

## Diffusion of Mobile Phones in China

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ERIM REPORT SERIES <i>RESEARCH IN MANAGEMENT</i>	
ERIM Report Series reference number	ERS-2005-056-LIS
Publication	October 2005
Number of pages	13
Persistent paper URL	
Email address corresponding author	asunanda@ntu.edu.sg ; lpau@rsm.nl
Address	Erasmus Research Institute of Management (ERIM) RSM Erasmus University / Erasmus School of Economics Erasmus Universiteit Rotterdam P.O.Box 1738 3000 DR Rotterdam, The Netherlands Phone: + 31 10 408 1182 Fax: + 31 10 408 9640 Email: info@erim.eur.nl Internet: <a href="http://www.erim.eur.nl">www.erim.eur.nl</a>

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## REPORT SERIES *RESEARCH IN MANAGEMENT*

ABSTRACT AND KEYWORDS	
Abstract	<p>Diffusion of mobile communication has induced great societal changes in China. Factors at global market, communications industry and end-user market levels are driving the adoption at a high rate. Firstly, China's economic emergence together with e.g. accession to WTO has led to foreign investment increase in telecom and communications industry. Secondly, a parallel deregulation and reengineering of the telecom industry ensured an introduction of competition in the domestic terminals market and facilitated manufacturing in China. Finally, overall growth in China has increased purchasing power enabling consumers to adopt new technologies.</p> <p>At the market level, challenges and future growth depends on a favorable business environment both for local and multinationals organizations, operators and service providers, and most importantly to the distribution channels (retailers and resellers). Market mechanisms such as improvement in payment methods, regulations for content providers, branded and low-end mobile phones marketing, applications and support in Chinese language are required for a systematic and not just sporadic adoption of mobile devices. Product development and innovation, improvement in distribution infrastructure, mobile services operators skill enhancement are some measures that can growth of mobile communication and increase in average consumer spending.</p>
Free Keywords	China, Mobile phones diffusion, Market developments, China's industrial policy
Availability	<p>The ERIM Report Series is distributed through the following platforms:</p> <p>Academic Repository at Erasmus University (DEAR), <a href="#">DEAR ERIM Series Portal</a></p> <p>Social Science Research Network (SSRN), <a href="#">SSRN ERIM Series Webpage</a></p> <p>Research Papers in Economics (REPEC), <a href="#">REPEC ERIM Series Webpage</a></p>
Classifications	<p>The electronic versions of the papers in the ERIM report Series contain bibliographic metadata by the following classification systems:</p> <p>Library of Congress Classification, (LCC) <a href="#">LCC Webpage</a></p> <p>Journal of Economic Literature, (JEL), <a href="#">JEL Webpage</a></p> <p>ACM Computing Classification System <a href="#">CCS Webpage</a></p> <p>Inspec Classification scheme (ICS), <a href="#">ICS Webpage</a></p>

# **Diffusion of Mobile Phones in China**

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Keywords: China, Mobile phones , Mobile terminals , Technology diffusion , Mobile operators in China , China's industrial policy

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**Diffusion of Mobile Phones in China**

## **ABSTRACT**

Diffusion of mobile communication has induced great societal changes in China. Factors at global market, communications industry and end-user market levels are driving the adoption at a high rate. Firstly, China's economic emergence together with e.g. accession to WTO has seen foreign investment increase in this industry. Secondly, a parallel deregulation and reengineering of the telecom industry ensured an introduction of competition in the domestic terminals market and facilitated manufacturing in China. Finally, overall growth in China has increased purchasing power enabling consumers to adopt new technologies.

At the market level, challenges and future growth depends on a favorable business environment both for local and multinationals organizations, operators and service providers, and most importantly to the distribution channels (retailers and resellers). Market mechanisms such as improvement in payment methods, regulations for content providers, branded and low-end mobile phones marketing, applications and support in Chinese language are required for a systematic and not just sporadic adoption of mobile devices. Product development and innovation, improvement in distribution infrastructure, mobile services operators skill enhancement are some measures that can growth of mobile communication and increase in average consumer spending.

## 1. Introduction

The mobile communications market in China has experienced rapid growth over the last decade in terms of the numbers of subscribers. In January 2005, there were 358 million mobile phones subscribers and this number has surpassed fixed-line subscribers ([emarketer.com](http://emarketer.com)). This communication medium has brought fundamental changes to the Chinese society where remote areas are now connected to the mainstreams of society. China has become one of the world's largest mobile phones subscriber markets, and with its 1.3 billion population it continues to present potential for high growth market ([mii.gov.cn](http://mii.gov.cn)).

The mobile phones market in China is largely dominated by two large mobile operators namely: China Mobile Communications and China United Telecommunications (China Unicom) (see Exhibit 1). China Mobile is the largest GSM operator in the world with 220 million mobile phones subscribers in May 2005 ([chinamobilehk.com](http://chinamobilehk.com)), followed by China Unicom which has more than 119 million subscribers during the same period ([chinaunicom.com.hk](http://chinaunicom.com.hk)). With the liberalization and deregulation of the mobile operators market; and the emergence of strong local manufacturers, the competition has increased and both foreign and domestic organizations are aiming at the growth opportunity.

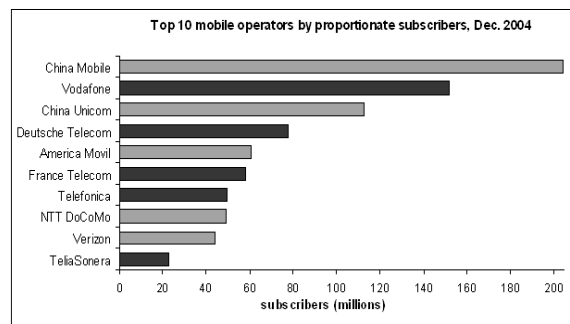


Exhibit 1: Top 10 Mobile operators in the world

Source: International Telecommunication Union, PTO database ([www.itu.int](http://www.itu.int))

These trends stimulate an examination of the state of the mobile phones diffusion in China. This paper reports the major factors driving for the growth of mobile communications terminals market in the current business environment in China. Our aim is to understand how the mobile communications terminals market is evolving in China, and identify the challenges for the businesses, in this dynamic market. The paper is organized as follows: in the next section we review factors driving mobile diffusion. Then we discuss the challenges faced by the mobile phones and terminals industry and conclude with insights for future developments.

## 2. Factors driving growth of Mobile Phones Diffusion

Mobile phones diffusion is first directly related to the diffusion of information and communication technologies (Rogers 1995, Gatignon and Robertson 1985). But a successful management of mobile diffusion also requires an understanding of social and marketing drivers for at various levels. Marketing literature contends that product adoption in a mass market is facilitated by the creation of favorable business and marketing

environments at global, country and local market levels (Cateora, 2005; Kotler, 2005). A favorable environment can engineer growth and change at macro and micro level to foster diffusion of technology products (Rogers 1995). Global economic developments, and China's domestic market regulation, and consumer market developments are directly related to the acceptance of mobile terminals technology in this market.

We argue that the traditional international business environment framework (Cateora, 2005) explains the generic trends in this new challenge of mobile acceptance before we conduct goal specific research work to understand the customer or organizational needs. It should be noted though that the development in China has happened with minimal marketing investments, so it is more the business structure, especially the diffusion to shops and their group behavior, which are the key component in this first generic trend. Our approach is supported by recent articles of managerial orientation published in information systems journals (Zhang and Prybutok, 2005; Zhu and Wang, 2005). China presents a favorable business environment and an understanding of global market developments to the advantage of foreign firms. This has fostered economic reforms; deregulation of telecom industry in the domestic market, and general economic growth which has increased demand for consumer products. The average sales price per mobile phones or terminal unit in China has been about 35 % under the equivalent sales price across the rest of Asia during 1994-2000. This highlights a growth potential for low to middle-end terminals in as far numbers are concerned. The purpose of this paper is exploratory to report global trends in mobile diffusion in China as a part of the managerial and social processes of marketing management which aims at satisfying customers through value creation (Kotler, 2005).

## *2.1 Global Market Developments*

Prior to, and even after WTO admission in 1999, China committed to permit foreign organizations to provide a wide range of telecommunication services through joint ventures. For most types of services, the foreign ownership can reach a maximum of 49 percent with no geographical restrictions after 2006 (USTR, 2004). But more importantly for mobile terminal diffusion, since 1997 and following this WTO agreement, customs tariffs for IT products were lowered to allow cheap imports of components to manufacture cheaper mobile phones for average Chinese consumers (Groombridge, 2000). Cheap mobile phones produced by domestic manufacturers have increased the level of competition in the mobile phones market, and lowering prices and encouraging end users to purchase mobile phones (Ramstad, 2003; Bout *et al*, 2004). Lower product packaging expectations of the Chinese consumers, which often accounts for 40% and above of the normal mobile phones terminal price lowers the end product cost, giving local manufacturers an advantage over global brands. The market share of local vendors has risen from 5% of all units in 1999 to nearly 40% in 2003, registering an upward growth of 50% in 2003 (Bout *et al*, 2004). Key local vendors include China Bird (Ningbo Bird), Kejian, TCL, Haier and Amoisonic, all with an annual output of more than 1 million handset pieces as of 2002 (IsraelTrade.org.cn, 2003), with TCL selling over 4 million handset pieces in 2004.

The number of subscribers has steadily increased from 3.63 million in 1994 to nearly 200 million by 2002. Further developments such as in effect the reduction of mobile connection fees due to the possibility of prepaid subscriptions have also contributed to penetration growth (Zhang & Prybutok, 2005). In addition, because of lower

manufacturing costs and other market forces related issues, a Chinese, on average, buys nearly five times in goods and services per dollar as compared to an American with the same dollar in the U.S (Fishman, 2004).

Foreign investment has been a major driving force behind the emergence of new technologies in China's mobile phones market. Most major foreign entrants to China's mobile market have invested in R&D tailored to the Chinese environment and users to incorporate new features, to gain market and mind share. A significant share of consumers are showing a clear preference for high-tech high-end models irrespective of the higher prices of global brand mobile phones (Ramstad, 2004), but this market segment is very limited because regular models in that market have enough functionalities for the average user.

In 2004, Alcatel invested over €100 million for R&D in China, mostly on 3G and fixed infrastructure, but has since sold its phone operations to TCL. Nokia, Sony Ericsson and Siemens (now BenQ) have also set up terminals R&D units for 3G products in R&D areas like Chengdu , Guangzhou , Nanyang, Shanghai (Kwong, 2000; SinoCast CBDN, 2005d). Sony Ericsson's spending for the first phase of its latest R&D investment in Guangzhou was US\$15 million and its R&D expenditure is projected to increase over 30 to 50% each year within the next five years (SinoCast CBDN, 2005b). These organizations are also investing directly or in partnerships in Taiwan and Malaysia to address the Chinese market for terminals.

On the basis of handset sales Motorola had been the market leader in the first quarter of 2004 followed by Nokia and Samsung (see Table 1).

Handset Brand	Sales (	Market
Motorola	4,079.8	12.05
Nokia	4,032.2	11.91
Samsung	3,342.8	9.87
Ningbo Bird	3,239.8	9.57
TCL	2,765.0	8.16
Konka	1,895.4	5.60
DBTel	1,848.6	5.46
Amoi Electronics	1,317.5	3.89
Guangzhou Soutec	1,214.2	3.59
Sony Ericsson	1,159.2	3.42
Other Brands	8,972.1	26.49
Total	33,866.6	100

**Table 1 :** Handset Market Share in China 2004, First Quarter

Source: CICT, compiled by DigiTimes, September 2004, <http://www.mc21st.com/en/marketing/2004/m0903-28.htm>

Note: these data though do not include unbranded handsets nor imports of non cased mounted circuit boards

## 2.2 Domestic Market Regulation: Reengineering of Telecom Industry

Until the mid 90s, The Chinese telecommunications industry was under the monopoly of the state and was managed by the former Ministry of Posts and Telecommunications (MPT). The MPT was responsible for making and implementing all policies, setting up networks, providing services, developing technical standards, conducting research, and manufacturing equipment. Electronics industry, including consumer electronics, was

regulated by the Ministry of Electronics (now Ministry of Information Industry). In 1995, the telecom business was reorganized, and China Unicom and China Telecom were formed by the spinning off most of the service provision sector from MPT for fixed and analog wireless networks. In subsequent developments, Ministry of Information Industry was established with an objective to introduce a fair, open and competitive environment and MPT was abolished ([ChinaUnicom.com](http://ChinaUnicom.com)), but state influence remains significant as these two operators and others are still more than 50 % under state control.

In 2001, further reorganization introduced four new companies, each with a focused objective but still a diverse mix of fixed, transport and wireless or satellite networks : China Telecom, China Mobile, China Network Telecom (China Netcom), and China Satellite; and a proposed China Railway Telecom (China Railcom) in the near future. In addition Hong Kong represents an impressive array of fixed, broadband and wireless operators (including 3G operators) ,many of which still have influential foreign investors

To sum up, the telecommunications industry has been steadily, but not radically, deregulated for over a decade for several reasons: to expand this industry to meet the high-growth demand; to introduce global competition to address the deficiency in central government investment funds; to introduce global competition to prepare Chinese organizations to become global players in future; and to establish nation-wide mobile networks and make mobile phones accessible to end-users in China (Wang, 2002).

The role of the Chinese government, however, is still predominant and all providers of basic telecommunications services and mobile telephony are still state-owned enterprises. The market is subject to board controls, influence by key government officials, regulations and the government has effective control over all the companies in this industry. These features, which give a preferential treatment to domestic companies in requirement of technology transfer, as well as R&D activities, contribute to the non-tariff barriers against foreign entrants (Nie and Zeng, 2003). The reengineering of the telecom industry has exposed China to new global technologies and fostered growth in the Chinese mobile phones market as a result of policies with non-tariff preferences.

### *2.3 Consumer Markets Developments*

#### *2.3.1 Growth in purchasing power*

At an annual GDP growth rate of an average of 7% for over a decade, China represents a consumer market with increasing purchasing power. China's 100 million middle-class segment is expected to double by 2010 (Campbell, 2005). Also, middle-income households represent a higher proportion of the population and use mobile communication more than any other market segment.

Secondly, consumption of mobile services is therefore largely concentrated in urban areas representing an addressable market of over 550 million inhabitants in over 0.5 million population towns. The 2004 distribution of income structure shows that average annual disposable income per head in urban areas is RMB8472 (US\$1024), is three times than the rural areas (PricewaterhouseCoopers, 2004). Moreover, the average consumption of an urban household in Shanghai is almost three times the national average (PricewaterhouseCoopers, 2004). The eastern and southern provinces of China are key areas of revenue growth, and present a higher growth potential for mobile value-added services.

Thirdly, it is estimated that 55% of mobile users in China are young working urban



adults between the ages of 25 and 35. For this market segment the mobile phones is a lifestyle statement with a complete communication, entertainment and office center.

In this environment, mobile phones are an essential part of "San Da Jian", i.e. the three big consumer items. Given a lack of fixed line infrastructure the government is also promoting it as a mass communication tool. These drivers have contributed to the growth in the number of sales outlets of mobile terminals (from operators, electronics shops, to all kinds of other stores) from about 10 000 in 1997 to over 8 Million in 2004 (Chen and Pau, 2004).

### *2.3.2 Innovative marketing models*

Innovative product strategies and models have facilitated the mobile phones adoption (Qing and Lee, 2005). For example, domestic manufacturers have focused on the market share based on lower labor costs, lower purchasing power market segment, minimal marketing and advertising budget (Dean, 2003). Chinese handset makers are also beginning to emphasize low-end R&D to meet the global competition.

#### *Prepayment Price Mechanism*

The mobile communications market in China favors prepaid price mechanism because of its market characteristics. This mechanism accounts to about 90% of all price strategies according to GSM Association data presented at GSM World 2004. New subscribers are increasingly from low income and low usage market segment, and yield lower levels of average revenue per user (ARPU), though minutes of usage have increased over the years but still slower than the price erosion. For example, according to China Mobile the ARPU has declined from RMB431 (US\$52) in 1997 to RMB90 (US\$11) in September 2004 ([chinamobilehk.com](http://chinamobilehk.com)). This is attributed to the substantial growth in low-use subscribers, particularly those signing up for prepaid services and heavy use of local mobile calls as opposed to long distance calls.

This market segment and many other users favor pre-paid services for better control over spending and privacy issues, as prepaid users do not have to register their address with the operator (Xu, 2003). This measure is being revised under the new regulations enacted at regional levels. China Mobile has about 160 million subscribers on the prepaid plans, which amounts to about 72 percent of its total subscriber base ([chinamobilehk.com](http://chinamobilehk.com)). Chinese Telecom operators also favor the pre-paid services because the back-end-billing strategy caused them revenue losses from unpaid bills (Zhang & Prybutok, 2005). Back-end billing and collection systems have to be established, and consumers have yet to adopt them (York, 2001). The Chinese banking sector and systems integrators are not yet technologically ready to take on this challenge. This serves as an impediment to mobile operators who are unable to sell third-party services despite that the technology has increased capacity, and lowered costs because of undeveloped billing system. Each bank in China has its own credit and debit card billing system, and transactions cannot be routed through a centralized computer system until the system has been standardized, and real time compensation or clearinghouses has been established. China Mobile and China Unicom have been encouraging their customers to switch to subscription plans to use third-party services, and possibly 3G services in the near future, but have met with limited success (China Daily, 2005). China continues to be a largely cash culture economy and most Chinese consumers do not use credit or debit cards. These market characteristics make China's mobile communications market highly complex and competitive.

### *Value Added Services*

Chinese portals have the potential of making large profit rates on their mobile value-added services, especially SMS, multimedia downloads and mobile gaming through alliances and networks with third party content and service providers by introducing cutting edge services, brand-hopping and price sensitivity issues which concerns the current Chinese market (Campbell, 2005). Table 2 show that the ring tone downloading is the most widely accepted value-added service followed by services that are adopted by more than 30% mobile users include downloading pictures, ring tones, accessing Internet, ring tones, using SMS/MMS, surfing on WAP websites, and downloading mobile phones games.

Type of Wireless Value-	Percentage of Internet
Download Ring Tone	72.6
Download Color Pictures	36.9
Access Internet (GPRS or	35.5
Colorful Ring Tone	34.8
MMS	34.5
Surf on WAP Websites	32.8
Download Mobile Phone	31.0
Take Pictures by Cellular	25.8
Download Black & White	25.0
Magic Toolbox	19.2

**Table 2 :** Wireless Value-Added Services Adopted by Internet Users in 2004

**Source:** Shanghai iResearch, <http://www.iresearch.com.cn>

Sample: N=9417; data obtained through email survey in iUsersurvey in July, 2004

Demand for mobile content is expected to represent 40 percent of operators' total revenue by 2009 and mobile operators now face the challenge of managing the future growth of mobile content (Business Wire, 2005). In order to differentiate, mobile operators are collaborating with the third-party content providers and portals, like SINA Corp., SOHU.com and NetEase.com, to integrating mobile content and value-added services on SMS, MMS, WAP, and IVR (Interactive Voice Response).

In order to address these developments, NTT DoCoMo's success in Japan has provided Chinese mobile operators with valuable experience in developing a business model. In November 2000, China Mobile introduced a network business model namely, the Monternet program (ChinaMobile.com). Under this program, content service 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 between 9 and 20 percent of the traffic revenue while the content service providers receive the remainder of the revenue (Xu, 2003).

The Monternet program has generated a good response from content service providers, including SINA, SOHU and other Internet portals. As at the end of 2004, there are over 1000 content service providers participating in the Monternet program (China Mobile (HK) Annual Report, 2004). Currently, these content service providers offer several types of services, including message-on-demand and stock trading. For example, subscribers can visit the website of SOHU and subscribe to customized news, such as sports and entertainment. This allows them to receive the latest news via their handsets on

a regular basis. China Mobile charges RMB0.20 (US\$0.02) for each piece of news ([ebusinessforum.com](http://ebusinessforum.com)). New WAP 2.0/ XML compliant handset models usable for Monternet services are constantly added and new services such as long-distance educational courses and charity donations offer consumers more variety in content. In addition, according to [Monternet.com](http://Monternet.com), WAP 2.0 also works on smart phones and with PDA phones for richer content provision. As content provision standards rise, China's mobile users become increasingly sophisticated (World IT Report, 2004)), pushing new innovation for the mobile phones user market in China.

#### *The SMS Phenomenon*

The success of SMS is largely a result of its low cost and convenience, and the Chinese user's general shyness compared to westerners' forwardness. Currently, SMS is limited to a maximum of 160 characters, but it is an economical and cost effective way to communicate (Xin, 2002). Chinese mobile phones users sent 217.76 billion short messages in 2004, up 58.8 percent from the previous year (China Daily, 2005). This translates to about 2 SMS per user per day and brought in revenue of about RMB21.7 billion (US\$2.62 billion) in 2004, as sending one short message costs RMB0.10 (US\$0.01) against a regular one-minute telephone call which costs RMB0.40 (US\$0.05) (Xu, 2003). China's two largest mobile telecommunications operator, China Mobile and China Unicom, were expected to handle a total of 550 billion text messages in 2004 (Pienaar, 2004). On average, each user spends RMB21 (US\$2.57) on SMS per month, excluding the revenue generated by content providers. The above numbers though are only estimates as the dominant prepaid service bundles actually use an SMS price which is lower by some estimates up to 40%.

Some wire-line Internet portals like SINA.com and Sohu.com also allow users to send SMS via their PCs to the handsets of mobile phone users. Other than SMS chatting, guessing games, news alert and information inquiries, other innovative personalized services like reading SMS novels are projected to be a hit in the Chinese market. The service enables mobile phones users to read a novel by receiving an 'episode' in a SMS message every day, costing about RMB0.30 (US\$0.04) each (China Daily, 2005).

Mobile operators and service providers are discovering that they can also profit from the information services based on SMS content provided by insurers, security firms, banks, airlines, and shopping malls. The joint SMS centre, called MOBNIC (Mobile Network Information Centre), launched in 2005 by China Mobile, China Unicom, the China Mobile Communication Association and other service providers enable users to visit various "SMS-based servers". Users can send a specific number or code via an SMS message to access the "SMS server" to retrieve interactive information services. SMS centers offer small and medium-sized enterprises a channel to access their markets cheaper and conveniently (China Daily, 2005).

### **3. Challenges to Mobile Service and Terminals Industry**

One of the major challenges faced by the mobile content industry relates to the policy and management irregularities. This has led to several problems: delivery of illegal and pornographic content; service providers' forcing subscription of services by users without their prior consent; underdeveloped billing methods; and declining revenues in general (Xu, 2003; Zhu & Wang, 2005). Government regulations have placed those service providers (operators and content providers alike) who profited from regulatory

irregularities under an increasing “pressure”. Analysts believe many small content service providers will be either phased out of the market or be merged with larger organizations (China Daily, 2005). Given their dominant market positions, the mobile operators in China have significant negotiating power over third-party content service providers to dictate the terms of their cooperative agreements (Qing and Lee, 2005). At the same time operators like China Mobile and China Unicom are dependent on content service providers to continuously provide content and create new innovative services in order to drive revenue growth, especially as the in-house service creation skills of these operators are inadequate. As a consequence, content service providers are able to exert pressure to receive the majority of the revenue generated by their services (York, 2001). China's Mobile regional units are now trying to form their own value-added service (VAS) companies to replace the current content service providers.

Another challenge relates to the market and organization control failure over several operators (Martinsons and Westwood, 1997). Recently, China Mobile suspended the MMS licenses of four of its concessionary operators SOHU, Mtone Wireless (Shanghai), Shanghai Sifang, and Guangzhou Rui Shi Communications. These four content service providers were suspected of providing MMS services to mobile users without their permission and secretly charging the users for those services. SOHU and Mtone Wireless were also accused of sending unsolicited WAP push advertisements to mobile users. SINA.com also announced that China Mobile has temporarily suspended its IVR service in September 2004 for violating contractual policies (Xin, 2002; SINA.com). Such activities are likely to reduce revenue and profits of affected mobile operators and content service providers alike and slow down the growth of the mobile market.

Next, technological growth for local Chinese market needs presents its own challenges to the mobile operator industry. Competition has also come in the form of a substitute service, the Personal Access System (PAS), a hybrid of fixed-line and wireless communication service that offers cheap calling rates, albeit without external roaming capabilities (almost identical to older Japanese PHS system). 36% of subscribers to China Mobile, the leading wireless company in China hold a competing PAS phones account with one of China's two fixed-line incumbents, China Telecom Corp. or China Netcom Corp (Buckman, 2004b). Since its introduction the PAS has been the fastest-growing phones service in the world in 2002 (Suh, 2002) and by 2004, Chinese PAS subscribers amount to 50 million and the number continues to grow (Buckman 2004a). One reason is a very low price and the fact that PAS serves the needs for most urban users. The Chinese market for mobile phones maybe heading towards temporary saturation, as growth in number of cell phones subscribers for major mobile operator China Mobile plunged from 2.12% in 2004 to 1.58% in 2005 (SinoCast CBDN, 2005a); but the Taiwan case with over 100% percent penetration shows there are still market opportunities.

Similarly high technology growth challenges the market of established standards and raises challenges to foreign investors. Current growth of mobile data services in China depends on the existing SMS, based on the GSM standard (Xu, 2003). The use of services offered over the advanced second-generation (2.5G) GSM-compliant mobile telecom networks (GPRS or EDGE) in China is growing. Services offered over the higher capacity 2.5G networks are more sophisticated and offers higher quality graphics, richer content and interactivity. Chinese content service providers are moving up market with premium branded content from sometimes international partners to fully utilize the capabilities of 2.5G services and differentiate themselves from their competitors. The more common 2.5G services include games, information services, animated cartoons and sophisticated ring tones (Bout *et al*, 2004; Boltz and Corney, 2005). Meanwhile, China Unicom announced that it has upgraded the CDMA network it owns besides GSM/GPRS

from CDMA 2000 to CDMA 1X (China Daily, 2004).

Compared to the existing mobile telecom services which mainly focus on voice services the newer third generation (UMTS) networks offer a wide range of new telecom services such as multi-media services, mobile video, mobile television, mobile banking, mobile securities and enhancements to older location-based services. There are three 3G standards acknowledged by the International Telecom Unicom: the US, Japan and most of Asia based WCDMA (Wideband CDMA), US Qualcomm-based CDMA 2000 and Chinese only TD-SCDMA (Time Division Synchronous Code Division Multiple Access). It is reported that China does not want to repeat mistakes made by a few European telecom regulators like UK and Germany with the 3G license bidding process and costs (Zhang and Prybutok, 2005).

The Chinese government has also been cautious in 3G licenses and standards (Zhang and Prybutok, 2005) as a matter of industrial policy, to avoid the Japanese mistakes mostly with proprietary wireless standards like PDC, PHS etc which curtail interoperability and exports. Mobile operators, including fixed line operators like China Telecom and China Netcom, have been tasked to carry out 3G tests using different standards. China may allow the simultaneous existence of multiple 3G standards in the same market, although the US diversity of standards has not benefited user companies and individuals.

In future, the Chinese mobile operators will face growth blockings in the form of weaknesses in financial payment systems, operational business processes, lack of productivity and competition by community based systems (Pau, 2004).

#### **4. Conclusion**

Issues of costs, technological developments, standards and contexts in various Chinese languages continue to represent major challenges but growth potential in the Chinese mobile industry. 3G/UMTS issues are yet to be addressed; it is widely believed that China will be able to make the transition to 3G smoothly in some cities before the 2008 Olympic Games in Beijing. China has also committed to the 4G development initiatives and is cooperating with the European Union and Japan for research and development (SinoCast CBDN, 2005c).

At the market level, challenges and future growth depends on creating a favorable business environment both for local and multinationals manufacturers, operators and content service providers. Mechanisms such as improvement in payment methods; regulation for content providers; branded and low-end mobile phones marketing, applications in Chinese language are required for a systematic and not just sporadic adoption of mobile devices. New product development and advancement, customer and service support, and managerial skill enhancement in the mobile phones and terminals industry can ensure growth of mobile communication and increase in average consumer spending. It is recognized that globally, only new device replacement and new services grow revenue but given the strong competition, it is difficult to sustain it. If these trends continue, by the year 2010 each urban household will be accessed by mobile phones ([emarketer.com](http://emarketer.com)), although radio coverage in the countryside will continue to be an impediment for the wider diffusion of mobile phones. Mobile market is a global and a dynamic market. But its potential in China beyond communication is largely unrealized, and will change when this medium becomes more advance yet reachable, usable and

affordable for end-users. China remains a potential growth market for wireless handset manufacturers, operators, and service and content providers.

## Acknowledgements

We thank Sanny Yoeliawan and Fu Wei Qiang for their help in this research ,as well as Prof.L-F Pau's colleagues at Ericsson China

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