China's Mobile Payments Industry - What's next

A look at the key trends driving the development of China's mobile payments industry and what to expect in the future

A Report by Kapronasia
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Foreword

Offering a relatively cheap and certainly more convenient method of making payments than traditional cash or card methods, payments made through the mobile phone promise to change the way we pay for goods and services and are a rapidly growing area of the global financial industry. We saw a number of advancements in 2011 and expect this to continue at an even faster pace in 2012.

The mobile payment industry in China is growing rapidly as well. Although issues on mobile payment standards have somewhat inhibited the development of near field payment services, China, with the largest population of mobile phone users, over 1 billion people, nearly three times that of North America, is still one of the most appealing markets for mobile payment services.

Understanding what is happening and what will happen in this rapidly developing and complex market is essential for every player who wants to enter. This Mobile Payment in China report conducted by Kapronasia offered an in-depth look at the dynamic market, including the market environment, market size, industry chain, and comprehensive analysis on the current issues and future trends from our primary and secondary research.

We hope you find this report as interesting to read as it was for us to research.
Methodology

The Mobile Payments in China report focuses on the current situation and future trends affecting the Chinese Mobile payments market.

The purpose of the research was to gather insight into:

- The key issues and trends that will shape the industry
- The role of regulators and government in the industry and how their actions will shape the future direction of the industry
- Vendor offerings that will change the way banks do business and leverage technology

The findings are based on a combination of secondary and primary research. Secondary research sources included Kapronasia’s internal knowledge database, external government reports and published reports from vendors and financial institutions (FIs) themselves. Primary research included interviews with FIs involved in the trading space, vendors and industry experts.
Key Findings

• Though China topped U.S. as the biggest smart mobile phone market worldwide, the penetration of smart phones is still low, less than 10% of the total mobile phone users.

• The NFC technology is still the most popular choice for near field payment and will become the most widely used technology in China, also globally.

• Appointed by the PBOC and ‘founded/owned’ by over 80 financial institutions in 2002, CUP is China’s domestic retail payment switch and has an essential monopoly on domestic bankcards.

• Any main player who wants to enter and build a presence along the mobile payment value chain must search for trustworthy and suitable partners including software solution vendors and hardware providers.

• Technology standards in the Mobile Payments industry may not be as important as thought before. The most important thing for main players to consider is to develop killer applications with a good user experience in order to acquire and retain customers, rather than to debate the best standard.
Definition and Classification

Before we start to get into the details of the mobile payments industry in China, it is worth defining what we specifically mean by mobile payments, as there can be multiple definitions, and further, different types of mobile payments in China.

Based on wireless communication technology, mobile payments, for our purposes, refers to a payment process started and made through a mobile device, such as a mobile phone, a notebook computer, or a PDA. In most cases, mobile payments are made through mobile phones, and this is the largest area of mobile payment growth currently. For the purposes of this China Mobile Payment report, we use mobile payment only to refer to mobile phone payment.

Based on payment distance and the type of technology utilized, China’s mobile payments can be divided into two types:

**Remote Payment:** Based on Mobile Internet provided by operators’ network or Wi-Fi, remote payment builds a bridge between users’ mobile phones and a payment system through the technologies of SMS, GPRS, or WAP. In order to send a payment request and complete a payment, users can send a short message or access online payment gateway through mobile phone browsers or dedicated apps. After the payment system receives payment requests from mobile phones, payment will be processed.

**Near Field Payment:** Using various technologies including NFC, RFID, Bluetooth, and IrDA, mobile phones can be equipped with near field payment functionality through either a NFC chip on the back cover of mobile phone or integrating a NFC chip into a SIM or smart card, so that customers can use their mobile phone interact with special terminals, such as NFC readers and contactless-enabled POS terminals, to finish payment processes. Unlike remote payment, near field payment can be made without using the regular or mobile internet.
## Comparison of Remote and Near Field Payment

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<th>Technology Prospective</th>
<th>Remote Payment</th>
<th>Near field Payment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology adoption and innovation</td>
<td>Mobile Internet: SMS, GPRS, WAP; relatively mature technology</td>
<td>Near field Communication technologies: NFC, RFID, Bluetooth, IrDA; continuous technology innovation</td>
</tr>
<tr>
<td>Transaction environment</td>
<td>Online transaction</td>
<td>Offline/online transaction</td>
</tr>
<tr>
<td>Requirements of payment devices</td>
<td>As payment is processed through the Internet, there are no specific requirements on users’ mobile phones.</td>
<td>As users’ mobile phones need to be equipped with special hardware and interact with special terminals, there are relatively high requirements on payment terminals that need to be standardized and regulated.</td>
</tr>
<tr>
<td>Business Prospective</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Account Management</td>
<td>Money can be charged through users’ normal a mobile phone account, a bank account linked with a mobile phone, through the mobile Internet or a special account in which users deposit money first.</td>
<td>A special account offered by service providers such as MNOs and third-party payment companies; users need to deposit money in it first. In this case, the mobile phone acts as a prepaid card.</td>
</tr>
<tr>
<td>Limitation on transaction value</td>
<td>No specific limitation</td>
<td>less than 1,000 RMB in most cases</td>
</tr>
<tr>
<td>Typical Usage</td>
<td>Online Shopping, high value payments (e.g. purchasing a flight ticket)</td>
<td>Public transit, utility payment, low value payment</td>
</tr>
<tr>
<td>Current situation</td>
<td>Stronger competition; higher proliferation</td>
<td>Only in a few select pilot areas; still figuring out business model</td>
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</table>
Milestone of mobile payment in China

Market Environment

High mobile phone penetration in China

In 2011, after several years of rapid development, the total number of mobile phone users in China exceeded 900 million. As mobile phone penetration increases, we can of course expect to see slowing growth of overall sales, but strong momentum as 3G services continue to proliferate in China. According to China’s Ministry of Industry and Information Technology (MIIT), the sum of 3G users surged 172% to 118 million by the end of November 2011, and the penetration of 3G in China surpassed 13% last year, indicating that 3G expansion is increasing rapidly.

Proliferation of Mobile Phones in China, 2009-2015

Along with the strong growth of mobile phone users, especially 3G users, the smartphone market is also growing rapidly in China.

Sales Volume of Smart Phone in China, 2010-2011
Though China topped U.S. as the biggest smart mobile phone market worldwide, the penetration of smart phones is still low, less than 10% of the total mobile phone users.

With the rising popularity of smart phones, the usage of mobile applications is also growing and users are becoming more interested in downloading and trying out various mobile applications. Most of the applications that are finding success in China offer a combination of flexibility for different system platforms, a good customer experience and high level of security.

**Mobile Internet market in China**

Recently, the mobile Internet market is booming globally, especially in China. Driven by the increased mobile phone penetration, especially smart phones, and the proliferation of 3G network that we mentioned above, China’s mobile Internet market doubled its total revenue to 40 billion RMB in 2011, according to iResearch, a local Mobile Internet market research company, and the total number of mobile Internet users reached to 356 million, which is about 70% of the total number of Internet users in this country.

![Mobile Internet Users in China, 2009-2015](chart)

The growth of the mobile Internet market in China lays a solid foundation for the rapid proliferation of mobile phone online shopping. Since more and more large E-commerce companies, such as Amazon China, Taobao (China’s biggest e-merchant company, like EBay) and Vancl (a leading online clothing merchant in China), have appeared well positioned for mobile online shopping market by launching their own mobile phone applications, users become increasingly accustomed to doing shopping through smartphones, and they realize that a cellular phone is not only a vehicle for telecommunication, but also provide a
convenient and safe way for shopping and payment.

### Total China Mobile Phone Online Shopping Value, 2009-2015

![Graph showing the increase in total China mobile phone online shopping value from 2009 to 2015 with estimates for 2012 and 2013. The graph shows a consistent upward trend with a compound annual growth rate (CAGR) of 17.9% for the period 2009-2015.](image)

**Source:** Kapronasia

Apart from online shopping, other mobile phone applications, such as mobile games and valued added services will drive the transaction volume through mobile phone in the future. This trend will likely further drive the need for a robust mobile phone payment infrastructure, especially in China’s rural areas. Rural users tend to be last in line for high-speed internet access via fixed lines because it is expensive to install the lines themselves. In contrast, mobile phone masts can cover a huge geographic area comparatively cheaply, and although their connection speed will be low, it can be applied almost immediately.

### Promotion of Contactless Payment

In 2011, The People’s Bank of China officially listed the proliferation of financial IC cards supporting contactless payment as a key task in financial industry during the 12th Five-Year Plan period. This great EMV migration project which will involve issuing at least 9 million new IC cards, millions of contactless-enabled terminals replacement and software update during the 5 years period, is aligned with the authorities’ pledge to promote the development of contactless small payment applications which are more convenient for users.

Mobile phone near field payment providers also benefit a lot from this EMV migration project and the proliferation of contactless payment application. Firstly, they can reconstruct mobile phones so that these devices can support contactless payment applications such as public transit. Secondly, the proliferation of contactless-enabled POS terminals offers a perfect acceptance environment for those reconstructed mobile phones also supporting contactless payment.
Since 2011, China UnionPay (CUP), which is the only bankcard processor in China, has led the project to update and replace of contactless-enabled POS terminals in China, and over 70% of the existing POS terminals are now available for contactless payment right now.

Although the bankcard industry has grown rapidly, bankcard acceptance (of either debit or credit cards) hasn’t kept pace and is somewhat behind the rapid development over the overall industry. This leaves an enormous potential makes us believe POS terminal market will keep a stronger growth and by the end of 2013, all of the new terminals will have been available for contactless payment.

Apart from the financial industry, China’s public transit system has also been a big part of the contactless payment application development. By the end of 2011, at least 400 cities prompted their own City Card program, issued 200 million city cards based on RFID technology and installed 600 thousand terminals for contactless payment.

As a result of this push to promote contactless-enabled POS terminals, the infrastructure is now in place for China’s mobile near field payment providers to take advantage of the opportunity and switch from traditional payments to contactless.
A Starting Point for China’s Mobile Payment Industry

Standards Controversy and Draft Completion

There are currently two near field payment standards in China right now: near-field 13.56MHz, an international and financial standard, and 2.4GHz, an independent standard developed by China.

In June 2011, a draft on mobile payment standards was completed: near-field 13.56MHz, an international standard, has been temporarily accepted as a mobile payment standard; 2.4GHz, an independent standard developed by China, is only used in a limited environment.

This however is still not the final decision for China’s contactless payment standard—because 2.4GHz is China’s independent standard, the authorities seem reluctant to discard this standard. This is similar to 3G development in China where multiple standards co-exist.

China’s regulatory agencies already started to define final standards for mobile phone near field payment in September 2011, which would include:

- Wireless communication and information exchange
- Near field communication interface protocol
- Near field payment terminal which is based RFID technology
- Application management and security
- Testing standards

It is estimated that the final standard will only be available by the end of 2012 at the soonest, and we think that both of the two standards will still co-exist in China for the foreseeable future.

Technology Adoption

Within each of the technology standards, a number of different technologies have been developed to handle mobile payments.
Mainstream Technologies

**NFC**

Promoted by Philips, Nokia and Sony, NFC evolves from non-contact radio frequency identification (RFID) technology and is used mostly in paying for purchases made in physical stores or public transit services. A consumer completes a transaction by waving his/her special mobile phone equipped with NFC technology to a reader, and the money could be deducted from his/her mobile wallet.

Even though NFC is highly advocated by CUP, the adoption of complete NFC phones still progresses slowly largely because of relatively high cost of replacement of mobile phone. Therefore, CUP prefers smart chips integrated with NFC technology, such as NFC-SD and NFC-SIM.

Obviously, the NFC technology is still the most popular choice for near field payment and will become the most widely used technology in China, also globally.

**SIMpass**

SIMpass is a competing technology to NFC. The technology was developed by Watchdata, a Chinese smart card manufacturer, and is based on double-interface SD card, with an antenna connected the card which handles the signal between the phone and the reader. Just by inserting a SIMpass card into the handset rather than changing a new mobile phone, subscribers can then tap the handset for contactless micropayment and also fulfill OTA top-up through a “SIM Application Toolkit”, which enables the SIM to run applications on mobile phones, or SMS. The
ease of functionality and lower cost has made the technology very attractive to mobile network operators including China Telecom.

Called SIMpass-SC, The next generation of SIMpass was launched by Watchdata at the beginning of 2012. By integrating the antenna into a SIM card, the SIMpass-SC looks like a normal SIM card which is better from a design perspective as there are no external attachments.

RF-SIM

Based on 2.4GHz standard, RF-SIM technology was independently developed by Nationz Technologies, a local chip manufacturer, and is mostly advocated by China Mobile, China’s biggest mobile network operator. In order to promote the RF-SIM card which is a SIM card consisting of three separate chips (a SIM card chip, a security chip and a radio frequency chip), China Mobile fostered a completely new industry chain and launched its “Mobile Wallet” schemes in several pilot cities.

After the draft on mobile payment standards was released, China Mobile postponed its RF-SIM expansion and has only launched it in a few pilot test cities.

Other technologies

Unlike CUP and MNOs, third-companies prefer developing their own new technologies which tend to be more cost-efficient. “Barcode pay” was developed by Alipay, the biggest third-party company in China, and is a good example of this.

Essentially copying what Square, a payment company in US, had created, some local Chinese third-party payment solution providers, such as WoShua and LeShua (“Shua” in Chinese language means “Swipe”), developed their own “square bankcard readers.” By plugging the reader which is a plastic device into the audio jack of a smart phone, users can swipe their bankcard through the device to complete payment. Vendors have teamed up with banks, CUP and third-party payment companies to promote these devices for commercial use; each reader sells for 20-30 RMB.
Regulations

2011 was a significant year for China’s third-party payment companies, in terms of industry regulations. In order to regulate the rapidly growing third-party payment businesses in China, the PBOC decided to grant a business license to every eligible third-party company.

After initially only issuing 50 3rd party payment licenses, on December 31st, 2011, the PBOC finally issued another 61 third-party payment licenses, bringing the current total to 101. These licenses cover internet, mobile phone, and fixed-line payments as well as bankcard acquisition, prepaid card issuance and acquisition, and money exchange.

<table>
<thead>
<tr>
<th>Batch Number</th>
<th>Internet Payment</th>
<th>Mobile Phone Payment</th>
<th>Prepaid Card Acquire</th>
<th>Prepaid Card Issue</th>
<th>Fix-line Payment</th>
<th>Money Exchange</th>
</tr>
</thead>
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<tr>
<td>First Batch</td>
<td>24</td>
<td>11</td>
<td>14</td>
<td>9</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Second Batch</td>
<td>6</td>
<td>5</td>
<td>7</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Third Batch</td>
<td>19</td>
<td>10</td>
<td>34</td>
<td>34</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Total Number</td>
<td>49</td>
<td>26</td>
<td>55</td>
<td>50</td>
<td>11</td>
<td>6</td>
</tr>
</tbody>
</table>

Totally, 26 third-party companies obtained mobile phone payment licenses, including 3 subsidiaries of the MNOs,
Mobile Payment Market in China

Market Size

By the end of 2011, the total transaction value of mobile payments soared to 7.6 billion USD dollars, a rise of 147%. The development of mobile Internet in China contributed to this increase, however, largely because of the standard uncertainty, key players will not expand their business too fast until the final standards are issued in 2012. Therefore, the mobile payment industry will continue to grow but with a slightly slower growth rate than that of 2011. By the end of 2013, the total transaction value will have exceeded 30 billion USD dollars per year.

![Graph showing the transaction value of China's mobile payment market from 2010 to 2015.](image)

Transaction Value of China’s Mobile Payment Market, 2010-2015e

Source: Kapronasia, 2011

By the end of 2011, the total number of mobile payment users exceeded 200 million, which still is only just over half of the total mobile Internet users, which exceeded 350 million in 2011. We expect that China’s mobile Internet market will have over 400 million mobile payment users by the end of 2015.
Traditional SMS-based mobile phone payments still account for the largest part of total mobile payments, but represent a decreasing amount of the total mobile payments. Near field only makes up about 3% share, largely because near field payment in China is still in nascent and mainly used for low value payment. In the future, more convenient and user-friendly remote payment will likely be the predominant form of mobile payments, and near field payment will keep a strong growth.

Source: Kapronasia
Industry Chain

Although there are a number of different actual business models, the general payment flow follows a relatively standard process:

The chart above details the typical mobile payment industry chain in China which involves many companies from different business areas. There are two kinds of customer in this business model: the mobile phone users and the merchants. In other words, the ultimate purpose of every participant in this industry is to attract more users to utilize mobile payment services and widen the merchant network.

Source: Kapronasia, 2012
The three main players, MNOs, third-party payment companies, and financial institutions (CUP/Banks), directly approach end users and lead the mobile payment business, with large phone usage bases, in the case of the MNOs, or merchant resources, in the case of CUP.

The external hardware and software vendors offer support on technologies, devices, solutions and added-value services, but cannot lead the business as they do not have the customer base.

Business Models

Although still in a very initial stage, the 3 main parties in China’s mobile phone payment industry have each essentially developed 4 types of business models:

![Business Model Diagram]

Partly because of the technological uncertainty surrounding standards and the high initial costs, all of the main players have only setup and promoted their mobile payment products in pilot areas. Initial results from each of these business models and pilots suggest that no player has found the perfect business model.
### Comparison of 3 Main Mobile Payment Players

<table>
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<tr>
<th>Financial Institutions</th>
<th>Strengths</th>
<th>Weaknesses</th>
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</thead>
</table>
| **Banks**              | • Sufficient funds  
                          • Trusted by customers | • High standard for systems security  
                          • Low flexibility and creativity |
| **CUP**                | • Largest offline merchant resources  
                          • Large number of bankcard holders  
                          • Inter-bank bankcard transaction center  
                          • Strong relationship w banks | • Difficult to approach large mobile phone user base  
                          • Online payment business still nascent, lack massive online payment users and merchant resources  
                          • Limited capital |
| **3rd Parties**        | • Large online payment user and merchant resources  
                          • High flexibility and creativity  
                          • Solid experience in Internet payment | • Regional separated  
                          • Offline merchant resource is small |
| **MNOs**               | • Enormous mobile phone user base  
                          • Strong relationship with handset manufacturers  
                          • Solid experience in micropayment  
                          • Sufficient funds | • Lack offline merchant resources  
                          • Little experience in financial payment process  
                          • Tend to be reduced to an information channel |

### Financial Institution-dominated Business Model

In China, most of the B2C payment card transactions (credit/debit cards) happen through the CUP network. Because of this, CUP has a large number of merchant relationships and keeps a strong relationship with the banks.

Banks would rather cooperate with CUP to share its enormous merchant network than try to setup a mobile payment business on their own which would be extremely costly and potentially not lucrative. Therefore, although banks play an integral role in account management of mobile payment, this model is mainly controlled by CUP because of their merchant relationships which then allows CUP to take charge of business operation and transaction processing.

Based on the NFC and SD technologies, this model enables users to integrate bank card information into the SD cards and carry out both near field and remote payment through their mobile phones.
China Union Pay

Overview of CUP in China

Appointed by the PBOC and ‘founded/owned’ by over 80 financial institutions in 2002, CUP is China’s domestic retail payment switch and has an essential monopoly on domestic bankcards.

As a government organization, CUP has a considerable influence in China’s retail payment industry. Firstly, it can act as an industry regulator by monitoring the industry and the promotion of unified payment standards. Secondly, in addition to its essential function, operating the retail payment switch platform, CUP also competes with third-party companies in both online payment and offline acquiring business with the help of its subsidiaries, accumulating an enormous quantity of merchants.

Mobile phone payment business of CUP in China

In 2002, CUP initiated its bankcard mobile phone payment business based on SMS payment which enables customers to complete bankcard payment by sending short messages. In order to further expand the business, CUP teamed up with China Mobile to found a joint company called as UMPay in 2003. Taking the advantage of China Mobile's large subscriber base, the SMS payment business expanded quickly across 21 provinces, with the total number of users exceeding 20 million by the end of 2010.

From 2009, CUP started to develop its new mobile payment business which has been driven by the rapid development of the mobile Internet, NFC technology and financial smart cards. The system integrates two mobile payment gateways: CUP Mobile (for remote payments) and CUP A (for near field payments), into its core business platforms.
In April 2011, CUP launched its first-phase mobile payment product based on SD technology in the city of Chengdu. By installing financial IC chips into SD cards, CUP enables its users to link at least 10 banks, both for debt cards and credit cards, to each SD card. In the first phase, the mobile phones with this SD card can only support remote payment, not near field.

After five months, CUP, together with China Construction Bank, offered the second-phase NFC-SD (Secure Digital) cards which can both support both remote and near field payment. Unlike the SIMpass card, the CUP NFC-SD card adopted the 13.56MHz standard and directly links user’s bank accounts, without any change on mobile SIM cards as the antenna and applications are integrated into the SD card. After inserting the SD card into a smart mobile phone and completing a security certification, the mobile payment applications are automatically made available on the phone and the user can use the mobile phone as a bankcard.

The two SD schemes (SD and NFC-SD) quickly expanded to other 11 provinces from the end of 2011, and it was estimated that the total number of SD mobile payment users had exceeded 2 million by the end of 2011. Meanwhile, in order to support the near field payment of NFC-SD, CUP upgraded 60% of total POS terminals, and CUP is targeting to have all POS terminals in China ready to support near field payment in 2013.

HTC, a mobile phone manufacturer, also established a cooperative relationship with CUP to develop NFC mobile phones. The first mobile phone supporting CUP’s mobile payment called the ‘HTC S715e’ was officially launched in the 2nd half of 2011.

**Strategic Options for CUP**

CUP gave priority to SD based rather than SIMpass based solutions as the SD based payments are seen as being safer for financial applications and the use of SD cards meant that MNOs were not part of the solution thus giving CUP better control of the entire process and a larger share of revenue.

CUP soon realized that it also needed large user base that the operators brought to the table in order to further take advantage of its strong relationship with banks and wide merchant network. Therefore, the cooperation between CUP and operators seems to be a win-to-win strategy for both sides and it indeed has happened in some pilot cities. In November, 2011, China Telecom released its new mobile payment product – “CUP Yi Bao”. CUP took charge of technology that install financial IC chips into UIM (User Identify Module which is China Telecom’s SIM) cards, and China Telecom focused on UIM card distribution. This example is typical of the other agreements that CUP has in place: CUP shares its merchant network and financial institution resources with the MNO, and the MNO shares their mobile phone user base with CUP.

However, as the two powerful participants in the market, CUP and operators cannot avoid competing in the longer term and will likely develop new business
models in the future.

**An example from a bank**

Hua Xia Bank: in June 2011, Hua Xia Bank and CUP signed a mobile payment service cooperation framework agreement to work together on a mobile payment business including near field and remote payments. In February 2012, Hua Xia Bank officially launched their mobile phone payment product based on CUP’s SD technology integrating users’ bankcard accounts into SD cards. Users complete money transfer, credit card repayment, bank account management, online shopping and other services through mobile phone remote payment.

**Mobile Network Operator- dominated Model**

It is difficult to totally segregate the near field payment business from the mobile network operators (MNOs), as they have the largest potential mobile payment user base in China.

In the MNO driven business model, operators provide their subscribers with payment accounts. The users need to deposit money into their accounts and then spend it by using their mobile phones.

In 2011, three MNOs founded their own payment subsidiaries focusing on the mobile payment business and succeeded in obtaining mobile payment licenses from the PBOC in the end of 2011, illustrating their ambitions on China’s mobile payment industry and increasing the already stiff competitive market.
## China’s Mobile Payments Industry

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<th>General Business</th>
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<tbody>
<tr>
<td>Total Mobile Subscribers (by 2012 Jan; Million)</td>
<td>655</td>
<td>129</td>
</tr>
<tr>
<td>Total 3G Subscribers (by 2012 Jan; Million)</td>
<td>54</td>
<td>39</td>
</tr>
<tr>
<td>Turnover Share (2011 Mid)</td>
<td>53%</td>
<td>25%</td>
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<table>
<thead>
<tr>
<th>Mobile Payment Business</th>
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<tr>
<td>Specialized Subsidiary</td>
<td>China Mobile e-Commerce CO., Ltd</td>
<td>Bestpay e-Commerce CO., Ltd</td>
</tr>
<tr>
<td>Technologies adoption</td>
<td>RF-SIM/SIMpass/ NFC</td>
<td>RF-SIM/SIMpass/NFC-SWP</td>
</tr>
<tr>
<td>Pilot Area</td>
<td>5-10 Cities</td>
<td>5-10 Cities</td>
</tr>
</tbody>
</table>

### China Mobile

*Insist on “Own Accounts”*

As the largest MNO in China, China Mobile initiated its WAP mobile banking payment services in 2001; however, as it lacked direct management of users’ accounts which were controlled by the financial institutions, China Mobile could not really control and drive the business. To overcome this issue, China Mobile officially started its new brand mobile payment business in 2009 and maintained ownership of the users’ accounts.
China Mobile’s mobile payment business includes two main products:

- **Mobile phone payment**: first, users must open a specialized account for mobile phone payment with China Mobile, and then move money into this account. Users can then complete remote payments through GPRS, SMS, or WAP.
- **“Mobile Wallet”**: In 2009, China Mobile started its near field payment product—“Mobile Wallet”, which is based on RF-SIM technology (2.4G standard) and enables users to have an “own account”. Users need to deposit money into this account first, and then use the mobile phone equipped with a RF-SIM card for contactless payment applications, such as public transit, or shopping through RF readers in retail stores.

China Mobile’s “Own Accounts” means that users have specialized accounts which link mobile phone numbers and are separated from their bank accounts and normal mobile phone accounts. China Mobile directly controls and manages these specialized accounts, so that it mine the usage data and further drive the business directly.

**New Solutions**

This ‘closed-loop’ mobile payment business model means China Mobile controls everything including transaction processing and settlement, account management, and merchant acquisition. This enables China Mobile’s mobile payments service to operate relatively independently from financial institutions.

Even though the “Mobile Wallet” business expanded quickly across the 40 pilot cities to 5 million monthly active users one-year after its launch, China Mobile decided to postpone its “Mobile Wallet” (2.4GHz) and began to adopt 13.56MHz in June of 2010.

After accepting the 13.56MHz standard as their new mobile payment standard, China Mobile launched the commercial citizen cards based on SIMpass technology in Hangzhou in November 2010. After users switch former SIM card to the new SIMpass cards, they can use their mobiles on contactless terminals for public transportation and shopping. For this new product however, China Mobile appeared more cautious and did not promote the SIMpass cards as fast as former RF-SIM cards.

China Mobile also signed a strategic cooperation agreement with Shanghai Pudong Development Bank to develop and promote mobile phone payment services together last year. On October 19, 2011, they officially took the wraps off their co-branded card based on the 13.56MHz standard. The card supports both remote payment and low-value near field payment and will be first available in some pilot areas, such as Shanghai and Zhejiang province.
China Telecom

China Telecom tried out both RF-UIM (2.4GHz) and SIMpass(13.56MHz) respectively in some trial cities, and finally chose Watchdata’s SIMpass technology as its primary solution for mobile payment.

From 2010 to 2011, China Telecom’s mobile payment business called as “BestPay” (Chinese “Yi Zhi Fu”) and expanded faster than the other two MNOs, with the number of users exceeding 200,000 over 10 cities. The “BestPay” service enables users to obtain two payment accounts: one connected to the Internet for remote payment, and the other offline which allows for low value near field payment, such as public transit; both of the accounts are controlled and managed by China Telecom. In order to widen merchant resources, China Telecom also teamed up with prepaid card companies, such as YangChengTong, one of the biggest prepaid card companies in Guangdong province. Prepaid card companies share their merchants with China Telecom, so that BestPay’s users can do shopping in these shared merchants.

On Feb 1st, China Telecom launched its brand new mobile payment product named “CUP Yi Bao” which was developed together by China Telecom and CUP.

China Unicom

China Unicom also adopted Watchdata’s SIMpass technology as its mobile phone payment solution. Unlike the other two MNOs, China Unicom only started the commercial application in few pilot cities.

In addition, China Unicom is interested in promoting its own NFC mobile phones in the future, which can provide better customer experience despite a much higher cost. After obtaining the mobile payment license, China Unicom will accelerate its mobile payment business called as “WoYiPay” in 2012.

Strategic Options for MNOs

As they have the largest potential customer base of all the players in China through their mobile phone subscribers, MNOs prefer offering segregated accounts to their users, so that they can control the transaction processing and account management and then have better control of the mobile payments value chain. However, due to their limited experience and resources in payment industry, they still need to cooperate with banks or CUP. For instance, operators use CUP to help them distribute terminals and expand the operators’ merchant networks. Therefore, MNOs are more open to cooperate with financial institutions and CUP in the future.
Third-party payment company-dominated Business Model

Currently, 26 third party companies have acquired licenses for mobile phone payment from the PBOC. With the exception of the MNOs and the largest third-party payment companies (e.g. Alipay), other third-party companies only focus on remote payment. Building on their solid experience in Internet payments, a large number of online shopping users and enormous online merchant resources, third-party companies have captured a large market share of remote Internet payment.

However, compared with operators and financial institutions, third-party companies face more difficulties and challenges in the near field payment business.

Only top players however, such as Alipay and 99bill, have plans to offer mobile phone near field payment services.

In July 2011, Alipay released its mobile phone near field payment product based on bar-code transaction between mobile phones or between phones and a barcode scanner. Others players, such as 99bill and Qiandai, have their own near field products. However, neither of these products has been widely used in the market. Third-party companies have a high market share in the mobile phone remote payment industry, whereas their near field payment services are still in the initial stage.

Strategic Options for Third-party payment companies:

Third-party companies face more challenges and difficulties in conducting near field payment business:

- High initial investment: the companies must have a strong financial position to support a new near field payment business
- Technology capability: even though NFC seems to be the most popular technology in near field payment, third-party companies prefer to develop their own technologies which require strong R&D capabilities.
- Relatively weak positioning in the offline payment market: compared with operators and CUP, third-party companies do not have large customer base or offline merchant network for near field payment
- Strategic uncertainties: no single business model has proven to be the main model for the market.

However, unlike CUP and operators, third-party companies, with their relatively high creativity and flexibility, can adapt to the market quickly by exploiting new business models and find their niche in the mobile phone near field payment industry.
Mobile Payment Vendors in China

Any main player who wants to enter and build a presence along the mobile payment value chain must search for trustworthy and suitable partners including software solution vendors and hardware providers. A few of the key domestic vendors are detailed below.

Example Mobile Payment Solutions Providers

**Hi Sun Technology (China) Limited (Hi Sun)**

Hi Sun is a Hong Kong-listed company specialized in financial solutions, terminals and services. One of its four business segments is the mobile payment business. When China mobile promoted its RF-SIM program, Hi Sun became its partner and won the bid for the construction, operation and maintenance of the national platform of China Mobile’s mobile payment service under the Hunan Hi Sun Tonglian Information Technology Co., Ltd, subsidiary.

In 2010, its mobile payment solution was successfully launched in all provinces in China. China Mobile and Hi Sun adopted the mode of “guaranteeing a minimum + sharing the profit”, which means Hi Sun can have a fixed income from the solution and share the mobile payment revenue with China Mobile.

Currently, its payment solution segment is still principally engaged in the operation and development of the nation-wide mobile payment platform and solution with China Mobile. By the end of H1 2011, its total recorded revenue was US$2.8 million.

**UMPayCO., Ltd**

As a professional e-commerce service provider jointly sponsored and founded by China Mobile and CUP in 2003, UMP focuses on mobile payment services such as mobile E-commerce platforms, mobile information solutions and mobile bankcard payment.

Due to its strong relationship with China Mobile and CUP, UMP has developed rapidly in recent years, and it was not only a main vendor of China Mobile’s mobile bankcard business, but has also partnered with many financial institutions.

In September, 2011, UMP obtained a third-party payment license from the PBOC allowing it to further expand its e-commerce business as a payment company.
Talkweb Information System CO., Ltd (Talkweb)

Mainly engaging in telecommunication software development and wireless value-added services, Talkweb has become one of the leading providers of mobile payment solutions in China. Benefiting from the prosperous mobile Internet market, Talkweb’s mobile e-commerce solutions has several big clients including the 3 MNOs and Agricultural Bank of China.

Talkweb was one of the successful bidders for China Mobile’s mobile payment scheme, so that it participated into the construction and maintenance of the mobile payment scheme across several provinces in China.

Example Smart Card/Chip Manufacturers

Watchdata

As a leading player in innovative data security and smart card technology in China, Watchdata engaged in the research and development of data security and authentication technologies and secure chip operating system, to develop several product types including smart cards, USB tokens, readers, and security management systems; its products are used in several industries including telecom, public transportation, and banking.

Developed by Watchdata, SIMpass, based on 13.56MHz standard, is SIM card-based mobile proximity payment solution which primarily caters to mobile network operators because of the SIM-based technology.

China Telecom deployed its SIMpass based NFC payment solution throughout over 10 provinces in China, pulling over 300 thousand handset users into its mobile proximity payment service. China Mobile also adopted SIMpass, but only in limited pilot area. Because of its technology limitations, such as a fragile and easily broken antenna and incompatibility with many mobile phone metal covers, SIMpass is not a mature product and perfect choice for mobile network operators.

On February 8th, 2012, Watchdata launched its new mobile NFC payment product called as SIMpass-SC which embeds a secure element, an active front end and an antenna into a single dual interface SIM card form. This next generation product can fit into the same space as normal SIM card without any need for external attachments. Watchdata hopes this newly designed product can help MNOs to advance their mobile near field payment business in the future.

Nationz Technology CO., Ltd

Nationz Technology is the leading provider of security processors and RF chips in China. As the leading developer and advocate of the 2.4 G mobile payment solution, Nationz Technology made a notable technical breakthrough by applying ultra-high frequency to near-field precision applications. Through this solution,
users can simply change a SIM card to use near-field payments.

Since 2009, China Mobile, China Unicom, and China Telecom had together issued more than 6 million 2.4G enabled SIM cards and 100 thousand card readers supporting the 2.4G technology from Nationz. Mobile payment applications based on this technology have been put into commercial trials in Shenzhen, Shanghai, Hunan, Chongqing, and Lanzhou. Based on user’s feedback, the technology is ready to be put into large-scale operations but limited by the uncertainty of payment standards.

Hengbao Corporation CO., Ltd (Hengbao)

Hengbao provide a wide range of smart cards products and solutions including 2G/3G telecommunication platforms and applications, contact/contactless payment solutions, magnetic stripe/EMV bankcards and security tokens.

As one of the biggest bankcard manufacturers in Asian, Hengbao offers an end-to-end smart card production service covering micro module assembly, card printing, personalized design for cards, and packaging, with its production process of quality and security management certified by Visa, MasterCard, and CUP.

Hengbao offers three kinds of mobile payment products: RF-SIM based on a 2.4G standard; Combi-SIM which takes the dual-interface SIM as application carrier and is based on 13.56MHz; and SWP-SIM which communicates through the SWP protocol and NFC chip in users’ mobile phone.

At the end of 2011, Hengbao won a big SIM card order worth US$17 million from China Telecom, and has become the largest SIM card provider for both China Telecom and China Unicom. In the future, Hengbao will aim to become one of China Mobile's partners.

Eastcompeace Smart Card Co., Ltd (Eastcompeace)

Like Hengbao, Eastcompeace also engaged in smart card services covering EMV bankcards, dual interface cards, contactless cards production, mobile payment and smart card solutions.

As the main SIM card supplier of China Mobile, Eastcompeace still tops the SIM production market in China, revenue from SIM cards makes up nearly 76% of the companies’ total turnover. As the decline of gross profit from traditional SIM products urged Eastcompeace to invest more money in the research on high value-added products, it has now obtained various kinds of SIM card products. The RFID-SIM card supporting mobile near field payment based on 2.4G standard successfully enabled Eastcompeace to become one of China Mobile’s mobile payment partners.
Example Terminal Device Manufactures

**VeriFone Systems, Inc**

As a leading electronic payment solution provider worldwide, VeriFone entered into China in 1993 and acquired the largest market share of POS terminal manufacture in China.

Perceiving the great potential of China’s mobile payment industry, VeriFone, on Feb 24, 2012, announced to change its China’s branch name—VeriFone Electronic Ltd— to VeriFone (China) Information System. This change illustrated that VeriFone transformed for a single POS manufacturer to a payment solution vendors, showing VeriFone’s ambition on China’s mobile payment market.

**LANDI Commercial Equipment Co., Ltd. (LANDI)**

LANDI is the largest provider in the secure electronic payments industry in China, with 33% market share and its products mainly cover POS terminal, IC card reader, financial unattended terminal and payment-related software.

By cooperating with China Telecom, LANDI developed a RFID-reader which supported both 2.4G and 13.56MHz standards and could be used for bankcard transaction, mobile near field payment, and public transit payment.

Recently, LANDI became one of the successful bidders of CUP’s 2012 POS terminal deal.

**Nantian Electronics Information Corp, Ltd. (Nantian)**

Nantian has been the leading IT company in banking automation business of Chinese market for about two decades and specializes in providing hardware and software products financial companies. Nantian has a mobile terminal management department responsible for mobile payment business in Chongqing city.

Supporting both RF-SIM (2.4G) and NFC (13.56MHz), the POS terminals produced by Nantian are compatible with RF-SIM and NFC handsets.

Nantian was one of the three POS terminal providers of China Mobile in 2010, obtaining 20% of the total procurement volume. Apart from selling POS terminals, the company also involved in the construction of operator’s mobile payment platform.
Case Studies

Financial Institutions: CUP’s SD/NFC Business Model in China

End User Acquisition

1. CUP works together with card producers to develop special SD cards.
2. Users go to partners’ outlets to buy a SD card. Partners include: local banks, movie theatres; card producers’ offices.
3. Users’ bank account information will be written into the SD card: After putting the SD card into a specific POS terminal, customers swipe the bankcard which they want to be linked and input the PIN, and then the POS will write the information into the SD card and print a receipt.
4. User will receive a link to a security certificate and the application on the phone and then they will install the application themselves.

In the future Phase 2, users can buy a NFC mobile phone or buy a NFC-SD card to install into their mobile phone themselves which will enable near field payment.

Key Points

- Currently, CUP mainly promotes SD cards. As CUP does not have outlets, users need to go to a partner outlet taking a bank card to setup an account.
- Only smart phones can support the SD card and related applications.
- Each SD card can be linked to at most 10 banks, both for debt cards and credit cards; in China, linking to debit card is same as linking to bank account.
- Users pay 128 RMB for account setup / SD card, inc. 36 RMB annual fee.
- Users’ bank account information is saved on SD card, only CUP’s platform has security access to this information.
- Currently, only remote payment by SD card; no proximity payment in Phase 1.
- Distribution parties: card producers, merchants (movie theatres), and banks.
- Bank account information is written on the card at the distribution partner.
Merchant Acquisition

1. CUP relies heavily on their existing merchant network to develop their remote payment model.
2. As the CUP model is relatively limited in geographical scope and CUP already has a lot of the merchant’s information already, on-boarding merchants is fairly straightforward.
3. After acquiring a merchant, CUP will integrate the services provided by the merchant into the Apps, so that users can use directly.

Key Points

- As phase one only supports SD-card remote payments, the only merchants participating in the program are those who can handle online payment transactions – so non-CUP internet payment merchants cannot use the system; currently very few merchants.
- By using Apps, users can pay public utility bills such as electricity, water, gas, and check health insurance accounts.
- Users can check bank account balance and pay credit card bills.
- Users can do online shopping, buy air tickets, movie tickets and other services available online.
- Overall China Union Merchant Services (subsidiary of CUP) has over 50% of merchant acquiring business which gives them high market control and power.
Transaction / Usage

1. Users shop for goods just on the mobile; Internet shopping goes through a different platform.
2. As they check-out, they can select to pay via the CUP-SD card.
3. Users must set up a PIN for the SD card and every time when they went to check the balance or pay, they need to input the PIN.
4. Users can choose any bank account which is linked with the SD card to pay.

Key Points

- CUP’s platform takes charge of transaction processing and settlement.
- CUP will charge merchants a fee for every transaction.
- Users do not need to pay any extra transaction fees.
- Users can check transaction records and manage personal information and address on the phone.
- Couponing is possible, but is not currently being used as user and merchant bases are still relatively small.
- Users can gain loyalty points and check balances on the phone.
MNOs: China Telecom’s SIMpass Model

End User Acquisition

Steps

1. Operators work together with their software partners to develop application systems and send to card producers.
2. Card producers sell cards to operators.
3. The end user applies for the service on the internet or at an outlet for an “internet payment account”.
4. End users go to one of the operator’s branch outlets to switch SIM cards for China Telecom’s mobile wallet.
5. Users must download Apps from operator’s home page and install them on their phone. There are some platform limitations that vary by provider. China Telecom as example only supports custom-made mobile phones with Android.
6. Users log in operator’s home page and use online banking to recharge money into the internet account.
7. By using the Apps on the phone, users transfer money from their internet account to Mobile Wallet.
8. The Mobile wallet is separate from the Internet payment account because:
   - This mobile wallet is designed for low value payments.
   - Operators have not worked together with banks, so no direct linkage between bank and mobile wallet
   - If the mobile phone is lost, only the money on the mobile wallet will be lost, not all of the money from the internet payment account
Key Points

- Operators and software partners take charge of systems development, including Apps, OTA, and security systems; also have access to the data.
- Card producers just integrate all systems into their cards.
- With Internet account, users can move money into the account and conduct remote payment through Internet and SMS.
- After buying or switching their old SIM card to a SIMPass card, users have a mobile wallet account inside the phone and can conduct near field payment.
- Users will have 3 accounts: Mobile account, Internet account, Mobile wallet account (behaves as offline prepaid card).
- Very few (less than 1%) of users sign up with a particular mobile network provider because of mobile payment functionality, so most new mobile payment users are swapping their existing SIM rather than getting a new one.

Merchant Acquisition

Steps

1. Operators often go after the public utilities, campuses or enterprises as first partner.
2. Merchants can apply on MNO's Internet site to join; Operators sometimes work to acquire merchants.
3. Operators often choose local 3rd party prepaid card companies as partners, e.g. China Telecom chooses Property & Credit as its 3rd PPC partner which is the largest in Beijing and shares over 50 merchants with China Telecom
Key Points

- By integrating “City Card” (transport card with some additional functionality like pay for utilities) into the SIMpass card, end users can use their mobile wallet to take public transit.
- Consumers can log into phone applications to pay utility bills using the money in their Internet payment account.
- It tends to vary whether or not merchants will pay for the initial terminal setup, but they typically pay a maintenance fee.
- Sometimes 3rd party prepaid card companies are willing to pay for the terminals, just because they would have access to the ‘stored’ money.
- Some 3rd party prepaid card companies not willing to partner with operators, because they share many merchants with operators, but the number of merchants that accept mobile payments are too few to attract more people to use, so little added value.
- Typically operators are not very strong in merchant acquisition.

Usage

Steps:

Paying

1. End user waves phone in front of merchant’s POS terminal.
2. Merchants POS terminal checks to ensure adequate account balance
   - Inadequate balance – payment rejected and sent back to user.
   - Adequate – Payment amount deducted from user’s account and approval sent to merchant.

Recharge

1. User logs onto their Internet Payment Account and moves money between that account and the mobile wallet account.
Key Points

- Recharge
  - Internet payment account can be accessed through the internet, mobile internet, or specially designed mobile apps.
  - No charge for any money transfer.
  - Users can load at most 10,000 RMB into their Internet Account.
  - As there is a connection between the SIM and the card in the phone, the wallet can be remotely recharged.
  - If the operator has partnered with a prepaid card company, the user can transfer money from their prepaid card to their mobile wallet.
- There is at most 5,000 RMB in user’s mobile wallet account.
- **No password/PIN when using mobile wallet for payment.**
- No connection between Mobile Wallet and normal mobile account.
- **Operators will charge a % of sales fee from every transaction which is paid by merchant.**
- Limited functionality – very little business intelligence, and no loyalty programs or couponing for merchants.
Third-party: Alipay's Barcode Business Model in China

Steps

1. Users install the Alipay Application onto their mobile phone.
2. Users open the Apps and click the button of “I want to Pay”.
3. A Bar code and 2D code unique to that transaction will appear on the users' screen.
4. Merchants calculate the amount of money needed to be paid and click the button of “I want to Charge”.
5. Merchants use scanner to scan the screen of the phone.
6. After scanning, users need to confirm on the phone and then the payment will be completed.

Users & Merchant Acquisition

- Any user or merchant with Alipay's account can use this service.

Transaction / Usage

- No transaction fee for users.
- Current promotion allows 20,000 RMB free credit per month for small merchants, if the value exceeds 20,000 RMB, Alipay will charge only 0.5% transaction fee.
Key Points

- Both users and merchants must have Alipay accounts and have certain amount of money in the accounts.
- Alipay accounts can only be linked to debit cards or bank accounts for withdrawal. Money cannot be withdrawn from credit cards but Alipay money can be used to pay credit card bills.
- Merchants do not need to buy a special scanner – they can also use the camera in their phones and take a picture of the 2D code on user’s account to finish the payment.
- The money will transfer among different Alipay’s accounts. Banks and operators are not involved in the transaction.
- No loyalty or couponing services for merchants.
- Alipay has not yet begun to expand this business model throughout the country, so it was still not widely commercially used.
Looking forward

2012 – Watershed for mobile payment in China

After the main players obtained qualification for mobile payment business in 2011, they are now waiting for the final technology standards whose uncertainty has slowed the development of more near field payment products and solutions. The authorities are establishing final standards now, and after these standards are formally introduced later in 2012, players will stretch their business to more extensive pilot area and vendors will also benefit from increasing demands for devices, terminals and solutions.

Key suggestions

The proliferation of mobile Internet services and the increase of mobile payment business during 2011 have pushed continual innovation not only on payment technologies but also for business models.

It seems that no one has found a perfect business model for the mobile payment market so far, but in this emerging industry there are a few key ideas that
participants should keep in mind:

- Cooperation and competition coexist: not only the three main players – CUP, MNOs and Third-party companies, but also vendors are well-advised to work together with their potential competitors and be open to share strengths with others.

- Innovation and innovation: apart from technology innovation, players should pay more attention to new emerging business models which may be more profitable than existing models. For example, third-payment payment companies can take advantage of their large online customer base by offering Online to Offline (OTO) services; MNOs can work together with prepaid card companies who obtain high-quality merchant resource by incorporating prepaid cards into NFC-SIM cards. Vendors can have a competitive edge by offering added-value solutions such as LBS (location based service), loyalty plans and coupon services.

- Reduce cost: players who want enter and build a presence along the mobile payment value chain, must search for IT vendors including software and hardware providers which can be expensive. Therefore, every player needs to evaluate different strategic and financial models first and find the most effective and efficient way to promote their own products.

- Safe and convenient are not paradoxical: customers’ demands are not easy to meet right now. We find that the biggest deterrence for mobile payment, especially for near field payment, is the security concern from users. Service providers should not only ensure their payment security but also learn to educate users about the new payment methods with the help of proper marketing skills. Moreover, providers cannot elevate the capability of risk control at the expense of a worse user experience.

Future Trends

It is definite that mobile payment in China will grow faster in the future and the competition will only increase, there are several specific trends that can be expected in the future:
Regulations

- Launch sound legislation on the supervision of mobile payment: On March 3rd, 2012, there was an urgent call for electronic payment legislation from China’s 2012 National People's Congress, indicating that the authorities start to monitor the industry more in 2012.
- Despite of the rapid development of electronic payment, especially mobile payment, China still lacks sound electronic payment legislation like U.S’s Electronic Funds Transfers Act. Regulations such as these can be models from which Chinese regulators can draw on in the future.
- Slower issuance of payment licenses: in 2011, the PBOC issued 101 licenses to non-financial institutions. In the future, the PBOC is expected to slow down the issuing of new licenses and candidates are confronted with more stringent control.

Technology

- NFC will still be the most popular and principal choice for mobile near field payment, but the widespread use of either NFC-SD or NFC-SIM is not sure.
- Technology standards may not be as important as thought before. The uncertainty of technology standards does hinder the development of near field payment to some extent, but the most important thing for main players to consider is to develop killer applications with a good user experience in order to acquire and retain customers, rather than to debate the best standard.

Business

- More cooperation we will see between different players including MNOs, financial institutions, and third-parties, foreign and local vendors.
- Third-parties will still dominate the remote payment business, but with the market share further challenged by financial institutions and MNOs.
- The near field payment market is still developing rapidly, with more innovations on business model and technology adoption.
Conclusions

China’s economic growth over the past 10 years has been the unprecedented. Although there are some structural market challenges to China’s growth over the next few years, we fully expect the economic bellwether to continue to grow in the near future.

This growth coupled with the fact that mobile phones have almost reached saturation on the mainland, will present an amazing opportunity for mobile payments. With a consumer base that is used to shopping online and using their mobile phones every day for any number of activities, the opportunity for mobile payments in China is unlike that of any other economy in the world.

The mobile payment market however is not without its challenges. It is still unclear which mobile payment technologies will become standards and the current mobile payment pilots programs are an indication that no one has found the ‘magic bullet’ model.

What is clear however is that mobile payments will grow to be big business in China and promise to change the way that the average Chinese consumer purchases goods and services both online and off.

Should you have any questions about this report or any others, please do not hesitate to contact us: research@kapronasia.com
About Kapronasia

Kapronasia is a leading provider of research-based advisory and consulting services focused on the Asian Financial technology industry. Through market-leading research and customized strategy, we partner with financial institutions and financial technology providers around the world to identify their highest-value opportunities in Asia and help them to achieve and sustain a competitive advantage in the market.

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