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**ITU NEW INITIATIVES WORKSHOP ON  
THE REGULATORY ENVIRONMENT FOR  
FUTURE MOBILE MULTIMEDIA  
SERVICES**

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**THE REGULATORY ENVIRONMENT FOR FUTURE  
MOBILE MULTIMEDIA SERVICES**

**THE CASE OF HONG KONG SAR AND CHINA**

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## ACKNOWLEDGEMENTS

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The opinions expressed in this study are those of the author and do not necessarily reflect the views of the International Telecommunication Union or its membership.

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# 1. GENERAL SITUATION OF HONG KONG SAR AND CHINA

## 1.1 PEOPLE AND ECONOMY OF HONG KONG SAR

Hong Kong<sup>1</sup> became a Special Administrative Region (SAR) of China on 1 July 1997 after its handover to the Chinese Government by the United Kingdom. Under the regime of ‘one country, two systems’, Hong Kong SAR has independent financial, economic and legal systems. The total population of Hong Kong SAR was 6.97 million at the end of 2005 and its total area is 1,098 square kilometres. With 6,348 people per square kilometre, Hong Kong is one of the most densely populated territories in the world.



Hong Kong is characterised by its high degree of internationalisation, business friendly environment, rule of law, free trade and free flow of information, well established financial networks and sophisticated infrastructures. In 2005, the Heritage Foundation ranked Hong Kong as the world's most free economy for the eleventh successive year. In 2006, the International Institute for Management Development (IMD) ranked Hong Kong as the second most competitive economy in the world, right after the US. The International Monetary Fund classifies Hong Kong as an advanced economy. Hong Kong also ranks in the top five economies worldwide in terms of its ranking in the 2005 “Digital Opportunity Index”<sup>2</sup>

**Table 1.1: Basic economic and demographic indicators for Hong Kong SAR**

	1998	1999	2000	2001	2002	2003	2004	2005
<b>Population (Million)</b>	1,247.6	1,257.9	1,276.7	1,276.3	1,284.5	1,292.3	1,299.9	1,307.6
<b>Gross Domestic Production (GDP) (Billion Yuan)</b>	7,835	8,191	8,940	10,965	12,033	13,582	15,988	18,232
<b>GDP Per Capita (US\$)</b>	768	782	845	924	992	1,099	1,268	1,700
<b>Unemployment Rate (%)</b>	3.1	3.1	3.1	3.6	4.0	4.3	4.2	4.2
<b>Main Telephone Lines Penetration (%)</b>	8.74	9.50	11.80	13.81	16.80	21.20	23.79	27.00
<b>Mobile Phone Penetration (%)</b>	1.90	3.50	6.70	11.17	16.19	20.92	25.49	30.30

Source: Hong Kong SAR Government Information Centre (<http://www.info.gov.hk>), OFTA (<http://www.ofta.gov.hk>).

Note: \* at constant market price of 1990 before 2000 and at constant price of 2000 afterwards. Exchange rate is fixed at US\$1.00 = HK\$7.80

Over the past two decades, the Hong Kong economy has more than doubled in size, with GDP growing at an average annual growth rate of about 4.8 per cent in real terms. Per capita GDP in Hong Kong has more than doubled over the same period. However, Hong Kong suffered seriously from the Asian financial crises during the period from late 1997 to early 1999. The property market dropped almost 50 per cent while the unemployment rate jumped to 6.0% - the highest in previous 30 years. The Hong Kong economy turned in a spectacular performance in 2004 and 2005. Table 1.1 provides an overview of Hong Kong's economic and demographic status, including the penetration rate for fixed and mobile phone services.

## 1.2 PEOPLE AND ECONOMY OF CHINA

China is a developing country with a population of 1.307 billion people by the end of 2005. It covers an area of 9.6 million square kilometres, which makes it the fourth largest country in the world, after Russia, Canada and the United States. Due to harsh geographical conditions, nearly one-third of China is sparsely populated.

**Table 1.1: Basic economic and demographic indicators for China**

	1998	1999	2000	2001	2002	2003	2004	2005
<b>Population (Million)</b>	1,247.6	1,257.9	1,276.7	1,276.3	1,284.5	1,292.3	1,299.9	1,307.6
<b>Gross Domestic Production (GDP) (Billion Yuan)</b>	7,835	8,191	8,940	10,965	12,033	13,582	15,988	18,232
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Source: International Telecommunication Union (<http://www.itu.int>); Ministry of Information Industry of China (<http://www.mii.gov.hk>); National Bureau of Statistics of China (<http://www.stats.gov.cn>)

For this reason, universal telecommunications access for remote and less populated areas has been a challenge for both the government and telecommunication operators.



Civil wars, foreign invasions and endless political movements since the beginning of the 20<sup>th</sup> century, have left China with an extremely fragile economy. This situation lasted until the end of the ten-year-long Cultural Revolution in the late 1970s. Since then, the Chinese government has taken a relentless stance in reforming its economic system, and has transformed the highly centralised planned economy into a so-called socialist market economy. An open-door policy has attracted substantial foreign direct investment in most industries. Since China joined the World Trade Organisation (WTO) in December 2001, even telecommunications operation and other politically sensitive sectors have been partly opened to

foreign direct investment.

These efforts are proving effective and successful. The GDP has enjoyed the highest averaged annual growth rate in the world over the past twenty years. In 1998, China was removed from the World Bank’s low-income classification and placed into the lower-middle-level-income category. In 2003, China’s GDP per capita surpassed US\$ 1,000 – a symbolic benchmark for developing countries. In 2005, China’s “Digital Opportunity Index” ranking was 74<sup>th</sup> in the world.

## 2 TELECOMMUNICATIONS POLICY AND INFRASTRUCTURE IN HONG KONG SAR AND CHINA

### 2.1 TELECOMMUNICATIONS DEVELOPMENT AND POLICY IN HONG KONG SAR

Although Hong Kong has arguably the most free economy in the world, local fixed service and international telephone service were monopoly services until 1995 and 1998 respectively, due to the exclusive franchises

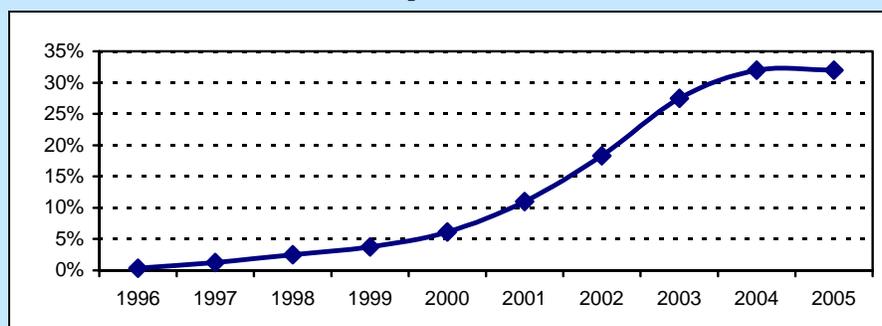
held by Cable & Wireless HKT (CWHKT), formerly known as Hong Kong Telecom. Compared with early mover countries, this was a very late starting point for market liberalisation. However, the Hong Kong government and its regulatory agency – Office of the Telecommunications Authority (OFTA) - have taken a strong and aggressive stance in promoting telecommunications deregulation. For instance, Hong Kong was the first economy in the world to incorporate number portability into local fixed telephone service (July 1995) and the third to provide number portability for mobile telephone service (March 1999). Currently, Hong Kong has one of the most sophisticated and competitive telecommunications markets in the world.

### 2.1.1 Fixed-line telephone service

Following the expiry of CWHKT’s monopoly over local fixed telephone service on 30 June 1995, four companies, namely CWHKT, New World Telephone Limited, New T&T Hong Kong Limited and Hutchison Communications Limited, were licensed to provide local fixed telecommunication services on a competitive basis. The government has provided strong support to facilitate local network competition by taking such measures as deploying number portability, helping new entrants to access buildings, and ordering the incumbent to share their essential facilities with new entrants. Hong Kong was one of the first economies in the world to unbundle the incumbent’s local loops, as a measure to facilitate local network competition (1995).

To further enhance competition in the local network, OFTA issued five fixed wireless local network licenses on 1 February 2000. At the same time, Hong Kong Cable Television Limited obtained its license for providing telecommunication services via its cable network<sup>3</sup>. Compared with other economies, local network competition has progressed relatively well in Hong Kong. By the end of 2005, the new entrants have altogether obtained a facility-based market share of 32.0% for local fixed line telephone service (Figure 2.1).

**Figure 2.1: Market Share of New Local Network Operators**



Source: Annual Reports of Operators, OFTA.

This market liberalisation process placed tremendous competitive pressure on the incumbent, and aggressive steps were taken in strategy restructuring and service innovation by CWHKT—which was renamed as Pacific Century CyberWorks after its acquisition by PCCW in 2000. For example, PCCW is the first operator in the world to have launched Interactive TV (Video-On-Demand) service commercially (1998). It was also the first and largest commercial IPTV service provider in the world (2003). In 2006, PCCW launched a mobile real-time TV broadcasting service.

### 2.1.2 Cellular mobile service

For mobile communications, the government followed a pro-competitive policy almost from the start. By 1987, three licenses for analogue mobile service had been issued. In 1992, SmarTone obtained the fourth license and immediately began offering digital GSM service. In 1996, OFTA issued a further six licenses for PCS service—GSM at 1800 MHz—which triggered-off another round of fierce competition. After a period of mergers and alliances, there were six mobile operators holding eleven licenses before the Hong Kong government issued four 3G (IMT-2000) licences in 2001. With a population of only 6.72 million people (in 2000), it may not be an exaggeration to claim that Hong Kong has the most competitive mobile market in the world, and one of the highest levels of penetration (123 mobile phones per 100 inhabitants at the start of 2006).

Table 2.1 indicates the market share of these six operators—namely CSL, Hutchison, New World, PEOPLES, SmarTone and SUNDAY (Mandarin) —at the beginning of 2005, just before the start of another round of organizational restructuring and the official launch of 3G services by all 3G licensees. It seemed none of the operators is able to dominate the market due to the high subscriber churn that has been facilitated by mobile number portability.

### 2.1.3 International telephone service

As to the international direct dial (IDD) telephone market, CWHKT was granted a 25-year exclusive license for providing certain external telecommunication circuits and services in 1981. To fully explore the benefits of telecommunications deregulation, the Hong Kong SAR government reached an agreement with CWHKT in January 1998 regarding the early termination of CWHKT's IDD franchise, which was due to expire in 2006. According to this agreement, CWHKT surrendered its exclusive license on 31 March 1998 in exchange for compensation of HK\$6.7 billion (ca. US\$864 million) from the government. At the same time, the fixed telephone network service (FTNS) license held by CWHKT was amended to extend its scope to cover external fixed telecommunications services and circuits. Parallel amendments were made to the FTNS licenses held by the other three FTNS operators to allow them to provide non-exclusive external services starting on 1 January 1999 and non-exclusive external facilities starting on 1 January 2000. After two rounds of consultation, the Government announced in October 1998 its decision not to set a limit on the number of licenses for the operation of external telecommunications services (ETS) from 1 January 1999 onwards. By 1 June 2006, there were 234 licensees providing ETS<sup>4</sup>.

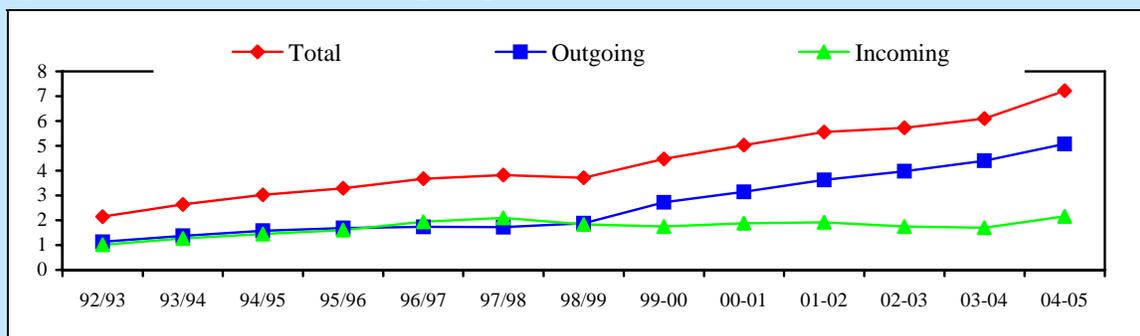
**Table 2.1: Market Share of Mobile Operators in Hong Kong (Early 2005)**

Operator	CSL	Hutchison	SmarTone	SUNDAY (Mandrine)	New World	PEOPLES
Number of Subscribers	1,300,000	2,195,000	1,033,000	684,000	1,300,000	1,130,000
ARPU	309	156	196	180	171	156
Market Share	17.01%	28.72%	13.52%	8.95%	17.01%	14.79%
Technology	GSM DAMP PCS WCDMA	GSM CDMA PCS WCDMA	GSM PCS WCDMA	PCS WCDMA	PCS	PCS

Source: Annual Reports of Operators, OFTA.

The early termination of the monopoly operation in the IDD market indicates that the Hong Kong SAR government has gone beyond its commitment to the WTO's Basic Telecommunications Agreement<sup>5</sup>. In the mean time, the liberalisation of the IDD market has brought immediate benefits to Hong Kong's economy and public in terms of diversified choices and reduced prices. Figure 2.2 shows the dramatic outgoing IDD traffic growth as a result of tariff reduction since 1999.

**Figure 2.2: IDD Traffic Growth in Hong Kong (in billions of minutes)**



Source: OFTA

**2.1.4 Broadband**

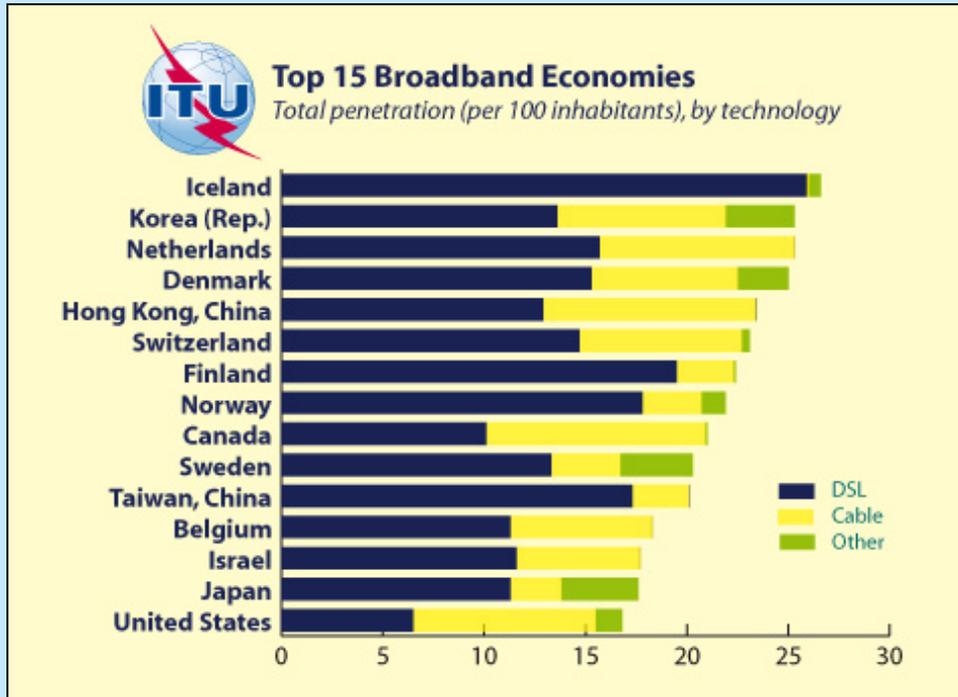
OFTA has attempted to create a favourable regulatory environment for upgrading the broadband infrastructure. According to OFTA, a favourable regulatory environment comprises three main elements:

- Market liberalization, which means lowering regulatory entry barriers so that investors are able to enter the market if they identify business opportunities. Competition from new entrants will also spur the incumbents to invest and innovate in order stay competitive.
- A clear, transparent and predictable regulatory framework, which will minimize the “regulatory risks” by setting out as clearly as possible the regulation, publishing full reasons for decisions and conducting full consultation before changes are made.
- A level playing field in which the market forces can work effectively. Operators should not expect regulation favouring or discriminating against a particular technology or class of operators<sup>6</sup>.

Hong Kong is now at the world’s forefront of broadband development. As of the start of 2006, broadband penetration is 24% per 100 inhabitants and 65% by the number of households. Some 98% of Hong Kong’s households are within the coverage of the DSL network of the incumbent operator. Over 90% of Hong Kong’s households are also covered by the cable modem network of the cable television operator and 71% are covered by at least one fibre-based customer access network of the other fixed network operators. In terms of applications, the IPTV household penetration is 25%, which is the highest in the world<sup>7</sup>. Figure 2.3 benchmarks Hong Kong’s broadband penetration by population rate..

From 1 July 2001 all telecommunications services and infrastructures in Hong Kong have been completely liberalised in practical terms.

**Figure 2.3: Top 15 broadband economies worldwide, by penetration rate per 100 inhabitants, year end 2005**



Source: ITU

**2.2 TELECOMMUNICATIONS DEVELOPMENT AND POLICY IN CHINA**

China’s telecommunications industry, like other industries, experienced sluggish development before the late 1970s. As a result, teledensity was only 0.43% in 1980. Furthermore, international telephone service was

only available in a limited number of cities. Telecommunications was treated not as a commodity, but an instrument for government and military uses. Given the poor economic returns from telecommunication services, the government had to adopt a policy of ‘subsidising telecommunications with postal services’<sup>8</sup>. Both services were jointly operated by the former Ministry of Posts and Telecommunications, which was renamed as Ministry of Information Industry (MII) in 1998.

### 2.2.1 Market reform

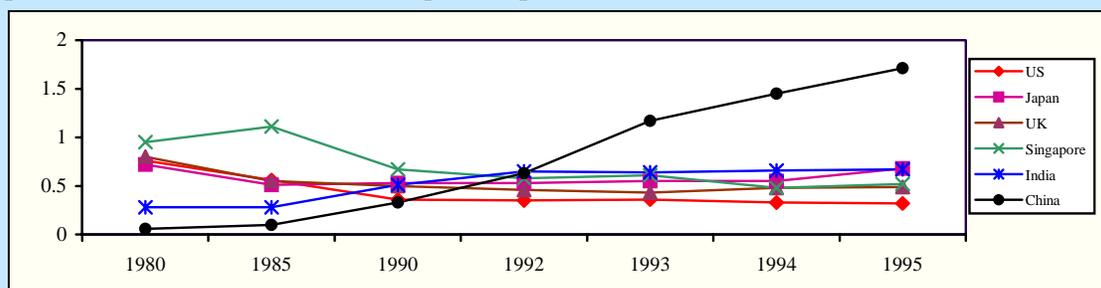
When the Chinese government decided to reform its economic system in 1978, it soon realised that the poorly-developed telecommunications infrastructure had seriously deterred foreign investment and had acted as a bottleneck for domestic economic growth. To cope with this, the Chinese government granted several preferential policies to the Ministry of Posts and Telecommunications, giving priority to the development of telecommunications.

In the meantime, the Chinese government began to implement certain market schemes in the telecommunications sector at the beginning of 1980s. The main areas of reform lay in the decentralisation of administrative power to lower government echelons, the development of market relations, the delegation of responsibility for performance to enterprise managers and the encouragement of incentive systems<sup>9</sup>.

These preferential policies, and the successful implementation of reform schemes, have effectively facilitated the development of telecommunications in China<sup>10</sup>. In 1994, the former Ministry of Posts and Telecommunications formally announced that the telecommunications infrastructure in China was finally able to satisfy the basic demand of the public and the economy. This was a critical turning point; the Chinese telecommunications market had turned from a sellers’ market into a buyers’ market<sup>11</sup>.

The Chinese government applauded this achievement, and, at the same time, accelerated its pace to transform the Chinese telecommunications sector into a market-driven industry. Operational efficiency became more important, as the government clearly realised that the high growth of telecommunications in the past had mainly resulted from preferential policies and high levels of investment. Figure 2.4 shows the total telecommunications investment as a percentage of overall GDP in selected countries. It clearly indicates that China has given an increasingly higher priority to public telecommunications investment since 1980, which has reached and surpassed investment levels in other major economies<sup>12</sup>.

Figure 2.4: Total telecom investment as a percentage of GDP, 1980, 1985 and 1990-1995



Source: ITU World Telecommunication Indicators Database.

To ease the transition from support-driven to market-driven growth, the Chinese government has gradually withdrawn the preferential policies once granted to the telecommunications sector, and opted to deregulate the telecommunications market. In 1994, the State Council established a second telecommunications operator, China Unicom.

However, experience in the initial years of market reform has indicated that the largest barrier for subscribers to fully explore the benefits of competition comes from an ineffective regulatory framework. In spite of the fact that China Telecom (once the Department of Directorate General of Telecommunications of the MPT) was still acting as the operational arm of the MPT, the State Council designated the MPT as the regulator for national telecommunications. To some extent, therefore, the MPT enjoyed dual status as both regulator and operator. This ineffective regulatory framework has put China Unicom at a significant competitive disadvantage, especially with respect to network interconnection<sup>13</sup>. China Unicom and its shareholding

ministries made strong appeals for a restructuring of the regulatory framework, namely for complete functional and organisational separation between China Telecom and the MPT.

In April 1998, a new ministry, the Ministry of Information Industry (MII), was formally established. It was the result of the merger between the former Ministry of Posts and Telecommunications and the former Ministry of Electronic Industry. The MII is thus a relatively powerful ministry, and all networks and IT manufacturing industries are now subject to MII's regulation.

The establishment of the MII is undoubtedly a positive step towards further deregulation of the Chinese telecommunications market. The most revolutionary step taken by the MII since its establishment was to split the former China Telecom into four financially and operationally independent groups in mid-1999, namely China Telecom, China Mobile, China Satellite and Guo Xin Paging Company focusing on fixed, mobile, satellite and paging services respectively. The Guo Xin Paging Company was subsequently merged with China Unicom as measure to strengthen China Unicom's strength. The MII also issued licenses to China Netcom and China Railcom to compete with other operators in all telecommunication sectors except mobile service.

On 11 December 2001, China formally joined the WTO. One key part of the Chinese government's commission was a concession over foreign direct investment in its telecommunications operators. According to the agreements announced, it was agreed to set the foreign investment cap for telecommunications operators at 49 per cent, allowing the Chinese government to retain majority control. China's detailed commitments under its schedule to the WTO's General Agreement on Trade in Services (GATS) are shown in Table 2.2.

**Table 2.2: China's Commitment under Its WTO Service Schedule**

Type of Service	Percentage of Foreign Investment Permitted					
	Upon WTO Accession (11/12/01)	One Year from Accession	Two Years from Accession	Three Years from Accession	Five Years from Accession	Six Years from Accession
<b>Value-Added Services and Paging Service</b>	30% in Beijing, Shanghai and Guangzhou	49% in 17 cities	50% with no geographic restrictions	No change	No change	No change
<b>Basic Telecoms Services - Mobile</b>	25% in Beijing, Shanghai and Guangzhou	35% in 17 cities	No change	49% with no geographic restrictions	No change	No change
<b>Basic Telecom Services - Fixed</b>	0%	0%	0%	25% in Beijing, Shanghai and Guangzhou	35% in 17 cities	49% with no geographic restrictions

Source: The World Trade Organization

The entry of China into the WTO has significant implications for China's telecommunications industry. It means an accelerated pace of transition for its decades-old traditional telecommunications system, which has by then rendered with only limited competition in limited services, into a market framework stipulated by multilateral parties, mainly by the developed and deregulated economies.

To prepare for intensified competition in the post-WTO era, the State Council announced a third step in industrial restructuring in December 2001. China Telecom was again split into competing northern and southern firms. According to the State Council, China's telecommunications restructuring adopts a "5 + 1" solution. China Netcom and Jitong have merged to 'roost' in the northern ten provinces of China Telecom as a single operator renamed as "China Netcom", while China Telecom has presided over the remaining twenty one southern provinces. This leaves China Mobile, China Unicom and China Railcom operating independently with China Satcom as the "plus one". China Satcom is a new satellite company that was established in December 2001. It has resulted from a merger of several individual satellite companies,

namely China Telecommunications Broadcasting Satellite Corp, China Orient Telecom Satellite Co, China Space Mobile Satellite Telecommunications Co, the Hong Kong-based ChinaSat Corp and a translation service company - China Post and Telecommunications Translation Service. Table 2.3 illustrates the market structure for basic telecommunications services after the separation of China Telecom.

Although the MII is still a governmental department, the operational functions of China Telecom have been separated from MII's regulatory commitments. According to the State Council, China Telecom and other telecom companies are defined as part of the top 100 large-scale state-owned-enterprises in China and are directly under the supervision of the State-Owned Assets Supervision and Administration Commission of the State Council—a newly-established governmental department that is specifically responsible for the administration of state-owned-assets without directly intervening in each individual company's routine operation. The MII currently enjoys a relatively neutral and independent status over telecommunications regulation because it no longer affiliates with any operators. This status has enabled the MII to take a more pro-competitive stance in facilitating competition in the Chinese telecommunication market. For example, the MII has withdrawn price-floor regulation for several telecommunications services, including the latest one for mobile service since May 2006. An increasingly competitive telecommunications market is emerging in China.

**Table 2.2: The Chinese Telecommunications Market Structure after Restructuring**

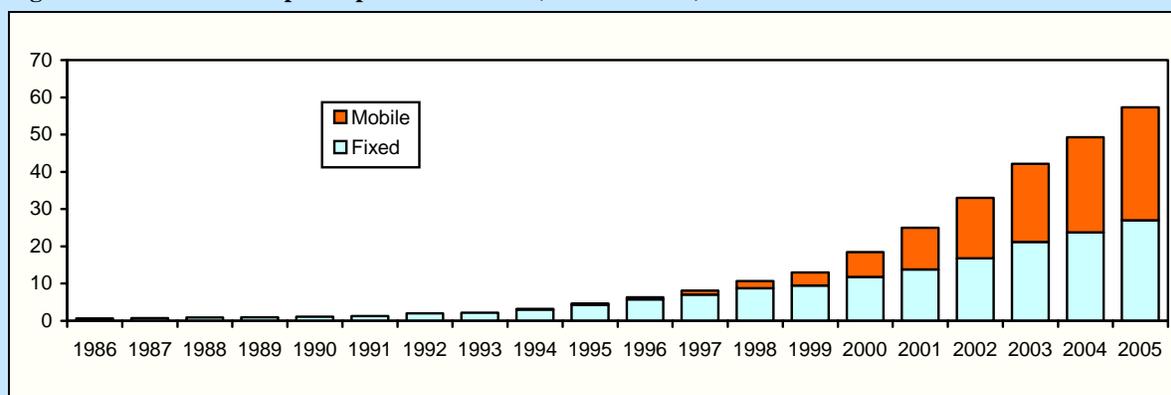
	Fixed Local	Fixed Long-distance	Mobile Cellular	Satellite Transmission
China Telecom	*	*		
China Unicom	*	*	*	
China Mobile			*	
China Netcom	*	*		
China Railcom	*	*		
China Satcom				*

Source: Case study authors

### 2.2.2 Network growth

Economic reform and policy paradigm shift since later 1970s have strongly facilitated the development of telecommunications in China. China Telecom, the incumbent operator, currently owns the world's largest fixed telephone network with a total capacity of 215.18 million mainlines (as of March 2006), while China Mobile owns the world's largest mobilephone network, with a total capacity of 260.64 million (as of March 2006). Figure 2.5 shows the exponential growth of the telephone penetration rate in China, including mobile service, since 1980.

**Figure 2.5: Growth of telephone penetration rate (fixed + mobile) in China**



Source: Ministry of Information Industry

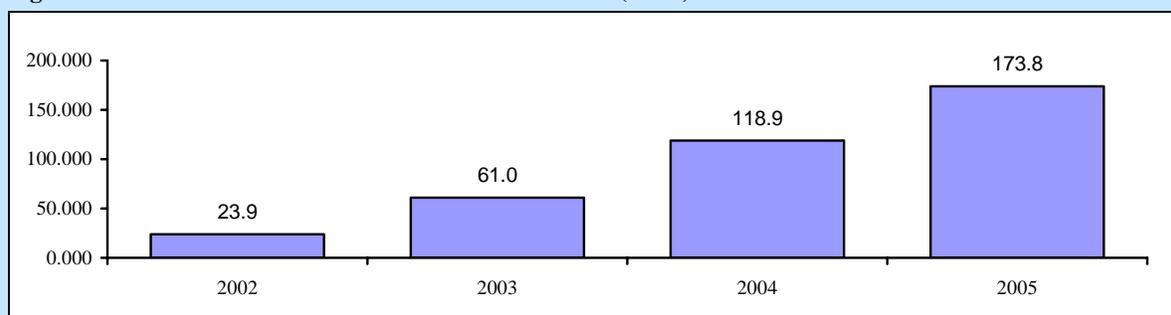
By the end of 2005, the number of broadband subscribers in China reached 37.5 million, the second highest in the world, behind only the United States.

### 3 MOBILE DATA COMMUNICATIONS IN HONG KONG SAR

#### 3.1 3G AND ITS IMPACT ON MOBILE MARKET RESTRUCTURING

Compared with China, Hong Kong's 2G mobile data communications has developed relatively slow in terms of the usage of short message service (SMS). For example, from October to December 2005, on average, Hong Kong's mobile users sent out 19.33 messages per person<sup>14</sup>. In the same period of time, China Mobile's users sent out 96.08 messages per person<sup>15</sup>. Figure 3.1 shows the total number of SMS sent in Hong Kong in December of 2002, 2003, 2004 and 2005.

**Figure 3.1: The Number of SMS in December Each Year ('000s)**



Source: OFTA

As will be analysed in next chapter, there have been several reasons for the relatively low usage of SMS in Hong Kong, such as the high penetration rate of Internet, the low and flat monthly rate for mobile voice service as a result of intensified competition, and the wide availability of alternative sources information, etc<sup>16</sup>. Overall, the perceived value of the SMS is very low in Hong Kong and people regard it at best a second class advanced communication service. Users in Hong Kong demand more sophisticated mobile data communication services.

The issuing of 3G licenses has opened a new landscape for more innovative applications and services. Due to the constraints of the spectrum, only four 3G licenses were issued in 2001, although the market for mobile

virtual network operators (MVNOs) was opened at the same time. Operators who failed to obtain a 3G license have faced increasingly high pressure due to their inability to offer 3G based services.

In January 2004, **3 Hong Kong** became the first mobile operator to launch 3G service in Hong Kong. As part of the Hutchison group, which has obtained mobile licenses in 17 countries, 3 Hong Kong has a strong brand as an international player in addition to its image of first-mover player. The launching of 3G service by 3 Hong Kong has unleashed a new round of restructuring in Hong Kong's mobile market.

For marketing purpose, SmarTone Mobile Communications Limited signed a Partner Network Agreement with Vodafone Group Plc. in December 2004 to co-operate in the development and marketing of global services for customers. The dual brand, **SmarTone-Vodafone**, was officially launched in April 2005<sup>17</sup>.

Peoples Telephone Company Limited. (PEOPLES), which was a listed company partially owned by China Resources—a state-owned investment company of the Chinese Government, was one of the 2G operators in Hong Kong. Due to the fact that PEOPLES had not obtained 3G license, its development prospects looked gloomy. Perhaps surprisingly, China Mobile (Hong Kong) Limited, a Chinese state-owned listed company, made a voluntary conditional cash offer to acquire, through its wholly-owned subsidiary, Fit Best Limited, all the issued shares of PEOPLES on 10 November 2005. On 28 March 2006, PEOPLES became a wholly owned subsidiary of China Mobile (Hong Kong) and adopted a new legal name “**China Mobile Peoples Telephone Company Limited**”.

China Mobile has not disclosed its strategy behind taking over PEOPLES, but there has been much market speculation. One theory is that China Mobile may use PEOPLES' network to provide favourable roaming services to its users in the Mainland when they travel to Hong Kong. Additionally, as Hong Kong government has adopted a technology neutral policy, China Mobile may use PEOPLES' current license for its 3G roaming service in Hong Kong after Chinese government issues 3G license.

Similarly to PEOPLES, the New World PCS Limited (New World) did not get a 3G license either. In April 2006, New World formed a joint venture with CSL—one of the leading mobile operators in Hong Kong holding a 3G license—as **CSL New World Mobility Limited**. The new company is 76.4% beneficially owned by Telstra Corporation Ltd (Australia) and 23.6% by New World Mobile Holding Limited<sup>18</sup>.

CSL used to be owned by Hong Kong's incumbent operator, PCCW. To pay the debt incurred when PCCW took over CWHKT in 2000, CSL was transferred to Telstra of Australia, first as a 50-50 joint venture in February 2001 and then full acquisition by Telstra in July 2002. In recent years, the financial strength of PCCW has been strongly enhanced by its aggressive development in broadband business, corporate solutions and local telephone business. To strengthen its leading position in Hong Kong's telecommunication market, PCCW is now moving swiftly to construct its next generation networks. However, the absence of a 3G mobile network implies that its next generation network would be incomplete.

On 22 June 2005, PCCW acquired a majority interest of SUNDAY which holds a 3G license. PCCW's attempt to de-list SUNDAY was vetoed by independent shareholders. Otherwise, PCCW may integrate SUNDAY seamlessly into its next generation network and formulate effective and innovative marketing strategies without disclosing its transactions between the fixed and mobile networks as required by regulations of the Security and Futures Commission of Hong Kong.

Before SUNDAY's acquisition by PCCW, none of the four 3G licensees has been motivated to promote 3G services aggressively due to the fact that all of them have a well developed 2G network. They try to use 3G as a strategic instrument to attract users from other networks on the one hand, and try to minimize the disruptive effects of 3G to its current 2G business on the other hand. In this case, PCCW becomes a catalyst of 3G development in Hong Kong as it takes 3G as strategic instrument for its ambitious and forward-looking next generation networks.

In January 2006, **PCCW Mobile** hit the headlines by unveiling ground-breaking “free” trials of its 3G services. The six-month trial offer included use of a PCCW-branded handset, local airtime and inter-network video calls, MMS and SMS. The promotion immediately attracted 330,000 registered participants. Finally,

110,000 were selected and 100,000 activated<sup>19</sup>. An intensified competition in 3G market has finally kicked off. Table 3.1 shows the latest landscape of mobile market in Hong Kong.

**Table 2.3: Mobile Market in Hong Kong as at early 2006**

	CSL New World Mobility Limited	PCCW Mobile (SUNDAY)	3 Hong Kong	China Mobile Peoples Telephone Company Limited	SmarTone Vodafone
<b>Networks</b>	2G, 3G	2G, 3G	2G, 3G	2G	2G, 3G
<b>No. of 2G Users</b>	2,080,000	738,000	1,674,000	1,287,000	1,054,000
<b>No. of 3G Users</b>	60,000	100,000	521,000	N/A	100,000
<b>Total No. of Users</b>	2,680,000	838,000	2,195,000	1,287,000	1,154,000
<b>Market Share</b>	31.0%	9.7%	25.4%	14.9%	13.4%

*Source:* Data are gathered from different channels ranging from late 2005 to early 2006

## 3.2 MOBILE DATA COMMUNICATIONS USAGE

As pointed out earlier, mobile data communications took off relatively late in Hong Kong due to certain economic, social and cultural factors. However, with the development of GPRS, EDGE, and 3G in particular, innovative applications and services are becoming more and more popular. In addition to music and graphics download and other common mobile multi-media applications, the three dominant market trends are mobile/media convergence, the synergy of corporate resources and strategy, and fixed/mobile converged applications.

### 3.2.1 Mobile/media Convergence

News access over mobile phones is gaining increasing popularity in Hong Kong, especially on breaking news incidents. 3 Hong Kong's "WTO News" channel recorded approximately three times in the level of news streaming and downloading when Hong Kong hosted the WTO conference in December 2005 as compared with the same period in November. Users accessed the latest news, such as the clashes between Korean farmer protestors and Hong Kong police, via their 3G handsets. The WTO example underscores the trend of growing demand for first-hand mobile local news<sup>20</sup>.

**3 Hong Kong** is the first mobile operator in Hong Kong to work with local news providers—Bloomberg TV, Phoenix Info News TV, Hong Kong Cable TV—to deliver 24-hour coverage of live streaming of local, international, finance and entertainment news in English, Putonghua and Cantonese. In addition to live streaming news broadcast, 3 Hong Kong also provides round-the-clock global video news clips, which allow customers to watch the news on-demand, according to their preference<sup>21</sup>.



In addition to cooperating with TV broadcasters, 3 Hong Kong also cooperates with other media partners for its service. For example, it offers text news from two major local newspapers—Oriental Daily News and The Sun. It also offers Radio news and daily financial market updates from Metro Radio, a local radio broadcaster. Additionally, it also sets up partnership with sina.com which is a leading portal in China for Mainland China's news.



**One2Free**, the lifestyle mobile brand of CSL, introduced Hong Kong's first "3G Mobile TV" in February 2006, offering non-stop infotainment programs on 3G mobile phones. Since then, One2Free continues to enhance its content and exclusively offers "Our Story", a new music drama starring Denise Ho, on the Mobile Drama Station.

One2Free's "3G Mobile TV" turns a 3G phone into a TV set with over 20 news, movies, dramas and entertainment stations. To make the customer get similar experience as watching TV, the operation of the handset is similar to using mobile controller when searching or switching between different channels. Customers can access "3G Mobile TV" by simply pressing \*888 via a video call, and press the number on the keypad to select the station, press "\*" or "#" to switch between stations, and "\*" or "#" to skip episodes<sup>22</sup>.

### 3.2.2 Synergy of Corporate Resources and Strategies

On 15 May 2006, **PCCW Mobile** launched real-time television broadcasts to 3G mobile phones using Cell Multimedia Broadcast (CMB), a technology developed by Chinese vendor Huawei Technologies to enable broadcasts to reach more users simultaneously than by using streaming or videoconference technology. The CMB system allows up to 250 mobile users to simultaneously tune in to TV broadcasts within an area covered by one base station, compared to a maximum of ten users with streaming technologies. Channels available to around 100,000 users of PCCW's trial 3G service include a 24-hour financial channel, ESPN, Star Sports, and a channel showing English Premier League football matches which are delivered via its IPTV platform, namely NOW TV<sup>23</sup>.

PCCW's **NOW TV** is the world's first commercially deployed IPTV network. Launched in August 2003, it is still the largest IPTV service in the world, with more than 550,000 customers, and representing more than 25 percent of homes. Almost two-thirds of PCCW's broadband subscribers have installed NOW TV service and the monthly average revenue per user (ARPU) has doubled from HK\$57 in 2003 to HK\$114 in 2005 (from US\$7.30 to US\$14.7). Before the end of 2006, when ITU TELECOM World 2006 will be held in Hong Kong, PCCW will launch High-Definition TV (HDTV) via its IPTV platform, ahead of the digital terrestrial TV broadcasting (DTTV) service to be offered by two local TV stations<sup>24</sup>.

The provision of NOW TV content on PCCW mobile 3G handsets is a prime example of new synergies that have been created across the Group by its return to the mobile communications business. "[real time mobile TV] is a significant innovation by PCCW, allowing us to leverage our extensive content line-up to more people, across more of our platforms, fixed and mobile", said PCCW Executive Director Alex Arena<sup>25</sup>.

The synergies of corporate resources and strategies may have significant implications for the telecommunications sector, especially in the context of next generation networks. If the external transaction cost is higher than internal transaction cost for delivering cross-platform services, the fixed line operators and mobile operators may join together to fully leverage their advantages. If that turns out to be the case, another round of industrial restructuring may happen quite soon, both in Hong Kong and elsewhere in the world.

### 3.2.3 Fixed/mobile convergence

In addition to synergy, more and more mobile multimedia applications are being deployed on the basis of fixed/mobile convergence, with the same application being delivered via an integrated fixed and mobile platform.

On 17 April 2006, SmarTone-Vodafone and Microsoft announced the launch of Windows Mobile Email, which enables customers, at home or overseas, to enjoy a Direct Push email service in a common format used by Microsoft Office Outlook, a widely used email application. Customers can exchange emails; open, view and edit attachments; manage calendars and contacts as well as make and take phone calls. Emails and tasks

are synchronized directly from Outlook. They can enjoy the benefits of secure and reliable access to corporate intranets and the Internet – with an all-in-one handheld device.

Exclusively available from SmarTone-Vodafone is a self-developed device management tool. This tool enables corporate IT administrators to remotely set the users' devices, manage the device inventory and carry out systems diagnostics in a more effective and efficient manner. This management tool has successfully integrated mobile devices with corporates' internal fixed networks and the Internet<sup>26</sup>. To some extent, it can be defined as a gateway technology<sup>27</sup> which is critical to offer increasingly sophisticated and converged information system solutions to institutions and enterprises.



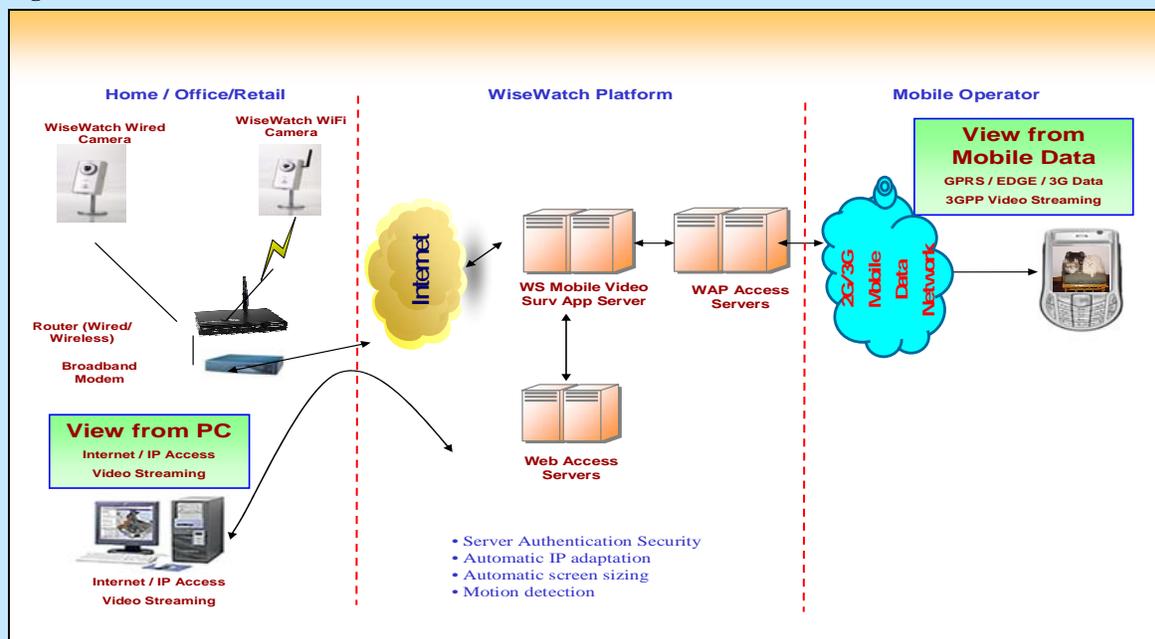
Another example of fixed/mobile converged application is CSL's one-stop "Instant Watch Service" launched in April 2006. By setting up a WiseWatch Camera connecting to the broadband Internet either through a wired or Wi-Fi connection at selected locations, customers can view real-time streaming video of their children or pets at home, their office environment, customer flow at retail outlets, or even monitor their overseas properties.

For example, many Hong Kong people have purchased properties in the Pearl River Delta area of China. Although this area is close to Hong Kong, not everybody have time to look after their properties always the time. By installing the WiseWatch Camera and connecting it to the Internet, these people can always check the situations of their property via their handsets in Hong Kong

The "Instant Watch Service" enables customers to connect to multiple WiseWatch cameras so that they can monitor different important places via the same user-friendly interface. In addition, the service supports multiple users who can concurrently access a camera, while the master user can add and delete the other users on the list at his or her discretion. The "Instant Watch Service" is user-friendly. Each user will receive a unique link for instant and real-time monitoring, which can be accessed at a click of a button<sup>28</sup>.

Figure 3.1 provides a detailed description of WiseWatch – an application that is developed by a Hong Kong based company – Wise Spot<sup>29</sup>.

Figure 3.1: WiseWatch – Server Architecture



Source: Wise Spot

## 4 MOBILE DATA COMMUNICATIONS IN CHINA

### 4.1 THE CHINESE MOBILE MARKET: A DUOPOLY IN OPERATION

Mobile services have been available in China since 1987. The incumbent operator, namely the former Ministry of Posts and Telecommunications (MPT), was the sole provider of mobile services at that time.

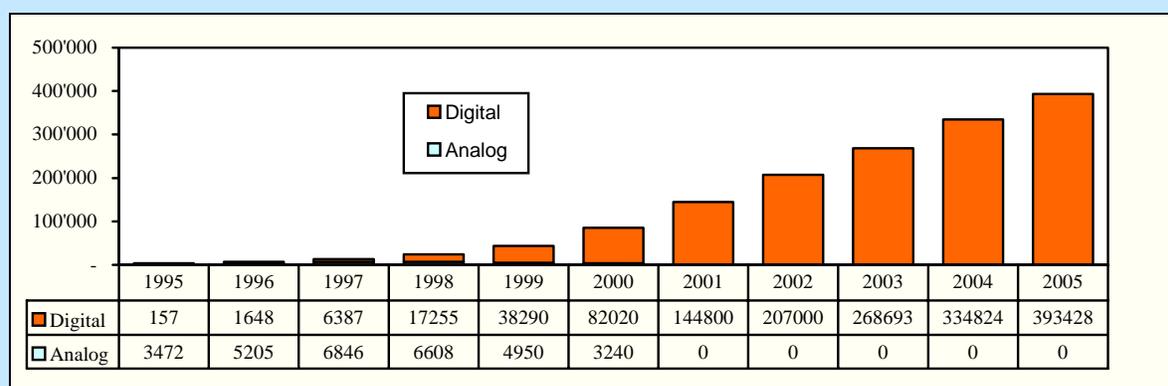
The formal establishment of China Unicom in 1994 effectively challenged the monopoly operation of the former MPT. On 17 July 1995, a year after its establishment, China Unicom formally launched its mobile service in Beijing, Shanghai, Tianjin and Guangzhou. Since then, customers have benefited enormously from the competition between China Telecom and China Unicom. They have already benefited from reduced handset prices and installation fees, shortened waiting lists and improved quality of service.

In 1998, the Chinese regulatory framework was restructured in order to further encourage competition in the industry. The establishment of a new independent regulator, the Ministry of Information Industry (MII) and the separation of China Mobile from China Telecom have further paved the way for competition. It is as a result of these regulatory change that China Unicom achieved rapid network expansion, and its market share jumped from less than 6 per cent in 1998 to 29.7 per cent in 2005.

However, because both China Mobile and China Unicom are state-owned, the full benefits of liberalisation could not be fully achieved. For example, due to regulatory concerns over “vicious competition” leading to the devaluation of state assets, both operators were to abide by a ‘price-floor’ set by the regulator, and China Unicom was only permitted to reduce this tariff by a maximum of 10 per cent below the regulated rate<sup>30</sup>. The price floor regulation was removed in May 2006.

Nevertheless, competition has been a strong catalyst for the development of mobile communications in China. Figure 4.1 shows the exponential growth of mobile subscribers in China since China Unicom entered the market in 1994. By the end of 2005, the total number of mobile users had reached 393.4 million.

**Figure 4.1: Growth of cellular subscribers in China (in 000s)**



Source: The Ministry of Information Industry

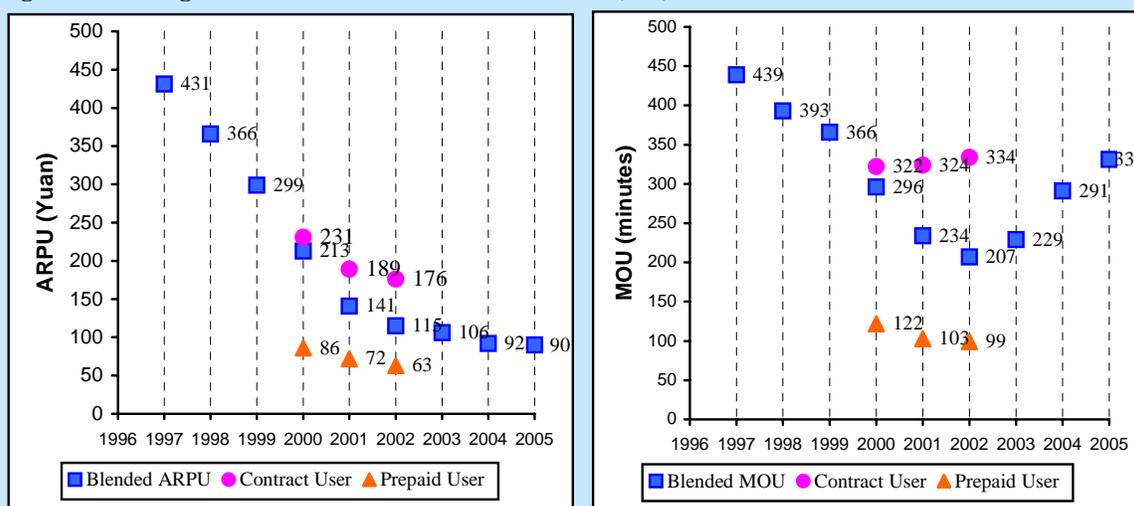
So far, no 3G licenses have been issued. This may be due to the Chinese government’s preference for using the homegrown TD-SCDMA as China’s 3G standard. TD-SCDMA was proposed by China and was adopted by ITU as one of the three international 3G standards (along with W-CDMA and CDMA2000). As TD-SCDMA is not yet ready for commercial deployment, the Chinese government has withheld from licensing 3G<sup>31</sup>. It is very possible that China Telecom and China Mobile will get 3G licences in addition to China

Mobile and China Unicom. In this case, 3G will drastically reshape the landscape of China's mobile communications market.

## 4.2 THE TALE OF SMS IN CHINA

The Chinese mobile communications market has enjoyed impressive growth in terms of the number of subscribers. However, it must be noted that subscribers do not necessarily equate to users. Figure 4.2 shows the decline of Average Revenue Per User (ARPU) per month and Minutes of Usage (MOU) per user per month of China Mobile (HK) over the last nine years. The ARPU was 90 Yuan (US\$11.08) in 2005, representing a decline of 79 per cent compared with 1997. The MOU has picked-up since 2002 due to China Mobile's aggressive promotion in the way of packages after a decline of 53 per cent between 1997 and 2002. The decline in ARPU and MOU was mainly due to the substantial increase in lower usage subscribers, and, in particular, subscribers of pre-paid services.

Figure 4.2: Changes in ARPU and MOU of China Mobile (HK)

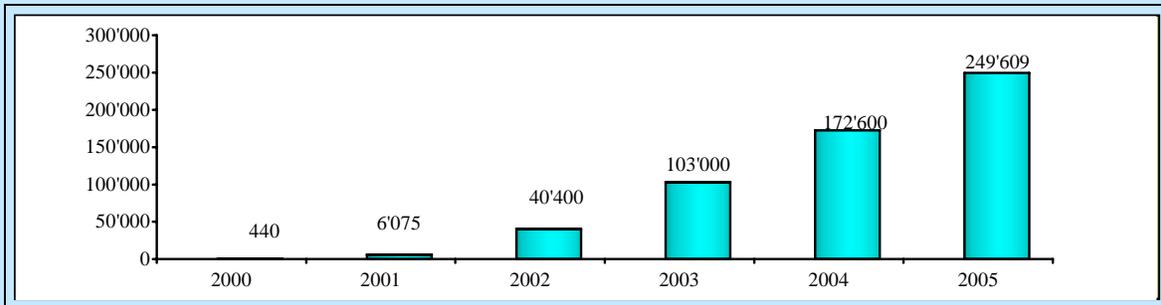


Source: Annual Report of China Mobile (HK).

In order to maximize the value of their investment in network resources and generate extra revenues from current subscribers, mobile operators in both Hong Kong and China have started to introduce a variety of value-added services. These services include caller number display, ring tone downloading, voice mail, call forwarding, call waiting, conference calls, long distance Internet Protocol (IP) telephony, and, in particular, Short Message Service (SMS).

In the case of China, the growth of SMS has been highly impressive. For China Mobile (HK), the usage volume of the SMS has increased from 440.1 million messages in 2000 to 249,609 million messages in 2005 (Figure 4.3). On the last Chinese New Year's day, i.e. 29 January 2006, some 12.6 billion short messages for greeting were delivered over the mobile operators' networks, which generated revenue of about 1 billion Yuan (or US\$121 million) within a single day.

**Figure 4.3: The SMS Usage Volume of China Mobile (HK), in millions**



Source: Annual Reports of China Mobile (HK)

The two evidently different scenarios in Hong Kong and China in terms of SMS adoption give rise to an interesting question: what are the factors that have led to such significant differences in SMS acceptance?

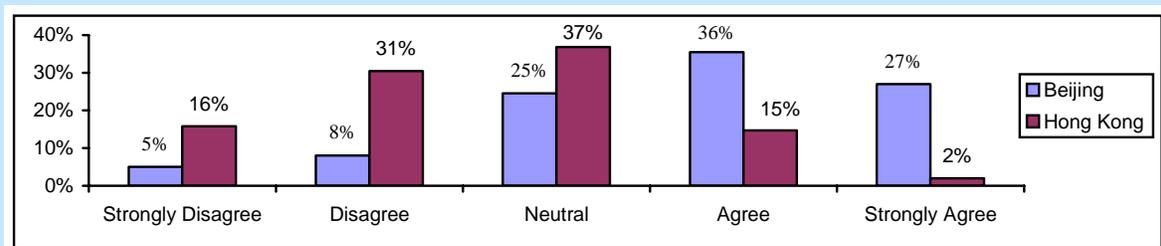
Xu et. al. (2006) conducted a survey for a comparative study of the SMS acceptance patterns in Hong Kong and Beijing, attempting to identify the external determinants of the SMS acceptance<sup>32</sup>. The following factors were found to be of critical importance.

#### 4.2.1 Availability of Alternative Communications Means

The level of internet access in China is relatively low. At the end of 2004, the internet penetration rate was 5.5% in China, but was 35.2% in Hong Kong<sup>33</sup>. For every four mobile users in China, less than one of them has an e-mail account. The Personal Computer penetration rate is also low in China. The most common way to access fixed-line internet is through Internet Cafés. This limited access to fixed-line internet implies that the wireless Internet would be relatively easier to access in China. Thus, subscribers in China tend to use SMS as a substitute for e-mail. Of course, this is not a perfect substitute, as an SMS message is subject to a maximum limit of 160 characters, and in text format only. In addition, no files can be attached. Nevertheless, it is a substitute in the sense of a written message. It should be noted that, before mobile voice telephony became popular in China, paging was already very popular, and the use of SMS can, in some ways, be seen as a continuation in the popularity of paging.

As e-mail can provide more sophisticated information without any constraints on the length of message, and files can also be attached to each individual e-mail, it is understandable that e-mail is a better choice than the SMS. Not surprisingly, e-mail is popular in Hong Kong due to the ease of access to the fixed-line internet. When participants in the survey were asked “*If I want to send some messages, it is very likely that I will use the SMS*”, the replies in Beijing were quite different from those in Hong Kong (Figure 4.4). SMS seems to be the preferred method in Beijing but not in Hong Kong due to the availability of alternative means of communications, such as the internet.

**Figure 4.4: Preference of Using SMS to Send Message**



Source: Survey data

### 4.2.2 Cultural Differences

Due to cultural differences, users in China are sometimes reluctant to leave voice messages but are willing to leave text messages because they feel the answering machine and voicemail service are impersonal and do not provide the human touch. In response, mobile operators in China have launched a so-called “little-secretary” service. When the called party is not available to answer the call, the call will be automatically forwarded to a call centre where a human operator will check with the calling party if he or she needs to leave a message to the called party. If requested, the human operator will type in the message and send it to the called party in the form of an SMS. This arrangement is highly preferred by the callers, as they rarely leave voice messages if they have to talk to a machine. Many provincial branches of China Mobile have even shut down their voicemail facilities.

In Hong Kong, however, voicemail is one of the most commonly used value-added services. Callers here are used to leaving voice messages. Until now, all the six mobile operators have bundled free voicemail services in all the packages offered to their subscribers. In fact, during the interviews with the Hong Kong mobile users, the research team was told that when answering machines were introduced for fixed line telephones in the 1980s, they hated to leave voice messages too for the same reason as the current users in China. However, after many years of practice, they are now comfortable with leaving voice messages. The users in China missed this “learning period” due to the fact that the penetration rate for fixed line telephone was extremely low in the 1980s and early 1990s. In 1980, the fixed line telephone penetration rate was only 0.48%.

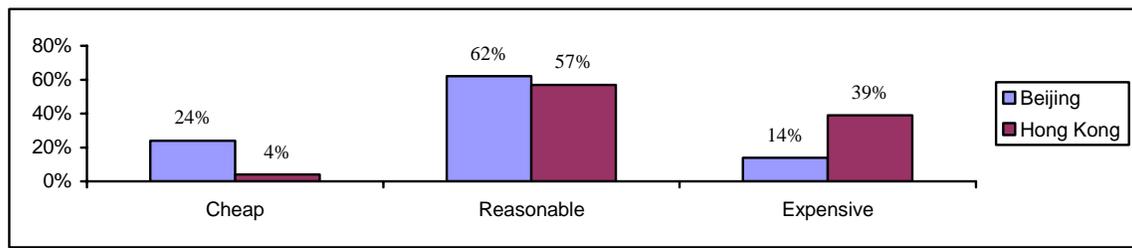
### 4.2.3 Market Competition

SMS provides an economical way to communicate in China. The end-user price for sending a message is 0.10 Yuan (US\$0.012), whereas a one-minute call costs 0.40 Yuan (US\$0.048) for both calling party and called party as China has a Receiving Party Pays (RPP) system. Currently, the minimum charged unit for mobile voice service in China is one minute. This implies that, for unsophisticated communication, the short message is more cost effective. If the two communicating parties are located in two different cities, the advantage is even more evident, since the tariff for long distance mobile voice service is 0.70 Yuan (US\$0.084) per minute whereas the charge for the SMS is not distance-dependent. The high tariff for mobile voice service is a result of the duopoly in operation between China Mobile and China Unicom in China’s mobile service market.

In Hong Kong, the market is highly competitive. For a package priced as low as HK\$88 (US\$11.28), subscribers are entitled to more than 1,000 free minutes plus free value-added services including voicemail. That is to say, the average rate per minute is less than HK\$0.08 (US\$0.01). However, to send an SMS, the rate is HK\$1.00 (US\$0.13) per message, or more than ten times the level in China. Hence, compared with the more expensive and one-way communication of the SMS, the cheaper and interactive voice communication is preferred by Hong Kong subscribers.

Data collected from the survey support the qualitative interpretation above. The survey data indicate that more participants in Hong Kong than in Beijing think that the SMS is expensive (Figure 4.5). In other words, SMS is perceived as an economically useful means for communication in Beijing but not in Hong Kong.

Figure 4.5: Price Perception of SMS



Source: Survey data

#### **4.2.4 Business Models**

In China, many fixed-line internet portals provide a service that enables users to send short messages via their Personal Computers to the handsets of mobile phone users. They can also order short messages from the portals on information such as news and weather reports. In this way, the SMS acts as a bridge between the wireless internet and the fixed-line internet.

China Mobile borrowed a successful business model from Japan's NTT DoCoMo to form a "win-win" strategy with content providers. In November 2000, China Mobile introduced the Monternet program. Under this programme, content providers can access the carrier's mobile network at any place to provide nation-wide service. This is also known as the "one-stop shop, China-wide service" arrangement. China Mobile keeps 9% of the content revenues while the content providers receive the remaining 91% of the revenue. If the arrangement includes coverage for bad debts, China Mobile will increase its commission to 15%.

The Monternet programme has generated an overwhelming response from content providers. By the end of 2005, more than 800 content providers had joined the Monternet programme to cooperate in the mobile internet market. As there are too many content providers, China Mobile has to implement "cherry-picking" in order to supply its limited capacities to the most valuable content providers. These content providers include Sohu, Sina, and other popular Internet portals.

The business model of China Mobile has set up an effective value web that is able to provide rich information to users in the format of SMS. When an SMS service is considered valuable by the users, more users will be attracted to use it. This in turn will attract more content providers to provide more valuable SMS. As a result, a positive feedback process is formed and SMS becomes more and more popular<sup>34</sup>.

In Hong Kong, however, mobile operators have always taken a "walled-garden" approach and requested for exclusive content provision in order to gain an advantage over the competition. This business model may attract some specific groups of users, but overall the range of content is limited. Additionally, this will increase the cost of content as the providers of exclusive content normally charge higher fees<sup>35</sup>. In turn, the limited availability of content and the high charges will deter subscribers and make it more difficult for the operators to achieve the critical mass to support their business model.

#### **4.2.5 Political Censorship**

The short message has become a new kind of literature in China. Many interesting messages, like political jokes or pithy adult humour, are distributed and redistributed among subscribers. One of the reasons for this phenomenon is that China still exerts strict censorship on politically sensitive contents and adults content over the public media.

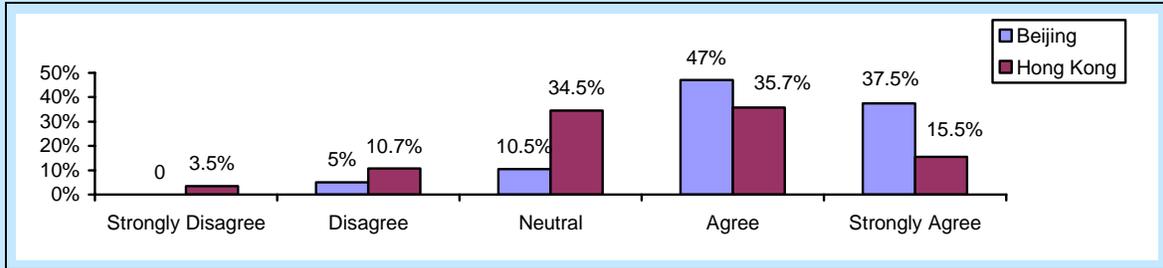
Hong Kong is a democratic society and enjoys freedom of speech. There are diversified public media which are subject to almost zero censorship. Local people can easily find a tabloid newspaper in Hong Kong, with the front page criticising the government and the second page covering adult content. Hence, there is no necessity for Hong Kong users to use the SMS as a means to access similar information.

In China, SMS can be perceived as a useful way to bypass government censorship and to access specific information that is normally not available in the public media. As more and more people are interested in these kinds of message, communication through the SMS has become part of the social life in China. People may be subjected to social pressure and feel themselves isolated if they are not able to access these kinds of messages and share them with others.

#### **4.2.6 Input Language**

In China, to input the Chinese language on the mobile phone is relatively easy as "Pinyin", a way of spelling the Chinese characters with English alphabets, is very popular and easy to use. Pinyin has been taught in almost all primary schools since the early 1950s. To input the Chinese characters is almost as easy as to input English. In Hong Kong, however, a different and more difficult system is used. According to survey data, among the participants who have never used the SMS, 30% in Hong Kong claimed that they don't know how to input the text, while no participants in Beijing cited this reason. Understandably, it is perceived to be relatively easier in China than in Hong Kong to learn how to use SMS. Figure 4.6 shows the response to the statement "SMS is easy to use?" in Beijing and Hong Kong.

**Figure 4.6: Response to "SMS is easy to use"**



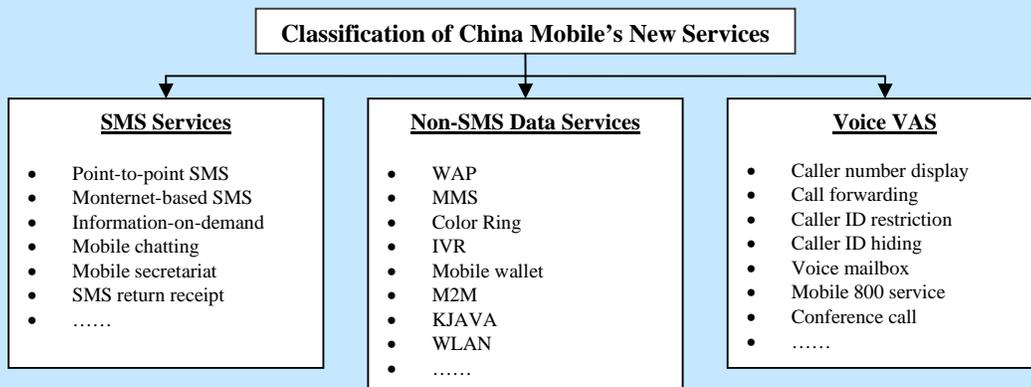
Source: Survey data

In conclusion, the explosive growth of the SMS service in China and the relatively sluggish response to the SMS in Hong Kong indicates that the differences in external factors, such as economic development level, market competition, cultural differences, alternative information sources, business models, and input language, have resulted in the different SMS acceptance patterns between Hong Kong and China.

### 4.3 HOW MOBILE DATA SERVICES HAVE BECOME A CASH COW FOR CHINA MOBILE

China Mobile has been aggressive in generating revenues from new services in addition to revenues from voice service. These new revenues come from SMS, non-SMS data services and voice value added services. Figure 4.7 provides a classification of China Mobile's new services.

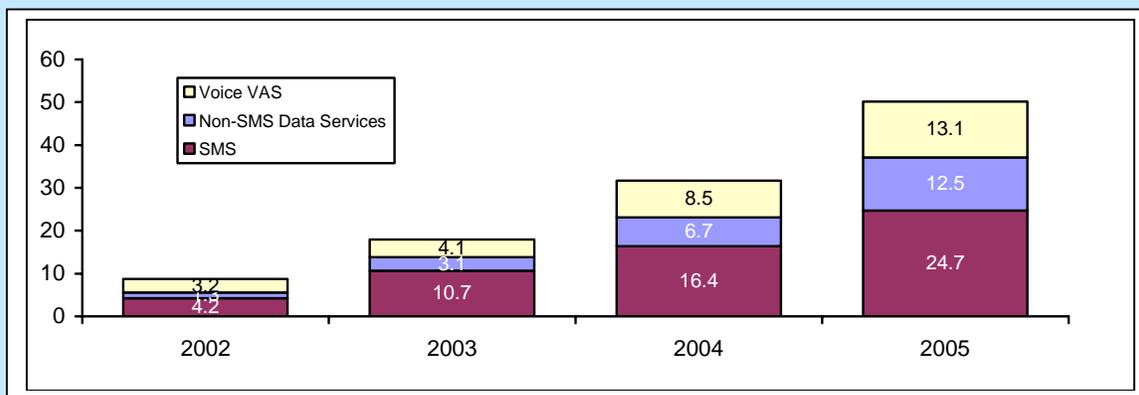
**Figure 4.7: Classification of China Mobile's New Services**



Source: China Mobile

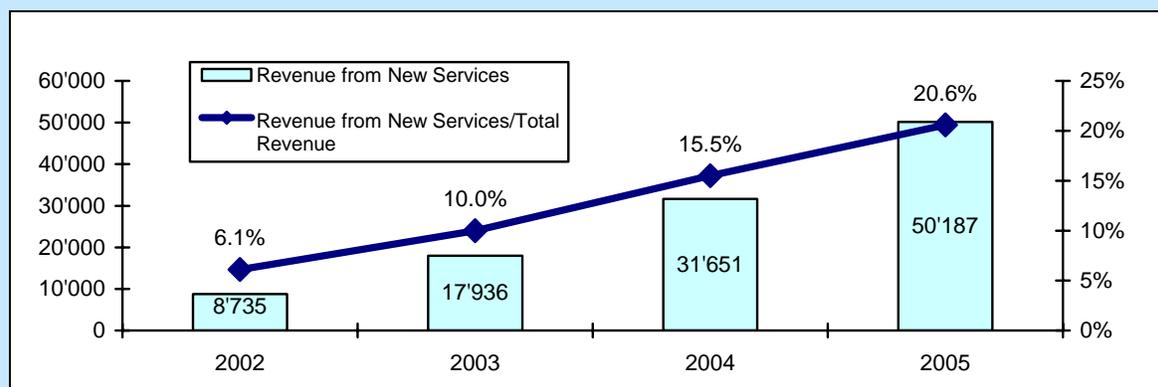
These new services have contributed significantly to the total revenues of China Mobile. Figure 4.8 shows the contribution from new services to overall revenues of China Mobile. Figure 4.9 shows the contribution of new services as a percentage of the total revenues since 2002.

**Figure 4.8: Revenues from China Mobile's New Services (RMB billions)**



Source: China Mobile

**Figure 4.9: China Mobile's New Services Revenue and Its Contribution to Total Revenue (RMB Billion; %)**



Source: China Mobile

## 5 REGULATORY ISSUES REGARDING MOBILE MULTIMEDIA COMMUNICATIONS IN HONG KONG

### 5.1 TECHNOLOGY NEUTRALITY

In Hong Kong, the regulator, OFTA, has adopted a technology-neutral approach in licensing since 1996, when seven PCS mobile communication licenses were issued. This policy has been consistent for 3G. OFTA allows operators the use of any 3G standards within their assigned 3G frequency bands, subject to OFTA being satisfied that various technical standards are compatible with each other from the user's point of view. The main consideration is to ensure that customers can easily switch from one network to another and obtain similar services, and to maximise the ease and practicality of roaming services without having to change mobile terminals. Currently, all four 3G licensees are using W-CDMA for 3G services.

In 2004, because all 2G licenses were due to expire, the government consulted with the industry on schemes of renewing the licences. Due to the fact that the CDMA network of Hutchison and the TDMA network of CSL had only a limited number of subscribers, the government suggested taking these two licences back. At

the same time, the government suggested issuing a new license based on cdma2000 technology from the vacated spectrum of the two 2G networks after the licenses expire in November 2005 and July 2005 respectively<sup>36</sup>.

However, concerns were expressed that this position would require abandoning OFTA's traditional commitment to technology neutrality and a number of concerns were raised by those submitting comments. After considering all submissions, the government concluded that there is no urgency to issue an extra mobile carrier license. Whether or not to issue it in the future will depend on the results of a comprehensive spectrum policy review to be conducted.

## 5.2 SPECTRUM POLICY

Hong Kong has been innovative and effective in spectrum management and regulation. The government used to assign spectrums to telecommunications licensees on the merits of applications received. The major concern in the past, according to OFTA, was in providing the opportunity to a maximum number of operators to enter the market and allow market forces to determine the optimum number of operators, as long as the spectrum is available<sup>37</sup>. Although the auction method was suggested for spectrum allocation for 2G licenses, OFTA did not adopt this method due to the concern that operators will eventually pass the cost on to individual subscribers.

However, spectrum is considered a scarce resource and as such, must be used effectively. There should therefore be some financial pressure on operators to encourage the efficient utilisation of spectrum. OFTA's preferred method was to set up a performance bond. When issuing the license, the regulator defined an array of milestones that the licensee should meet, mainly based on the coverage and speed of rolling-out of the network. Periodically, OFTA will review the progress of the licensee with reference to the defined milestones. If the operators fail to reach the milestone, they are liable for the performance bond. Before the license is issued, the bank will be asked to evaluate the financial strength of the applicant and guarantee the ability of the applicant to pay for the performance bond if required. In this manner, licensees are subject to financial pressure to rollout their networks aggressively, while at the same time avoiding the need for a lump sum upfront payment. This reduces the financial burden on operators, particularly new entrants. The method has worked reasonably well over the past years.

In 2000, the licensing of 3G mobile generated a spectrum auction fever in Europe. The US\$47.5 billion licence fee in Germany and US\$33 billion in the UK encouraged governments in other countries to follow the same approach in the expectation of obtaining similar windfalls. However, the perceived over-bidding of 3G licenses has led to a so-called "winner's curse" (winning bids unsupported by adequate profits). To prevent this from happening, Hong Kong took a unique approach in issuing its 3G licenses. Instead of auctioning the upfront payment for 3G licenses, as regulators did in many other economies, OFTA auctioned the royalty, e.g. the percentage of 3G revenues that the bidders are willing to pay.

The particularities of the royalty auction are as follows:

"Bidders would be asked to bid for a level of annual royalty by way of percentage of turnover from their 3G services network operations. Successful bidders who win the 3G licences at a certain royalty percentage bid would do the following:

(a) for the first five years of the license: They will pay a guaranteed, minimum royalty payment fixed by the government. They will pay the same fixed amounts for this period regardless of their actual turnover. This is because it will be difficult in these initial years of the 3G licences to distinguish between second generation mobile service (2G) and 3G network revenues, if the 3G licensee is also an existing 2G operator;

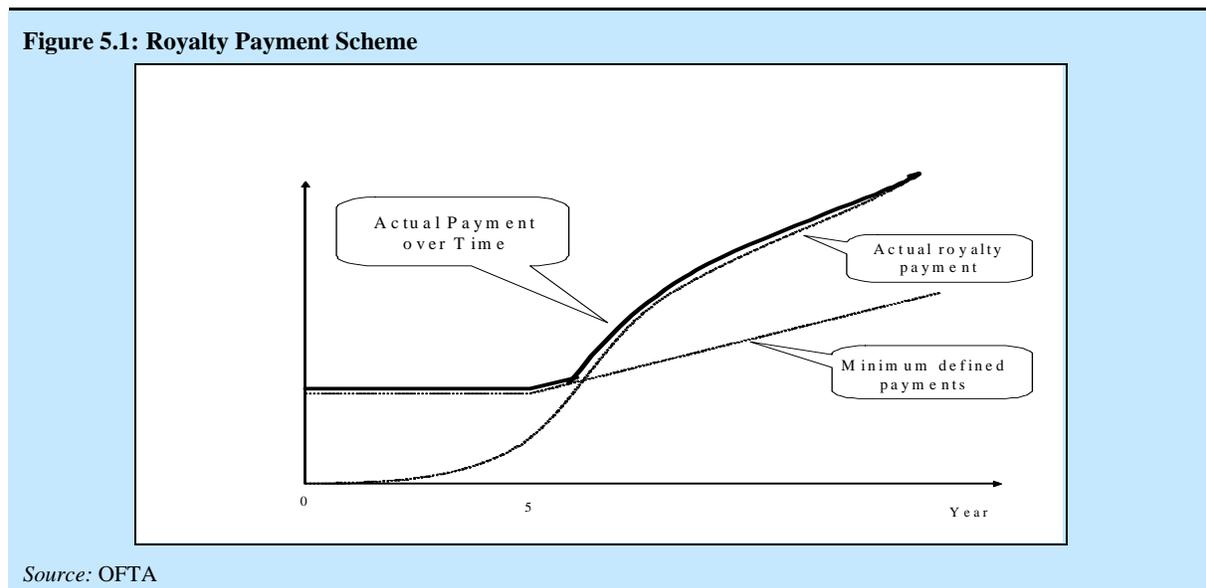
(b) from year six to the end of the licence period: They will pay royalties to the Government according to the royalty percentage determined by the auction. The same royalty percentage will apply to all licensees. The actual royalty payment will differ from licensee to licensee as their 3G revenue turnover will be different. However, the royalty paid by each licensee should not be less than the guaranteed, minimum royalty payment fixed by

the Government. In other words, the Government collects the royalty based on actual turnover, or the guaranteed, minimum royalty payment, whichever is the higher; and

(c) throughout the whole licence period: They will need to provide a 5-year rolling guarantee for each of their guaranteed, minimum royalty payment.”<sup>38</sup>

According to the Government, this proposed method best meets its policy objectives. It is “pro-entry” as it alleviates the burden of high up-front payment on successful 3G licensees, and allows the government to share the upside of the future 3G services market. It is also an efficient method of allocating licences to those bidders with the best business case, as the payment will be in the form of royalty and therefore will depend on the actual performance of each licensee. The guaranteed, required minimum royalty payment will minimise credit risks for the Government, and reduce the costs that may be passed on to consumers.

Figure 5.1 illustrates the royalty payment scheme.



On 19 September 2001, the auction was conducted. Four applications for 3G licenses in Hong Kong were received and in accordance with the rules set out in the Information Memorandum which provided guidance for the 3G spectrum auctioning. The four bidders have each been awarded a license at reserve price, i.e. five per cent royalty subject to a minimum payment of HK\$50 million (US\$6.4m) for each of the first five years, and rising minimum payments from year six onwards.

OFTA’s 3G spectrum assignment scheme has been very well received by the industry, and has raised attention from regulators in other economies. However, with the development of the market and new technologies, OFTA has faced more and more challenges in its spectrum policy. These challenges can be summarised as follows:

### 5.2.1 Urgency for Flexibility in Spectrum Trade

OFTA has tried to be fair by assigning the spectrum to all licensees in an equal way. However, this equally assigned portion may be over-sufficient for small operators but insufficient for large operators. Several applications for more spectrums by large operators have been rejected by OFTA in the excuse of fairness, and these operators have to maximise the spectrum efficiency by investing on spectrum compression technology and reusing the same spectrum more intensively by building more base stations with shorter coverage, which has affected the service quality, increased the operation cost and raised the price of services. In the meantime, the small operators have huge surplus spectrum due to their small customer base, but they have been restricted to trade the spectrum. To facilitate the effective spectrum management and at the same time maintain the competitiveness of the market, more innovative policy solutions are needed. Flexibility in spectrum trade could be one of the options.

### **5.2.2 Consistency of Spectrum Regulation**

In Hong Kong, all 2G licensees obtained their spectrum without paying for it. The validity of these licences is 15 years with expiry dates ranging from July 2005 to September 2006. To renew the 2G license and convert it into a Mobile Carrier license—the new category of license that was used for 3G license—new questions emerged: should these renewed licensees pay for spectrum as 3G licensees have been doing? If they should pay, then how much?

Starting in August 2003, the Telecommunications Authority (TA) initiated a public consultation on the licensing of mobile services after the expiry of existing 2G licenses. Two rounds of consultation have been conducted so far.

In the Consultation Papers, the TA proposed that a spectrum utilization fee (SUF) should be levied upon licensees of the 2G mobile services when the new licences were granted. Because the existing GSM and PCS licensees are to be granted the “right of first refusal”, namely they have the priority to decide if they will keep their licenses or not, the 2G spectrum could not be allocated by a competitive mechanism similar to the 3G spectrum auction in 2001. The industry responses broadly agreed to the levy of SUF on 2G spectrum. However, as to the structure and level of SUF, the industry sector has raised a number of practical concerns in their submissions<sup>39</sup>.

The most significant concern is that, as the nature of 2G services and the capabilities of 2G networks were different from those of 3G services and 3G networks, the SUF for 2G should be set at a lower level than 3G. The TA pointed out that the licensees should make the best use of assigned spectrum with the most efficient technology available for the provision of more advanced mobile services. At the same time, due to the fact that 3G equipment is not yet available for use in 2G spectrum as of today, it is reasonable to allow a transition period of five years for adopting the 3G SUF structure for 2G licensees, during which SUF for 2G licensees should be set at a relatively low level. Towards the end of this transition period, the SUF structure for 2G and 3G spectrum should converge on principle and parity grounds. That is, the SUF would be imposed at 5% royalty of network turnover, with a minimum fee.

As to the level of SUF, the TA recommended to the Secretary for Commerce, Industry and Technology to set the SUF for 2G spectrum as follows:

- a) For the first 5 years upon the issue of a Mobile Carrier Licence, SUF is recommended to be set at HK\$145,000 (US\$18'680) per MHz of frequency then assigned to the licensee per year;
- b) From the sixth licence year onwards to the expiry of the licence, SUF is to be set at 5% royalty over the annual network turnover of the licensee, subject to a minimum fee of HK\$ 1,450,000 (US\$186'800) per MHz of the frequency then assigned to the licensee per year.

After all 2G licences are renewed as mobile carrier licenses, and after the five year transition period, both 2G and 3G licensees will pay 5% royalty over their annual network turnovers with a minimum fee. This will make the spectrum regulation more consistent.

### **5.2.3 Convergence and Spectrum Regulation**

Currently in Hong Kong, fixed and mobile services are licensed under fixed carrier licences and mobile carrier licences respectively, with different rights and obligations imposed on the network operators. With the advent of new technologies such as WiMax, fixed and mobile services will converge. In the environment of FMC, it may become more and more difficult to classify a service as a fixed or mobile service as the service may be used by customers at fixed locations on some occasions and in motion on other occasions. Accordingly, the existing separate licensing frameworks for fixed and mobile services may not be sustainable in the FMC environment.

On 21 September 2005, OFTA published its consultation paper on Revision of Regulatory Regimes for Fixed-Mobile Convergence. Under the proposed unified carrier licensing framework, a licensee may be allowed to provide (i) fixed services; (ii) mobile services; or (iii) both fixed and mobile services, depending on the scope of services proposed by the licensees in their licence applications.

It is proposed that once the unified licensing framework is in place, the existing fixed carrier licence and mobile carrier licence would no longer be issued to new entrants or to existing licensees whose licences are due for renewal. Existing fixed or mobile carriers would however be permitted to continue to operate under their existing licences until the licences expire<sup>40</sup>.

The consultation paper raised several regulatory issues including interconnection charging arrangement between fixed and mobile networks and fixed/mobile number portability. However, what is missing is spectrum regulation. In fact, in a separate consultation paper on “Licensing Framework for Deployment of Broadband Wireless Access (BWA<sup>41</sup>)”, the TA proposed that BWA spectrum should be assigned by means of a hybrid selection approach which includes a pre-qualification followed by a 'simultaneous multiple round ascending auction'. An up-front lump sum payment is proposed to be adopted for the spectrum utilization fee (SUF) for BWA. Any interested party, including existing fixed / mobile carriers and new entrants, may bid for the BWA spectrum. The purpose of above arrangement is to ensure that BWA spectrum will be assigned to those who will value it most and use it in the most economically efficient manner<sup>42</sup>.

It seemed the spectrum regulation for BWA is different from those for mobile carrier license. This may generate a lot of problems for operators. For example, when 3G technology is integrated with WiMax technology, the regulator has to give a clear guidance on accounting separation, so as to make sure operators allocate the right revenue to 3G generated revenue and then pay for their 5% royalty accordingly. Undoubtedly, this will generate a lot of controversies and high transaction costs for both operators and the regulator.

Such problems have made the consultation regarding unified carrier license difficult to proceed. As pointed out by PCCW in its submission, “it would be more logical to firstly formulate the broad policy for spectrum policy review before tackling the more detailed implementation matters pertaining to BWA. Indeed, to do otherwise would, at best, create an unstable set of regulations for BWA services which are of little sustainable use to the industry (and users) and, at worst, would result in a set of regulations that are irrational and harmful to the industry (and users).<sup>43</sup>”

Another controversy regarding spectrum regulation may come from Digital Terrestrial TV (DTT) broadcasting service which is going to be available in Hong Kong from 2007. In addition to regular TV broadcasting services, the DTT also supports personal mobile multi-media service. As traditional terrestrial TV broadcasting programs have been free for citizens, the TV broadcasters in Hong Kong have obtained spectrum for free. However, if the personal mobile multimedia service is not offered for free, should TV broadcasters be expected to pay for spectrum? In the meantime, DTT will free a significant portion of spectrum which is currently used by TV broadcasters, what will be its implications to current spectrum allocation and assignment schemes? To solve these problems, a long-term spectrum policy with high certainty for the industry is urgently needed.

The Government has contracted a consultant to conduct a comprehensive spectrum policy review.

According to an interview with Agnes Miu of 3 Hong Kong, the industry’s expectation to the spectrum policy review is to separate licensing from spectrum assignment. According Agnes Miu, after the separation, operators shall obtain license first and then bid for spectrum for their own use via auction or other market-orientated mechanisms. The spectrum for specific services should be divided into many unites so operators can decide how many units they need. They can also trade these spectrum units so the spectrum will always go to operators that value them most<sup>44</sup>.

The separation of licensing from spectrum assignment could make the market and regulation better structured. In fact, The phrase “spectrum auction” that has appeared repeatedly in the literature is in some way misleading and should be, in a certain cases, corrected into “license auction”, because what investors bid for, in many cases is a license to enter the market. However, as the spectrum is attached to the license, it is hard to tell how much of the auction fee is for license and how much the auction fee is for spectrum. The auction should reflect the license rent and spectrum rent separately<sup>45</sup>.

### 5.3 REGULATORY FRAMEWORK

When 3 Hong Kong launched Hong Kong's first mobile TV service, another operator accused it of offering TV services without obtaining a broadcasting license. Although this operator eventually gave up its legal action and later launched its own mobile TV service without obtaining a separate broadcasting license either, its suit did raise the question on how to restructure the currently separated telecommunications and broadcasting regulatory frameworks in the emerging era of convergence.

On 3 March 2006, the Communications and Technology Branch of the Commerce, Industry and Technology Bureau, the policy-maker for telecommunications, broadcasting and technology of the Hong Kong SAR Government, launched a three-month consultation on the establishment of the Communications Authority as a unified regulator for the electronic communications sector in Hong Kong.

According to the government, the new authority would be responsible for enforcing the existing Telecommunications Ordinance and Broadcasting Ordinance. The existing statutory powers and functions of the Telecommunications Authority (TA) and Broadcasting Authority (BA) would be transferred to the new authority<sup>46</sup>.

As proposed in the consultation paper, the restructuring will take two stages. In the first stage, the Government would set up the authority by merging the BA and TA. The authority would enforce the Broadcasting Ordinance and the Telecommunications Ordinance in place of these two regulators.

In the next stage, when the new unified regulator was in place, it would participate in reviewing and rationalizing the two ordinances with the Administration. Regarding the composition of the Communications Authority, the consultation paper said that it would comprise seven members, including the non-official Chairman, four non-official members, one official member and the Director-General of the executive department as the ex-officio member.

The Government also proposed to merge the Office of the Telecommunications Authority and the Broadcasting Division of the Television and Entertainment Licensing Authority to form the Office of the Communications Authority (OFCA) as the executive arm of the authority. The OFCA will remain a government department operating as a trading fund<sup>47</sup>.

In order to respond to the Government's consultation, the Internet and Telecom Association of Hong Kong (ITAHK) conducted a survey among its members. In the questionnaire used for survey, 18 questions regarding the merger of the TA and BA were raised. These questions were prepared on the basis of interviews with some member companies.

By the deadline, submissions from five operators had been received. Although the sample size is relatively small, the answers can, to a certain degree, reflect the point of views of a certain member companies, especially in the context that these answers are quite consistent.

Among five operators who gave feedback, three of them agreed that convergence is happening in their company's own business and operation, one replied with a neutral stance and another one disagreed.

All five operators disagreed that their company have met problems due to the currently separated regulatory frameworks for telecommunications and broadcasting. Not surprisingly, on average, they disagreed that merging the Telecom Authority (TA) and Broadcasting Authority (BA) is urgent in the case of their own business and operation. One operator that offers convergence services strongly disagreed that there exists such urgency.

As to the organizational structure of the CA, operators did not appreciate a single access point that offers one stop services to all related parties on all issues. On the contrary, it is highly agreed that the Communications Authority (CA) should have an explicit structure so companies can clearly approach relevant departments on relevant issues accordingly.

As to the composition of the CA, the area of strongest agreement is that the CA should be politically and commercially neutral or independent.

Almost all companies were worried that the CA may spend more resources on politically sensitive issues of broadcasting while ignoring the development of telecommunications, as has happened in some other economies where a converged regulator has been established. They strongly urged that the CA should have a structure warranting that the sustainable development of the information infrastructure will not be hampered by political controversies in content related issues.

These five companies either disagreed or remained neutral on the proposal that the CA will comprise seven members and on the way they are appointed. However, they were deeply concerned that a seven member authority may generate extra bureaucracy and consequently lead to low efficiency in policy deployment. It seems very important to design an effective decision procedure of the CA so as to build confidence in the industry.

The five operators did agree that regulatory tolerance should take precedence over regulatory intervention as long as the public interest is safeguarded when dealing with innovative services enabled by emerging technologies. That implies that a light-handed regulation by the CA would be preferred.

Given the fact that operators have not felt the urgency to set up a converged regulator, and, at the same time, have a certain concerns about the proposed CA, the ITAHK suggests the government to carefully review its current proposal and design an effective organization structure of the CA.

If the consultation can be conducted smoothly, the TA and BA will be merged by the end of 2006.

#### **5.4 DRM AND COPYRIGHT**

According to interviews with the industrial sector, copyright is not a significant issue for mobile multimedia services in Hong Kong. According to Franky Lai, Vice President of The Internet and Telecom Association of Hong Kong (ITAHK), currently most of the sophisticated mobile multimedia applications are using streaming technology which cannot be saved in mobile handsets, hence it is impossible for users to redistribute them to any other subscribers<sup>48</sup>.

As to music download, mobile operators use Digital Rights Management (DRM) technology to protect the copyright. According to Ricky Chong, General Manager of Product Strategy and Business Development of CSL, DRM version 1 technology is currently used by CSL for music download. Similar to iTunes where the music can only be downloaded to a specific iPod and cannot be redistributed to other terminals, the DRM version 1 technology guarantees that the music downloaded to a specific handset can only be played in that handset and cannot be transferred to any other terminals, either handsets or other kinds of music player<sup>49</sup>.

In Hong Kong, mobile operators normally sign a yearly renewed contract with individual records company and fix the copy right fee arrangement for all songs and music. The operators also need to obtain license from the Composers & Authors Society of Hong Kong Ltd (CASH) so as to compensate composers financially.

CASH was incorporated in Hong Kong on 23 September 1977 under the Companies Ordinance, being a Company limited by guarantee and not having a share capital. It started operating on 1 October 1977 and a press conference was held to mark the establishment of CASH on 20 October 1977. It has the following functions:

- Administration of performing, broadcasting, cable transmission and reproduction rights in the world repertoire of musical works vested by its Members and overseas affiliated Societies through licensing;
- Distribution of royalties collected to local Members and overseas affiliated Societies;
- Administration of the CASH Music Fund which aims at promoting a higher standard of music composition, sponsoring local musical activities and developing songwriting talents;
- Assistance to overseas Societies in the region, e.g. training;
- Advisory services to Members and music users regarding copyright matters;
- Liaison with relevant government departments and make recommendations on matters relating to copyright legislation and its implementations<sup>50</sup>.

Due to the dramatically high volume of music download, and the confidence in DRM technology, a win-win relationship has been established between mobile operators, records companies and CASH. As a result, the contracting and licensing process have been smooth without any controversies.

## 5.5 UNSOLICITED ELECTRONIC MESSAGING (SPAMMING)

In Hong Kong, the trend of sending unsolicited promotion messages via the use of short messaging service (SMS) and multi-media messaging service (MMS) on mobile phones is on the rise. These promotion messages are intrusive and interruptive. Specifically, the machine generated voice message has been a source of strong complaints by mobilephone users as the recipients have to pay the expensive roaming charge when they pick up their phone when abroad. In some way, it has become a kind of invasion of individual subscriber's private properties by the spammers in terms of time and money.

However, under the current legal framework of Hong Kong, none of the provisions can tackle unsolicited electronic messaging (UEM) on its own. For instance, the Control of Obscene and Indecent Articles Ordinance (Cap. 390) prohibits the publication and public display of obscene and indecent articles, Section 20 of the Summary Offences Ordinance ("SOO") targets mainly at nuisance telephone calls without reasonable cause, while the Personal Data (Privacy) Ordinance ("PDPO") deals with the use of personal data in direct marketing, but none of them deals specifically with the act of sending out unsolicited electronic messages *per se*.

Due to the absence of appropriate provisions, the industrial sector has tried to solve the problem itself so as to defend the interests of subscribers. In December 2001, the six mobile operators in Hong Kong agreed on a set of Code of Practice on "Handling of Unsolicited Promotional IOSMS under the Code of Practice for Inter-Operator Short Message Service (IOSMS)" which sets out the guidelines for facilitating the sending of promotional SMS vis-à-vis operators. However, this code is voluntary, does not cover intra-operator unsolicited messages and does not prevent an operator from sending unsolicited messages to its own customers<sup>51</sup>.

To satisfy subscribers, operators have also tried some technical solutions to filter out unsolicited messages (see Box 5.1).

To tackle the increasingly serious UEM problem via a legal approach, the Commerce, Industry and Technology Bureau of the Hong Kong SAR government published "Consultation Paper on Legislative Proposals to Contain the Problem of Unsolicited Electronic Messages" in January 2006.

To strike a balance among the interests of different stakeholders, the proposed UEM Bill is based on following six guiding principles:

- 1) The registered user of an electronic address should have the right to decide whether to receive or refuse further electronic messages at that electronic address;
- 2) There should be room for the development of e-marketing in Hong Kong as a legitimate promotion channel;
- 3) Hong Kong should avoid becoming a haven for illicit spamming activities;
- 4) Freedom of speech and expression must not be impaired;
- 5) Penalties and remedies should be proportionate to the severity of the offences;
- 6) The legislative provisions should be enforceable with reasonable effort<sup>52</sup>.

According to the government, only commercial electronic messages should be regulated. All non-commercial communications from governments, political parties, religious groups, charities, companies or other persons should not be affected. To cater for future developments in technologies and services, the proposed UEM Bill covers generally all forms of electronic communications, unless it is specifically excluded. To leave room for normal and legitimate marketing activities, person-to-person voice or video telephone calls without any pre-recorded elements is exempted from the UEM Bill. In addition, the transmissions of sound or video material on broadcasting channels that are already regulated under the Telecommunications Ordinance (Cap. 106) and the Broadcasting Ordinance (Cap. 562) should similarly be excluded from the regulatory framework of the UEM Bill.

If the spamming act occurs outside Hong Kong, as long as the unsolicited commercial electronic message has a “Hong Kong link”, then any related contraventions of the UEM Bill should fall within the jurisdiction of Hong Kong. According to the government, the extra-territorial application would send the right signal to overseas spammers that their actions towards Hong Kong recipients will not be tolerated.

As to rules of sending commercial messages, there was debate upon “opt-in” regime vs. “opt-out” regime. An “opt-in” regime requires the sender of commercial electronic messages to have pre-existing business relationship with the recipient, or have obtained a consent from the recipient before he could send commercial electronic messages to that recipient. An “opt-out” regime requires the sender of commercial electronic messages to stop sending further commercial electronic messages to a recipient if the recipient so requests. But before receiving such a request, the sender may continue to send such messages to the recipient.

#### **Box 5.1 CSL launched Hong Kong's first "Call Filtering Service"**

In Hong Kong, some companies use recorded voice message to promote their services. For recipients, it looks like a regular voice call before they pick up the phone. Once they realize it is a recorded voice message for promotion, it is too late as they have already been charged by the mobile operators. This is really intrusive and disturbing, especially when users travel abroad.

On 26 April 2006, CSL launched "Call Filtering Service" on a mobile network, providing comprehensive call filtering features including the basic "Block-the-Blocker" feature and new "Do-not-Disturb List" and "Authorized List" features. Customers can enjoy enhanced privacy through better control of incoming calls.

CSL's "Call Filtering Service" lets customers reject anonymous callers. It also lets them reject calls from specific phone numbers. Alternatively, customers can even pre-set phone numbers that they want to receive calls from in special situations. The service effectively reduces unwanted calls. It is particularly useful for customers who travel frequently, as it minimizes unnecessary roaming expenses.

With the "Block-the-Blocker" feature, blocked calls will be routed to an announcement advising the callers that the people they want to reach do not wish to receive anonymous calls, so the callers must show their numbers. If customers want to further prevent unwanted calls from specific phone numbers, they can ban up to 20 numbers via the "Do-not-Disturb List" feature. Those calls will be immediately routed to an announcement that the called party is unreachable.

On the other hand, the "Authorized List" feature allows customers to nominate up to 20 phone numbers that they want to receive calls from, thereby rejecting all other numbers which will be conveniently routed to the voicemail box.

*Source : <http://www.hkcsl.com/show.jsp?pid=12&cnid1=4&type1=2&rhtID1=2&gfl=1&lid=1#>*

To provide SMEs and start-up enterprises in Hong Kong with room to promote their products or services using low cost means, the government proposed to adopt an opt-out regime. A sender of commercial electronic message is required to provide a functional unsubscribe facility to enable a registered user of an electronic address to notify the sender that he does not wish to receive further commercial electronic messages from that sender. The unsubscribe message should take the form of an instruction to the sender of the commercial electronic message, unless the registered user of the electronic address specifies in the unsubscribe message certain categories of products or services in the instruction which he is willing to continue to receive, in which case the sender may continue to send messages about the specified categories of products or services.

As proposed by the government, the functional unsubscribe facility should be operational for at least 30 days to enable the registered user of an electronic address to take a decision within a reasonable period on whether to send an unsubscribe request to that sender. The timeframe to activate an unsubscribe request is less than ten working days and the effective time should last for an indefinite period, unless the request is cancelled by the registered user of the electronic address. To facilitate investigation and enforcement, copies of such

unsubscribe requests should be retained by the sender of commercial electronic messages for at least seven years after they are received.

To supplement the functional unsubscribe facility requirement for the opt-out regime, the government proposed to empower the Telecommunications Authority (TA) to set up “do-not-call registers” of appropriate types of electronic messages. Electronic addresses that are placed in these registers will have the same effect as sending an unsubscribe message to all e-marketers. The TA will consider the appropriate types of electronic addresses suitable for setting up such registers. Initially, three registers may be set up – one for telephone numbers for pre-recorded voice, sound, video or image messages, one for telephone numbers for Short Messaging Service (SMS) / Multimedia Messaging Service (MMS) messages, and one for telephone numbers for fax messages.

The government has also proposed other detailed terms of the Bill, including imposing a penalty on conviction on indictment to a fine of any amount as determined by the Court and to imprisonment for up to 10 years. For details, please refer [http://www.citb.gov.hk/ctb/eng/paper/pdf/UEM\(Eng\)-final.pdf](http://www.citb.gov.hk/ctb/eng/paper/pdf/UEM(Eng)-final.pdf)

According to interview with M.H. Au, Director-General of Telecommunications and Telecommunications Authority, the legislative process is progressing positively smooth and the Bill may be passed soon<sup>53</sup>.

## **5.6 HARMFUL CONTENT**

In Hong Kong, there is no specific regulation regarding content for mobile multimedia services. Instead, there are two general legislations which are relevant to content regulation for all kind of media including printed matters, sound-recordings, films, video-tapes, discs, electronic publications, and, of course, the mobile multimedia services. The Control of Obscene and Indecent Articles Ordinance (Cap. 390) prohibits the publication and public display of obscene and indecent articles. Likewise, the Prevention of Child Pornography Ordinance (Cap. 579) deals with the publication of child pornography.

From the supply side, operators are responsible for the appropriateness of content. Operators should make sure that those contents which are banned by above mentioned legislations are not delivered via their networks. One of the operators mentioned that this is one of the reasons that operators prefer “walled-garden” approach when cooperating with content providers, as it is much easier to monitor the content once exclusive agreement is signed<sup>54</sup>.

From the demand side, how should children be prevented from accessing adult content via their handsets is challenging? According to one mobile operator, the company never signs subscription contracts with children younger than 18. The main reason is that, according to legislation in Hong Kong, people under 18 have no contract liability. If a child wants to subscribe to a mobile phone, the company will sign a contract with their parents. This prevents a child from subscribing to a mobile phone service without their parents consent. According to John Chiu, Chairman of Hong Kong Wireless Technology Industry Association (WTIA), both operators and content providers wish the parents to play a more active role in educating their children from accessing inappropriate content<sup>55</sup>.

## **5.7 NETWORK INTERCONNECTION**

Hong Kong has taken an *ex post* approach for network interconnection regulation. For mobile/mobile interconnection, there is no interconnection charge. As to mobile/fixed interconnection, it is always the mobile network that pays the fixed network, irrespective of the direction of traffic. This is because the mobile service follows a receiving party pay (RPP) scheme, namely it is always the mobile user that pays the fee, irrespective of whether he or she originates a call or receives a call, while the local fixed telephone service follows a flat rate scheme. As the monthly flat rate is based on the cost for fixed to fixed communications only, any extra cost generated by calls excluding fixed to fixed should be separately compensated. In the case of calls crossing fixed and mobile networks, it is always the mobile network that compensates the fixed network.

However, due to intensified competition, the mobile service has also moved towards flat monthly rate charging scheme (package). At the same time, the services crossing fixed and mobile networks have no longer been limited to voice only but also data. In this case, the legacy minutes-based interconnection arrangement has met serious challenges, especially in the context that PCCW and other operators are moving swiftly towards packet-switching based next generation networks.

OFTA has contracted a consultant to review the current interconnection regime. According to M.H. Au, Director-General of Telecommunications and the Telecommunications Authority, one of the options is peering among all networks, namely doing without traffic-based financial settlement among different networks, similar to current interconnection arrangements for the internet<sup>56</sup>.

As to technical negotiations on interconnection after the launching of 3G services, OFTA left it to commercial negotiations. There was a dispute between 3 Hong Kong and SmarTone over interconnection for video conferencing services, but was sorted out soon after OFTA coordinated a meeting between the two parties. According to interviews, all operators agree that there are no significant issues regarding network interconnection.

## **5.8 MARKET COMPETITION AND NETWORK ACCESS**

It has been a consistent policy objective of Hong Kong government to facilitate effective telecommunication service provision by means of competition. In line with this policy objective, all telecommunication sectors in Hong Kong have been fully liberalised. According to the former Information Technology and Broadcasting Branch (ITBB) of the Commerce, Industry and Technology Bureau—the corresponding telecommunications policy-making body of Hong Kong government—the above policy objective remains unchanged for 3G licensing and development<sup>57</sup>.

However, due to the constraints of spectrum, only four 3G licenses could be issued in 2001. This is obviously much less than the 11 licenses in the 2G market of Hong Kong, and has raised concerns about competition in 3G market. As a result, Mobile Virtual Network Operators (MVNO) have an important role to play. The MVNOs would not be assigned radio spectrum, but would have access to the radio networks of one or more of the Mobile Network Operators (MNOs) and be allowed to build and operate parts of the networks not requiring the use of radio spectrum (e.g. elements of an intelligent network). The MVNOs would then be able to resell 3G services to customers using their own brands without actually operating the radio networks. In this case, the pool of effective licenses could be expanded and competition could be enhanced.

In its consultation document, OFTA suggested 3G licensees to open 30-50% of their networks to MVNOs and content providers<sup>58</sup>. Based upon feedback, the government proposed a regulatory framework for the open network obligation. According to OFTA, successful bidders must open at least 30% of their 3G network capacity for use by non-affiliated companies to operate as MVNOs and/or content providers. More capacity could be opened up if they wish to do so by commercial agreement. However, to preserve the commercial incentive of 3G network operators to develop their networks, the regulator would not intervene for a MVNO or content provider if that operator/provider already has access to capacity equivalent to 30% capacity of a network operator<sup>59</sup>.

The government adopted an *ex post* regulatory approach on wholesale prices for MVNO network access. It should be negotiated commercially with the 3G licensees. If commercial negotiation fails, the regulator reserves the right to make a determination based on fair interconnection principles. When making determination, to ensure that the investment incentives are preserved and to prevent the happening of “free-rider” phenomenon, a sufficient return on cost of capital will be allowed, reflecting the higher risk of 3G service investment. Content providers will buy capacity at tariffs set by the 3G licensee, reflecting all relevant costs and the above-mentioned cost of capital. The regulator would only intervene in cases of unfair, discriminatory treatment or on anti-competitive grounds.

Measurement by the regulator of the capacity sold to non-affiliated companies will not be necessary unless the 3G licensees refuse to supply the requested capacity. The licensee should then provide evidence to the satisfaction of the regulator that 30% of their capacity has already been opened up. The regulator is prepared

to accept alternative methods of measurement proposed by operators including the simplest documentary proof of the total capacity sold, e.g. in the contracts or agreements with non-affiliated companies<sup>60</sup>.

As of 1 June 2006, there were seven MVNO licenses in Hong Kong. They are targeting different market niches. For example, both China Unicom and China Motion have begun using their MVNO licenses to provide economic and seamless services for frequent travellers between Hong Kong and mainland China, by bypassing the international roaming settlement, while Trident is targeting business visitors from overseas. They are currently using 2G technology for service provision, and are planning to migrate to 3G technology once the market is ready.

In addition to MVNOs, there are many content and application suppliers in Hong Kong. So far, OFTA has never received any request for intervening on network capacity access issues<sup>61</sup>. This may be attributed to three factors:

- First, operators have obligations to open up to 30% of their network capacity.
- Second, due to the existence of four network operators, MVNOs and content providers can always find an appropriate partner.
- Third, as 3G service is at its initial stage, operators are hungry for innovative applications and there is incentive for them to cooperate with other parties. Additionally, the Wireless Technology Industry Association (WTIA)—an association with a majority members from the content and applications sector—has played an active role by periodically organizing workshops to demonstrate and promote the latest applications of its member companies to operators<sup>62</sup>.

## **5.9 PRICING, AFFORDABILITY AND TRANSPARENCY**

In Hong Kong, the price war for 3G service is intensifying. More and more packages have come out with prices sometimes lower than that of 2G service. PCCW Mobile even offers a free trial to about 100,000 subscribers for six months. As a result, the affordability for 3G services has not been a problem so far, and OFTA has no intention to include 3G service in the domain of universal service until now<sup>63</sup>.

As to price transparency, according to 3 Hong Kong, the first 3G operator in Hong Kong, some complaints were initially received about pricing as some subscribers were not familiar with the charging schemes such as “HK\$1 per MB”. After a period, no more complaints were received as subscribers better understood these new terms in the package, and, in the meantime, operators have made their packages easier to understand.

## **5.10 PRIVACY**

Like other economies in the world, the increasing intelligence of mobile terminal has enabled everybody to be a photographer in Hong Kong. This has raised many controversies regarding privacy as what has been illustrated by the case of “Bus Uncle” - a recent hot topic in Hong Kong (See Box 5.2).

The case of “Bus Uncle” has triggered much debate in Hong Kong. Some think it is the power of the network that enables everybody to investigate and monitor the misconduct of people which used to be the job of the police and journalists. This is similar to public trial and is positive to the concept of civil society. Another opinion states that this kind of public trial is dangerous because it is based on a simple video clip without providing more comprehensive background information<sup>64</sup>. Additionally, there is concern about privacy: do we have the right to post such information on the web?

At present, the only legislation relating to privacy in Hong Kong is Personal Data (Privacy) Ordinance (Cap. 486). According to Office of the Privacy Commissioner for Personal Data (PCO), the purpose of the Ordinance is to protect the privacy interests of living individuals in relation to personal data. The Ordinance covers any data relating directly or indirectly to a living individual (data subject), from which it is practicable to ascertain the identity of the individual and which are in a form in which access or processing is practicable. It applies to any person (data user) that controls the collection, holding, processing or use of personal data<sup>65</sup>.

### Box 5.2: The Case of “Bus Uncle”

The most popular movie in Hong Kong in May 2006 is not *Da Vinci Code* but a mobilephone-made video clip entitled “[Bus Uncle](#)” on YouTube – a website where individual users can broadcast via the Web.

The incident occurred on the top deck of a Kowloon bus No. 68X on April 29 2006. When a young man was disturbed by a middle-aged man talking loudly on the mobilephone, he tapped the man's shoulder and asked him to lower the volume. This led to a vigorous response, including a string of obscenities. The entire process was recorded by John with his mobile camera phone and was uploaded on YouTube afterwards. It immediately became a hot topic in Hong Kong. As of May 26, 1.9 million people have watched the video clip.

Several sentences of the mid-aged man have become popular in Hong Kong, such as “I face pressure. You face pressure.” and “Not yet solved! Not yet solved!!” Several new versions of the clip have been produced with animation technologies and uploaded to the web.



Source: <http://www.youtube.com/watch?v=RSHziqJWYcM>  
[http://www.zonaeuropa.com/20060524\\_1.htm](http://www.zonaeuropa.com/20060524_1.htm)

There are two principles of the Ordinance which are relevant to the case of “Bus Uncle”:

**Principle 1** -- Purpose and manner of collection: This provides for the lawful and fair collection of personal data and sets out the information a data user must give to a data subject when collecting personal data from that subject.

**Principle 3** -- Use of personal data: This provides that unless the data subject gives consent otherwise personal data should be used for the purposes for which they were collected or a directly related purpose.

Whether the video clip made in public should be considered as personal data or not is arguable. It is also hard to tell if the purpose of recording the video clip is to upload it to the Internet. Even if the purpose is to publish clip to the Internet, should the party who records the clip be required to inform every person present whenever he or she wants to record a clip in public? It seems the complexity in this case goes beyond the current Personal Data (Privacy) Ordinance. A more sophisticated ordinance may be required.

The mobile communication may invade privacy in other ways. For example, one of the location based services (LBS) is for a 3G user to trace another people. For example, parents can trace their children via their handsets. To prevent abuse of LBS capabilities, OFTA, in the license to 3G operators, ordered the licensee to offer its user choices upon when and where to disclose his or her location information to the third party.

## 6 REGULATORY ISSUES REGARDING MOBILE MULTIMEDIA COMMUNICATIONS IN CHINA

### 6.1 TECHNOLOGY NEUTRALITY

In China, technology neutrality has been a difficult policy stance because the government needs to balance the financial returns of operators with the economic return for the economy as a whole. Understandably, unlike other economies, the principal issue concerned for 3G development in China seems to lie not in the allocation of spectrum but in the choice of 3G standard. This is because 3G is not just significant for Chinese

operators, but it is also critical for the Chinese telecommunications manufacturing industry and its export prospects.

When China began to reform its telecommunications system in the early 1980s, it realised that its infrastructure lagged far behind that of developed economies, not just in terms of teledensity but also in terms of technological sophistication. The whole network was based on analogue technology and the Chinese vendors could only produce switching systems based on bar-switching and step-by-step switching. Both long-distance and international calls had to be connected manually via human operators.

In 1982, the Fujian province imported and installed the first Stored Program Control (SPC) switching system in China. The high quality and innovative features of the SPC system consequently brought about a boom in equipment imports. In order to enable domestic vendors to upgrade their technology and gradually reduce dependence on foreign imports, the government formulated a four-step strategic policy of import, digestion, absorption and creation in the early 1980s. Using the domestic market to exchange foreign technology has been a preferred strategy of upgrading the technology of domestic manufacturers. The huge telecommunication market provided the Chinese government with strong bargaining power to urge foreign vendors to transfer their technology when a trade deal was made between the two parties, especially when a joint venture was to be established. At the same time, the Chinese government has provided favourable support to domestic manufacturers. This support included the assignment of a research grant for R&D, low interest loans, discounted tax rates and a generous provision of land in high-tech industrial parks.

The strategy has been very effective and domestic vendors have achieved tremendous success not just in domestic market but also overseas market. For example, Huawei and ZTE have become strong competitors to European and American vendors. Undoubtedly, 3G provides another opportunity for Chinese domestic vendors.

The so-called Time Division Synchronous Code Division Multiple Access (TD-SCDMA) standard proposed by China, together with W-CDMA and cdma2000, were accepted as three 3G international standards by the ITU in 1998. TD-SCDMA marks a milestone for the Chinese telecommunications industry, as it is the first ITU accepted international telecommunication standard proposed by China.

The question faced by the Chinese government and operators is which 3G technology to adopt. As 3G in China will be a US\$100 billion market, the decision will have significant implications for operators, domestic manufacturers and foreign vendors.

As a government department that is accountable to both telecommunication operations and IT manufacturing, it is difficult for the Ministry of Information Industry to take a technology-neutral stance. Its heavy sponsorship has clearly indicated that the MII would like to use 3G as an impetus to repeat China's success in fixed-line system manufacturing. However, due to the fact that TD-SCDMA was proposed two years later than cdma2000 and WCDMA, it is still under testing for commercial uses. When government officials are asked when 3G licences will be issued, the answer is always "soon".

## **6.2 SPECTRUM POLICY**

According to the "Radio Spectrum Regulation of the People's Republic of China" published in 1993, one of the four principles of radio spectrum regulation is that users should pay for occupying spectrum.

Originally, both China Mobile and China Unicom were allocated spectrum at almost no cost, but individual subscribers have to pay a so-called "spectrum occupation fee" every year. The spectrum occupation fee is to be handed over by the operators to the Radio Regulatory Department of the Ministry of Information Industry, which was formerly known as State Radio Regulatory Committee. In 2000, the spectrum occupation fee was 50 Yuan per subscriber per year, or US\$6.06. Taking the year 2000 as an example, the spectrum occupation fees reached a total of 4,263 million Yuan, or US\$516.7 million, as there were a total of 85.3 million mobile subscribers by the end of the year.

However, because it is the individual subscriber that pays the spectrum occupation fee rather than the operator, the latter have not been subject to any pressure to improve spectrum efficiency. For example, if China Mobile only has one subscriber, the government receives only 50 Yuan for radio spectrum occupied by China Mobile, even though this spectrum can accommodate 100 million subscribers. In consequence, the government began to revise the policy in 2001. According to the new method, the regulator defines the price of the spectrum by benchmarking the price of relevant economies and then allocating the spectrum to operators according to this defined rate.

On 2 May 2002, the regulator informed China Mobile and China Unicom that the adjustment to the standard spectrum usage fees for GSM networks would be effective from 1 July 2002 and would be implemented progressively over a period of three years. For the first year, spectrum usage fees for GSM networks were charged at the annual rate of RMB7.5 million per MHz of frequency. For the second year, the annual fee was be RMB11.25 million per MHz of frequency and from the third year onwards, the annual fee would be RMB15 million per MHz of frequency. All adjusted annual fees are charged on the basis that upward and downward frequencies are separately charged. The adjustments are effective for a period of five years<sup>66</sup>.

As 3G licences have not been issued in China yet, it remains premature to predict if the current spectrum regulation will be applicable to 3G licensees.

### **6.3 REGULATORY FRAMEWORK**

In China, telecommunications and broadcasting have been separately regulated by the Ministry of Information Industry (MII) and the State Administration of Radio, Film and Television (SARFT). Unlike Hong Kong, the broadcasting regulator not only regulates content issues, but also issues broadcasting network licences. The sensitive status of political propaganda in China has conferred upon the SARFT strong bargaining powers to defend the broadcasting network's interests. The vast coverage of the cable network and the availability of such technologies as cable modems strongly motivated the cable network operator to provide services beyond the staple offerings of traditional TV broadcasting. It set up internet and data broadcasting branches and has strongly challenged China Telecom and China Netcom's monopoly status over telecommunications services.

Currently, the SARFT takes care of IPTV and mobile TV licensing. According to SARFT's No.39 Command, all IPTV and Mobile TV providers have to obtain license in accordance to "Regulation on Audio-Video Programs Transmitted via Internet and Other Information Networks". The SARFT also claimed that only TV stations or their affiliated companies at provincial level or above can obtain IPTV and Mobile TV license. This has excluded telecom operators from obtaining relevant license. If telecom operators are interested in launching these services, they have to set up partnership with TV stations<sup>67</sup>.

On 30 April 2005, Shanghai TV obtained the first Mobile TV license and has cooperated with China Mobile's Shanghai branch for mobile TV services. In May 2006, China Central TV (CCTV) obtained the nation's second mobile TV license.

Although no telecom operators have obtained mobile TV licenses, many of their provincial branches are offering trial services. The future regulatory scenario of mobile TV remains uncertain.

### **6.4 COPYRIGHT**

In China, music downloading has become very popular. One of the most popular songs – "the Mice Loves Rice" - was downloaded 5,208,909 times in one month, which is ten times as high as the volumes sold in the records shops<sup>68</sup>. Records companies are keen to cooperate with mobile operators and agreement on copyright has been trouble-free.

In the meantime, operators also encourage subscribers to compose and record their works themselves and share them with other subscribers. The copy right fee in this case is relatively low.

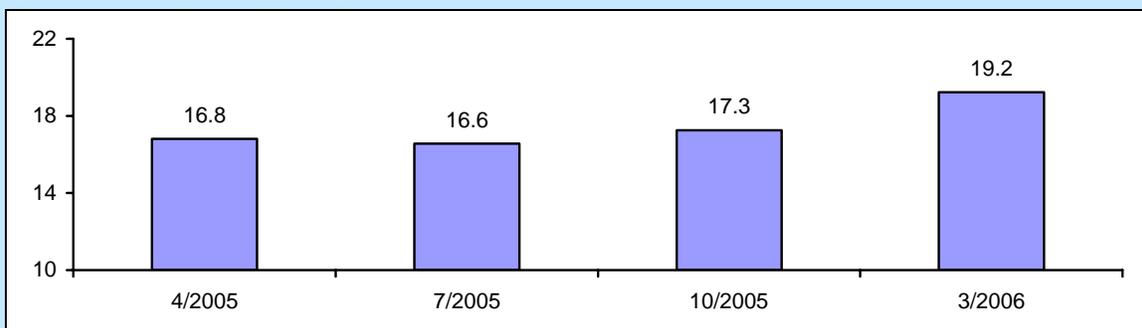
## 6.5 HARMFUL CONTENT AND SPAMMING

In fact, the content regulation is the major part of the Chinese Government's regulation over mobile services. As was elaborated in Chapter 4, SMS has been extremely popular in China. In the meantime, SMS is also used for delivering fake, obscene, deceptive and pornographic content. SMS is also used to conduct criminal activities.

On 21 February 2006, the Ministry of Information Industry (MII) launched a so-called "Sunshine Green Network Program". The theme is to use "sunshine" to clean the network information and turn the network into a green space with strong vitality<sup>69</sup>. The MII also launched a website specifically for anti-spam (<http://www.anti-spam.cn>) and an e-mail for reporting spamming related issues ([abuse@anti-spam.cn](mailto:abuse@anti-spam.cn)).

The background behind the launch of the "Sunshine Green Network Program" is that spamming is getting more and more serious. Table 6.1 shows the surveyed results on the average number of spam e-mails received by per user per week.

**Figure 6.1: Weekly Average of Spam E-mails Received Per User**



Source: [www.anti-spam.cn](http://www.anti-spam.cn)

The "Regulation on Internet-based E-mail" was promulgated on 21 February 2006 and became effective on 30 March 2006<sup>70</sup>. This provided detailed regulations on the usage of e-mail. Similar to Hong Kong, an "opt-out" approach is taken for companies who use e-mail for advisement and promotion. Unfortunately, this regulation is only applicable for internet based e-mails but not for messages on mobile networks. According to the MII, relevant regulation is being drafted<sup>71</sup>.

At present, the relevant regulation for regulating content of mobile multimedia services is Article 57 of the "Telecommunications Regulation of the People's Republic of China" which states:

"No organization or individual shall use telecommunications networks to produce, reproduce, publish and disseminate information containing any of the following content which:

- 1) is contrary to cardinal principles defined by the Constitution;
- 2) may endanger national security, divulge State secrets, subvert state power and sabotage national unification;
- 3) injures national honour and interest;
- 4) stirs up ethnic hatred, ethnic discrimination, and sabotages national unity;
- 5) sabotages the policy of the State on religion, publicizes heretical cults and feudal and superstitions;
- 6) spreads rumours to disrupt public order and undermine social stability;
- 7) spreads pornography, salacious material, encourages gambling, violence, murder, terror or instigates crime;
- 8) insults or slanders other persons, and infringes lawful rights and interests of other persons; and
- 9) is prohibited by relevant laws and administrative regulations."

As the "Telecommunications Regulation" is not a law, it is questionable if anybody can be charged in the Court before the Telecommunications Law is passed.

Among the four sub-themes of the so-called “Sunshine Green Network Program”, one theme is to “arrest the spread of illegal and indecent information, and promote a green mobile culture”. There are five projects under this sub-theme, namely:

- 1) Short messages;
- 2) Mobile information service provision;
- 3) To promote a green mobile culture
- 4) To provide uniform access number for all service providers (SP)
- 5) To re-register subscribers in their real names.

The purpose to register subscribers in their real names is to make it easier to trace sources of the messages so as to take subsequent action accordingly. For example, China Mobile has recently terminated the mobile phone services of some 19,000 subscribers in Zhuhai, a city in southern China, after finding out that some of the subscribers were using SMS for "criminal or fraudulent purposes." The terminations have resulted from a hotline established to enable mobile phone customers to report junk messages. According to China Mobile, services will be terminated once seven or more complaints are received for a single mobile number so as to prevent the user sending any more harmful messages<sup>72</sup>.

## **6.6 MARKET COMPETITION AND NETWORK ACCESS**

Due to the fact that there are only two operators in the market, operators have significant bargaining power in their negotiations with content and application providers. They always cheery-pick those suppliers which have well established brand names, or highly demanded applications. For many SMEs, it is very hard to set up partnership with operators. For those who have signed contract with operators, the terms may not necessarily be favourable.

One official from a provincial branch of the MII mentioned that some content providers request the regulator to help them access the networks of mobile operators. They argued that when the regulator issued them a license for value added service, the regulator should guarantee that the licensees are able to access the operator’s network. However, as operators have no such obligations defined in their licenses, they refused to cooperate. In this case, when a 3G license is issued, there should be some terms similar to Hong Kong where operators are obliged to open at least 30% of their network capacity to MVNOs and content providers.

## **6.7 PRIVACY**

Like Hong Kong, mobilephone photography is becoming popular in China. However, there is no privacy law yet in China, although many interested parties are calling for such a law. As to stealthily taken photography, the only regulation is the “Law of the People's Republic of China on Administrative Penalties for Public Security” which has replaced the original “Regulation of the People's Republic of China on Administrative Penalties for Public Security” and came into effect on 1 March 2006. According to Article 42, people conducting peepshows, taking photo stealthily, eavesdropping and distributing the privacy of the others will be detained for up to five days or fined up to 500 Yuan.

The “Law of the People's Republic of China on Administrative Penalties for Public Security” also prevent mobile subscribers from being vulnerable to intrusive message harassment. According to this law, people that keep sending messages containing obscene, insulting, threatening and other information that has interrupted the normal life of the others will be detained for up to five days or fined for up to 500 Yuan. Box 6.1 shows the first case in China since the law was passed.

### **Box 6.1 The First Detained Man for SMS Harassment in China**

Miss Fong is a young girl coming from Anhui province. She got a job as a waitress in a restaurant in Beijing. Mr. Viu, working in the same restaurant, fell in love with Miss Fong but the love was not reciprocated. Mr. Viu was annoyed and began to harass Miss Fong. To avoid harassment, Miss Fong has changed jobs three times, moved home three times and changed mobile numbers twice, but Mr. Viu can always find her and keeps sending her short messages containing obscene content. Miss Fong finally called the police and Mr. Viu became the first man in China detained by the police for sending harassing short messages after effectiveness of the “Law of the People's Republic of China on Administrative Penalties for Public Security” on 1 March 2006. “We have received many such cases before but we can do nothing due to the absence of clear terms in the original “Regulation of the People's Republic of China on Administrative Penalties for Public Security””, said the police.

Source: <http://www.law-star.com/cac/11063.htm>. (Names of the individuals concerned have been changed).

## **6.8 GOVERNANCE ON MISCONDUCT OF CONTENT PROVIDERS**

The popularity of SMS and other mobile multimedia services has brought huge profit to operators, service providers and application providers. In the meantime, some content providers and application providers are driven to mislead subscribers deliberately. The following are several typical examples of misconduct by content and application providers:

### 1) Service Provider (SP) Acts as Billing Agency for Adult Website

Due to the slow development of electronic payment in China, and the government’s restriction on adult content, many adult websites cannot charge customer openly and directly. In this case, they line up with SPs who have a license for SMS services. Users of the SP will get password to access the adult website while the bill charged by the website will be passed to the SP. The SP will then charge the subscribers via the SMS services and the payment will be collected by mobile operator from subscribers. The mobile operator will then share the payment with the SP without knowing that the payment is actually for adult content access. The SP will then re-share the payment with the party operating the adult website.

### 2) Low Entry Barrier Traps

It is always easy for subscribers to subscribe to a service but it is extremely difficult to quit the service. The hotline is always busy when you want to quit. Sometimes, even though the SP has confirmed the subscriber’s request to quit, the charge is still there when the bill comes.

### 3) Yes is No and No is Yes

When you get a subscription invitation for a new service, no matter whether you choose Yes or No, your subscription is always confirmed.

These examples of misconduct have seriously affected the interests of subscribers and many of them have subsequently lost confidence towards mobile multimedia services. In this case, both mobile operators and the regulator have begun to take action.

In the case of China Mobile, the operator reviewed all SPs one by one and terminated cooperation with those SPs that had received serious complaints from subscribers. In the meantime, China Mobile set up a one stop service hotline for cancelling service. If the customer wants to quit one specific service, he or she just calls this hotline and the process will be handled by China Mobile. Once confirmed, China Mobile can guarantee no bills will be charged.

Improving the governance of SPs is also part of the MII’s “Sunshine Green Network Program”. According to the MII, all SPs will be assigned a uniform access number which will make regulation and administration much easier.

## 7 SUMMARY

Mobile multimedia service has developed rapidly both in Hong Kong and in China. At the same time, problems have been encountered in both places. To facilitate further development of mobile multimedia services, the regulatory environment needs to be adjusted accordingly.

Technology neutrality has been maintained to date as a government policy stance in Hong Kong, but the government is sometimes caught in between a dilemma between policy consistency and preference for a specific technology. In the meantime, technology is unrealistic and controversial in China due to the conflicts between operator's financial return and country's overall economic outlook.

Hong Kong used to be innovative in spectrum management, but the development of Wireless Broadband Access technology, the increasing level of fixed/mobile convergence and the deployment of digital terrestrial TV (DTT) have challenged existing current spectrum assignment schemes and may require more innovative solutions. As to China's spectrum policy, its most significant weakness is that the spectrum fee is fixed subjectively and therefore may not be able to reflect the market value of spectrum.

Hong Kong's telecom sector has not encountered significant problems under the currently separate regulatory frameworks for telecommunications and broadcasting, and therefore there is no urgency for the merger of the Telecommunications Authority and Broadcasting Authority. However, the separation of the telecom regulator and broadcasting regulator has indeed generated controversies in China in the case of mobile TV licensing. These two evidently different cases imply that what is more important is perhaps the merger between policy-makers. In Hong Kong, the Communications and Technology Branch of the Commerce, Industry and Technology Bureau is an integrated policy-maker for both telecommunications and broadcasting, while such an integrated and powerful policy-maker that can effectively coordinate the telecommunications regulation and broadcasting regulation is still in absence in China.

Current DRM technology seems to be sufficiently reliable to protect copyright. However, with the further development of mobile handsets and more sophisticated applications, more advanced DRM technology is required.

With the growing popularity of music download, mobile operators are gaining more and more bargaining power in their cooperation with music companies regarding copyright settlement.

Spamming on the mobile network is becoming serious. Regulators in Hong Kong and China are working hard on this issue. The fact that "opt-out" is taken as a preferred approach indicates that the government tries to make a balance between tackling spamming and encouraging efficient business applications of electronic messages.

As to harmful content, Hong Kong's "one size fits all" regulation, i.e. one Ordinance for all media, seems to be transparent and easy to implement. China tries to take service specific content regulation approach (e.g. Internet content regulation, mobile content regulation) which may prove to be inconsistent and hard to implement in the emerging converged information society.

Importantly, parents are expected to pay more active roles in educating their kids and preventing them from accessing harmful content.

The approach of the next generation networks (NGN) will challenge the legacy minutes-based network interconnection arrangement. The increasingly popular crossing-platform delivery of information requires a simple and efficient interconnection settlement system. Peering should be one of the choices.

Network access by MVNOs and content providers is increasing critical in the new value web of mobile multimedia communications. Hong Kong 3G licensees' obligation of opening 30% network capacity to MVNO and content providers can be regarded as a best practice approach.

Privacy protection is becoming increasingly difficult and complicated nowadays. Regulation revision may need to start from very basic issues such as the definition of privacy and the definition of personal data in the

information age. Additionally, specific terms in the license may also protect subscribers' privacy in such applications as location-based services.

It may be too early to address the affordability or mobile multimedia divide issue as mobile multimedia service is still in its initial stage. Similarly, price regulation may not be necessary, at least in this stage.

What becomes more problematic is the misconduct of content providers, as shown in the case of China. The regulators may need to extend their domain from regulating traditional telecommunication operators towards content providers and application providers. This may not be an easy job due to the huge number of those providers.

In general, the development of mobile multimedia services has raised many new challenges to regulators. It is a critical time to review legacy regulations so as to provide a favourable regulatory environment for multimedia services.

## Annex: Links to Related Websites

### Government Sites

Ministry of Information Industry (MII) at <http://www.mii.gov.cn> (Chinese only)

Information Institute of the MII at <http://www.cci.cn.net> (Chinese only)

China Internet Network Information Centre at <http://www.cnnic.net.cn>

Office of Telecommunications Authority (OFTA) at <http://www.ofta.gov.hk>

Communications and Technology Branch, Commerce, Industry and Technology Bureau at <http://www.citb.gov.hk/ctb>

Hong Kong SAR Government Information Centre at <http://www.info.gov.hk>

### Operators in China

China Telecom at <http://www.chinatelecom.com.cn>

China Mobile at <http://www.chinamobile.com>

China Netcom at <http://www.chinanetcom.com.cn>

China Unicom at <http://www.chinaunicom.com.cn>

China Railcom at <http://www.chinatietong.com>

China Satcom at <http://www.chinasatcom.com>

### Operators in Hong Kong SAR

#### *FTNS operators*

(1) PCCW-HKT Telephone Limited at <http://www.pccw.com>

(2) Hutchison Global Communications Limited at <http://www.hgc.com.hk>

(3) Wharf T&T Limited at <http://www.wharftt.com>

(4) New World Telecommunications Limited at <http://www.newworldtel.com>

(5) Hong Kong Broadband Network Limited at <http://www.hkbn.net>

#### *Mobile Network Operators*

(1) Hong Kong CSL Limited at [www.hkcs.com](http://www.hkcs.com)

(2) China Mobile Peoples Telephone Company Limited at <http://www.peoples.com.hk>

(3) SmarTone-Vodafone Limited at <http://www.smartone-vodafone.com>

(4) SUNDAY Communications Limited at <http://www.sunday.com>

(5) 3 Hong Kong at <http://www.three.com.hk>

## Endnotes

- <sup>1</sup> For the sake of simplicity, Hong Kong stands for Hong Kong Special Administrative Region of the People's Republic of China throughout this report.
- <sup>2</sup> See ITU (2006) World Information Society Report, Executive Summary at: <http://www.itu.int/osg/spu/publications/worldinformationsociety/2006/WISRExecutivesummary.pdf>.
- <sup>3</sup> For details, see <http://www.ofta.gov.hk>.
- <sup>4</sup> See <http://www.ofta.gov.hk>.
- <sup>5</sup> Due to the exclusive franchise of CWHKT, Hong Kong SAR was not committed to liberalise Hong Kong's IDD market before 2006 in its WTO agreement.
- <sup>6</sup> Au, M.H. (2006) The Regulator's Role in Facilitating Broadband Development - Speech at the Opening Ceremony of Broadband World Forum Asia 2006 on 15 May 2006, [http://www.ofta.gov.hk/en/speech-presentation/dg\\_20060515\\_speech.pdf](http://www.ofta.gov.hk/en/speech-presentation/dg_20060515_speech.pdf)
- <sup>7</sup> Au, M.H. (2006) The Regulator's Role in Facilitating Broadband Development - Speech at the Opening Ceremony of Broadband World Forum Asia 2006 on 15 May 2006, [http://www.ofta.gov.hk/en/speech-presentation/dg\\_20060515\\_speech.pdf](http://www.ofta.gov.hk/en/speech-presentation/dg_20060515_speech.pdf)
- <sup>8</sup> See Pitt, D. C., Levine N. and Xu, Y. (1996) Touching stones to cross the river: Evolving telecommunications policy priorities in contemporary China, *Journal of Contemporary China*, Vol.5 No. 3, 347-65
- <sup>9</sup> See Wu, C.G. and Zhang, X. (1992) An analysis of the seemingly high profit in the industry. *Posts and Telecommunications Economy*, Vol. 18, 6-9
- <sup>10</sup> See Xu, Y., Levine, N. and Pitt, D.C. (1998) Competition without privatisation: The Chinese path in S. Macdonald and G. Madden (eds.) *Telecommunications and Socio-Economic Development*, Elsevier: Amsterdam, 375-92
- <sup>11</sup> See Kan, K.L. (1999) Where to go for Chinese telecommunication industry? *Posts and Telecommunications Economic Management*, No.10, 2-8
- <sup>12</sup> See Xu, Y. and Pitt, D.C. (2002), *Chinese Telecommunications Policy*, Artech House Publisher: Boston, London
- <sup>13</sup> See Xu, Y. (2000) Fixed-Mobile Interconnection: The Case of China and Hong Kong SAR at <http://www.itu.int/interconnect>
- <sup>14</sup> Calculated according to statistics of OFTA at <http://www.ofta.hk>
- <sup>15</sup> Calculated according to statistics of China Mobile (HK) at <http://www.chinamobilehk.com>
- <sup>16</sup> See Xu, Y, Gong, M and Thong, J. (2006) "Two Tales of One Service: User Acceptance of Short Message Service (SMS) in Hong Kong and China ", *Info*, Vol. 8, No. 1, pp.16-28
- <sup>17</sup> See <http://www.smartone-vodafone.com/jsp/about/company/facts/english/index.jsp>
- <sup>18</sup> See <http://www.hkcs.com>
- <sup>19</sup> PCCW (2005) Annual Report.
- <sup>20</sup> Information provided by 3 Hong Kong.
- <sup>21</sup> Idem.
- <sup>22</sup> Information provided by CSL New World Mobility Ltd.
- <sup>23</sup> <http://www.telegeography.com>, 16 May 2006
- <sup>24</sup> <http://www.pccw.com>
- <sup>25</sup> See <http://www.pccw.com/eng/Investors/News.html>
- <sup>26</sup> See <http://www.smartone-vodafone.com>
- <sup>27</sup> Gateway technologies provide the links between the different industries and enable the mobile Internet to draw on technologies, applications, user needs, and networks of users that are in existing industries. See Funk J.L. (2005) "Collisions between Industries" and the Evolution of the Mobile Internet in Japan, *Proceedings of Hong Kong Mobility Roundtable*.
- <sup>28</sup> Information provided by CSL.
- <sup>29</sup> Information provided by Wise Spot.
- <sup>30</sup> In March 2000, China Unicom and China Telecom triggered a round of price war over mobile service in Guangdong and Chongqing, offering discounted connection fee and tariffs below the rate set by the regulator. In Guangdong, the Bureau of Price Administration intervened immediately blaming the operators of breaking the state price policy while in Chongqing the MII reaffirmed its stand and both companies withdrew their promotion.
- <sup>31</sup> See Xu Y. (2001) 3G MOBILE POLICY: THE CASE OF CHINA AND HONG KONG, CHINA <http://www.itu.int/osg/spu/ni/3G/casestudies/index.html>
- <sup>32</sup> Xu, Y, Gong, M and Thong, J. (2006) "Two Tales of One Service: User Acceptance of Short Message Service (SMS) in Hong Kong and China ", *Info*, Vol. 8, No. 1, pp.16-28
- <sup>33</sup> ITU (2005) *The Internet of Things*.
- <sup>34</sup> See Xu, Y. (2003) Mobile data communications in China, *Communications of the ACM* 46(12) 81-85.
- <sup>35</sup> Ko, K. (2003) Mobile operators in the post-segmentation competition age. *Hong Kong Economic Journal*, Nov. 6.
- <sup>36</sup> OFTA, (2004) Licensing of Mobile Services on Expiry of Existing Licences for Second Generation Mobile Services Analysis of Comments Received, Preliminary Conclusions and Further Consultation, <http://www.ofta.gov.hk>, 19 March.
- <sup>37</sup> Au, M.H. (1998) Public Mobile Services in Hong Kong – Updates and Future Development, *Proceedings of Asia-Pacific Mobile Communications Symposium*, pp. 33-38

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- <sup>38</sup> LegCo (2001) *Legislative Council Brief: licensing Framework for third Generation Mobile Services*, File Ref: ITBB CR 7/23/10(01)
- <sup>39</sup> OFTA (2004) Licensing of Mobile Services on Expiry of Existing Licences for Second Generation Mobile Services - Statement of the Telecommunications Authority, <http://www.ofta.gov.hk/en/tas/mobile/ta20041129.pdf>, 29 November
- <sup>40</sup> OFTA (2005) Press Release: Proposal to Create a Unified Carrier Licence to Pave the Way for Fixed-Mobile Convergence, [http://www.ofta.gov.hk/en/press\\_rel/2005/Sep\\_2005\\_rl.html](http://www.ofta.gov.hk/en/press_rel/2005/Sep_2005_rl.html), 21 September
- <sup>41</sup> BWA refers to such technologies as WiMax and WiBro, etc.
- <sup>42</sup> OFTA (2005) Licensing Framework for Deployment of Broadband Wireless Access, <http://www.ofta.gov.hk/en/report-paper-guide/paper/consultation/20050831.pdf>, 31 August
- <sup>43</sup> PCCW (2005) Submission to OFTA's Consultation on Licensing Framework for Deployment of Broadband Wireless Access [http://www.ofta.gov.hk/en/report-paper-guide/paper/consultation/20051125\\_2/01.pdf](http://www.ofta.gov.hk/en/report-paper-guide/paper/consultation/20051125_2/01.pdf), 27 October
- <sup>44</sup> Interview with Agnes Miu on 25 May 2006
- <sup>45</sup> Xu Y. (2004) "3G Licensing in Hong Kong: the Debate", *Telecommunications Policy*, Vol. 28, pp. 213-226
- <sup>46</sup> Communications and Technology Branch of the Commerce, Industry and Technology Bureau (2006) Press Release: Government proposes to establish the Communications Authority, <http://www.citb.gov.hk/ctb/eng/press/pr03032006.htm>, 3 March
- <sup>47</sup> Communications and Technology Branch of the Commerce, Industry and Technology Bureau (2006) Public Consultation on the Establishment of the Communications Authority, [http://www.citb.gov.hk/ctb/eng/paper/pdf/CA\\_consultation\\_paper.pdf](http://www.citb.gov.hk/ctb/eng/paper/pdf/CA_consultation_paper.pdf), 3 March
- <sup>48</sup> Interview on 16 May 2006.
- <sup>49</sup> Telephone interview on 19 May 2006.
- <sup>50</sup> See <http://www.cash.org.hk>
- <sup>51</sup> OFTA (2004) Proposals to Contain the Problem of Unsolicited Electronic Messages, <http://www.ofta.gov.hk/en/report-paper-guide/paper/consultation/20040625.pdf>, 25 June
- <sup>52</sup> Commerce, Industry and Technology Bureau (2006) Consultation Paper on Legislative Proposals to Contain the Problem of Unsolicited Electronic Messages, [http://www.citb.gov.hk/ctb/eng/paper/pdf/UEM\(Eng\)-final.pdf](http://www.citb.gov.hk/ctb/eng/paper/pdf/UEM(Eng)-final.pdf), January.
- <sup>53</sup> Interview on 29 May 2006.
- <sup>54</sup> Interview on 25 May 2006.
- <sup>55</sup> Interview with John Chiu on 20 May 2006.
- <sup>56</sup> Interview with M.H. Au on 29 May 2006.
- <sup>57</sup> ITBB (2001) Press Release: *The licensing framework for third generation mobile services*, 13 February
- <sup>58</sup> OFTA (2000) *Licensing Framework for Third Generation Mobile Services – An Industry Consultation Paper*, 21 March
- <sup>59</sup> OFTA (2000) *Licensing Framework for Third Generation Mobile Services – Analysis of Comments Received, Preliminary Conclusions and Future Industry Consultation*, 3 October
- <sup>60</sup> LegCo (2001) *Legislative Council Brief: Licensing Framework for third Generation Mobile Services*, File Ref: ITBB CR 7/23/10(01)
- <sup>61</sup> Interview with M.H. Au on 29 May 2006.
- <sup>62</sup> Interview with John Chiu on 20 May 2006.
- <sup>63</sup> Interview with M.H. Au on 29 May 2006.
- <sup>64</sup> Singtao Daily (2006) *Mobile Video Clips and Public Trial*, 9 May
- <sup>65</sup> <http://www.pco.org.hk/english/ordinance/ordglance.html>
- <sup>66</sup> China Mobile (2002) Announcement of adjustments to standard spectrum usage fees for GSM networks. [http://www.chinamobileltd.com/media\\_focus/pdf/2002/ann\\_20020502\\_e.pdf](http://www.chinamobileltd.com/media_focus/pdf/2002/ann_20020502_e.pdf), 2 May.
- <sup>67</sup> <http://wheatfield.blogchina.com/2184202.html>.
- <sup>68</sup> Information distributed at Seminar on Wireless Data Business, Hong Kong, 5 July 2005.
- <sup>69</sup> Ministry of Information Industry (2006) The MII Launched "Sunshine Green Network Program", [http://www.mii.gov.cn/art/2006/02/21/art\\_21\\_6729.html](http://www.mii.gov.cn/art/2006/02/21/art_21_6729.html), 21 February.
- <sup>70</sup> MII (2006) "Regulation on Internet-based E-mail", <http://www.mii.gov.cn>, 20 March
- <sup>71</sup> MII (2006) "The Ministry is Harnessing Information Provision Service and 30 Companies are Required to Make Change", [http://www.mii.gov.cn/art/2006/05/30/art\\_21\\_14463.html](http://www.mii.gov.cn/art/2006/05/30/art_21_14463.html), 30 May
- <sup>72</sup> Telecom Asia Daily (2006) China Mobile cuts SMS service due to 'abuses', <http://www.telecomasia.net/telecomasia/article/articleDetail.jsp?id=319373>, 12 April