

## Lesson 3: Digital Payments II – Mobile Wallets

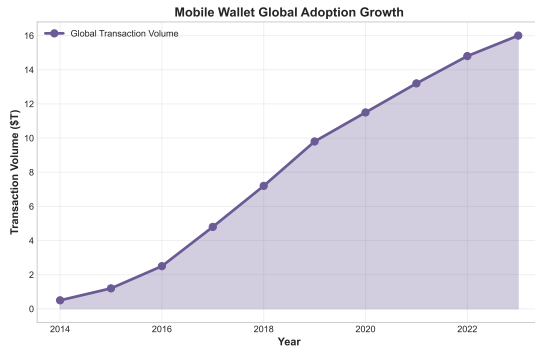
### Module 1: FinTech Fundamentals

Digital Finance

# Mobile Wallet Revolution

## Evolution of Payments

- Cash → Cards → Mobile
- 2014: Apple Pay launch
- 2023: **\$16T** global volume
- Smartphone = payment terminal

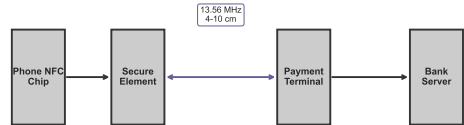


# Near Field Communication (NFC) Technology

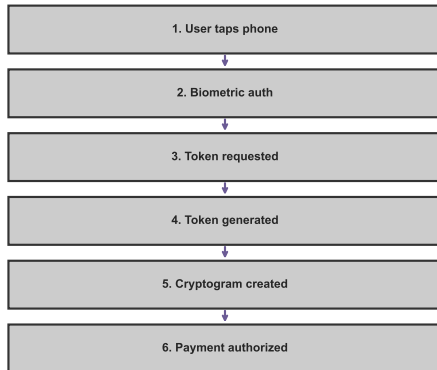
## Technical Foundation

- 13.56 MHz radio frequency
- Range: 4-10 cm proximity
- EMV tokenization standard
- Secure Element (SE) storage

## NFC Technology Architecture

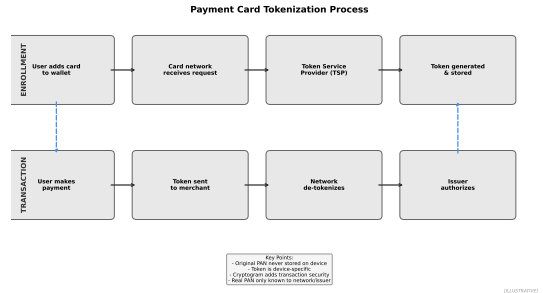


## Apple Pay Transaction Flow



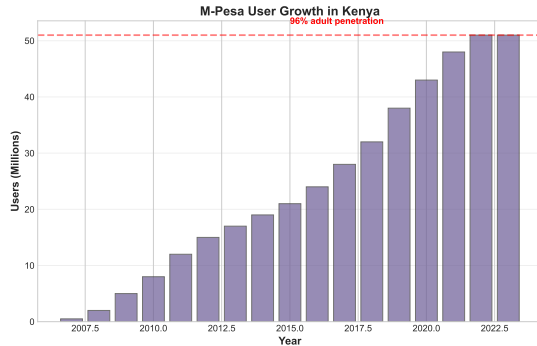
## Dynamic Token Generation

- PAN replaced by token
- One-time cryptogram
- Device-specific identifier
- Reduces fraud by 98%



## Kenya Success Story

- Launch: 2007 by Safaricom
- 51M users (2023)
- 96% adult penetration
- SMS-based transactions



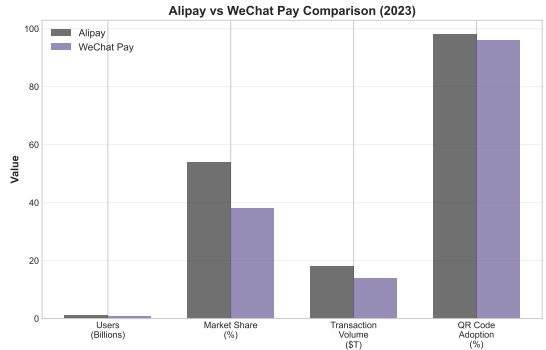
## M-Pesa Mobile Money Ecosystem



# Alipay and WeChat Pay Dominance

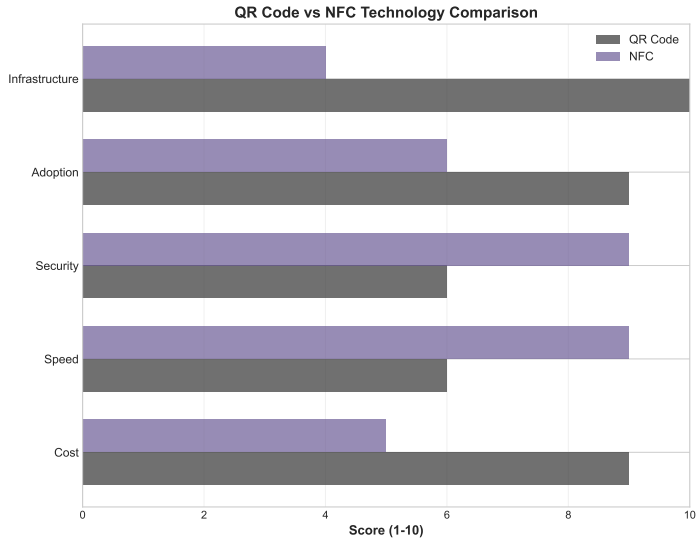
## Chinese Market Leaders

- Alipay: 1.3B users
- WeChat Pay: 1.0B users
- QR code-based
- 92% mobile payment share





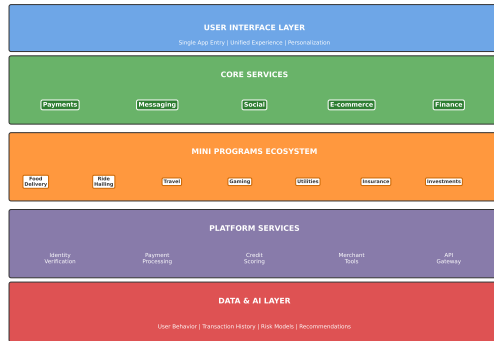
# QR Code vs NFC Technology



## WeChat Ecosystem

- Messaging + Payments
- E-commerce integration
- Mini-programs platform
- 1M+ services embedded

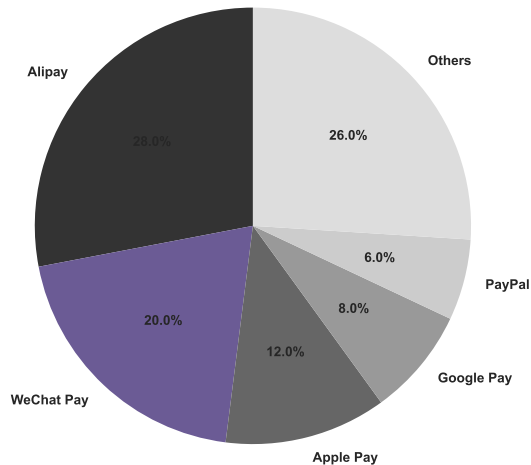
## Financial Super App Architecture



Examples: WeChat, Alipay, Grab, Gojek, PayTM

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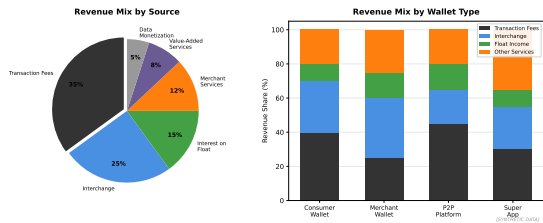
Global Mobile Wallet Market Share (2023)



## Revenue Streams

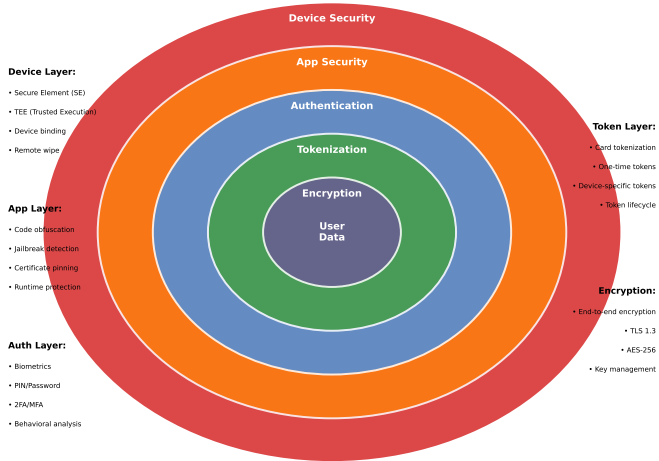
- Transaction fees (0.15%-3%)
- Data monetization
- Cross-selling services
- Merchant partnerships

## Mobile Wallet Revenue Model Analysis



## Mobile Wallet Security Architecture

*Defense in Depth Approach*

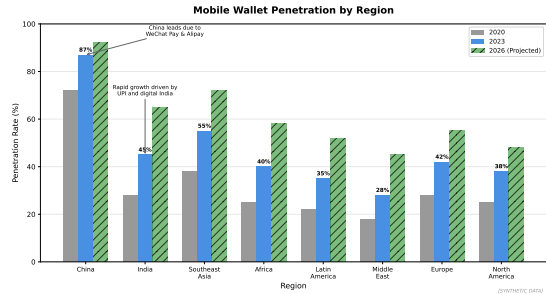


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# Emerging Markets Leapfrogging

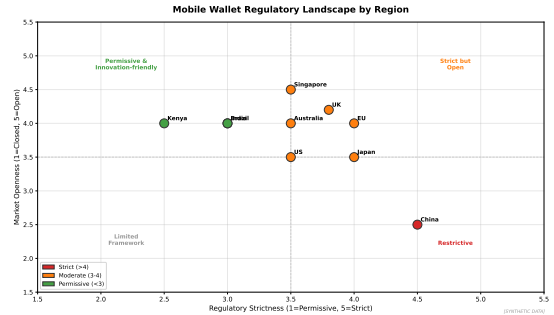
## Infrastructure Bypass

- Skip card infrastructure
- Mobile-first adoption
- Agent network model
- Financial inclusion impact



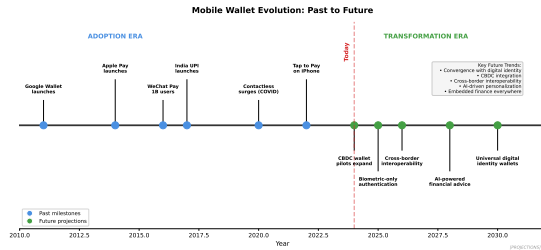
## Global Fragmentation

- Cross-border restrictions
- Data localization laws
- Licensing requirements
- Interoperability gaps



## Next Generation

- IoT payment devices
- Wearables integration
- Biometric authentication
- CBDC compatibility





- **Technology:** NFC for proximity, QR codes for scalability
- **Regional Patterns:** Super-apps in Asia, NFC in West, SMS in Africa
- **Business Models:** Transaction fees + ecosystem monetization
- **Security:** Tokenization reduces fraud dramatically
- **Impact:** Financial inclusion through mobile-first design