected in the future due to demand from customers who require occasional mobility, and need guaranteed network coverage and Quality of Service (QoS). Also, FMC offers customers access to office applications from any device, anywhere and at best speed. However, operators have yet to address FMC issues to eventually make it an attractive proposition such as ease of use, affordability and high speed access to key applications. It is expected that the target market for FMC are younger generations who are early adopters, already use broadband and mobile services extensively, and would value the savings on calling costs from FMC offerings. Surveys indicate 10-14% of the Western Europe population is interested in buying FMC services.

Three Deployment Scenarios for FMC		
Convergence Types	**Description**	**Service Roadmaps*/ Capabilities Required****
Commercial	Combines fixed and mobile subscriptions with linked or unified billing.	**Requires single sales and marketing channels with a single point of contact, which in turn means convergent Customer Relationship Management (CRM) and billing.
Device	Integrates various access types into one device, typically WLAN 802.11 b/g and GPRS or 3G; customer is given one number for several handsets and one simple, personalised application set.	*Single handset and voice value added services offered to both residential and business markets. Further on, initiate clients to FMC via simple convergent offers such as video call (mobile and fixed), FMC entertainment, for example gaming, music, VoD and directory, information bases or location based services. Finally, to offer complex FMC services, for example integrated messaging, "push-to-show" and "push-to-view" during calls, photo album and remote storage, IPTV on both fixed and mobile.
Services	Offers customers the same services regardless of whether they are using a fixed or mobile connection, through a single device that can make voice or data calls or both.	**A single service delivery platform will be required to speed up time to market of new convergent services.

Source: Accenture, Accenture Global Convergence Forum 2006

Accenture indicates that the highest and most complex level of "convergence" is the integration of services, technologies, networks and organizations, and this is most likely to achieve seamless convergence and high performance. These have benefits of stronger and longer term lock-in of customers. However, such high level of integration requires significant investments, and hence trade offs to service provision are expected.

There are various alternatives to FMC deployment. Effectively the fundamental principles are the right marketing mix (price, and features offering simplicity and convenience); right technical mix (open standards; interoperability) and right organisational mix (integrated sales and marketing, integrated networks and IT infrastructure). Furthermore, understanding of market needs is an essential ingredient towards successful FMC implementation.

Advertising

With the close to three billion mobile subscriptions today, and four billion expected in 2010 and including close to one billion handsets sold per year, the mobile eyeballs are building. Nevertheless, the bridge to this has yet to develop before this potential can be tapped. Certainly, advertisers

today are monitoring the situation closely, with many already taking initiatives towards this end and the names behind such development include the likes of Google, Yahoo, and MySpace.

So far, mobile advertising is deemed an exploratory business today[11]. This is the case for both the advertisers and network operators. The global advertising market is expected to be worth USD450 billion annually. Today, mobile accounts for only a tiny fraction of this. As a share of mobile operator revenue, mobile advertising accounts for about 0.1%. Nevertheless, the US and Western European markets are seen as the markets that will lead in mobile ads revenue growth. Industry analysts forecast both these regions to achieve combined mobile advertising revenue of USD5.08 billion by 2012, up from an estimated USD106.8 million for 2007. The US is anticipated to drive roughly USD2.3 billion of the total, while European markets is expected to see revenues approaching USD2.8 billion within the forecast period.

Apparently, getting ads on handsets is not a hassle but access of these ads to the targetted markets is important for advertisers. Personalised advertising as such is viewed as one of the biggest attractions of the mobile phone and research companies are working to enable advertisers to target their marketing to reach audience on the mobile Web with scale. Research company, M:Metrics created the technology of auditing websites, which is done by surveying visitors to WAP sites and providing more granular information about the visitors, which include ethnicity and gender. Analysts consider information about consumers' use of mobile websites as vital to advertisers so that they can place their ads more appropriately.

More Business Opportunities

As technology unleashes bandwidth and ease of delivery and interoperability capabilities, previously non-existent new business models are generated and those old or existing ones are rejuvenated. For example, previously click-to-talk technology was considered a niche business. However, rethinking of this is expected in the light of developments such as the partnership among Google, US service provider VoIP Inc, and mobile operators in China. TelecomAsia reports that mobile operators in China who use Google for their mobile searches will soon have a simple way to purchase goods and contact merchants. This is seen as an expansion from the new service launched in US early 2007 whereby US web users of Google Maps application can make free click-through calls to merchants and retailers that come up in search listings.

In the US, users type their phone numbers and press the "call" prompt on the website listing to contact a specific merchant. Within a second or two, VoIP Inc's network calls the customer who answers this call and then hears the telephone connection being made to the retailer, who answers it like any regular call. The sweetener to this is that there is no cost to the customer as the call is routed through VoIP Inc's network. The report said that the technology works on any platform.

Google is offering similar click-through services in the UK, Germany and Japan with expansion into France, Italy, Netherlands, Spain, China, Ireland, India and Australia.

MOBILE SERVICE SCENARIO IN MALAYSIA

Malaysia embraced mobile cellular services in mid 1980s. Its popularity grew to eventually the number of subscribers for mobile cellular surpassing that of fixed line in 2000. The fixed-mobile substitution advances even today. However, mobile penetration rates are levelling off, and operators are shifting focus and approach from customer acquisition to customer retention, as well as to ramping up revenues per subscriber by driving up data usage.

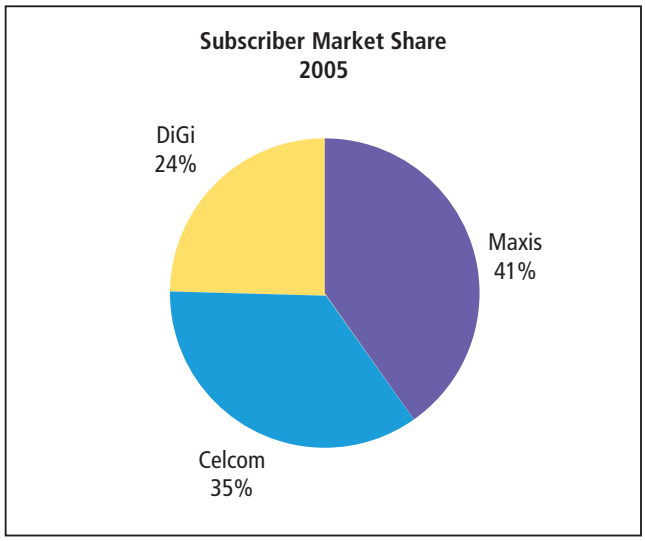
[11] *Mobile Communications International, June 2007*

In Malaysia, fixed line rates are regulated. Mobile rates are regulated in respect of wholesale rates for the carriage of voice communications vis-à-vis Mandatory Access Pricing. Price wars are intense as a result, especially on prepaid starter kits and prepaid services.

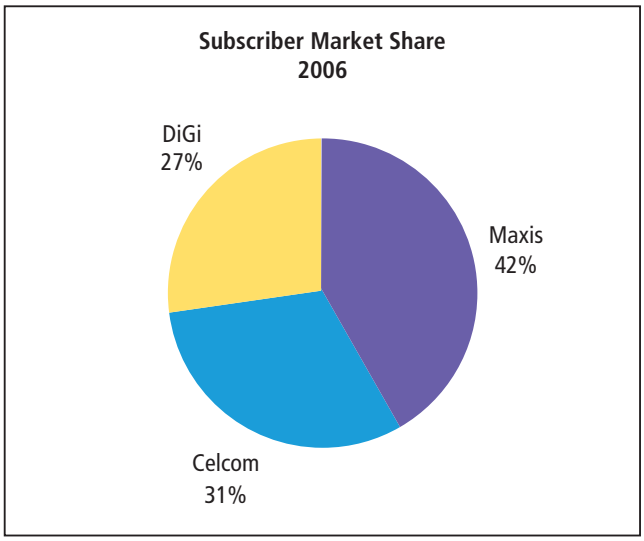
Malaysian Mobile Subscribers

The cellular mobile services landscape in Malaysia is essentially an oligopoly market comprising Celcom (Malaysia) Berhad (Celcom), Maxis Communications Berhad (Maxis) and DiGi.Com Berhad (DiGi). Maxis has a subscriber market share of 42%, while Celcom and DiGi market shares are at 31% and 27% respectively.

As at end of September 2007, the cellular mobile service providers have a combined total of 22.1 million subscriptions in a country with a population of 27.3 million, the mobile cellular service market is among the more matured markets in the region with a penetration rate of 80.8 per 100 inhabitants.



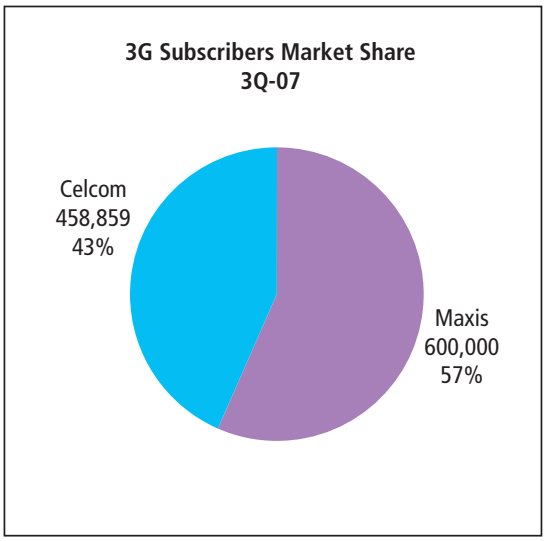
Source: Industry, SKMM



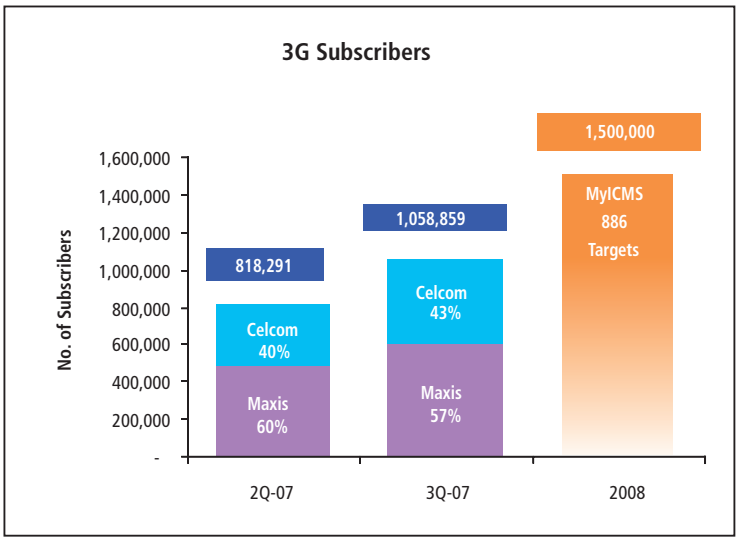
Source: Industry, SKMM

Malaysian 3G Subscribers Market Share

Currently, two mobile cellular service providers share the IMT-2000 or 3G subscriber market. Two more operators have been awarded 3G spectrum but have yet to make their commercial debut.



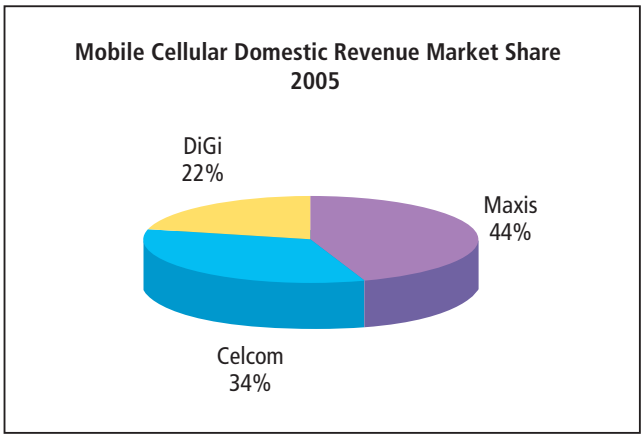
Source: Industry, SKMM



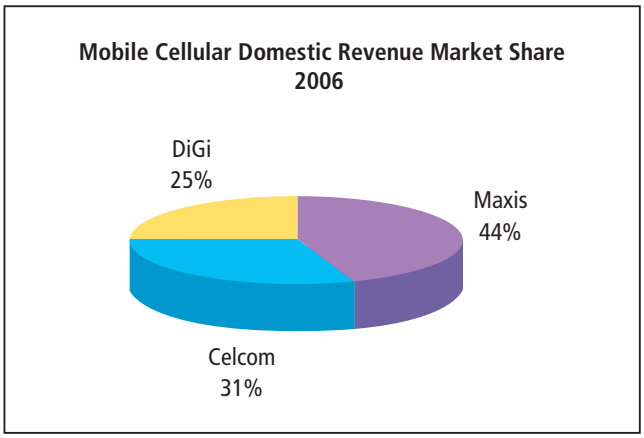
Source: Industry, SKMM

Mobile Revenue

The revenue for mobile cellular service in Malaysia are split three ways among Maxis, taking 44% of total revenue at RM15.9 billion in 2006; Celcom 31% and DiGi 25%.



Source: Industry, SKMM



Source: Industry, SKMM

Financial and Key Indicators of Mobile Cellular Service Providers in Malaysia 2006					
	Financial Highlights	**Maxis**	**Celcom**	**DiGi**	**Total**
1.	Revenue (RM billion)	7.7 (+20.3%)	4.5 (+0.7%)	3.7 (+27.6%)	15.9
2.	Profit Before Tax (RM billion)	2.79 (+13.9%)	1.15 (+1,953.6%)[a]	1.09 (+65.2%)	5.03
3.	Total Shareholders Fund (RM billion)	7.2	2.6	1.8	-
4.	Monthly ARPU – Blended (RM)	61	56*	54	# 57
5.	Monthly ARPU – Prepaid (RM)	46	45*	50	# 47
6.	Monthly ARPU – Post-paid (RM)	135	109*	96	# 113
7.	EBITDA (RM billion)	3.85 (+10.3%)	1.97 (-5.7%)[b]	1.70 (+34.9%)	# 2.5
8.	EBITDA margin (%)	50.0%	43.5%	46.4%	# 46.6%
9.	EBIT margin (%)	36.5%	25.8%	29.2%	# 30.5%
10.	No. of Subscribers (million)	8.06	6.08	5.31	19.45
11.	No. of Prepaid Subscribers (million)	6.44	4.85	4.81	16.10
12.	No. of Post-paid Subscribers (million)	1.62	1.23	0.51	3.36

** Fourth quarter 2006 # Industry average*

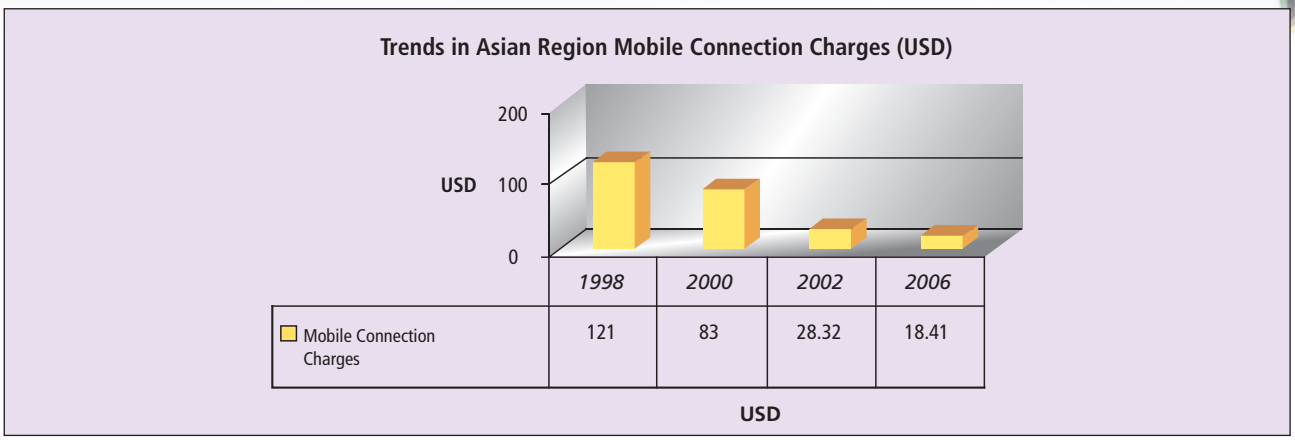
[a] Large percentage attributable to the absence of the provision for a claim amounting to RM915.1 million made by DeTeAsia Holdings GmbH in 2005

[b] Lower year-on-year growth due to TM internal charges and 3G costs

Source: Industry

Prepaid and Post-paid Segments

One of the key drivers behind the rapid growth of mobile cellular services in Asia Pacific was the phenomenal success of prepaid mobile services, with marked growth in emerging markets. Both post-paid and prepaid services received a boost from further enhancements to the services of and prolonging the lifecycle of 2G and 2.5G services despite the emergence of the rapidly developing 3G technologies.



Source: International Telecommunication Union, Regional Seminar on Costs and Tariffs for Member Countries of the Tariff Group for Asia and Oceania (TAS), Seoul, 3 to 6 July 2007

Over the years, the downward pressure on prices of connection charges for cellular mobile have driven positive growth and produced trends for greater accessibility as investment trends were in favour of driving network capacity and coverage. These trends were also evident regionally.

Prepaid Segment

In Malaysia, unlike fixed line rates, mobile rates are only regulated as far as wholesale rates for the carriage of voice communications as determined under Mandatory Access Pricing. As mobile retails rates are not regulated, price wars emerged among providers especially prepaid starter kits and prepaid services. The prepaid segment began in 1998, when DiGi launched its prepaid concept for mobile phone services in Malaysia.

From 2006, DiGi prepaid market segment in Malaysia saw its first flat rate charges for calls to anyone on any network, at any time to anywhere. In the same year, the country's lowest priced prepaid starter pack was at RM4.99 offered by Celcom. The AirAsia-Celcom starter pack provided five sen per minute call and one sen per SMS (Short Messaging Service) to three registered 013 or 019 Celcom numbers in Malaysia.

New No-Frills Mobile Prepaid Plan from DiGi

	DiGi
Brand name	**Happy**
Starter Packs	RM25.00 (inclusive RM20 talk time)
Voice Call - charging block	RM0.99 per call (maximum charge) RM0.01 per second up to 99 seconds
SMS	RM0.10 per SMS to any network
MMS	RM1.00 per MMS
Data Usage – GPRS	RM0.50/10Kb

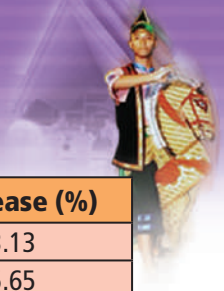
** Rates as at 7 December 2007*
Source: Company website

Malaysian Prepaid Rates

	Maxis	Celcom	DiGi
Brand name	**Hotlink**	**Xpax**	**DiGi Prepaid**
Starter Packs	Total Plan – RM8.80 Easy Plan – RM6.00	RM10.00	DiGi Prepaid SIM Pack RM8.50
Voice Call			
- Flat rates nationwide	36[1] sen/min. (any network)	Celcom to Celcom Lite Plan - 38 sen/min. (local) Mid Plan - 35 sen/min. (nationwide) Max Plan - 15 sen/min. (nationwide) Celcom to Others Lite Plan - 38 sen/min. Mid Plan - 45 sen/min. Max Plan - 15 sen/min.	36[2] sen/ min. (any network)
- Limited designated/ selected numbers only	Activ5* (5 Maxis nos.) 15 sen/min. * Easy Plan only	8pax (8 Celcom or TM fixed line nos.) 15 sen/min. nationwide	Chat Plus 36 sen/min. (any network) Family & Friends (6 DiGi nos.) 15 sen/min. Fu-Yoh! DiGi to DiGi – pay for first three minutes, thereafter free from 12am to 12 pm Sundays only

	Maxis	Celcom	DiGi
Short Message Service			
SMS	Maxis to Maxis 7 sen/SMS 1 sen/SMS (Activ5) Maxis to Others 15 sen/SMS Activ5 1 sen/SMS	Celcom to Celcom Lite Plan - 10 sen/SMS (off peak); 5 sen/SMS (peak) Mid Plan - 10 sen/SMS (off peak); 1 sen/SMS (peak) Max Plan - 1 sen/SMS (off peak); 10 sen/SMS (peak) Celcom to Others Lite Plan - 20 sen/SMS (off peak); 15 sen/SMS (peak) Mid Plan - 20 sen/SMS Max Plan - 20 sen/SMS	DiGi to DiGi 7 sen/SMS Friends & Family 1 sen/SMS Friends & Family Plus (add 2 non-DiGi nos.) 15 sen/SMS Fu-Yoh! 7 sen/SMS (any network) DiGi to Others 15 sen/SMS
Multimedia Messaging Service			
MMS	Maxis to Maxis 25 sen/MMS Maxis to Others 50 sen/MMS	Celcom to Celcom 35 sen/50Kb MMS Celcom to others 50 sen/50Kb MMS	DiGi to DiGi 25 sen/MMS Friends & Family 10 sen/MMS Friends & Family Plus, DiGi to Others 50 sen/MMS Fu-Yoh! 25 sen/MMS (any network)
		Data Usage	
Web and WAP	Peak: 1 sen/Kb Off-peak: 0.5 sen/ Kb	10 sen/10Kb	10 sen/10Kb

[1] 36 sen/minute applicable when top up a minimum of RM30. Otherwise rate remains at 39 sen/minute. Valid for 30 days from the day of RM30 top up
[2] Applicable for usage below RM30 above otherwise RM0.48 sen/minute applies
Note - Unless indicated otherwise all rates are off-peak local rates and are shown for comparison purposes only. Rates as at 7 December 2007
Source: Company websites



Top 15 Operators by Largest Prepaid Growth as at 1Q-07

Rank	Company	Country	Prepaid users 1Q-07	Annual increase (%)
1	Hutchison Whampoa	Hong Kong	20,287,000	83.13
2	Orascom	Egypt	10,022,000	65.65
3	Sprint Nextel	US	11,112,000	30.04
4	China Mobile	China	247,621,700	25.02
5	Etisalat	UAE	5,199,880	23.53
6	MTN	South Africa	10,592,000	23.75
7	SingTel Mobile	Singapore	552,000	21.05
8	America Movil	Mexico	41,715,000	18.93
9	Deutsche Telekom	Germany	17,705,000	14.80
10	Vodacom*	South Africa	17,107,700	13.58
11	Turkcell	Turkey	26,300,000	13.02
12	Mobile TeleSystems	Russia	45,952,570	12.66
13	Verizon Wireless	US	4,580,000	11.75
14	China Unicom	China	57,318,600	11.52
15	VimpelCom*	Russia	48,249,790	10.90
•	DiGi◇	Malaysia	5,234,000	11.27
•	Maxis◇	Malaysia	6,841,000	1.29
•	Celcom◇	Malaysia	5,052,000	-16.89

** - Total and prepaid subscriptions have been estimated because 1Q-07 results are unpublished or have not been released*
◇ - Malaysian operators included for reference purpose only
Source: Informa Telecoms & Media, Industry

Post-paid Segment

DiGi continued its efforts to make further inroads into the post-paid segment, ahead of Mobile Number Portability (MNP). In July 2007, DiGi launched a new post-paid plan, called Post-paid 1 Plan, which charges subscribers a flat rate of 13 sen/minute for calls to anyone on any network, anytime and anywhere in Malaysia.

There will be no access fee and the lowest monthly subscriber commitment is RM70. It is noted that at 13 sen/minute Post-paid 1 Plan currently offers the cheapest post-paid call charges in town. Maxis charges 15-30 sen/minute and Celcom 14.3-20 sen/minute.

DiGi had a 15% market share in the post-paid segment in 2006. This latest post-paid plan may capture greater market share from other mobile operators and even fixed line STD segment. Moreover, this latest move from DiGi marks greater competitive pressure in the post-paid segment where consumers have long been the minority compared to prepaid users. They are bracing for downward price pressure and eventually even better value packages, depending on how aggressively DiGi moves into the post-paid segment.

Post-paid Plans

	Maxis	Celcom	DiGi
Brand	**Value Plans**	**Minutes Postpaid**	**DiGi Postpaid**
Call Rates	Maxis to Maxis Value 50: 15 sen/min. Value 80: 12 sen/min. Value 150: 10 sen/min. Family Plus Plan: 15 sen/min. Maxis to Others Value 50: 20 sen/min. Value 80: 15 sen/min. Value 150: 12 sen/min. Family Plus Plan: 20 sen/min.	Celcom to Any Bundled Minutes C250: - 20 sen/min. - 20 sen/min. flat rate, nationwide, anytime for additional minutes Bundled Minutes C500: - 16 sen/min. - 20 sen/min. flat rate, nationwide, anytime for additional minutes Bundled Minutes C800: - 15 sen/min. - 20 sen/min. flat rate, nationwide, anytime for additional minutes Bundled Minutes C1400: - 14.3 sen/min. - 20 sen/min. flat rate, nationwide, anytime for additional minutes	DiGi to DiGi 15 sen/min. (usage less than RM123) Free (usage more than RM123) DiGi to Others 20 sen/min. (Premier/Family Unlimited) 30 sen/min. (Optimum/Family Unlimited)
SMS	Maxis to Maxis 5 sen/SMS Maxis to Others 15 sen/SMS	Celcom to Any Bundled Minutes C250, C500, C800 & C1400: 8 sen/SMS , flat rate, nationwide, anytime	DiGi to DiGi 5 sen/SMS (usage less than RM123) Free (usage more than RM123) DiGi to Others 15 sen/SMS
GPRS	Maxis to Maxis 25 sen/MMS Maxis to Others 50 sen/MMS	Celcom to Celcom 35 sen/50Kb MMS Celcom to Others 50 sen/50Kb MMS Web and WAP browsing Pay-as-you-use: • 10 sen/10Kb Package D99: • RM99/month Package D120: • RM120/month	DiGi to DiGi 25 sen/MMS (usage less than RM123) Free (usage more than RM123) DiGi to Others 50 sen/SMS Web and WAP browsing Pay-on-use: • RM0-RM30 – 10 sen/10Kb • RM30.01-RM50 – 8 sen/10Kb • RM50.01-RM149 – 5sen/10Kb • Above RM149 – Free; charges capped at RM149/month (additional usage is free) Data Lite Plan: • RM25 monthly for 6MB • Additional data usage 8 sen/10Kb. Charges capped at RM149/month (additional usage is free) Data Unlimited Plan: RM99/month for unlimited data usage

** Call charges in Malaysia*
Rates as at 7 September 2007
Source: Company websites, Industry

MARKET COMPARISON

Emerging economies are where most of the mobile growth now resides. Given the differences in Purchasing Power Parity (PPP) and GNI between the developed and emerging markets, handset prices need to be targeted appropriately, that is, whether ultra low or low tier takes priority over advanced functionalities.

The availability of ultra low priced handsets in emerging markets from established vendors such as Motorola and Nokia indicate their commitment to these markets. Moreover, due to the slim margin of ultra low priced handsets, vendors need to achieve economies of scale for viable business offering.

Cellular Mobile Prices of ASEAN and Other Major Regional Economies

	(a) Cost of a Local SMS (USD) 2006	(b) OECD Low User Basket (USD)	(c) As % Monthly GNI (%) 2006
Brunei Darussalam	0.03	7.11	n.a.
Myanmar	n.a.	n.a.	n.a.
Singapore	0.03	6.14	0.3
Hong Kong, SAR	0.03	2.2	0.1
Malaysia	**0.01**	**5.02**	**1.2**
Thailand	0.08	4.35	1.8
China	0.01	2.9	2.0
Indonesia	0.01	4.3	4.1
Philippines	0.02	5.29	4.9
India	0.03	2.39	4.0
Vietnam	0.02	6.19	12.1
Lao PDR	0.05	3.8	10.3
Cambodia	0.03	5.08	16.1

n.a.: not available
(a) Cost of a local SMS = charge to consumer of sending a single SMS text within local exchange area
(b) OECD mobile low-user basket = price of a standard basket of mobile monthly usage in USD set by OECD for 25 outgoing calls per month (on and off the network and to fixed line) in predetermined ratios and including 30 SMS messages.
(c) Percent (%) of monthly income = price of the OECD low-user mobile basket divided by per capita monthly income (World Bank, Atlas method, no PPP)
Source: International Telecommunication Union

In terms of cellular mobile price among the ASEAN and other major regional economies, Malaysia cellular phone service does not appear cheap. The OECD low user basket price for Malaysia mobile is USD5.02. This is just below the Singapore OECD low user basket price of USD6.14. In terms of mobile cellular prices as percent of monthly gross monthly income per capita, the Malaysian level is 1.2% compared to Singapore's 0.3%.

Top 10 Asia Pacific Countries by Net Adds, 1Q-07

Rank	Country	Net Adds (million)	Total Subscribers (million)
1	China	19.5	465.2
2	India	16.1	153.5
3	Pakistan	7.0	55.5
4	Indonesia	5.4	65.6
5	Thailand	3.3	43.5
6	Philippines	2.8	45.8
7	Bangladesh	2.6	23.9
8	Vietnam	2.0	19.4
9	Japan	1.8	96.7
10	Malaysia	1.1	20.7

Source: Informa Telecoms & Media

Top 10 Asia Pacific Operators by Net Adds,1Q-07

Rank	Operator	Country	Net Adds (million)
1	China Mobile	China	14.9
2	NTT DoCoMo	Japan	13.2
3	Bharti	India	5.2
4	BSNL	India	3.8
5	China Unicom	China	3.3
6	Hutchison	India	3.1
7	Telkomsel	Indonesia	3.0
8	Telenor	Pakistan	2.4
9	PMCL	Pakistan	2.1
10	Viettel	Vietnam	1.7

Source: Informa Telecoms & Media

Top 25 Ranking: Mobile Subscriber Growth Markets 2006 to 2011

Rank	Country	Subscriber Growth/ Net Additions (2006 to 2011) (million)	Compound Annual Growth Rate (CAGR 2006 to 2011) (%)	Cellular Mobile Subscription Penetration 2Q-07 (%)
1	India	357.7	37.8	16
2	China	354.2	13.7	37
3	Brazil	73.3	13.1	56
4	Indonesia	72.7	20.6	31
5	Nigeria	71.9	37.2	25
6	US	65.8	5.8	81
7	Pakistan	58.2	40.9	37
8	Mexico	46.6	14.6	57
9	Bangladesh	45.0	43.1	19
10	Iran	32.6	40.7	25
11	Russia	28.2	4.3	113
12	Egypt	27.3	24.6	29
13	Philippines	26.4	12.5	53
14	Turkey	18.3	7.2	80
15	Thailand	18.0	10.5	72
16	Morocco	16.6	18.5	52
17	Ukraine	14.8	13.2	109
18	Japan	14.2	2.8	77
19	Argentina	13.9	10.2	86
20	Iraq	13.8	90.3	35
21	Peru	12.7	26.8	39
22	Saudi Arabia	10.4	12.2	88
23	Venezuela	10.2	12.7	81
24	South Africa	9.5	5.0	89
25	Canada	9.0	9.1	57

Source: Portio Research, Informa Telecoms & Media, International Telecommunication Union

Mobile Subscriptions by Region

Region	Annual Change (%)	Penetration Rate 2Q-07 (%)
Asia Pacific	29	32
Africa	45	25
Latin America	24	60
Middle East	31	49
Eastern Europe	22	90
Western Europe	9	111
North America	11	78

Source: Portio Research

In the Asia Pacific region, there is a growing trend of regulatory reforms and liberalisation. One of the main drivers has been the recognition that a sophisticated and advanced telecommunications sector will bring greater economic growth and development.

This region houses three of the largest mobile companies in the world – China Mobile, China Unicom and Japan's NTT DoCoMo, a testimony to the burgeoning Asian market.

Top 20 Cellular Subscribers and Network in Asia Pacific as at 1Q 2007

Rank	Operator	Country	System	Subscribers (million)		Annual Change (%)
				1Q-06	1Q-07	
1	China Mobile	China	GSM900/1800	261	316	21
2	China Unicom	China	GSM900	99	110	11
3	Bharti Airtel	India	GSM900/1800	20	37	85
4	NTT DoCoMo	Japan	WCDMA2100	23	36	57
5	Telkomsel	Indonesia	GSM900/1800	24	35	46
6	BSNL	India	GSM900	17	27	59
7	KDDI	Japan	CDMA800	23	27	17
8	Hutchison	India	GSM900/1800	15	26	73
9	Smart Communications	Philippines	GSM900/1800	21	25	19
10	PMCL	Pakistan	GSM900	14	25	79
11	AIS	Thailand	GSM900	17	21	24
12	Reliance Communications	India	CDMA800	15	21	40
13	SK Telecom	South Korea	CDMA800	20	21	5
14	NTT DoCoMo	Japan	PDC800/1500	28	17	-39
15	Globe Telecom	Philippines	GSM900/1800	13	17	31
16	Indosat	Indonesia	GSM900/1800	12	16	33
17	Idea Cellular	India	GSM900/1800	7	14	100
18	DTAC	Thailand	GSM1800	10	13	30
19	KTF	South Korea	CDMA1700	12	13	8.3
20	GrameenPhone	Bangladesh	GSM900/1800	6	12	100
27	Maxis Communications	Malaysia	GSM900/1800	8	8	0
34	Telekom Malaysia (Celcom)	Malaysia	GSM900/1800	7	6	-14
37	DiGi	Malaysia	GSM1800	5	6	20

Source: Asia Pacific Mobile, Informa Telecoms & Media

New Products and Services in Malaysia

In conclusion, the Malaysian environment is considered vibrant, and new services are expected to come on board as what is happening in overseas mobile markets where a whole range of web based applications and other services in quadruple play are taking off or trying to establish themselves as viable business models.

Already collaborative arrangements are starting off in many ways to differentiate the mobile market further for economic, competitive and services advantages. The main thing to keep in mind as how is being done by overseas players is the fact that in order for the customer to fork out their ringgit, the content and applications developed has to suit their needs, aside from smooth delivery features such as user friendliness, and handset availability.

As data services in the mobile space develops further, there are likely to emerge cross sector service provision issues which may require regulatory intervention. Towards this end, the Malaysian Communications and Multimedia Act, which is the first convergence law of its kind introduced in 1998/1999 is ready to tackle the issues going forward. So far, the law provides a foundation regulatory regime facilitating a level playing field for old and new entrants alike and also complicated issues of cross sector or converging service and product offerings such as IPTV, mobile TV and Mobile Virtual Network Operators (MVNOs).

CONTACT US

Malaysian Communications and Multimedia Commission (SKMM)
Off Persiaran Multimedia
63000 Cyberjaya
Selangor Darul Ehsan
Telephone: +603 8688 8000
Facsimile: ++603 8688 1000
E-mail: webmaster@cmc.gov.my
Website : www.mcmc.gov.my
Freephone number: 1-800-888-030

Northern Regional Office
Unit 3, Level 11
Menara UMNO
128, Jalan Macalister
10400 Pulau Pinang
Tel: (604) 227 1657
Fax: (604) 227 1650

Eastern Regional Office
B8004 Tingkat 1
Sri Kuantan Square
Jalan Telok Sisek
25200 Kuantan
Pahang
Tel: (609) 515 0078
Fax: (609) 515 7566

Southern Regional Office
Suite 7A, Level 7
Menara Ansar
Jalan Trus
80000 Johor Baru
Johor
Tel: (607) 226 6700
Fax: (607) 227 8700

Sabah Regional Office
6-10-10, Tingkat 10
No. 6, Menara MAA
Lorong Api-Api, Api-Api Centre
88000 Kota Kinabalu
Sabah
Tel: (6088) 270 550
Fax: (6088) 253 205

Sandakan Branch Office
Lot No.7, Block 30
Bandar Indah Phase 6, Batu 4
90000 Jalan Utara
Sandakan, Sabah
Tel: (6089) 227 350
Fax: (6089) 227 352

Sarawak Regional Office
Level 5 (North), Wisma STA
26, Jalan Datuk Abang
Abdul Rahim
93450 Kuching
Sarawak
Tel: (6082) 331 900
Fax: (6082) 331 901

Miri Branch Office
Lot 1385 (1st Floor) Block 10
Centre Point Commercial Centre
(Phase 2)
98000 Miri
Sarawak
Tel: (6085) 417 400 / 600
Fax: (6085) 417 900

Central Regional Office
Level 17, Wisma SunwayMas
1, Jalan Tengku Ampuan
Zabedah C9/C, Section 9
40100 Shah Alam
Selangor
Tel: (603) 5518 7701
Fax: (603) 5518 771

Enquiries

Please contact the Market Research team:

Yee Sye Chung (Head)
Mooi Mee Mee
Sharmila Manoharan
Azrita Abdul Kadir
Nadzrah Mazuriah Mohamed
Siti Na'ilah Kamarudin
Nurul Izza Saaman

mrd@cmc.gov.my

Suruhanjaya Komunikasi dan Multimedia Malaysia
Malaysian Communications and Multimedia Commission

Off Persiaran Multimedia
63000 Cyberjaya, Selangor Darul Ehsan
Tel 603 8688 8000 **Fax** 603 8688 1000
Freephone number 1 800 888 030
Website www.mcmc.gov.my