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# A COMPARATIVE ANALYSIS OF MOBILE PAYMENT PLATFORMS IN CHINA AND KENYA

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**ABSTRACT**

This study employs the case study method and the comparative analysis method to examine the operation of mobile payment platforms in China and Kenya. Using Alipay and WeChat Pay from China and Kenya's M-Pesa as research cases, it focuses on analyzing their launch timelines, service functionalities, working mechanism, user markets as well as their economic and social impact. China's Alipay and WeChat Pay have achieved remarkable success in domestic and international markets through advanced technology and a broad user base, offering diverse financial services such as payments, wealth management, and credits. However, they have some challenges, such as the adaptability of old people's groups in the large Chinese market. In contrast, Kenya's M-Pesa, with its simple SMS-based payment technology, has gained widespread adoption among unbanked populations, promoting financial inclusion. Nevertheless, its functionalities are basic, and it faces difficulties in technological advancement. The study findings offer valuable insights into the success factors, challenges, and future development of mobile payment systems in different countries.

*JEL codes:* E42, L86, O16, O33, R51

*Keywords:* Alipay, Financial Inclusion, Mobile Payments, M-Pesa, WeChat Pay

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## INTRODUCTION

Technological advancements are influencing the development of various industries. For example, process automation is driving the digital transformation of the financial sector, digital technology is accelerating business operations in small and medium-sized enterprises, and artificial intelligence is also promoting advancements in education (Ershova–Gugutishvili–Lepekhin–Tick 2023), (Szücs–Arány–Dávid 2025), (Gyonyoru–Katona 2025).

With the recent development of e-commerce in recent years, electronic payments, as an emerging payment method, have become increasingly common in people's daily lives (Guan–Tick 2024). Among these, the introduction of mobile payments is one of the many innovations transforming the payment market (Hedman –Henningsson, 2015). In recent years, mobile payments have experienced rapid growth worldwide and have become a mainstream transaction method. Currently, with improvements in payment infrastructures in developing markets and regulatory initiatives aimed at promoting and increasing the use of non-cash instruments, mobile payments are penetrating various markets at an even faster pace (Taylor, 2016). In addition to enabling online and proximity transactions, mobile payment technology offers numerous direct benefits to both consumers and merchants. Consumers who choose mobile payment services can enjoy a fast, secure, and convenient purchase mechanism. For merchants, these services have the potential to increase transaction volumes, reduce transaction costs, and enhance customer loyalty (Willi–Melewar–Broderick, 2013). As a result, mobile payments are widely applied across various domains, including merchant payments, personal transfers, and public services.

In China, mobile payment services are dominated by two leading companies: Alipay, operated by Ant Financial (formerly Alibaba), and Tencent's WeChat Pay. Through the rapid development of QR code payments and smartphone applications, Alipay and WeChat Pay have become deeply integrated into nearly every aspect of daily life for Chinese residents (Huang–Wang–Wang, 2020). China has become the global leader in mobile payments, driven by the broad adoption of Alipay and WeChat Pay (Jiang–Murmann 2022).

In Kenya, having insufficient traditional banking and financial infrastructure, mobile payments have provided a vital financial service platform for residents. The lack of services has prompted residents to clearly express their desire for these financial tools (Wenner et al., 2018). The mobile payment system provided by M-Pesa, launched by Safaricom, has addressed many of the banking service gaps in low-income and rural areas. It enables money transfers, payments, and savings even without a bank account (Parlasca–Johnen–Qaim, 2022), (Dermish–Kneiding–Leishman–Mas 2011).

Mobile payments in developing countries have not only driven the improvement of financial inclusion but also fostered economic growth, expanded the scope of financial services, and enabled more people to participate in the modern economic system (Ahmad–Green–Jiang, 2020). As a result, the application of mobile payments in developing countries has become a significant highlight in the global fintech landscape, offering valuable lessons and insights for other regions.

This study employs the case study method and the comparative analysis method, using China's Alipay and WeChat Pay, and Kenya's M-Pesa as case examples for comparison. It examines the development and growth of mobile payment applications in both countries, including core services and functions, user markets, technologies and transaction mechanisms, security measures as well as their economic and social impact. The study aims to explore the differences and similarities between the mobile payment applications used in these two developing countries. Through comparative analysis, the study identifies the different challenges faced by mobile payment solutions in the two countries and their future development directions. The findings will contribute to a better understanding of mobile payments in different social and economic environments and may offer insights into how mobile payments can promote financial inclusion and economic progress in developing countries.

The structure of this study is as follows: *Section 2* provides a literature review on mobile payments in China and Kenya. *Section 3* outlines the research methods used in the study. *Section 4* presents a comparative analysis of the launch timelines, service functions, working mechanisms, user markets, and security measures of mobile payment platforms in China and Kenya. *Section 5* examines the economic and social impact of mobile payments in China and Kenya, respectively. Finally, *Section 6* concludes the study.

## 2 LITERATURE REVIEW

Mobile payments are increasingly being adopted by organizations as a new way of conducting business in the 21st century (Dennehy–Sammon, 2015). If smartphones are considered a first revolutionary change in people's daily lives, the mainstream acceptance of mobile payments worldwide is undoubtedly a second revolution. Mobile payment refers to any payment initiated, authorized, and confirmed using a mobile device for the exchange of goods and services (Karnouskos, 2004). Mobile devices include mobile phones, wireless tablets, and other devices that can connect to mobile telecommunications networks and facilitate payments (Au–Kauffman, 2008). Mobile payment methods include QR codes, NFC (Near Field Communication), and USSD (Unstructured Supplementary Service Data)

(Dayang–Hamza 2021). Mobile payment services are growing at an amazing pace, with global mobile payment revenue nearly doubling between 2015 and 2019 (Lu, 2019). Mobile payments have revolutionized global financial transactions, particularly in developing countries where traditional banking systems have struggled to gain widespread adoption (Coffie–Zhao–Adjei Mensah, 2020). The emergence of fintech companies will pose challenges to traditional commercial banks (Pásztor, 2018).

In China, both Alipay and WeChat Pay have built comprehensive mobile payment ecosystems around their mobile payment tools (Huang–Wang–Wang, 2020). People use Alipay or WeChat Pay to purchase goods, order coffee and meals, pay utility bills, book a taxi, buy flight tickets, make donations, transfer money, and even to invest in financial products (Shen et al. 2020), (Huang–Wang–Wang, 2020). Especially after COVID-19, almost all commercial outlets in China, including street-side shops, widely adopted QR code-based mobile payment services to conduct business (Zhong–Moon, 2022). Mobile payments offer convenience, security, and efficiency. However, the collection and storage of personal data within mobile payment systems have raised privacy concerns (Rui, 2023). In addition to user adoption, the People's Bank of China has issued policies to encourage innovation and ensure market stability (Saha–Bishwas–Das–Siddika Arshi, 2024). Government initiatives and the implementation of regulatory frameworks added impetus to the widespread adoption of mobile payments. The primary goals of these efforts are to reduce the presence of the informal economy, address the problem of tax evasion, and promote greater financial inclusion (Rui, 2023). Competition in the mobile payment industry and market saturation require mobile payment platforms to explore new growth avenues and differentiation strategies to maintain their market share (Wang–Liu–Zhu, 2024).

Africa is a poor, corrupt, and inefficient developing economy (Pásztor, 2024). In the next 40 years, over 2.4 billion people will live in Africa. In the absence of sufficient participation from the private sector and commercial banks, the governments of African countries cannot meet growing demands and address the housing shortage (Kovacs–Pasztor, 2021). In Kenya, a large portion of the population still lacks bank accounts and is financially excluded. Safaricom's mobile payment service M-Pesa, utilizing USSD and SMS technology, has enabled millions of unbanked individuals to access basic financial services, such as money transfers, bill payments, and savings (Kanjo–Phiri–Mtumbuka–Manda, 2017) (Wachira–Njuguna, 2023). Since the launch of M-Pesa in 2007, Kenya's financial sector has undergone a revolutionary transformation and is moving towards digitalization (Wachira–Njuguna, 2023). M-Pesa has been extremely useful for Kenyan households, providing a convenient and easy way to save money and transfer funds (Ntara, 2015). However, low levels of financial literacy and limited infrastructure

remain significant obstacles to the development of mobile payments in Kenya (Wenner et al., 2018).

While both China and Kenya are developing countries rolling out mobile payment platforms, due to differences in technology, economics, and culture, the development paths of mobile payments in the two countries show significant variations. Both Alipay and WeChat Pay have built comprehensive mobile payment ecosystems around their respective payment tools (Huang–Wang–Wang, 2020). M-Pesa's peer-to-peer cash transfer system addresses the social gap caused by the lack of an instant long-distance cash transfer mechanism (Onsongo, 2019).

Currently, many studies are focusing on mobile payments in China and Kenya separately, but there is limited research conducting a thorough comparison between the two countries. This study aims to fill that gap by providing a detailed comparative analysis of mobile payments in China and Kenya. The study focuses on comparing the development and growth of mobile payment applications, core services and functions, user markets, technologies and transaction mechanisms, security measures as well as their economic and social impact. The findings aim to help better understand how mobile payments function in different economic and cultural environments.

## 3 RESEARCH METHODS

This study uses the case study method and the comparative analysis method to examine the operation of mobile payment systems in China and Kenya. A case study is a methodological research approach frequently used in the social sciences and humanities to explore complex issues and provide insights into specific phenomena or situations (Coombs, 2022). Comparative analysis is a fundamental and relatively simple method, often considered a basic research strategy, that involves comparing two sets of cases to identify similarities and differences (Lijphart, 1971). By using China's mobile payment platforms Alipay and WeChat Pay and Kenya's mobile payment platform M-Pesa as case studies, this research paper compares the mobile payment systems in these two developing countries to understand the evolution of mobile payments in different technological, economic, and cultural environments.

The study uses secondary data from academic literature, official reports, industry reports, and news media. Through case descriptions, it provides an in-depth overview of the mobile payment systems in China and Kenya. The comparative analysis highlights the similarities and differences in core services and functions, user markets, technologies and transaction mechanisms, security measures, and economic and social impact.

## 4 COMPARISON OF MOBILE PAYMENTS IN CHINA AND KENYA

Currently, China's mobile payment market is almost monopolized by Alipay and WeChat Pay, while Kenya's mobile payment market is dominated almost entirely by M-Pesa. *Table 1* illustrates the establishment timelines of mobile payment platforms in China and Kenya. The development of mobile payments in China dates back to the launch of Alipay in 2004. Alipay was designed to provide a "simple, secure, and fast" online payment solution for China's e-commerce sector (Alipay, 2024c). In August 2013, Tenpay officially partnered with WeChat to launch WeChat Pay (Han, 2017). WeChat Pay integrated payment functions into the widely used social media app, enabling seamless transactions in both online and offline scenarios (China.strait channel, 2021). The development of mobile payments in Kenya began with the launch of M-Pesa on March 6, 2007, by Safaricom, Vodafone's Kenyan affiliate. M-Pesa has since become Africa's leading mobile payment service (M-PESA 2024).

**Table 1**
**Establishment time of mobile payment platforms in China and Kenya**

| 2004 | 2007 | 2013 |
|---|---|---|
| China Mobile Payment: Alipay | Kenya Mobile Payment: M-Pesa | China Mobile Payment: WeChat Pay |

*Source:* Edited by the authors.

China's mobile payment platforms Alipay and WeChat Pay, and Kenya's M-Pesa offer a wide range of services. *Table 2* provides a comparative analysis of the services offered by Alipay, WeChat Pay, and M-Pesa, categorized into the four main service areas of core services, financial services, business services, and digital services.

**Table 2**
**Comparative analysis of services offered by Alipay, WeChat Pay, and M-Pesa**

| Services | Alipay | WeChat Pay | M-Pesa |
|---|---|---|---|
| **Core service** | Domestic transfers<br>International transfers<br>Online payments<br>Offline payments<br>Bill and tax payment | Domestic transfers<br>International transfers<br>Online payments<br>Offline payments<br>Red packets (digital cash gifts)<br>Bill and tax payments | Domestic transfers<br>International transfers<br>Cash in<br>Cash out<br>Online payments<br>Offline payments<br>Bill and tax payments<br>Airtime and data purchase |
| **Financial service** | Microloans<br>Savings<br>Overdrafts<br>Wealth management<br>Insurance<br>Bank transfers | Microloans<br>Savings<br>Overdrafts<br>Wealth management<br>Insurance<br>Bank transfers | Microloans (with banks)<br>Savings<br>Overdrafts<br>Wealth management<br>Insurance<br>Bank transfers |
| **Business service** | Online payment reception<br>Offline payment reception<br>Assisting organizations in managing finances and inventory<br>Small and medium enterprise (SME) loans<br>Integration with e-commerce platform | Online payment reception<br>Offline payment reception<br>Assisting organizations in managing finances and inventory<br>Small and medium enterprise (SME) loans<br>Integration with e-commerce platform | Online payment reception<br>Offline payment reception<br>Paying wages for businesses<br>NGO/government expenditure<br>Assisting organizations in managing finances and inventory<br>Small business loans<br>Roll up |
| **Digital service** | Comprehensive APIs for payments, merchant integration, and financial services<br>Personalized advertising based on user behavior, location, and purchase history<br>Mini programs for shopping, services, finance | APIs for payments, mini-programs, QR code payments, and merchant tools<br>Personalized advertising based on user activity, location, and interaction within WeChat<br>Mini programs for shopping, services, finance | APIs are only available for mobile transfers, merchant payments, and bulk payments<br>Limited advertising targeting, primarily collaborates with merchants to offer promotions or discounts<br>Does not support mini programs, focusing instead on mobile financial services |

*Source:* Edited by the authors

The three platforms all support basic payment functions in their core services, such as domestic transfers, international transfers, online payments, offline payments, and bill and tax payments. However, there are some differences in the core services they offer. For example, WeChat Pay provides red packets (digital cash gifts), while M-Pesa allows cash deposits, withdrawals, and the purchase of airtime and data via phone numbers. In contrast, China's Alipay and WeChat Pay do not support cash deposits or withdrawals. Funds can only be transferred in and out of accounts via linked bank cards.

In terms of financial services, all three platforms offer microloans, savings, overdrafts, wealth management, insurance, and bank transfers. However, M-Pesa relies on partnerships with banks to provide loan services, while Alipay and WeChat Pay have their financial departments that allow them to offer loans without the need to collaborate with banks.

For the business services offered, all three platforms support online payment reception, inventory and financial management as well as business loans. China's mobile payment platforms can integrate with e-commerce platforms, allowing direct use of Alipay and WeChat Pay within these platforms, offering a comprehensive ecosystem. On the other hand, M-Pesa supports payroll for businesses as well as payments for non-governmental and government organizations. China's mobile payment platforms focus on individual users, while the Kenyan mobile payment platform supports bulk payments for government departments and businesses.

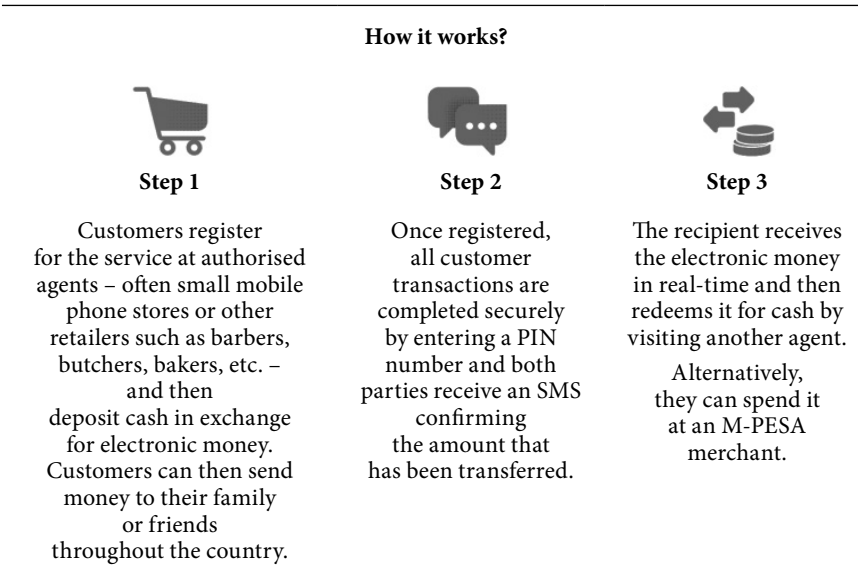
In terms of digital services, Alipay and WeChat Pay lay emphasis on providing a comprehensive service ecosystem through APIs and mini-programs, while the scope of M-Pesa is limited to mobile transfer services and it lacks mini-program functionality.

China's mobile payment platforms Alipay and WeChat Pay support proximity-based mobile payments, including NFC and QR code-based payments. Proximity payments use Near Field Communication (NFC) technology to enable convenient transactions. This technology consists of a small antenna in smartphones, allowing bidirectional communication with NFC card readers (contactless POS) to execute contactless payment transactions. The adoption of NFC payments is facilitated by the growing number of smartphones equipped with NFC and the establishment of the underlying POS infrastructure that supports contactless credit/debit cards (Mordor Intelligence, 2024).

*Figure 1* illustrates the transaction mechanism of Kenya's M-Pesa payment platform. The transaction is divided into three steps. In the first step, users register with an authorized agent to use M-Pesa and convert cash into electronic money, which is then deposited into their account. In the second step, users receive an

SMS confirming the transaction amount and enter a PIN code to complete the transfer. In the third step, once the recipient receives the electronic money, they can either visit an agent to exchange it for cash or continue using it within M-Pesa for further transactions.

**Figure 1**
**How M-Pesa works**




*Source:* (Vodafone 2024)

*Table 3* describes how China's mobile payment platforms Alipay and WeChat Pay, and the Kenyan M-Pesa platform operate during transactions.

**Table 3**
**Comparative analysis of the technology and payment method of Alipay, WeChat Pay, and M-Pesa**

| Platform | Technology used | Payment method | Supported devices |
|---|---|---|---|
| Alipay | QR code, NFC linked bank accounts | Scan-to-pay, online payments, money transfers | Smartphones (Android and iOS) |
| WeChat Pay | QR code, NFC linked bank accounts | Peer-to-peer payments, bill payments, in-app purchases | Smartphones (Android and iOS) |
| M-Pesa | USSD codes, SMS | Mobile money transfers | Traditional phones (USSD/SMS) |

*Source:* Edited by the authors

The Alipay and WeChat Pay mobile payment platforms in China both rely on smartphones and leverage advanced technologies, such as QR codes and NFC, to enable seamless transactions, and offer a wide range of services. These features are designed for smartphone users in urban areas, where internet infrastructure is readily available. In contrast, M-Pesa adopts a completely different model. It focuses on traditional mobile phones and USSD/SMS technology to cater to users in rural areas and regions with limited banking services. Most people in these areas use basic mobile phones that cannot access the internet.

Accordingly, Chinese mobile payment platforms target a digitally advanced, smartphone-using population. M-Pesa prioritizes inclusivity, providing services via basic phones to allow a wider and underserved population to participate in financial activities.

To better understand the strategic positioning of China's and Kenya's mobile payment platforms, it is crucial to analyze their different user markets. Different strategic approaches satisfy varying financial needs across diverse populations and regions. *Table 4* provides an overview of the user markets of China's mobile payment platforms Alipay and WeChat Pay, compared with Kenya's M-Pesa.

**Table 4**
**Comparative analysis of the user markets of Alipay, WeChat Pay and M-Pesa**

| Platform | Target market | User demographics | Geographical scope |
|---|---|---|---|
| Alipay | Chinese urban users<br>Businesses engaged in e-commerce | E-commerce consumers<br>Offline retail businesses<br>Smartphone users | Primarily in China, with expansion into Southeast Asia and Europe. |
| WeChat Pay | Integrated with WeChat's social ecosystem<br>Small-scale commercial transactions | WeChat users<br>Smartphone users | WeChat users<br>Smartphone users |
| M-Pesa | Unbanked or underbanked populations in Sub-Saharan Africa<br>Rural users<br>Micro, small, and medium-sized enterprises (MSMEs) | Individuals with no or limited access to traditional banking systems<br>Traditional mobile phone users<br>Smartphone users | Initially in Kenya, later expanding to other African countries such as Tanzania, Ghana, Mozambique, and even parts of South Asia (e.g., India and Afghanistan). |

*Source:* Edited by the authors

China's mobile payment providers primarily serve urban users, focusing on the e-commerce sector. Alipay and WeChat Pay rely on the use of smartphones, with only smartphone users connected to the internet being able to use these platforms. While China's mobile payment systems have specific requirements for mobile devices, Kenya's M-Pesa platform does not. M-Pesa is available to traditional mobile phone users without access to the internet. It relies on SMS and basic phone functions, enabling it to provide services to a broader population, even in areas with limited smartphone penetration. M-Pesa primarily targets rural areas where there is a lack of banking services or no banking access at all.

In expanding into overseas markets, China's Alipay and WeChat Pay gradually enter local markets by collaborating with foreign banks and payment institutions. For example, Alipay has partnered with GrabPay in Southeast Asia and GCash in the Philippines, while WeChat Pay operates locally in South Africa and Japan (Alipay+ 2024) (Du 2017). M-Pesa expands its business by partnering with local telecom companies and leveraging existing telecommunications networks. For example, it collaborates with Vodacom in Tanzania and MTN in Ghana (Safaricom, 2024a).

Based on the comparison of services, working mechanisms and user markets, an analysis of the transfer fees of Alipay, WeChat Pay, and M-Pesa provides further

insight into the cost of use for their user groups. *Table 5* and *Table 6* present the transfer fees of Alipay, WeChat Pay, and M-Pesa. Since China's mobile payment platforms do not provide cash withdrawal services, this aspect is not included in the comparison.

**Table 5**
**Alipay and WeChat Pay transfer fees in 2024**

| **Transfer fee** | Alipay | WeChat Pay |
|---|---|---|
| **Transfer fee for individual users** | Free | Free |
| **Transfer fee for business users** | Free | 0.1% 0.38% |

*Source:* Edited by the authors

**Table 6**
**M-Pesa transfer fees in 2024**

| **M-Pesa Charges 2024 for Sending to Pochi la Biashara and Business Till to Customer** | | | | **Mpesa Charges 2024 for Sending Money to Users** | | | |
|---|---|---|---|---|---|---|---|
| **Min (Ksh)** | **Max (Ksh)** | **Pochi La Biashara** | **Business Till to Customer** | **Min (Ksh)** | **Max (Ksh)** | **Registered Users** | **Unregistered Users** |
| 1 | 49 | FREE | FREE | 1 | 49 | FREE | N/A |
| 50 | 100 | FREE | FREE | 50 | 100 | FREE | N/A |
| 101 | 500 | 6 | 6 | 101 | 500 | 6 | 45 |
| 501 | 1 | 12 | 12 | 501 | 1 | 12 | 49 |
| 1.001 | 1.5 | 22 | 22 | 1.001 | 1.5 | 22 | 59 |
| 1.501 | 2.5 | 32 | 32 | 1.501 | 2.5 | 32 | 74 |
| 2.501 | 3.5 | 51 | 51 | 2.501 | 3.5 | 51 | 112 |
| 3.501 | 5 | 55 | 55 | 3.501 | 5 | 55 | 135 |
| 5.001 | 7.5 | 75 | 75 | 5.001 | 7.5 | 75 | 166 |
| 7.501 | 10 | 87 | 87 | 7.501 | 10 | 87 | 205 |
| 10.001 | 15 | 97 | 97 | 10.001 | 15 | 97 | 265 |
| 15.001 | 20 | 102 | 102 | 15.001 | 20 | 102 | 288 |
| 20.001 | 35 | 105 | 105 | 20.001 | 35 | 105 | 309 |
| 35.001 | 50 | 105 | 105 | 35.001 | 50 | 105 | N/A |
| 50.001 | 150 | 105 | 105 | 50.001 | 150 | 105 | N/A |

*Source:* (KenyanBackpacker, 2024)

As shown in *Table 5*, there are no transaction fees for either individual or business users when transferring money using the Alipay app (Alipay, 2024b). WeChat Pay does not impose any transaction fee on person-to-person transfers. However, for business transfers, users who transfer funds using a bank debit card are charged a fee of 0.1% of the transaction amount. If users transfer funds using a bank credit card, the fee is 0.38% of the transaction amount (Qin–Zhang, 2021). As *Table 5* shows, M-Pesa offers free transactions up to a certain amount for both individual and business users. Once the transaction amount exceeds a specified threshold, a tiered fee structure applies. The higher the transaction amount, the higher the tiered fees.

Alipay, WeChat Pay, and M-Pesa all have security measures in place to ensure the safety of user transactions. The security measures implemented by each platform are summarized in *Table 7*.

**Table 7**
**Comparative analysis of the security measures of Alipay, WeChat Pay and M-Pesa**

| Platform | Security measures |
|---|---|
| Alipay | End-to-end encryption<br>Two-factor authentication (2FA)<br>Biometric verification (fingerprint, facial recognition)<br>Artificial intelligence fraud detection<br>Secure servers and digital certificates |
| WeChat Pay | End-to-end encryption<br>Two-factor authentication (2FA)<br>Biometric verification (fingerprint, facial recognition)<br>Artificial intelligence fraud detection<br>Secure servers and digital certificates |
| M-Pesa | PIN-based authentication<br>Secure USSD/SMS communication<br>Partnerships with mobile network operators to prevent fraud<br>Physical identity verification during registration |

*Source:* Edited by the authors

The security challenges faced by Alipay and WeChat Pay include phishing attacks and data breaches. As Alipay processes a vast amount of transaction data, it is under threat of hacking attacks and information leaks (Alipay Developer Community 2024). China's mobile payment platforms employ advanced encryption technologies, two-factor authentication (2FA), and biometric verification methods such as fingerprint and facial recognition to provide a high level of security for smartphone users. Alipay and WeChat Pay also use AI-powered fraud detec-

tion systems to monitor transactions in real time, identifying and preventing suspicious activities. They further enhance data protection by using secure servers and digital certificates (Wenxiaobai, 2024), (Alipay, 2024a), (WeChatPay, 2024).

Since M-Pesa relies on SIM cards and partnerships with mobile network operators to ensure transaction security, it faces security challenges such as SIM card fraud and agent corruption (Martin, 2023). To mitigate these risks, M-Pesa employs PIN-based authentication as its primary security mechanism for transactions conducted via USSD and SMS. This approach helps reduce security risks in environments with low internet penetration and limited device capabilities (Safaricom, 2024b). M-Pesa needs to strengthen agent supervision by increased regular audits and risk monitoring (Wamukekhe, 2024).

China's mobile payment security measures are more advanced and complex and provide a higher level of security compared with those implemented in Kenya.

Government policies play a crucial role in either promoting or restricting the development of mobile payments. *Figure 8* illustrates the different regulatory environments adopted by China and Kenya to provide a more comprehensive view of how regulatory policies impact the development of mobile payment platforms. Diverging regulatory frameworks in the two countries have shaped the distinct characteristics of their respective mobile payment markets.

**Table 8**
**Comparative analysis of the regulatory environments of Alipay, WeChat Pay and M-Pesa**

| Aspect | Alipay és WeChat Pay | M-Pesa |
|---|---|---|
| Regulatory model | Strict regulation to enhance financial security | Flexible regulation to promote market innovation |
| Central bank policies | The central bank imposes strict regulation and supports the digital yuan (e-CNY). | The central bank supports the free development of mobile payments. |
| Market competition | Stricter anti-monopoly policies are enforced. | M-Pesa leads the market, with regulation starting to intervene. |
| Cross-border payments | Regulation focuses on foreign exchange controls and financial security. | Regulation focuses on cross-border payments and anti-money laundering. |

*Source:* Edited by the authors

In China, government policies tend to strike a balance between strict regulation and promoting development. To foster stable development in the mobile payment

industry, the Chinese government provides support through central bank policies, fintech innovation, and extensive infrastructure development. The People's Bank of China regulates third-party payments through policies such as the Measures for the Administration of the Network Payment Business of Non-bank Payment Institutions (The People's Bank of China 2024). In addition, the government launched the "Digital Yuan" (e-CNY) to promote the integration of mobile payments with the national financial system (World Economic Forum 2023). At the same time, the government has invested in infrastructure such as 5G and mobile internet networks, enabling Alipay and WeChat Pay to cover the entire country (Li–McElveen, 2020). To create a favorable environment for the mobile payment industry, the Chinese government has implemented anti-monopoly policies to reduce the market dominance of Alipay and WeChat Pay (Hu, 2021). Due to foreign exchange controls and financial security concerns, cross-border payments are subject to strict regulation, which has limited the international expansion of Alipay and WeChat Pay.

In Kenya, government policies combine financial inclusion with flexible regulation. The Kenyan government has partnered with local operators to promote the development of the mobile payment industry, allowing Safaricom to be a leader in mobile payments. M-Pesa has facilitated access to financial services for rural and low-income populations. The Central Bank of Kenya (CBK) has implemented broad regulations that have allowed Safaricom's M-Pesa to rapidly grow and fill the gaps left by the traditional banking system (Mas–Radcliffe, 2010), (Panya, 2023). As M-Pesa's market position had become dominant, the government has strengthened regulation, requiring Safaricom to share its payment infrastructure with other financial institutions to reduce market monopoly (Ndung'u, 2021). Strict regulations on cross-border payments and anti-money laundering compliance have affected M-Pesa's speed of expansion in other African countries (Republic of Kenya 2021).

## 5 THE ECONOMIC AND SOCIAL IMPACT OF MOBILE PAYMENTS IN CHINA AND KENYA

China's mobile payment platforms Alipay and WeChat Pay, and Kenya's M-Pesa have each had a profound impact on the economies and societies of China and Kenya, respectively.

In China, mobile payment platforms have bolstered e-commerce and consumption. Alipay and WeChat Pay provide convenient payment methods, reducing reliance on cash transactions, improving transaction efficiency, and promoting the digital transformation of small and medium-sized enterprises as well as the

development of the financial industry (Yao–Di–Zheng–Xu, 2018). Mobile payments have promoted financial inclusion, making it easier for small businesses and individuals in remote areas to access financial services (Adrian–Mancini–Griffoli, 2021). In addition, the development of mobile payments has triggered the rise of supporting industries such as big data analysis, artificial intelligence, and fintech, further promoting digital transformation. The large-scale use of mobile payments has also created job opportunities in fields like fintech, cybersecurity, and customer support (Qianjitouhang, 2024).

In 2023, banks processed a total of 2961.63 billion electronic payment transactions, amounting to 3395.27 trillion yuan, which represents a year-on-year growth of 6.17% and 9.17%, respectively. Among these, online payment transactions totaled 948.88 billion, with a value of 2765.14 trillion yuan, while mobile payment transactions accounted for 1851.47 billion, worth 555.33 trillion yuan. Non-bank payment institutions processed 121.23 trillion network payment transactions, totaling 340.25 trillion yuan, which corresponds to a year-on-year growth of 17.02% and 11.46%, respectively (The People's Bank of China 2024). In 2023, China's Gross Domestic Product (GDP) for the entire year was 126.0582 trillion yuan (Wang 2024). The data shows that in 2023, the total transaction volume of mobile payments in China reached 555.33 trillion yuan, more than three times the country's GDP. This growth highlights the critical role mobile payments play in driving economic activities in China. The significant increase reflects the heavy dependence of both consumers and businesses on mobile payment systems. Mobile payment platforms like Alipay and WeChat Pay dominate this market, with their coverage extending gradually beyond urban areas to rural regions. Their expansion has provided considerable support for local economic development.

In addition, mobile payment platforms in China have also fueled the growth of the sharing economy, such as bike-sharing and ride-hailing services. The sharing economy has transformed people's consumption habits and lifestyles (Ma et al., 2018). The widespread adoption of mobile payments has enhanced the convenience of financial services, especially in urban areas of China, where the goal of a cashless society is nearly achieved (Shen et al., 2020). However, this transformation has also brought some challenges, such as information security risks and a lack of access for older groups of the population.

The mobile payment market in China is highly competitive, with many platforms being present in addition to Alipay and WeChat Pay, such as UnionPay, JD Pay, Huawei Pay, and others (Shifeng 2020). However, Alipay and WeChat Pay together dominate over 90% of the mobile payment market (Qianjitouhang 2024).

In the future, the security of China's mobile payment platforms will remain a primary concern for users. Mobile financial service platforms can develop privacy risk protection strategies, provide technical support and take anti-fraud measures

to minimize the security risks of potential end users (Gbongli–Xu–Amedjonekou–Kovács, 2020). These platforms should invest in more advanced data encryption technologies, blockchain, and artificial intelligence to ensure that transaction data is not leaked or altered by third parties. Additionally, they should implement transaction scoring for merchants to effectively prevent risks and fraudulent activities. Strengthening security education for users is also crucial to help them identify and avoid online scams. For example, security tips could be introduced, or regular anti-fraud seminars held. To address the needs of older users, mobile payment platforms could launch modes especially tailored for them, with larger fonts, voice assistant functions, and offline services. These adaptations would make the platforms more accessible to older age groups.

Through these measures, China's mobile payment platforms like Alipay and WeChat Pay could not only enhance information security and reduce fraud risks but also better provide to the needs of different user groups, particularly improving the experience for older people. This way, it could be ensured that older individuals are not marginalized by technological advancements and can also benefit from the convenience and opportunities offered by mobile payments.

In contrast, Kenya's mobile payment platform M-Pesa has promoted financial inclusion by offering services such as deposits, transfers, and loans to rural and low-income populations that traditional banking services often cannot reach. M-Pesa has significantly increased economic participation, reduced poverty rates, and supported the growth of small and micro enterprises in Kenya. In 2023, Kenya's GDP was $107.4 billion (World Bank Group 2024). M-Pesa has over 50 million customers across seven countries, and accounts for more than 70% of all transactions in Kenya. It supports over 5 million businesses, with 59% of Kenya's annual GDP flowing through the platform (Kenya, 2023). Kenya's mobile payment system has not only strengthened economic connections between households but also enhanced women's economic independence. In households where mobile money is accessible, women are more likely to transition from agriculture to business. M-Pesa enables them to manage their finances more efficiently, fostering greater financial autonomy (Dawson, 2017). M-Pesa has also provided entrepreneurs and businesses with convenient channels for financial transactions, thereby promoting job growth and economic vitality. The development of M-Pesa has shaped the growth of Kenya's financial market and the emergence of what is now known as the digital financial system (Ndung'u, 2017). M-Pesa's relatively simple technology and low reliance on the internet make it more adaptable, especially in areas with limited internet access. However, its simplicity also implies limitations of application for more complex financial services.

As M-Pesa gained popularity in Kenya, several competitors emerged, including Airtel Money, T-Kash and Equitel (Obura, 2024). According to the Q4 report

for the 2023/24 fiscal year of the Kenya Communications Authority (CA), Airtel Networks has gained market share in mobile payments (SIM card and broadband subscriptions), while Safaricom has seen a decline in both areas. During the reporting period, Airtel Networks' market share increased from 5.1% to 6.6%, with the growth attributed to regulatory changes that facilitated seamless money transfers between M-Pesa and Airtel Money. Meanwhile, M-Pesa's market share dropped from 94.9% to 93.4% (Obura, 2024). Despite the presence of alternatives, M-Pesa still holds a 93.4% market share and has extended its range of services from basic transactions to include savings, credits, and insurance.

In the future, Kenya's mobile payment platform may expand into providing more complex financial services through partnerships with banks and financial institutions. While M-Pesa currently offers basic services, it could broaden its scope with more advanced financial products. While M-Pesa relies on traditional mobile phones and minimal internet use, the growing adoption of smartphones offers it an opportunity to develop internet-based applications with a wider range of functionalities. In terms of enhancing security, M-Pesa could incorporate encryption technology and biometric authentication to improve transaction safety. Additionally, M-Pesa could collaborate with international payment platforms to offer more comprehensive global services, which would facilitate international trade for Kenya.

Through these measures, M-Pesa could not only expand its service range and enhance its competitiveness but also better adapt to the future development of financial technology.

## 6 CONCLUSION

China's Alipay and WeChat Pay, along with Kenya's M-Pesa, have played important roles in global payment innovation. Despite facing different challenges and developmental environments, both have made positive contributions to the economic and social development of their countries.

In terms of launch timing, mobile payments were introduced earlier in China than in Kenya. Examining market scale and adoption, China's Alipay and WeChat Pay cover a broad user base and lead in technological innovation, payment methods, security measures, and diversity of financial services. However, despite the large market in China, the inclusion of the older population remains an issue, necessitating enhanced support and education for this group.

In contrast, Kenya's M-Pesa, with its simple and easy-to-use technology, has become a key tool in promoting financial inclusion and addressing the lack of banking services. It is particularly suited for traditional mobile phone users, giv-

ing priority to practicality and financial inclusion in areas with limited internet connectivity. However, the relatively simple technology limits M-Pesa's ability to include more complex financial services. In terms of fees, China's mobile payment platforms focus on low transaction costs to attract and retain users within their ecosystems, making them highly competitive in domestic markets. While M-Pesa has higher transaction fees, it provides accessibility and convenience for users who cannot access traditional banking services.

Overall, China's Alipay and WeChat Pay, leveraging advanced technology and a strong user base, have fostered global payment innovation and the development of financial services. Meanwhile, Kenya's M-Pesa, with its simple and low-barrier payment system, has provided a means for the financial inclusion of low-income and unbanked populations. Despite differences in technology, regulatory environment and market demands, all platforms have been instrumental in advancing financial inclusion and promoting economic development in their countries. Both China's and Kenya's mobile payment platforms have adapted to local needs, demonstrating how mobile payments can become powerful tools for driving economic and social progress.

At the same time, as mobile payment platforms offer overdraft features, they have made borrowing and participation in gambling easier. In both China and Kenya, concerns about gambling addiction and financial overexpansion have arisen. The governments of both countries should strengthen regulation and implement responsive measures to mitigate the negative effects brought by mobile payments.

In the future, China will continue to expand its influence in technological innovation and internationalization, while enhancing inclusivity for the older population. On the other hand, Kenya needs to move forward to technologically upgrading M-Pesa in order to offer more complex financial services. The evolution of mobile payments in both China and Kenya offers valuable insights and experiences for mobile payment systems in other countries, particularly in promoting financial inclusion, improving payment convenience, and ensuring security.

**Limitations**

This study relies on secondary data. Using such data often fails to capture real-time user experience and has field research beyond its scope. For a more detailed and comprehensive understanding of the factors influencing the adoption and use of mobile payments, future studies should incorporate field research or user-centered surveys.

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