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## Original Research Article

# About the Impact of Mobile Payment Systems on Chinese Business Models and Impact Research on Consumer Participation

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**Abstract:** With the rapid development of mobile Internet, mobile payment technology has been widely used in China, which has had a profound impact on business models and consumer engagement behavior. Using the Chinese market as an example, this paper explores how mobile payment technology drives innovation and change in business models and its impact on consumer engagement behavior. By analyzing existing cases, combined with the convenience of big data-driven precision marketing and payment technology, we reveal the broad impact of mobile payments on China's economy and society.

**Keywords:** mobile payment; Chinese business model; consumer participation; innovation

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## 1. Introduction

In recent years, the development of China's mobile payment technology has made remarkable achievements around the world. The mobile payment platforms represented by Alipay and wechat Pay cover almost every scene of daily life, changing the traditional payment methods, and promoting the innovation of business models and consumers' payment habits. With the rapid iteration of payment technology and the blessing of big data, artificial intelligence and other technologies, mobile payment has become an important supporting force of China's digital economy. This article will analyze how this technology affects business models and consumer engagement in China.

## 2. Overview of The Development of Mobile Payment Technology in China

### 2.1. Origin and Early Development of Mobile Payment

The rapid rise of mobile payment technology in China is one of the important symbols of the era of digital economy. With the popularity of the Internet and the rise of e-commerce in China, the earliest forms of mobile payment were mainly concentrated in the field of online payment, which was first launched by Alipay, a subsidiary of Alibaba. In 2003, Alipay was launched as the payment platform of Taobao.com. With the rapid growth of e-commerce, Alipay gradually expanded to more areas. WeChat Pay was officially launched in 2013, and has developed into a duopoly competition pattern with Alipay. Wechat Pay took advantage of wechat's huge social network and quickly captured the market. As a new marketing model, wechat social marketing has a significant impact on consumers' purchasing decisions<sup>[1]</sup>. At this time, the popularity of smart phones, the convenience of mobile Internet, and the strong support of the Chinese government have laid the foundation for the further development of mobile payments. Since then, the two giants (Alipay and wechat Pay) have quickly occupied the Chinese payment market.

### 2.2. Core Driving Force of Mobile Payment Technology

The rapid development of China's mobile payment technology cannot be separated from three core

drivers: First, the popularity of smart phones. The popularity of smartphones is one of the key drivers for the development of mobile payment technology in China. According to the 53rd Statistical Report on China's Internet Development, as of December 2023, the number of Internet users in China reached 1.092 billion, and the Internet penetration rate reached 77.5%, which means that almost everyone owns or uses a smartphone. This has provided a broad user base for mobile payments, especially in some rural and remote areas, where the popularity of smartphones has allowed cashless payments to spread rapidly.

The second is the improvement of mobile Internet infrastructure. The Chinese government attaches great importance to the construction of mobile Internet infrastructure, not only increasing the popularity of 4G networks, but also promoting the commercialization of 5G technology through policy guidance. China has the world's largest mobile Internet user base and high-quality network coverage, which provides stable technical support for mobile payments. In addition, increasing integration with fintech has facilitated the development of mobile payment technology through regulatory support and an innovative environment.

The third is the innovation and convenience of payment technology. The development of mobile payment technology has benefited from the wide application of technologies such as two-dimensional code payment and NFC (near field communication). Qr code payment is an efficient and low-cost payment solution, consumers only need to scan the QR code of the merchant to complete the payment, without relying on traditional POS machines. NFC technology is mainly used for contactless payment, such as bus card, subway card, etc., which has been widely used in the city's public transportation system. In addition, biometric technology (such as fingerprint recognition, face recognition) has also played an important role in improving the security and user experience of mobile payments.

### **2.3. The Wide Application of Mobile Payment in Chinese Society**

Mobile payment in China is not limited to e-commerce, but also widely used in various offline scenarios, including retail, catering, transportation, entertainment, etc. China's cashless society is gradually taking shape, highlighted by the following four points:

First, the seamless connection between online shopping and mobile payment. Mobile payment is inseparable from the development of e-commerce. Chinese e-commerce platforms such as Taobao, Jingdong, Pinduoduo, etc., have extensively integrated mobile payment functions. Consumers can complete the payment on the shopping platform through Alipay, wechat Pay, etc., and the payment process is simple and fast, without complicated operations. This seamless payment experience has greatly improved shopping efficiency and fueled the explosive growth of e-commerce in China. The second is the popularity of mobile payments in retail and catering industries. In many retail and restaurant establishments in China, even in wet markets and roadside mobile vendors, mobile payment has become the mainstream payment method, and cash transactions are gradually decreasing. Merchants accept payments through QR codes or mobile POS devices, and consumers can complete payments with their smartphones. Especially in some small and medium-sized merchants and mobile vendors, the application of mobile payment is very extensive, which not only solves the problem of cash change, but also significantly improves the transaction efficiency. The third is cashless in public services. China's mobile payment technology has gradually penetrated into the public service sector. Most cities in China have realized cashless payments on public transportation such as buses, subways and shared bicycles, and users can pay by scanning codes or NFC functions on their mobile phones. In addition, medical care, education and other fields are also gradually promoting mobile payment, such as hospitals can register and pay through Alipay or wechat

Pay, reducing the waiting time in line. Fourth, the close integration of sharing economy and mobile payment. The rapid development of the sharing economy cannot be separated from the support of mobile payment. Emerging service models such as shared bicycles and shared charging banks rely on the instant settlement and convenience of mobile payments, enabling consumers to enjoy services anytime and anywhere. For example, users of shared bicycles can unlock the car by scanning the code and then pay for the rental via their mobile phones, without using cash or credit cards. This convenience has greatly promoted the popularity of the sharing economy.

#### **2.4. Formation of Mobile Payment Ecosystem**

The rapid development of mobile payments has not only changed payment methods, but also spawned a new payment ecosystem. In China, mobile payment has gone beyond the function of traditional payment tools and become a comprehensive fintech platform, covering services in finance, retail, entertainment, travel and other fields.

Realized the integration of payment platform and financial technology. Alipay and wechat Pay are no longer limited to simple payment functions, but have gradually expanded to financial technology services such as financial management, insurance and loans. Through mobile payment, users can not only complete daily payments, but also manage personal assets, purchase financial products, and make investments. This convergence makes the payment platform a comprehensive financial service center for users.

The symbiotic relationship between merchants and platforms is generated. Mobile payment has not only changed consumers' payment habits, but also profoundly affected the way merchants operate. Through cooperation with payment platforms, merchants can obtain more data analysis support, including user consumption behavior, payment habits, etc., so as to optimize marketing strategies. In addition, the mobile payment platform also provides merchants with a variety of value-added services, such as advertising promotion, financial loans, etc., forming a symbiotic and win-win relationship between the platform and merchants.

### **3. The Impact of Mobile Payment on China's Business Model**

The application of mobile payment technology has transformed the business model from the traditional offline payment method to the digital and data-driven direction, and the exploration of user experience as the center, the new retail model came into being, reshaping the business mode and market pattern of Chinese enterprises<sup>[2]</sup>.

#### **3.1. Platform and Ecosystem Construction**

Digital application scenarios and complex network attributes make the platform business model face a new turning point<sup>[3]</sup>. Mobile payments have driven the development of payment platforms in China, which act as intermediaries and ecosystems between merchants and consumers. The payment platforms represented by Alipay and wechat Pay initially appeared only as payment tools, and gradually developed into a full range of life service platforms. They not only provide payment functions, but also combine social, shopping, finance, entertainment and other functions to form a complete business ecosystem. For example, Alipay has developed from the initial online payment to the current "Alipay city service", through which users can complete a number of city services such as paying utility bills, paying traffic fines, and making appointments for hospital registration. The formation of this ecosystem has greatly changed the traditional service process. By accessing the Alipay ecosystem, enterprises and government agencies not only reduce service costs, but also improve the user experience.

And wechat Pay breaks the traditional payment model with the huge user base of its social platform wechat. Merchants build their own online malls and service platforms through wechat mini programs, and make use of wechat payment system for convenient payment. The wechat payment platform is no longer just a payment tool, but a comprehensive business platform that connects users, merchants and service providers.

Data-driven business intelligence development. Mobile payment is not only a payment tool, but also has accumulated a large amount of consumption data. These data not only help the platform understand consumers' purchasing behavior, but also promote the further data-driven and intelligent development of business models. Through payment data, the platform can achieve precision marketing, personalized recommendation, product optimization and other functions to help merchants better understand market demand and customer behavior. The current popular Meituan Takeout is an example, Meituan takeout has accumulated massive user payment data through cooperation with payment platforms such as Alipay and wechat Pay. Meituan uses these data to analyze users' consumption behavior and provide users with personalized recommendation services. At the same time, by monitoring demand in different regions through its payment data, Meituan can optimize delivery routes and delivery supply chain management, further improving operational efficiency and reducing costs.

### **3.2. Promote the Prosperity of O2O Model**

O2O (online to offline) model is one of the rapidly developing business models driven by mobile payment technology. This model relies on online platforms, realizes online transactions through mobile payment technology, and guides online traffic to offline consumption scenarios. Mobile payment technology simplifies the transaction process, and this model is widely used in many industries such as catering, retail, hotels, and tourism. Consumers can complete the entire process from product selection to payment through smartphones, which greatly improves the convenience and user experience of O2O. Especially in the catering industry, when consumers order food through platforms such as Meituan or Ele. me, they can pay using Alipay or wechat Pay and then enjoy food and beverage services at offline stores or takeout. Starbucks' digital transformation is a good example. Starbucks has realized the transformation of O2O model by cooperating with Alibaba's Ele. me platform. Consumers can place orders through Alipay and Ele. me platforms and choose between in-store pickup and delivery. This model has been particularly effective during the COVID-19 pandemic, allowing Starbucks to continue to grow its business through digital means. The convenience of mobile payments increases user engagement in the Starbucks ecosystem and increases customer loyalty.

### **3.3. Data-Driven Precision Marketing**

Mobile payment technology not only accumulates consumer payment data, but also provides merchants with the possibility of precision marketing. Through payment data analysis, merchants can better understand consumers' purchasing habits and consumption preferences, and conduct targeted marketing and personalized services based on these data. Mobile payments enable merchants to continue to engage with consumers after a transaction is completed, increasing user engagement and repeat purchase rates.

Personalized recommendations and offers. The payment platform can push personalized coupons and recommendations to users through the user's payment history and consumption data. Alipay will recommend merchants and products related to users' preferences on its platform based on their spending habits. At the same time, merchants can also offer targeted discounts to regular customers based on payment data to enhance customer loyalty.

Data-driven brings innovative marketing. Mobile payment has promoted the emergence of new marketing models, providing merchants with the basis for personalized services. For example, “pay as gift” social marketing. Wechat Pay, through its red envelope function, combines payment with social activities, greatly enhancing user interaction. Alipay’s “Collection of Five Blessings” campaign uses a combination of social interaction, gamified design and payment scenarios to attract a large number of users during the annual Spring Festival. This innovative payment-based marketing model has greatly increased user engagement and created more marketing opportunities for merchants. For example, “Hema Fresh Food” brand, which is a combination of online and offline fresh food retail business, users through Alipay or wechat Pay online orders or offline settlement. “Hema Fresh” analyzes consumers’ purchasing behavior through the user data accumulated by mobile payment, and stimulates users’ secondary consumption through accurate recommendations and personalized offers. For example, Hema will recommend relevant fresh products or push coupons that are about to expire to users based on their purchase history. This precision marketing strategy has significantly improved Hema’s sales and customer retention.

### **3.4. The Rise of Sharing Economy and the Convenience of Payment**

The sharing economy is an important beneficiary of the rise of mobile payment technology. The core concept of sharing economy is to break the ownership concept of resources through information technology and platform economy, and realize the sharing and optimal utilization of resources. Mobile payment technology provides basic support for the convenient payment of the sharing economy.

The sharing economy relies on instant payment and efficient transaction settlement, and mobile payment technology provides technical support for this model. The cashless and low transaction costs of mobile payments make micro-payments in the sharing economy more convenient and efficient. Taking shared bicycles and shared charging banks as an example, users only need to scan the QR code on their mobile phones to unlock the vehicle through Alipay or wechat Pay, and the whole process does not require the use of cash or credit cards, and the convenience of payment has greatly promoted the rapid expansion of new business models such as shared bicycles. For example, “Mobike” as a leader in the field of shared bicycles, its business model is inseparable from the support of mobile payment. Users scan the code through wechat mini program or Alipay to unlock Mobike and pay, Therefore, this digital technology disrupts the business models and development paths that traditional retail platform companies rely on, forcing them to innovate their business models and greatly promoting the popularity of the sharing economy<sup>[4]</sup>.

## **4. The Impact of Mobile Payment on Chinese Consumer Participation**

The popularity of mobile payments has had a profound impact on Chinese consumer engagement. Through mobile payment technology, consumers can not only easily complete transactions, but also enjoy multi-dimensional interaction with merchants and platforms, and this technological innovation has greatly improved the experience of consumer engagement.

### **4.1. The Promotion of Consumer Participation by the Improvement of Payment Convenience**

One of the biggest features of mobile payment is the ease of payment. Mobile payments allow consumers to make seamless purchases both online and offline. On the e-commerce platform, consumers can complete the settlement directly through Alipay or wechat Pay without jumping to other pages. In offline physical stores,

consumers do not need to queue up at the cashier after purchasing goods in the store, but can scan the QR code of the goods directly through the mobile APP, and complete the self-service settlement through Alipay or wechat Pay. This convenient payment experience greatly improves the efficiency of consumers' shopping, reduces the waiting time in line, and enhances consumers' shopping engagement.

#### **4.2. Expansion of Consumption Frequency and Range**

The wide application of mobile payment technology has significantly increased the consumption frequency and range of consumers. With the improvement of the convenience of payment, the threshold of consumption has been lowered, consumers can pay more frequently, and the payment scene has expanded from the traditional large shopping places to more diversified fields. Consumer behavior in the e-commerce environment presents a personalized and intelligent trend<sup>[5]</sup>.

On the one hand, the popularity of small high-frequency payments. Mobile payments have greatly promoted the popularity of micropayments. For example, in daily life scenarios such as convenience stores, street food stalls, taxis, and shared bicycles, mobile payment simplifies the transaction process. Previously, these scenarios relied on cash payments, but the emergence of mobile payments has made these scenarios cashless, prompting consumers to use payment tools more frequently in their daily lives.

On the other hand, to achieve the diversification of online and offline payment scenarios. Mobile payment is no longer limited to shopping, but also permeates entertainment, public transportation, medical care, education and other fields. Whether it is buying movie tickets online, paying utility bills, or taking public transportation or using shared bicycles offline, consumers can easily complete payment through mobile phones. The diversification of consumption scenarios has greatly broadened the payment scope of consumers, prompting them to use mobile payment in more life scenarios.

#### **4.3. Enhancement of Personalization and Interaction of Consumption Experience**

Mobile payment not only changes the way consumers pay, but also brings consumers a more personalized consumption experience through the data accumulation of payment platforms. Consumers' behavioral motivation and final decision-making thinking are constantly changing and different. By analyzing users' consumption data, payment platforms and merchants can provide consumers with customized services and product recommendations, enhancing consumers' interactive experience<sup>[6]</sup>.

Personalized recommendations and promotions. By analyzing consumers' payment behavior and shopping habits, payment platforms can push personalized recommendation content and promotional information to consumers. For example, Alipay's "Flower payment" service provides users with the option to pay in installments, especially for large purchases, users can choose to pay in monthly installments. This payment method not only reduces the consumption pressure of users, but also attracts more users to participate in the purchase of high-priced goods. In particular, some young consumers choose to pay by installments when buying large items such as electronic products and home appliances, thus enhancing their consumption power and participation.

Gamification of consumer interaction with the platform. The payment platform enhances the interaction between consumers and the platform through gamified design. For example, Alipay's "Collection of five blessings" activity attracts a large number of users every Spring Festival. Wechat Pay integrates payment behavior into social activities through the "red envelope" function. This initiative is the use of gamified design and social sharing characteristics, greatly mobilize the enthusiasm of consumers, bring the number of users

growth, but also increase the user's stickiness to the platform.

#### **4.4. Enhanced Financial Inclusion**

Mobile payments have not only changed the way consumers pay, but also improved the inclusion of financial services, especially in less developed regions and among groups undercovered by traditional banks. Through mobile payment technology, more consumers can enjoy convenient financial services, especially those who previously had difficulty accessing traditional banking services.

The spread of consumer credit. Mobile payment platforms help consumers realize advance consumption and flexible payment by providing consumer credit services. So that users can rely on the credit line provided by the platform to complete the payment in the case of no cash, especially for large consumption, this flexible payment method allows more consumers to participate in consumption activities. In some remote rural areas of China, the coverage of traditional banking outlets is insufficient, and financial services are relatively scarce. However, mobile payment technology has been rapidly popularized through smart phones, especially the "rural version" launched by Alipay, which helps farmers complete agricultural products transactions by mobile payment, transfer, loan and other operations without traditional financial services, greatly improving rural financial inclusion.

Two-way participation of small and micro enterprises and consumers. Mobile payment has helped a large number of small and micro enterprises participate in the digital economy through convenient payment channels. Through Alipay and wechat Pay, small traders and self-employed people can easily complete transactions without complicated POS systems or high bank fees. It makes it more convenient for small and micro enterprises to provide services to consumers, and also enables consumers to use mobile payment tools in more scenarios, enhancing the enthusiasm of two-way participation.

#### **4.5. Improvement of Digital Identity and Credit System**

With the popularity of mobile payments, digital identity and credit systems are gradually improving. Through the accumulation of payment behaviors, the platform can build up a user's digital credit history. This credit system not only affects the payment behavior of consumers, but also determines whether they can obtain more financial services and consumption privileges.

Alipay's Sesame Credit is a credit scoring system based on users' payment and consumption behavior. The higher the user's sesame credit score, the more services and privileges they can enjoy, such as deposit-free car rental, deposit-free hotel stays, etc. This digital credit system enhances the user's sense of responsibility and consumption experience, making consumers pay more attention to their payment behavior, and thus enhancing consumption participation. "Mobike" has also cooperated with Sesame Credit to launch a deposit-free service, and users with high Sesame credit scores can use shared bikes without a deposit. This measure not only reduces the threshold of consumer use, but also enhances the user's sense of participation and frequency of use through the credit incentive mechanism. Consumers accumulate credit through good payment behavior and can enjoy more convenient and high-quality services.

### **5. Conclusion**

Despite the great success of mobile payment in China, there are still some challenges. The first is the issue of data privacy and security, with the popularity of mobile payments, the protection of user privacy has become the focus of public attention. Secondly, the uncertainty of regulatory policies also affects the further development

of the industry. The Chinese government has strengthened its regulation of fintech, and companies need to ensure compliance while innovating. In addition, the standardization of payment technology and the popularization of cross-border payments still need to be addressed.

The development of mobile payment technology in China has not only profoundly changed business models, but also had an important impact on consumer engagement behavior. With the continuous innovation of payment technology, China's business ecosystem will become more diversified and intelligent. In the future, with the popularity of emerging technologies such as 5G and blockchain, mobile payments will continue to play an important role in promoting a cashless society. At the same time, enterprises need to find a balance between technological innovation, user experience and compliance operations to meet the challenges and opportunities of the future.

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