China:
M-Commerce in World's Largest Mobile Market

Nir Kshetri, The University of North Carolina at Greensboro
Nicholas Williamson, The University of North Carolina at Greensboro
David L. Bourgoin, University of Hawaii at Manoa

Abstract

China is emerging as a global capital of m-commerce applications. China is the world's biggest mobile market in terms of subscriber base and the fastest growing in the history of telecommunications. Although China currently lacks advanced mobile applications compared to Europe, North America, Japan and Korea, a number of cellular players are rapidly launching sophisticated mobile applications. Unique institutions and the nature of cellular market conditions of China, however, superimpose in a complex interaction that harbors a paradoxical nature. The Chinese m-commerce market is thus drastically different from the Western world. This chapter examines the Chinese m-commerce landscape and analyses its drivers. We also examine the Chinese market from the CLIP perspective.

I N T R O D U C T I O N

Consider the following observations on the development of cellular technology and the potential of m-commerce in China.

For the tech industry, it's China-not Europe, or Japan, or other Asian countries-that will soon be its [USA's] main rival. The implications are profound. No longer content to cheaply make other people's products, a task it has clearly mastered, China wants to be a global standards setter..…. One place to watch the flexing of power is in mobile phones[1].

The mobile Internet has really saved China's Internet industry.

Victor Wang, CEO of Mtone Wireless Corp[2].

As the above statements indicate, China has emerged as a capital of the global mobile market. The growth rate achieved by the Chinese cellular network, the biggest in the world, is the fastest in the history of telecommunications. Rapid development in the

Chinese cellular market has driven increasingly China-centric activities of major players in the global cellular market (Kshetri 2004a, b).

Unique institutions and the nature of cellular market conditions of China, however, superimpose in a complex interaction that harbors a paradoxical nature (Kshetri 2005). This chapter provides a brief survey of the paradoxical Chinese m-commerce market and analyses its driving force. The chapter structure is as follows: The next section provides a brief overview of the Chinese mobile market. Then, this paper analyzes some major forces behind China's rapid growth in the cellular market. Next, the paper examines the Chinese market from the CLIP perspective. Finally, the paper presents its conclusions.

A BRIEF SURVEY OF THE CHINESE MOBILE MARKET

The Chinese mobile market became the largest in the Asia Pacific in 2000 and the world's largest in 2002 (Stout 2001). By the end-2004, there were over 300 million cellular subscribers in China and additional 75 million "Little Smart"[3] users (BBC News 2004). During 2004, cellular phone users in China grew by 27 per cent (Reuters 2004). An estimate by the telecom analyst firm, EMC, suggests that China will have 36 million 3GSM[4] (W-CDMA) subscribers by 2009 (globalsources.com, 2004).

In 2002, 120 million handsets or 27 % of the world total were produced in China. The proportion increased to 33 % in 2003, 35.1% (233.5 million) in 2004 (SinoCast China Business Daily News, 2005a) and is estimated to reach 50% by 2008 (Symbianphone.com, 2003). China's handset export increased from 22.75 million in 2000

(GIS News, 2001) to 55 million in 2002. During the first half of 2003, China exported 37 million handsets.

China's Time Division - Synchronous Code Division Multiple Access (TD-SCDMA) standard developed by Datang is currently accepted as a global third generation (3G) standard. Among 16 proposals submitted for IMT-2000[5] standards, TD-SCDMA developed by China's Datang was one of the three 3G cellular standards selected by the International Telecommunications Union (ITU) in May 2000. The other two standards are U.S. based CDMA2000 system and Europe's WCDMA. The Third Generation Partnership Project (3GPP) accepted the TD-SCDMA in March 2001.

TD-SCDMA is scheduled for launch in the second half of 2005. Estimates are that following its launch, the TD-SCDMA will capture 30% of the Chinese market and 10% outside China (Einhor, 2003). It is also interesting to note that some innovative m-commerce applications were first developed and employed in China. To take one example, the world's first electronic stock trading over the wireless network, took place on byair.com in Shanghai, China, in 1998[6] (see Box 1).

By 2008, China's wireless mobile market is estimated to cross US$200 billion[7].An estimate of Lehman Brothers Inc. suggests that revenues of mobile portals generated by sending news updates, games, and online dating amounted TO $200 million in 2001 which was estimated at $3 billion in 2004. China Mobile, the world's largest mobile operator, was the most profitable telecom operator in the Asia-Pacific region in 2002, with a profit of $3.5 billion on revenues of $12.2 billion. A 28% return on revenue is an excellent indication of where the Chinese market is developing.

China introduced the Wireless Fidelity (WiFi) technology in 2002 and is diffusing rapidly (Clark and Harwit 2004). By the mid-2003, 80% of China's five-star hotels, airports and high-grade office buildings in the four biggest cities were connected to China Netcom's WiFi network[8]. As of the end-2003, China Telecom, China Netcom, and China Mobile had about 10,000 hot spots deployed or planned for rollout (Clark and Harwit, 2004).

One estimate suggested that the Chinese WiFi market was a $24 million in 2003 (compared to the worldwide market of $600 million) (Koprowski, 2004). Another estimate suggests that China's WiFi market will reach $250 million by 2005[9]. This growth from 4% to 30% of the market is astonishing. Venture capital companies such as Intel Capital are capitalizing on the huge WiFi potential in China by funding the deployment of WiFi technology (Clark and Harwit, 2004).

The Chinese mobile market, however, is characterized by a high degree of bias towards urban areas. For instance, in 1999, 78% of the population owned cellular phones in the three wealthy cities—Beijing, Shanghai and Guangzhou— (Tsuchiyama, 1999), which compares with the national average of 3.42% that year (UNDP 2001). This disparity can indicate a huge potential market for future investment and development, or conversely shows the sophistication of the Chinese money pockets with its high technology development and implementation that is close to the cutting edge.

CHINA'S RAPID MOBILE DIFFUSION[10]

Starting the mid-1980s, China invested heavily in the telecom sector. The heavy investment was supplemented by a series of programs designed to accelerate telecom

development including extensive re-engineering of and intense competition in the mobile sector. China Unicom, formed in 1994, competes with the then-monopoly China Telecom and is licensed for mobile, paging, data, Internet and long-distance (James, 2001).

Fierce competition in the Chinese mobile sector led to low connection fees as well as lower subscription fees for mobile services in China. In the late-1990s, for instance, monthly subscription rates as well as connection charges for mobile services in China were lower than the average in lower-middle income countries or in general across the world (Table 1). Fixed line connection, on the other hand, was more expensive than both of these comparative averages. Competition and technological development have steeply reduced the costs of mobile phones. When cellular handsets were first introduced in China in 1994, the price was US$850, which decreased to about US$200 in 1999 (Tsuchiyama, 1999). Similarly, the connection fee declined from US$600 in 1994 (Tsuchiyama, 1999) to US$60 in 1999 (Table 1). By the mid-2001, China Mobile eliminated its cellular connection fees in many cities.

Table 1: A Comparison of Fixed and Mobile Charges in China and the world

	China	Lower-middle income countries average	World average
Mobile network (1999)			
Connection ($)	*60*	90	86
Monthly subscription ($)	*6.04*	20.99	21.40
Tariff per minute (peak) ($)	*0.05*	0.25	0.27
Tariff per minute (off-peak) ($)	*0.05*	0.18	0.18
100 minute basket ($)	*10.87*	39.69	38.15
Fixed network (1998)			
Residential connection ($)	*226*	133	109
Business connection ($)	*226*	212	155
Residential monthly subscription ($)	*1.9*	4.8	6.9
Business monthly subscription ($)	*2.9*	8.8	11.5
Cost of 3 minute local call ($)	*0.01*	0.05	0.09

Subscription as a % of GDP per capita	*3.1*	3.8	7.5

Source: ITU (1999), Adopted from Kshetri and Cheung (2002).

To penetrate the market, mobile subscribes have reduced subscription fees and have introduced other promotional measures. Examples of such measures include China Mobile's heavy discount plans in Beijing, Shanghai and Guangzhou (Wall Street Journal, 2003); and China Unicom's plan that allows users to set five local phone numbers at 1.2 cents per minute (one-sixth of normal rate) and up to 60% discounts for heavy users of short messages. The planned rollout of Xiaolingtong (Little Smart)[11] and the ongoing heavy price competition among mobile suppliers have intensified the promotion.

The Chinese government expects that a richer and more technology-orientated economy might help increase respect for the nation. The government also has the ambition of providing every household with a telephone. To achieve these objectives, top priority was given to build R&D capacity in mobile telephony in the late 1990s (Niitamo 2000). The government is also promoting mobile phone as the 'people's phone' and is actively encouraging Chinese consumers in the cities and countryside to buy mobile phones (Kshetri and Cheung, 2002).

Innovations in mobile pricing such as the introduction of mobile pre-paid cards have been the major driving forces for the rapid diffusion of mobile phones across the world. Mobile pre-paid cards were introduced in China at the end of 1999 and are contributing to mobile growth rates.

CHINESE MOBILE MARKET FROM THE CLIP ANGLE

China differs widely from the developed world in terms of the four CLIP dimensions: communications (C), information (I) exchange, and payments (P) and "locatability" (L). Compared to developed countries, voice communications account for a significantly higher proportion of the Chinese cellular market.

In data communications, technologies that are a decade-old and outdated in most developed countries are among the most profitable in China. For instance, SMS, a standard feature on almost every wireless phone, which sends text messages at 80% less costs than voice transmission is very popular in China[12]. The popularity can be attributed to its low cost and the fact that even basic wireless handsets can perform it.

Box 1: GW.Com's mobile portal in China[13]

GWCom is a mobile wireless ASP in China. It launched its wireless portal byair.com[14] in 1998 to provide timely information and e-commerce capabilities such as stock trading and banking to users with mobile phone or wireless palmtop devices in the U.S. and Greater China. The company provides its networks and handheld device (netset) to individual investors. By 2002, GWCom had partnered with over 30 Internet content providers and e-commerce portals in the U.S. and Greater China and connected with more than 20 securities trading firms.

By March 2000, byair.com had over 6,000 subscribers with the number of stocks traded as high as 3,500 daily and number of page views 250,000. By the early 2002, it delivered services to over 250,000 mobile users and more users on Information on Demand (IOD) and messaging services. GWCom users mostly use the two-way paging capability for trading stock electronically and such transaction-type services has turned out to be the 'killer application' (TDAP, 2002).

The company's pricing structure made stock investment on its paging network more attractive than on the fixed network. Because of low PC penetration and relatively higher Internet access fees, the only way to trade stock for a large proportion of Chinese is to read newspapers or magazines and then pick up a phone[15]. These factors have made GWcom's web portal more attractive (Ebusinessforum.com 2000). GWCom describes its network product, PLANET, as a "high-capacity and low cost cellular packet data network that is optimized for serving wireless palm computers and PDAs"[16]. The users pay a monthly service charge of only about US$5-10. With the increasing demand, GWCom has decided to specialize in the mobile wireless data network infrastructure and outsource the equipment manufacturing to Ericsson and some Chinese vendors. This is likely to result further reduction in the price.

China's stock market is growing very fast[17] and the stock exchange companies are located in Shanghai and Shenzhen. GW Trade selected these two cities for the initial trial. Wireless users have been using GWCom's application platforms to conduct online trading since 1998 in Shanghai and since 1999 in Shenzhen. In March 2000, 3,000 investors in Shanghai, and 100 in Shenzhen, were trading stocks over the paging networks managed by GWCom. The average daily volume of 3,000 Shanghai users in early-2000 was $3.6 million, about 30 times as much as the average trading volume on stockstar.com, the largest and most popular Web-based stock trading company.

In developing countries like China, non-voice technologies (such as paging) have potential to offer a cheap and reliable way to transmit data that will be a viable alternative to the mobile phone. In other parts of the world, big players are not following such paging route (Holland, 2000). The GWCom case also provides some evidence of leapfrogging potential of mobile technologies. For instance, the world's first electronic stock trading over the wireless network took place on the GWCom network in 1998 in Shanghai.

Nevertheless, more advanced m-commerce applications are rapidly emerging in China. For instance, through revenue-sharing deals with China Mobile and China Unicom, China-based web portals such as Sina, Sohu, and NetEase have launched new business models that are tailor-made for the Chinese market. These companies charge the users for news updates, games, and online dating information to mobile phones. The services have thus evolved beyond simple text messages. Sohu, for instance, sends out color greeting cards accompanied with voice messages from basketball star Yao Ming (Einhorn, 2004). By April 2003, Sohu provided 150 fee-based wireless products (such as Japanese game "Kung-Fu Boy") to its over one million SMS services subscribers (World IT Report, 2003).

Virtual games played on mobile devices are also growing rapidly. By the end of 2004, there were over 10 million mobile game players in China generating about $100 million in revenue (SinoCast China Business Daily News, 2005c). The Chinese mobile game market is expected to grow by 80% in 2005 (SinoCast China Business Daily News, 2005b). IDC suggests that the Chinese online game market will reach $809 million by 2007. Virtual games offered on cellular devices are becoming increasingly popular. For instance, in a game offered by Mtone Wireless Corp in the late-2003, 500,000 people signed up in three months (Einhorn, 2004). Chinese and foreign cellular players are planning to launch a wide array of business models for the Chinese mobile market. In the mid-2005, for instance:

a) Global cellular NetVillage was at a final stage to distribute its pinball game to Java-enabled handsets in China and aims to develop a variety of business models (Tsukioka, 2005).

b) Tom Online and Warner Bros. Online were planning to launch a Chinese-language Web site featuring cartoon characters such as Bugs Bunny and Scooby-Doo for mobile phones (Wall Street Journal, 2005).

Box 2: M-payment in China

Although m-payment is in a nascent stage in China, it is growing exponentially. One estimate suggests that wireless payment will be 15% of e-commerce payments in 2006 (Rashtchy, 2004). Cellular companies with innovative business models are capitalizing on this rapid growth rate. Smartpay, a multi-province mobile payment system, which allows subscribers to pay phone bills simply by sending an SMS message (DMAsia.com, 2004) had over 100,000 users as of December 2004 (Ortolani, 2005). The company also has partnerships with seven banks, including China Construction Bank and Agricultural Bank of China (Ortolani, 2005).

The Chinese mobile market, however, lacks more sophisticated m-payment services. M-payment in China is hindered by a number of factors including a lack of secure network with an efficient authentication system in banks; a lack of retail network that accepting codes that link to customers' bank accounts and perceived fraud in transactions (chinanex.com 2004). Basic services such as handset banking in which a cell phone user can check his/her account online and transfer funds within the same bank have been available for some time (chinanex.com, 2004). China Mobile and China Unicom launched one-way payment services in 2003. China Unicom's one-way payment card launched by in 2003 attracted over 20,000 new users in three days (SinoCast China Business Daily News, 2005d).

Nonetheless, major players such as China Mobile are aggressively expanding m-payments (Rashtchy, 2004). In May 2005, for instance, China Mobile and China UnionPay announced their cooperation with ten banks to launch m-payment services in Beijing in 2005 (pacificepoch.com, 2005).

Mobile payment is less attractive in China compared to Europe and North America. A major hindrance is China's cash based economy-- over 90% of business transaction takes place on cash basis. Nonetheless, companies are launching a variety of innovative business models to facilitate m-payment (See Box 2). In the payment realm of business, in 2002, Sumit Mobile Systems Ltd., working with cellular network providers, banks and utility companies in Shanghai, designed a system that allows users to pay their bills by cell phone. When a payment is due, a message displays on the screen that shows

the amount due, where the user can then authorize the payment from a bank account by typing a secret code. The service attracted 90,000 users in Shanghai in nine months (Manuel 2003). Similarly, in the mid-2005, The Music Engine (TME), a U.K.-based technology and online marketing solutions provider, was planning to provide m-payment services in China (Salz, 2005).

Chinese cellular landscape is also developing rapidly on the locatability dimension. In the mid-2004, Cambridge Positioning Systems (CPS) partnered with Wisemax, a Beijing-based supplier of multimedia messaging and SMS to provide the Chinese wireless market with location-based services supported by its Matrix software solution (Geospatial Solutions, 2004). Similarly, in November 2004, Sichuan Yingda, a China-based mobile value-added service provider, launched location-based services based on Matrix location system of CPS to track its vehicles, security personnel as well as other assets of the company (Wireless News, 2004).

C O N C L U D I N G R E M A R K S

The discussion in this paper makes clear that M-commerce in China is expanding quickly while unusual paradoxes co-exist. For instance, the Chinese cellular market is the biggest in the world and penetration rates in some of the wealthiest Chinese cities are much higher than the averages of many developed countries. Yet mobile phones are virtually non-existent in many Chinese villages. Similarly, some of the most modern m-commerce applications are emerging from China. At the same time, decade old cellular technologies that are outdated in the developed countries are widely used in China and among the most profitable applications. A technology marketer's success in the Chinese m-commerce

market, thus, is a function of its capability to go beyond superficial indicators and understand how the company can capitalize on the paradoxes.

Questions for Discussion:

1. What are the most important factors that are driving the diffusion of cellular technology in China?
2. How does the Chinese mobile market differ from European and the U.S. mobile markets?
3. What, do you think, are the opportunities created by the Chinese cellular market that do not exist in European and U.S. markets?
4. Examining from the CLIP perspective, how does the Chinese cellular market differ from cellular markets in Western Europe and North America?

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Endnotes:

[1] See Vogelstein et al. (2004)

[2] See Einhorn (2004).

[3] "Little Smart" is a low-cost limited-roaming service provided by several fixed-line operators.

[4] 3GSM builds on GSM to allow the integration of IP (Internet Protocol) technology and new features such as video calling, faster Internet, WAP access and downloadable content (http://www.wavetelecom.com/content/shared_content/mobile/downloads/Wave_FAQs.doc).

[5] International Mobile Telecommunications (IMT- 2000) is a general term for technologies planned to be included in the ITU's world standards for 3G mobile communication.

[6] See http://www.mobic.com/news/2000/01/gwcom_receives_capital_investmen.htm.

[7]See http://mobile2004.com/ (4G/B3G-OWA Will Reshape China's Future Mobile Communications Research).

[8] WiFi Makes Internet Plus Coffee Possible in Beijing and Tianjin , SinoCast China Business Daily News. July 25, 2003, p. 1

[9] See http://www.itfacts.biz/index.php?id=P448

[10] This section draws from Kshetri and Cheung (2002).

[11] Xiaolingtong is provided by fixed-line phone companies and is much cheaper than mobile services provided by China Mobile and China Unicom.

[12] See Kahn (2003).

[13] This case draws from Dholakia and Kshetri (2003).

[14] GWcom restructured the corporation in April 2002, dividing the business into two companies. The short messaging service (SMS) business has been renamed to byair Corporation which encompasses the mobile media services. The network business is GWcomPlanet Corporation.

[15] See http://www.gwcom.com.cn/gwcom_news-m17.htm

[16] See http://www.chinatelecomconference.com/china-dc/bio/bio13.html

[17] See http://www.gwcom.com.cn/gwcom_news-m17.htm