

# MOBILE PAYMENTS IN INDONESIA

RACE TO BIG DATA DOMINATION



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RACE TO BIG DATA DOMINATION



## FOREWORD

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In today's economy, digital disruption is the new normal as the Internet has virtually transformed every segment of the business world. From OTT to P2P, digital disruptors have found new ways of distributing media, information, goods, and even wealth.

Venture capital (VC) has been a major driving force behind the success of digital disruptors as the funds provide much capital to reach a scale to disrupt incumbent players. In the US, disruptors such as Netflix, Amazon, Whatsapp, Airbnb and Uber had taken over much of their brick-and-mortar counterparts. In Southeast Asia, companies such as Go-Jek, Grab, Traveloka, and Tokopedia are doing much of similar effort to carve out significant market share in each of their respective sectors.

Established businesses will have no choice but to respond to these digital disruptors. Technology adoption can happen almost anywhere and at anytime. They must find ways to participate in this adoption or risk decline.

For over the last decade, telecommunication industry has been disrupted by multiple waves of technological advancements. It has happened with Whatsapp taking over significant portions of the voice and text market, with Netflix in premium video content and quite

recently, high-profile mega deals such as Go-Jek, Tokopedia, and Traveloka has been marked as the beginning of local tech companies dominating the competitive landscape.

As the wave of digital disruptions are now 'home-grown', businesses need to reorganize and respond by launching similar digital initiatives to anticipate the upcoming innovation trends

In particular, industry convergence in financial services is accelerating as Indonesia's ecommerce giants began to consolidate, and digital transformation is taking place in the financial services sector that requires banks and telecommunications companies to use mobile payment to engage customers that are embedded in the ecosystem.

This paper discusses the trend in Indonesia's mobile payment from a number of perspectives and explores the reasons why some initiatives succeed and others fail. We believe this paper offers an extensive insight for those who would like to understand further about the current Indonesian payment ecosystem, and what would be the key success factors to win the competition.

**The disruptors are here to stay.**

***Nicko Widjaja***

CEO of MDI Ventures



## ABOUT MDI VENTURES



MDI Ventures is the corporate venture capital arm of Telkom Indonesia, the largest telecommunication company in Southeast Asia. Founded in 2015, MDI Ventures is currently one of the most active growth stage

investors in the region with total of 25 companies that spans in 10 countries and spreads into several different technology verticals. The firm is based in Jakarta with representative offices in San Francisco and Singapore.

## ABOUT MANDIRI SEKURITAS



Mandiri Sekuritas is an investment banking and financial advisory firm. The firm also provides securities brokerage and investment management services. Founded in 2000, Mandiri Sekuritas is a merger

between PT Exim Securities, PT Bumi Daya Sekuritas, and PT Merincorp. The firm is based in Jakarta, Indonesia and operates as a subsidiary of PT Bank Mandiri, Tbk.

## ABOUT THE AUTHORS



This paper is written by Joshua Agusta, who is the Head of Portfolio Management for MDI Ventures

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# INDONESIA MOBILE PAYMENT OVERVIEW

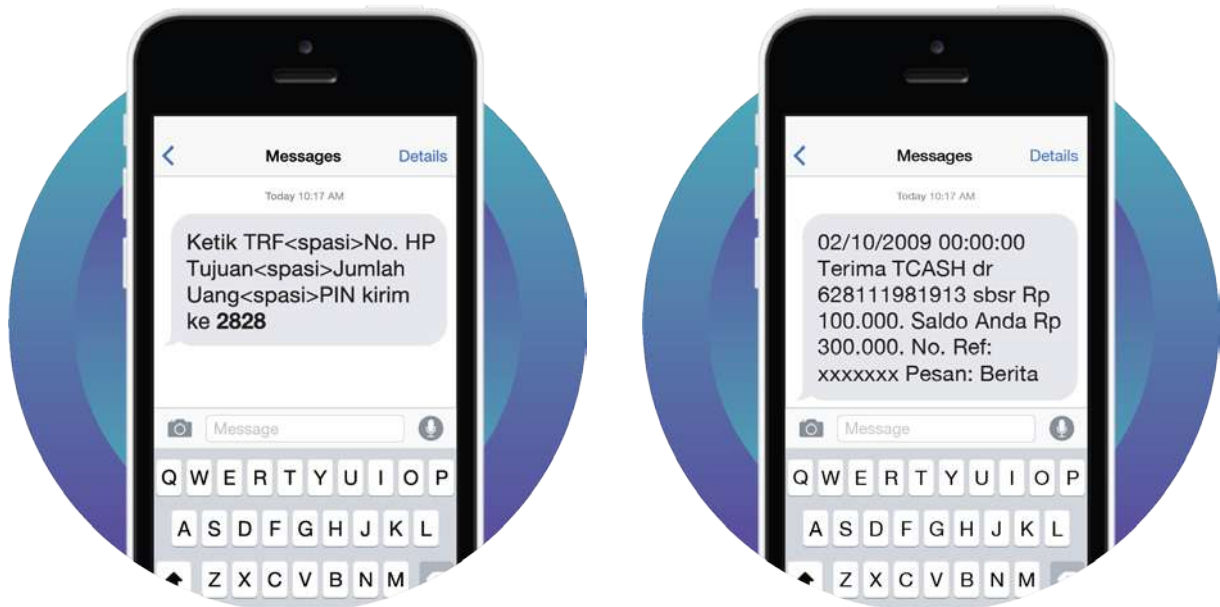


## A LOOK BACK INTO HISTORY

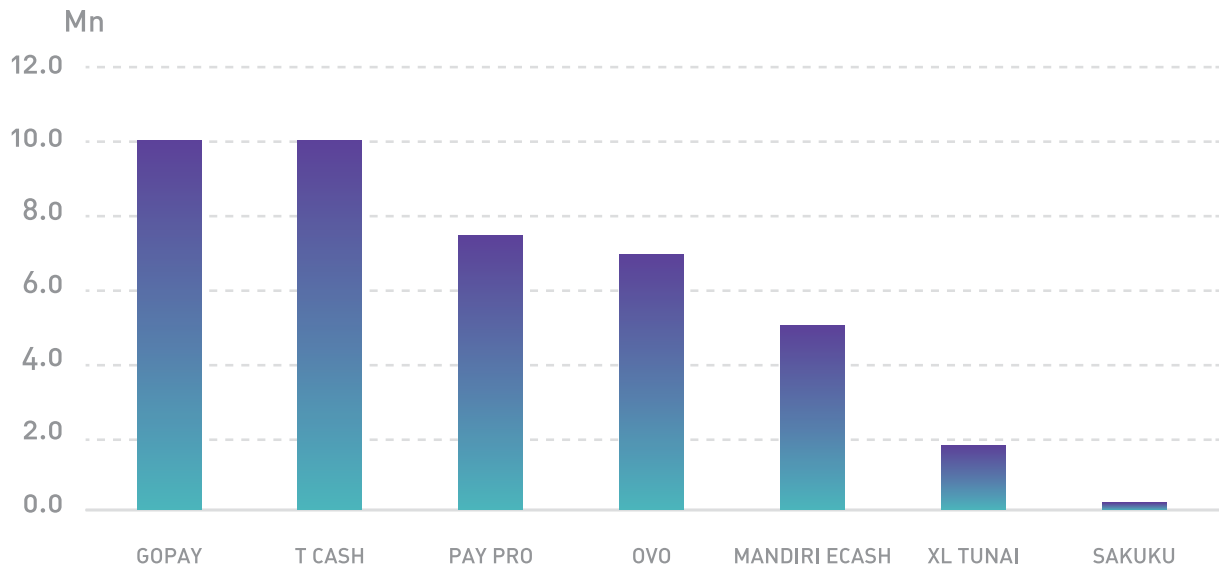
Mobile network operators pioneered mobile payment services in Indonesia about a decade ago; Telkomsel T Cash first launched in 2007, followed by Indosat Dompetku in 2008 and XL Tunai in 2012. Built upon USSD (Unstructured Supplementary Service Data) technology, the mobile payment services were mainly used for telecom top-ups, utilities bill payment, and remittance services. The telcos' USSD-based mobile payment services enjoyed relatively good adoption

rate. For instance, Telkomsel managed to gather ~8mn T Cash subscribers after 3-4 years of operation, with customers mainly using the services for utilities bill payment and telecom top-ups. However, the complexity in inputting payment codes under the USSD technology, along with other regulatory limitations, capped the adoption level and prevented mobile payment services from further scaling up.

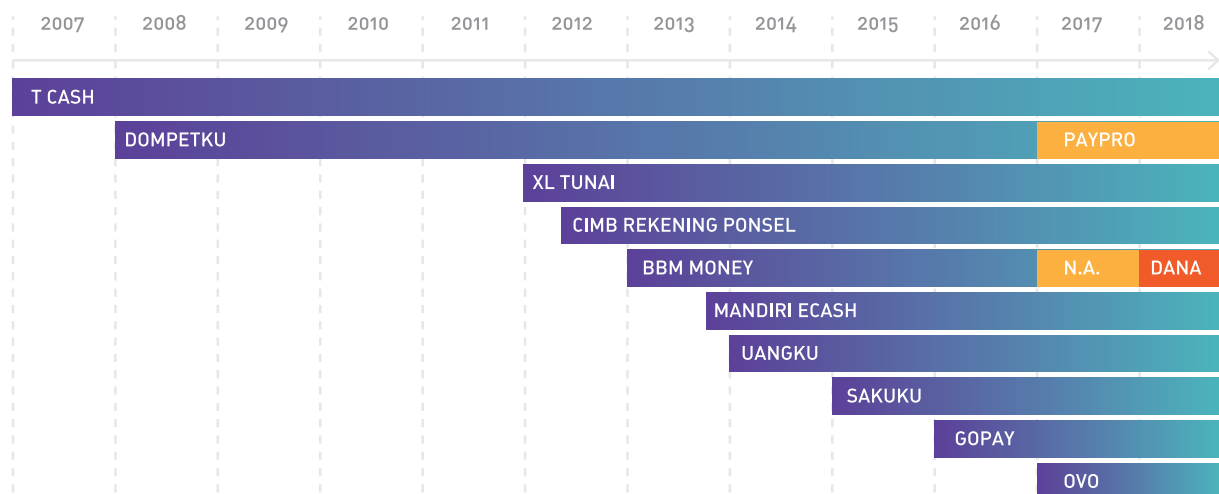
**FIGURE 1** | USSD based payment options



Source: Company Data

**FIGURE 2** | Mobile Payment User Base (2017)

Source: MDI Ventures & Mandiri Sekuritas Research

**FIGURE 3** | Mobile Payment Launch Timeline

Source: MDI Ventures & Mandiri Sekuritas Research

## DESIGNED FOR FINANCIAL INCLUSION, BUT LIMITATIONS AROUND TECH AND REGULATION

Mobile payment services in Indonesia uses server-based electronic money as the underlying currency for services. Regulated by the central bank 'Bank Indonesia' (BI), mobile payment services were also designed to improve the unbanked population's access to financial services. Though, services offered never really extend beyond remittance and payment. Lending through mobile payment services and offering interests on the electronic money deposits, for instance, were restricted. The services managed to build strong monthly use cases, such as bill payment, telecom

top-ups, and virtual transfer. However, building daily use cases, such as on-site retail payment, on-site dining payment, and public transport ticketing, was very challenging with the USSD-based technology. Meanwhile, chip-based electronic money services, such as BCA Flazz card and Mandiri e-Money, enjoyed better take-up trajectory given their simpler 'tap-and-pay' solutions. For perspective, transaction value generated by chip-based electronic money contributes 70% of the total transactions generated by electric money as of 2017, in our estimates.

*Table 1: Server based electronic money vs Chip based electronic money*

	SERVER BASED	CHIP BASED
Medium	Internet connected hardware (Smartphone, Desktop)	Chip-equipped cards
Top Up Channels	EDC, ATM, Bank Transfers, Issuers Branch / Agents	
Top Up Fees	Not Applicable	Rp200-1,500 per top-up depending on top up channels
Payment Method	Virtual	EDC-based
Balance Storage	Banks' electronic money servers	Stored in chip-equipped cards
Balance Limit	Rp 1,000,000 for basic subscribers or Rp 10,000,000 for fully-registered subscribers	Rp 1,000,000 for all subscribers
Service Limit	Remittance / Transfer Cash withdrawals Online & offline payments	Cash withdrawals Offline payments
Product Example	Go-Pay Telkomsel T Cash Bank Mandiri e-cash BCA Sakuku XL Tunai PayPro BBM Money Doku Wallet OVO Rekening Ponsel CIMB Nlaga	Mandiri E-money BCA Flazz BRI Brizzi BNI TapCash MegaCash Bank DKI JakCard Nobu E-money BTN Blink

Source: Bank Indonesia, MDI Ventures & Mandiri Sekuritas Research



*Table 2: Regulatory Classification of Users*

	UNREGISTERED USERS	REGISTERED USERS
Registration Requirement	E-mail accounts / mobile phone number	
	Name	Name
	Date and Place of Birth	Date and Place of Birth
	Address	Address
		National ID Number
		Mother's Maiden Name
Deposit Limit	Rp 1,000,000	Rp 5,000,000
Monthly Transaction Limit	Rp 20,000,000	
Services Limit		
Cash Withdrawal	Not Applicable	Can be done in full or partial amount through respective channels (Banks' ATMs, EDCs, or other channels)
Remittance / Transfer	Not Applicable	Among registered E-money users
		Registered E-money to Unregistered E-money accounts for Top-up purposes
		From registered user's E-money account to registered user's savings account
		From registered user's savings account to registered user's E-money account
		Government social assistance

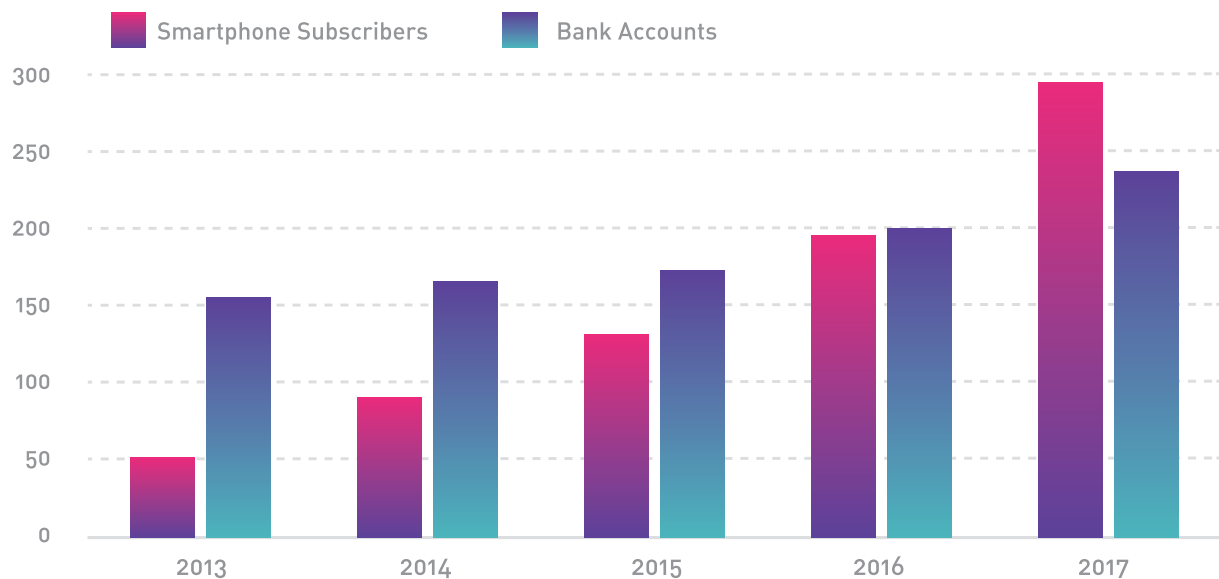
Source: Bank Indonesia, MDI Ventures & Mandiri Sekuritas Research

## PROLIFERATION OF SMARTPHONES FACILITATES NEW SOLUTIONS

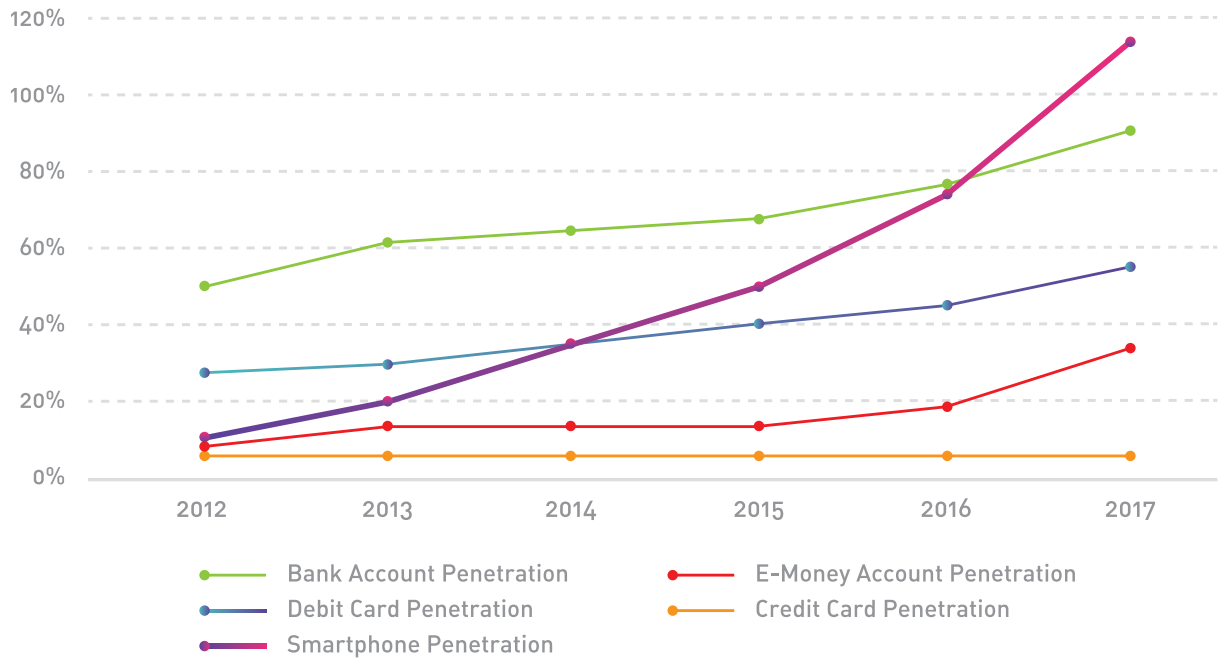
The proliferation of smartphone devices since 2010 helped the advancement of mobile payment services in Indonesia. The massive upgrade in operating system and user interface, coupled with more reliable mobile internet connectivity, has enabled the significant transformation of mobile payment services. Mobile payment processing time and experience improved

materially as customers upgraded from USSD-code based services to app-based services. The range of use cases also expanded as app-based platform allowed the embedding of mobile payment services into other app services, such as ride hailing services and chatting/social media services.

**FIGURE 4** | Smartphone Penetration Growth From 2013 to Today



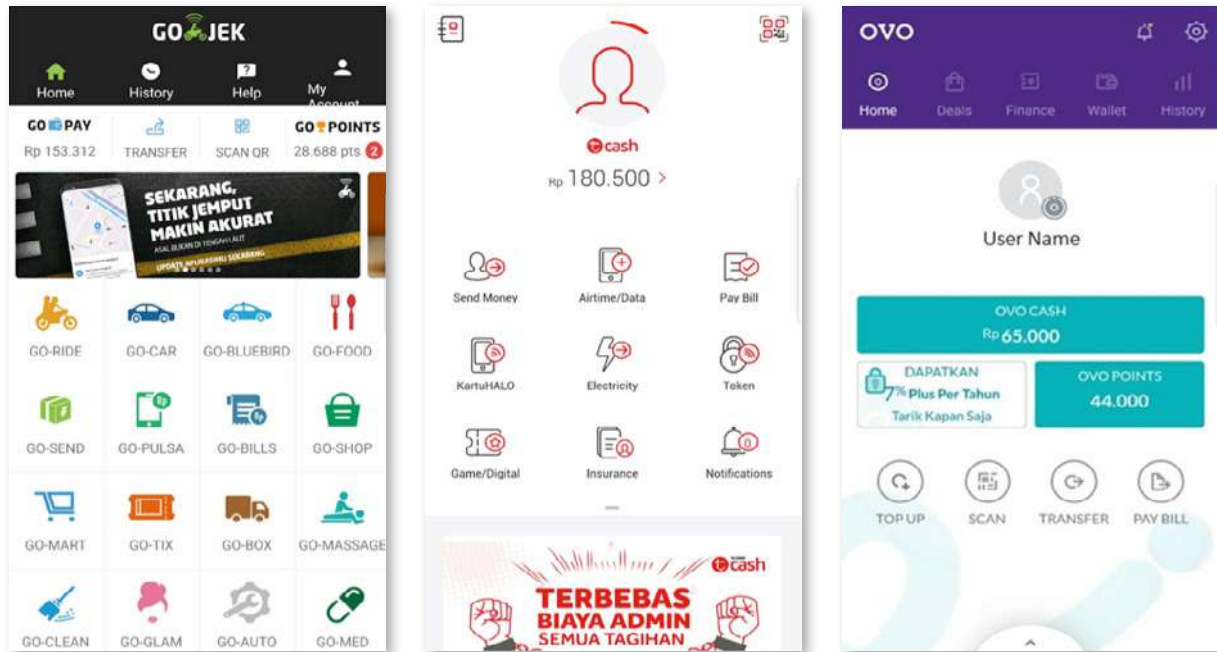
Source: Telecom companies, LPS, MDI Ventures & Mandiri Sekuritas Research

**FIGURE 5** | Smartphone Subscription Penetration Versus Electronic Banking Platforms Penetration

Source: Telecom companies, Bank Indonesia, OJK, BPS, MDI Ventures & Mandiri Sekuritas Research

The adoption rate of app-based mobile payment services adoption in fact overtook that of the traditional mobile payment services in recent year. GoJek's GoPay, for instance, only launched in 2016, but now leads in terms of Gross Transaction Volume (GTV) when compared to the older services such as Telkomsel T Cash and Mandiri e-Cash. The tie-up between GoJek's

mobile payment services and ride-hailing services (along with other lifestyle services) proved as powerful combination and offered relevant daily use cases. Indeed, most of the traditional mobile payment services have transformed into app-based mobile payment services, but very few succeed in building platforms with relevant and sticky daily use cases today.

**FIGURE 6** | App-based Interfaces of GoJek/GoPay, Telkomsel T Cash, and OVO

Source: Company Data

## BUILDING STICKINESS BY SOLVING SPECIFIC PAYMENT NEEDS FIRST, THEN DIVERSIFY

Different mobile payment services managed to build scale and leadership by addressing payment problems in specific payment segments. Nationwide prepaid resellers footprint allows telcos' mobile payment services to gain scale from providing telecom top ups and utilities bill payment services, especially in sub-





urban areas where payment options for utilities bill payment were rather limited and complicated. GoJek's GoPay addressed the payment problems in ride-hailing and food delivery services by using its GoJek riders as 'cash-out' agents and GoJek is now extending its payment solution acceptance among its partner F&B

and lifestyle merchants. GoJek's recent acquisitions of Midtrans and Mapan could potentially lead to GoPay's wider acceptance among e-commerce platforms and microfinance platforms. Meanwhile, Ovo leveraged on its sponsor's nationwide retail footprint to drive F&B and lifestyle-focused mobile payment services.

While there are already signs of clear winners in the select payment segments (such as ride hailing and food delivery services), there are still many other untapped payment segments for others to build

bigger scale from. These untapped segments include unorganized food & retail (of which only a minor part has been addressed by GoPay, T Cash, and traditional digital banking channels), personal taxes, public transport (bus/train), toll road, fuelling stations, and so on. Furthermore, adding personal savings and investment features into existing mobile payment services (subject to regulatory approval) could help drive adoption leap, especially in areas with limited access to formal financial services.

**FIGURE 7** Mapping The Use Cases

							
On-site Dining	●		●	●			
Offline Retail							
Offline Groceries	●		●				
Online Marketplace	●			●	●		
Food Delivery Services		●					
Ride-hailing Services (Car/Bike?Taxi)		●					
Telecom Top-ups	●	●	●	●	●	●	●
Utilities	●	●	●	●	●	●	●
Public Transport (Bus/Train/Toll Roads)	●	●					
Savings/Investment/Multifinance			●	●		●	
Remittance	●	●	●	●	●	●	●

Source: MDI Ventures & Mandiri Sekuritas Research

## UNLOCKING THE QR CODE POTENTIAL - CAREFULLY

Inspired by QR Code-based payment success in China, leading mobile payment apps and banks in Indonesia are currently doing trials on QR code-based payment services, mostly with food & retail outlets since 2017. Competing with the traditional digital banking channels, the QR code-based solutions could potentially offer more cost effective electronic payment channels to penetrate the unorganized food & retail segments.

**For perspective, the traditional card-based payment solutions such as debit card/credit card involves installment and maintenance of Electronic Data Capture (EDC) machines at merchant point, hence involving higher merchant retention costs. It costs the banks Rp500-700k per month to rent and maintain a single EDC at a merchant point, banks estimate.**

Unlike EDCs that also require stable electricity connection, QR-code solutions at its simplest form only need static QR code stickers at merchant points to start facilitating payments. Given the cost and setup advantage, QR payment solutions could help penetrate the unorganized food & retail businesses, especially the micro, small, and medium sized ones, better than the traditional electronic banking channels. Hence, adopting QR solutions on mobile payment services could help accelerate the nation's progress towards a cashless society.

Currently, all parties doing QR payments trials must register with and operate under the supervision from Bank Indonesia. Aware of QR payment's significant adoption potential, the central bank now works to set common QR payment standards between all service providers to ensure interoperability and security – key for scale and sustainability, we think. The central bank is taking leadership to harmonize the regulatory corridors and technological standards for QR payments, also to avoid inefficiencies and duplications that previously occurred in the traditional electronic banking channels. We also note that China's central bank, the People's Bank of China, has also announced plans to regulate the country's QR code payment system and to bind existing QR transactions into the national clearing system. So, the Indonesian central bank's regulatory direction is relatively in-line with the global compliance trends.

On one hand, the central bank-led QR standards harmonization efforts could potentially slow innovation cycle in the local mobile payment sector. But on the other hand, the standardization could set a better long term growth foundation and ensure that the competition between mobile payment service providers will focus more on service levels rather than on infrastructure.

## CENTRAL BANK'S QR STANDARDS RELEASE – CATALYST FOR MOBILE PAYMENT INFLECTION.



Source: Gedung Bank Indonesia. [tirto/tfsubarkah](#)

The release of QR payment standards by Bank Indonesia this year is very much anticipated by the mobile payment players in Indonesia and will be a strong catalyst for mobile payment take-off in Indonesia.

The QR payment standards will support mobile payment services to develop stronger 'daily use

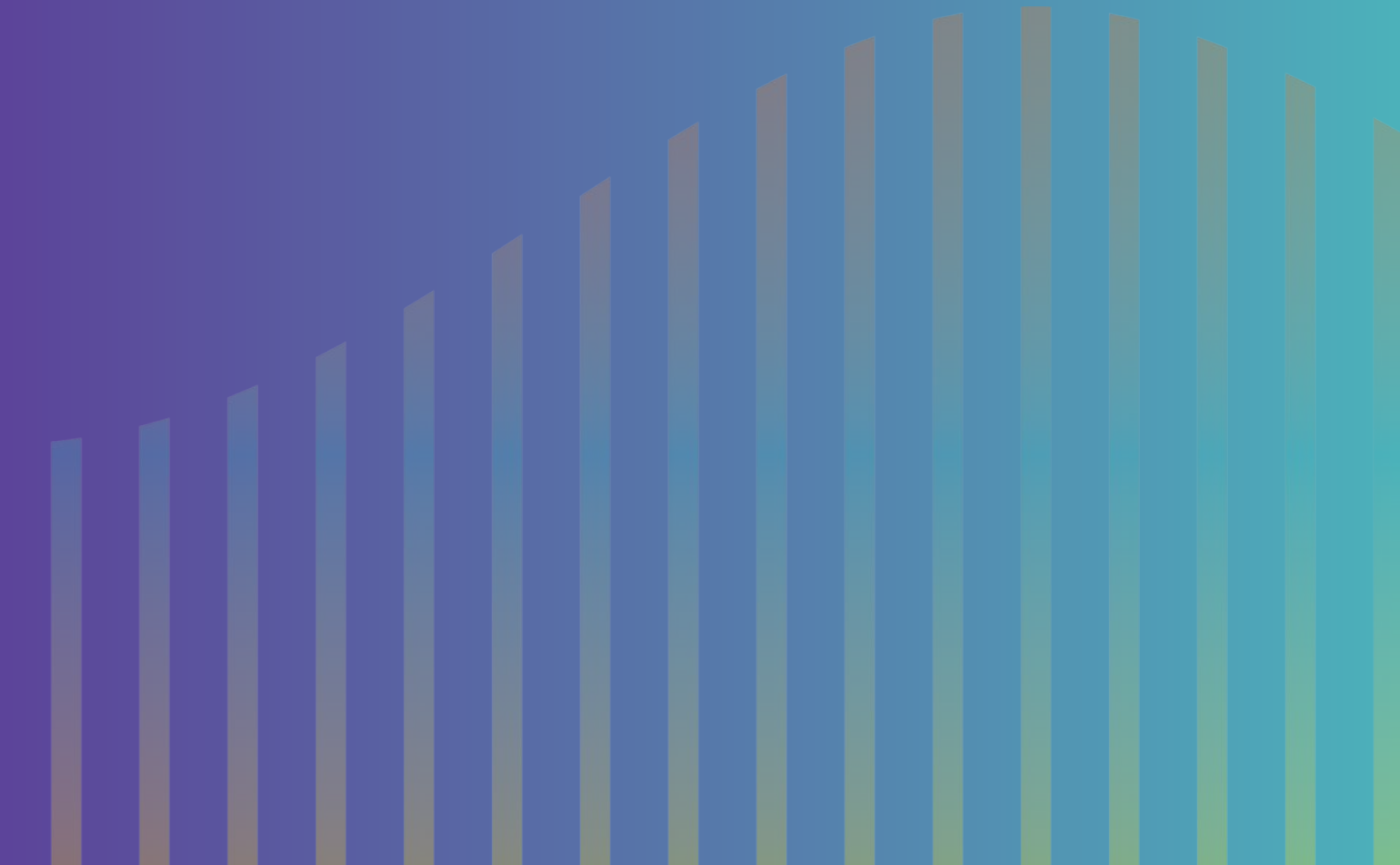
cases', especially use cases within the F&B, groceries, transportation, and entertainment segments. Indeed, the QR payment standards release will likely help smaller mobile payment operators gain usage traction and attracts new entrants. But, strong brand equity and scale will help existing operators employ QR and extend user base and GTV leadership against peers.



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## CASE STUDY: CHINA MOBILE PAYMENT ADOPTION





## KEY PLAYERS AND MARKET SHARE

### On the Go

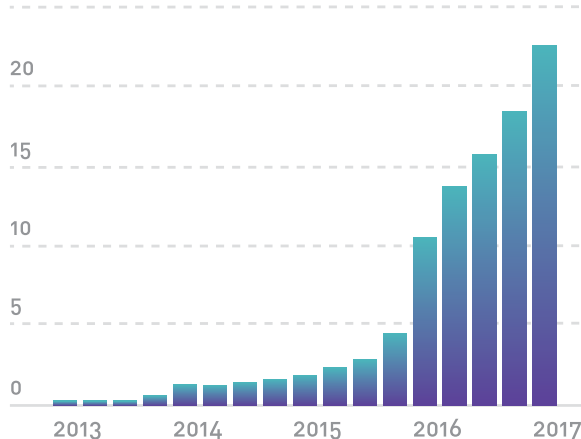
China's mobile-payments market is growing fast. Major platforms Alipay and Tenpay are jousting for control.

**FIGURE 8** | China's Mobile Payment Market Snapshot

#### TRANSACTION VOLUME

Quarterly data

25 Trillion Yuan



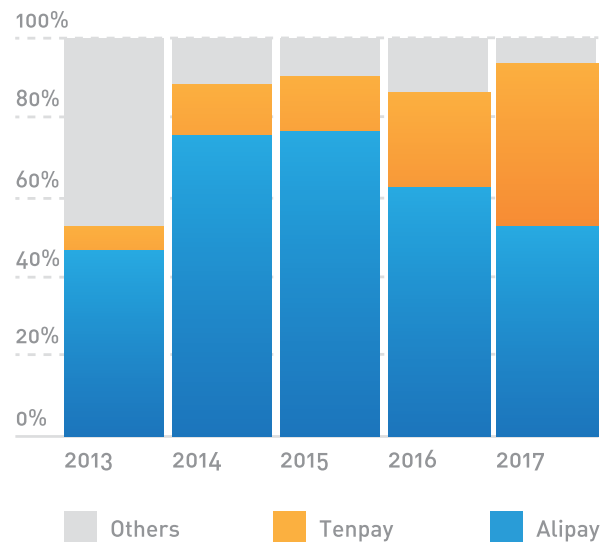
Note: 10 Trillion Yuan = \$1.5 Trillion

Source: *The Wall Street Journal*<sup>1</sup>

According to consulting firm iResearch, in 2016 China's mobile payments hit \$5.5 trillion, almost 50 times the size of America's \$112 Bn market (Forbes, 2017). The technology is pushing a consumer behavior shift in China's payment habit, where 14% of Chinese

#### MARKET SHARE BY VOLUME

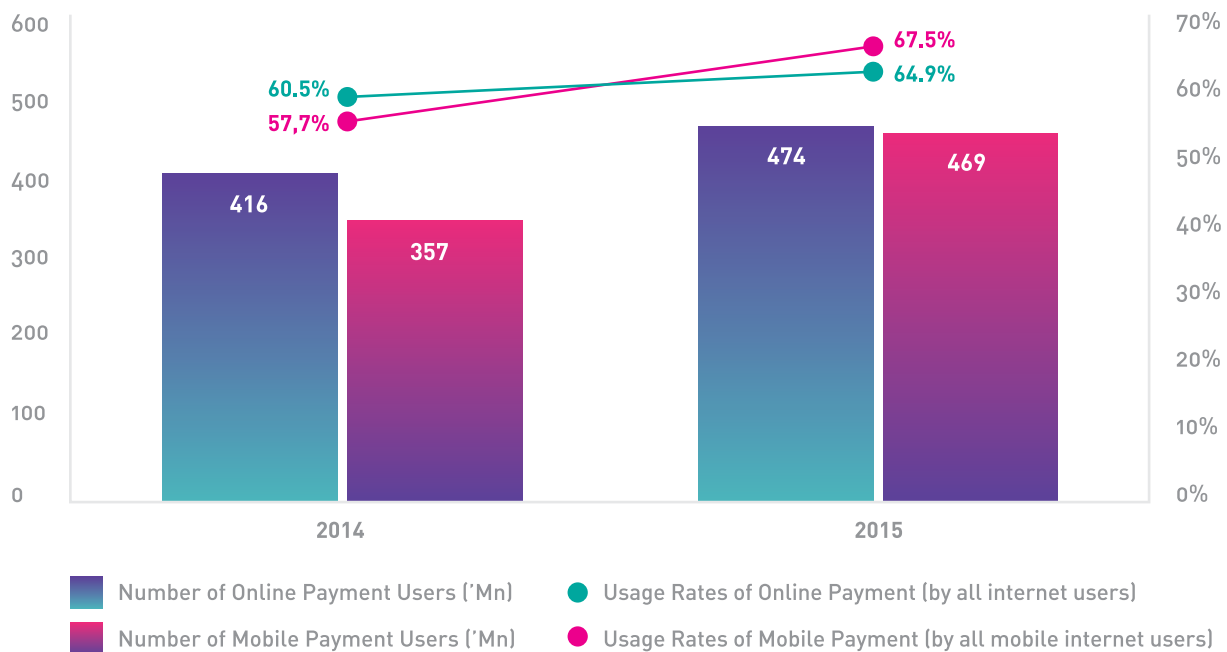
1Q for each year



people do not carry any cash, while 26% hold less than RMB100 (less than \$16) in their wallets, day to day (Forbes, 2017). Alipay & Tenpay are leading China's mobile payment market with a total market share of ~90%.

## MOBILE PAYMENT USERS AND USAGE GROWTH

**FIGURE 9** | Online Payment/Mobile Payment users and usage rate in China, 2014 - 2015.

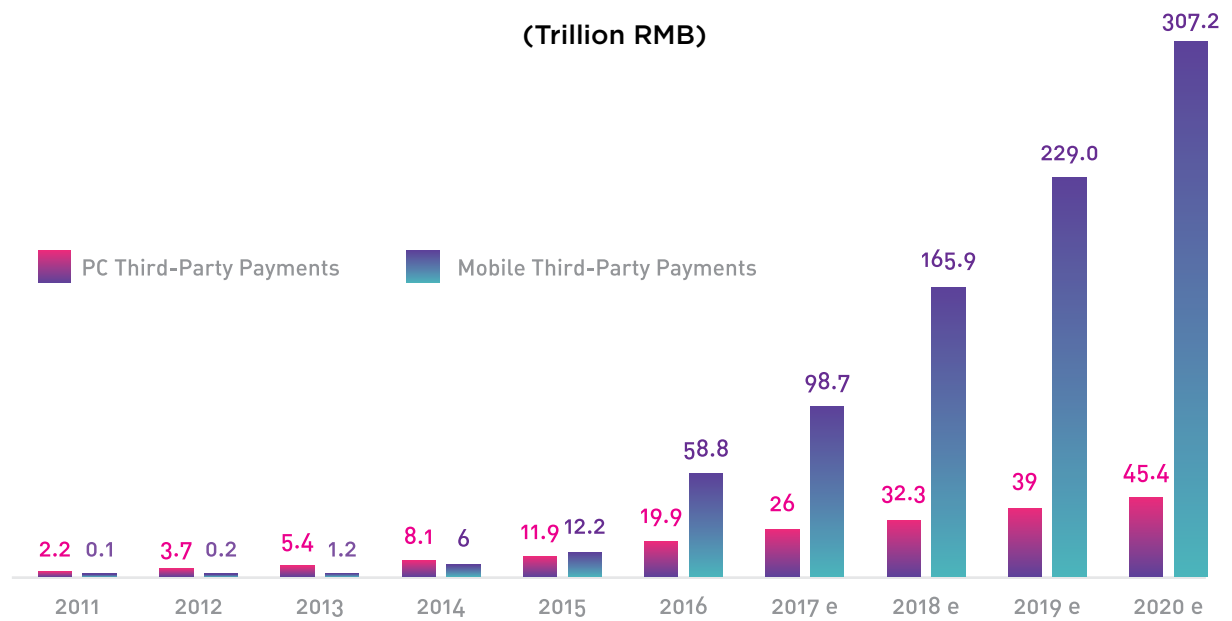


Source: CNNIC (Statistical Survey on Internet Development in China, Dec 2016)<sup>2</sup>

Mobile online payment users touched 358 million individuals by the end of 2015, on an impressive annual growth rate of 64.5%. At that point, China's utilization ratio of mobile online payments stood at 57.7% with more than 1-in-2 persons using their smartphone to conduct financial transactions (primarily through Alibaba's Alipay or WeChat's payment service). In 2016, mobile banking values have continued to

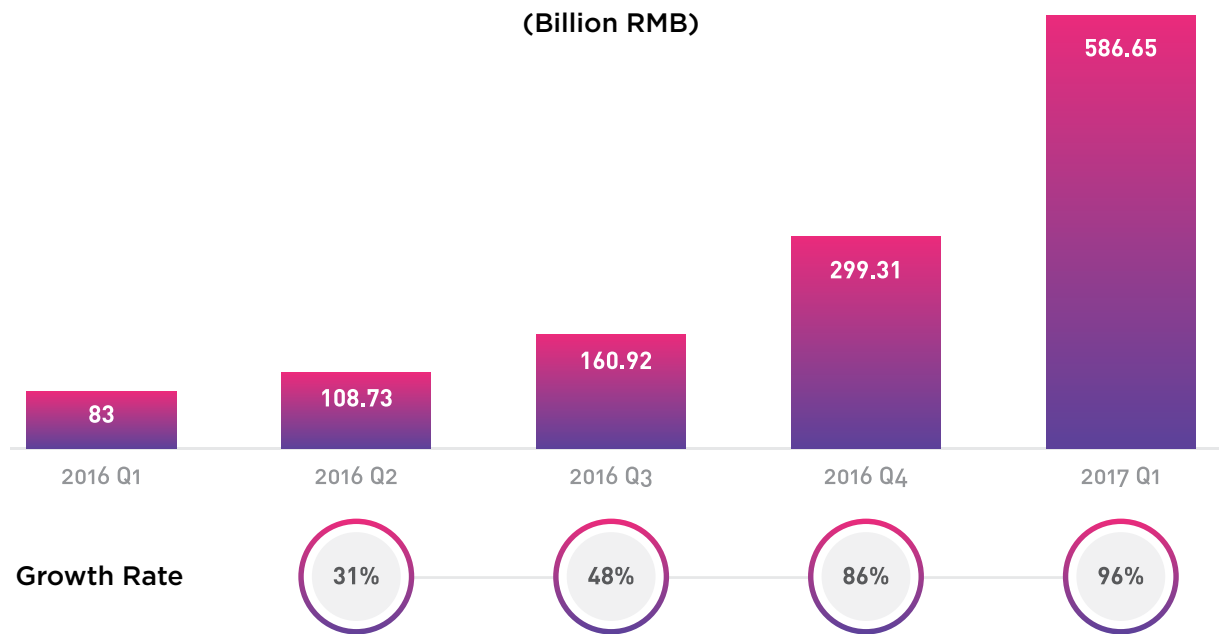
rise exponentially, with 6.3 billion mobile payment transactions conducted in the second quarter of 2016, spending RMB29.3 trillion (US\$4.4 trillion)

In 2015, mobile payments had barely caught up with PC payments. By 2016, mobile amounted to almost 3 times more transactions than PC and grew at a 300% YoY rate<sup>3</sup>.

**FIGURE 10** | Growth Of Third-Party Payment Total Transaction Amount

Source: iResearch payment report, WalktheChat Analysis

Offline transactions via QR code have been booming, with a growth rate of 86% during Q4 2016<sup>4</sup>. This trend was certainly pushed by the impressive growth of WeChat/TenPay and Alipay.

**FIGURE 11** | Amount of Transaction processed via offline QR Code Scanning.

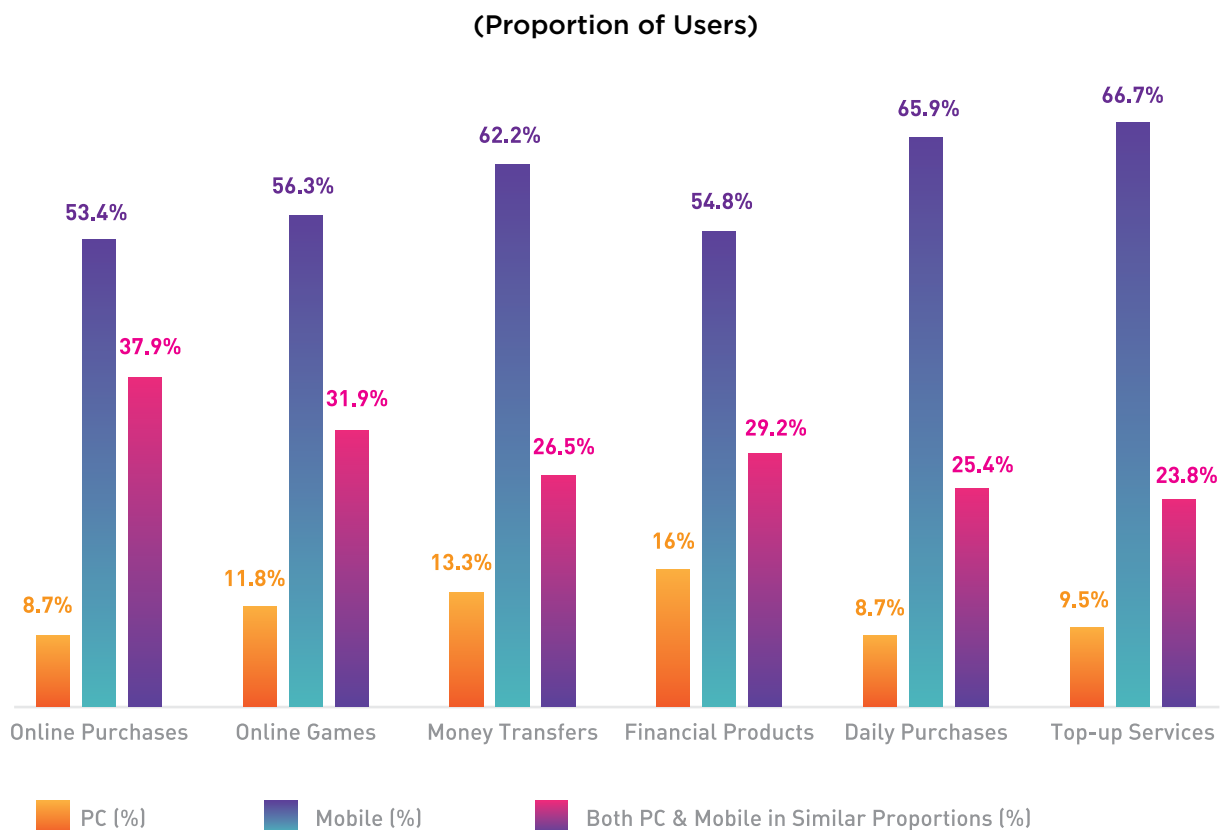
Source: iResearch payment report, WalktheChat analysis

In terms of usage, mobile online payments are completely dominating all categories in China. The only category with a still significant proportion of PC payment users is Financial Products<sup>5</sup>.

## WHY MOBILE PAYMENTS ARE POPULAR IN CHINA

We analyzed 4 reasons that made China's mobile payment ecosystem is growing off the charts:

**FIGURE 12** | Usage of Mobile or Pc Payment by Usage Case



Source: iResearch payment report, WalktheChat analysis



### *A. The Issue of Trust*

Back in the early 2000s, not many people had credit cards, and those who owned one weren't willing to pay in advance or give a credit card number online because they didn't trust the security of the websites. On the other hand, cash on delivery for digital payment is not the most suitable solution since sellers have to depend on the delivery company to obtain the money, hence creating problems in cash collection process. The introduction of mobile payment technologies has

solved the issue. In mobile payments, money paid by customers when placing orders will be transferred to an escrow account. This model helps the sellers feel more comfortable because their money is kept by a secured third-party platform and can be claimed after the products have been delivered successfully. From the customers' perspective, they can feel that they are always in control in case the product is faulty and they want to apply for a refund or a change of product.

### *B. Promotion by The Big Players*

One of the main reasons why mobile payments are popular in China is that they are promoted by the strongest digital players in China. Alipay belongs to Alibaba Group and is the main payment method on

Tmall and Taobao, the 2 biggest e-commerce platforms in China. Meanwhile, WeChat Pay, a product of Tencent, also proves its popularity as there are almost 1 billion users of WeChat in China.

### *C. China is Mobile-First Society*

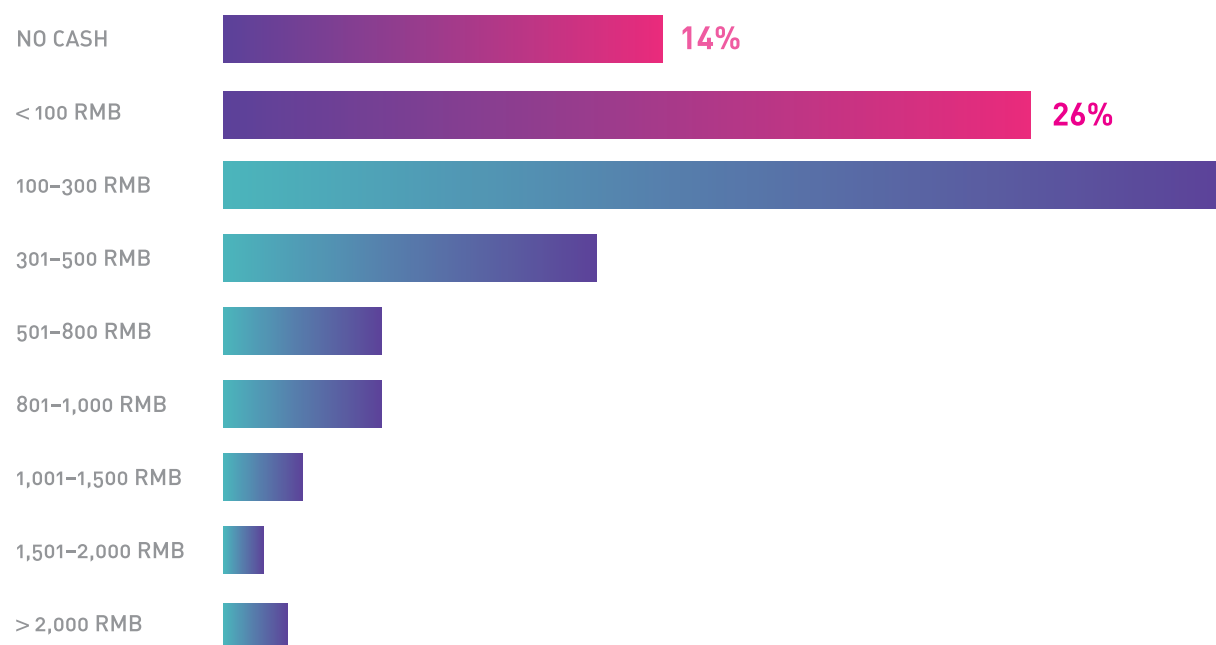
China is also a mobile-first market, a fact that greatly contributes to the success of mobile payments. According to Statista, there were more than 626 million smartphone users in China in 2016. By 2019, this figure is forecasted to total nearly 690 million and continue to expand in the future. This significant increase in

smartphone usage is due to the fact that smartphones are becoming more and more affordable to Chinese customers, where it is priced as low as US\$ 110. With an average Android smartphone, customers can access WeChat and enjoy a variety of services.

### *D. Sheer Convenience*

Using only a smartphone, Chinese can make payments for most activities in their daily life. Mobile payments can be used to pay most of the utility bills such as electricity, gas, water, Internet, phone top-up, etc as well as their meals, online shopping cart, movie ticket

and other entertainments. Any Chinese person is comfortable with a totally cashless life - a research conducted by Tencent and Ipsos stated that 40% of Chinese regularly carry less than RMB 100 (~US\$16) daily<sup>6</sup>.

**FIGURE 13** | The Amount of People in China Categorized by Cash in Hand**40% OF CHINESE REGULARLY CARRY LESS THAN 100 RMB CASH***Source: Chinatech Insight*

## CASE STUDY: ALIBABA

FIGURE 14 | Alibaba Group Product Line

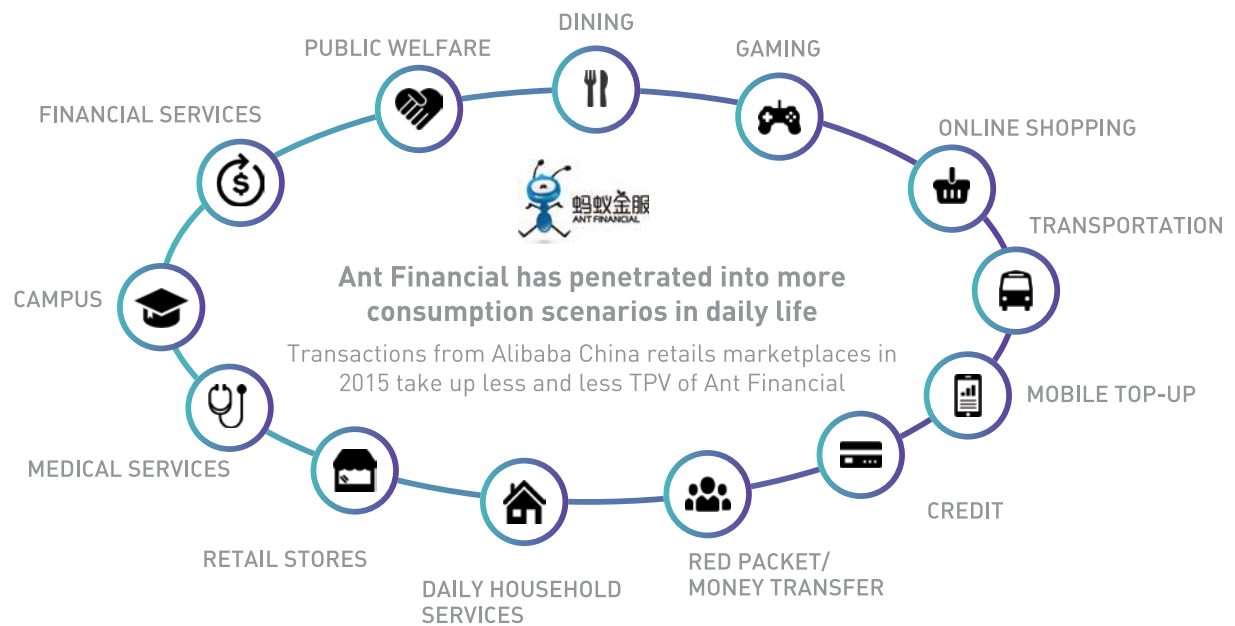


Source: Alibaba

Alibaba has expanded its business unit from e-commerce into a giant financial technology player through its financial technology arm, Ant Financial. Its product revolves around financial services with 5 core services:

1. Alipay - Allowing users to make and receive payments online
2. Ant Credit - Providing micro loans to merchants (up to RMB 5 Mn / US\$ 750k)
3. Yu'e bao - Money market fund, where it acts as an investment platform that enables users to invest into money market with small amount of money
4. MYbank - Bank for SMEs segment, utilizing online and big data analytics to serve the financial needs of SME merchants
5. Zhao Cai Bao - An open marketplace for investment & financial products & services

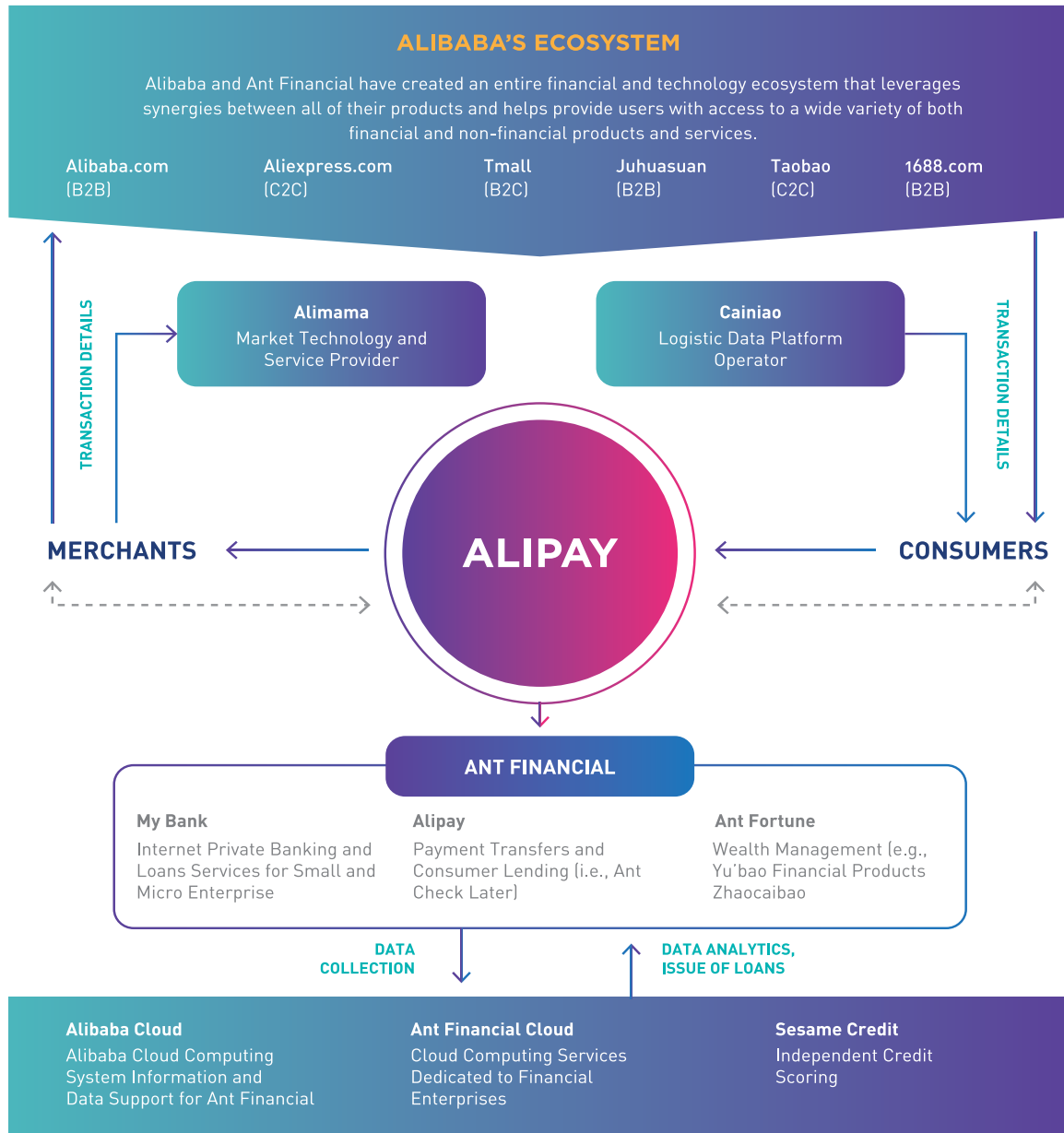


**FIGURE 15** | Ant Financial Product Offering

Source: Alibaba

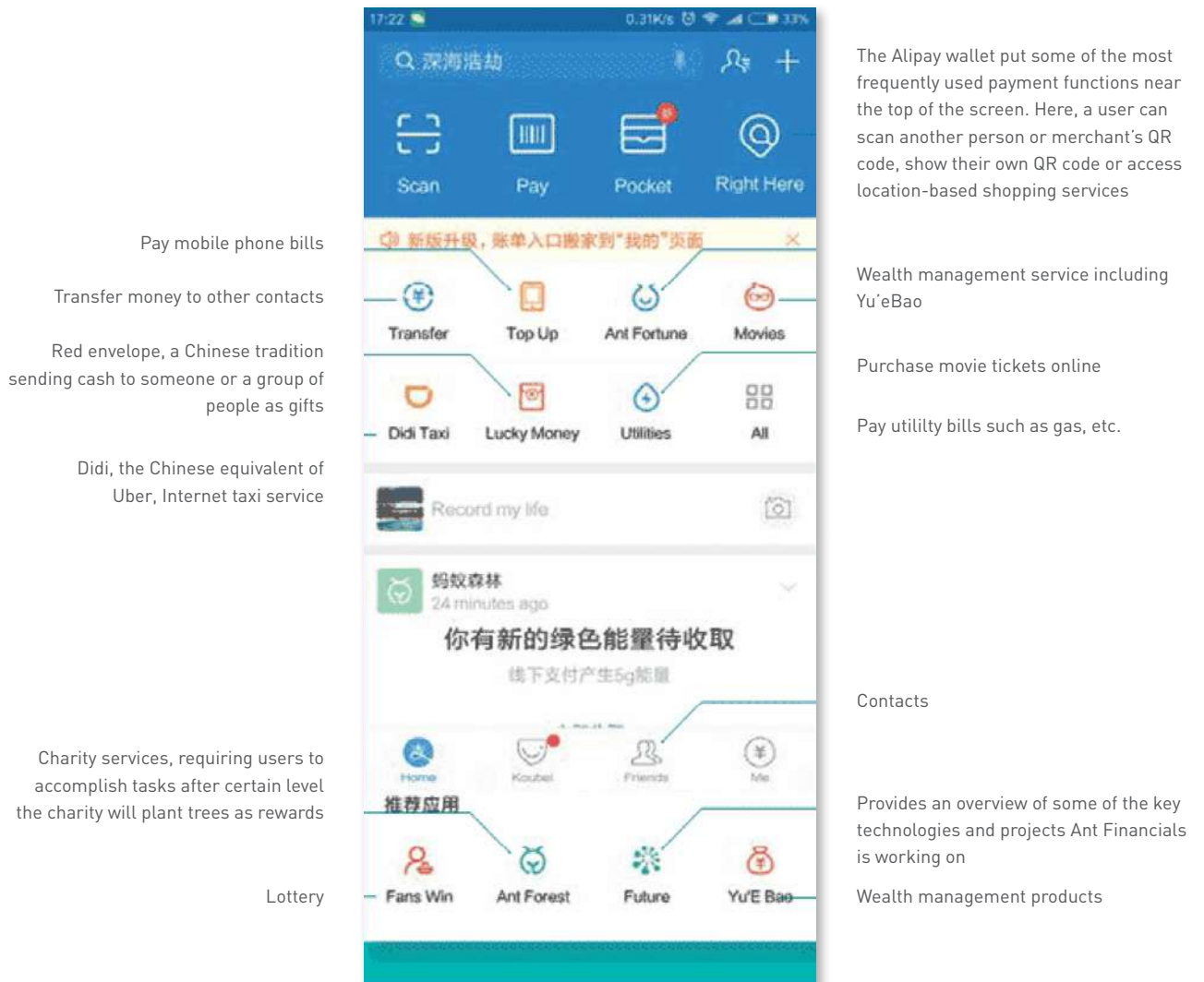
Ant Financial seeks to embed its services into customers' daily life to raise the percentage of users with multiple products, in the process boosting customer stickiness and generating ever more complete customer data. This has already reaped initial successes as measured by speed of customer acquisition, with the period for a financial product within the Ant ecosystem to reach 100 million users reducing from 31 months for insurance, down to 20 months for Yu'e Bao, then 11 months for Sesame Credit<sup>7</sup>.

One of the most practical case studies that we can learn from Alibaba and Ant Financial's strategy is that financial inclusion can be achieved through marketing channels that have penetrated into multiple consumption scenarios in users' daily life. Hence, we can imply that mobile payment is the ultimate gateway for financial inclusion. In Ant Financial's case, its money market fund (Yu'e Bao) and investment marketplace (Zhao Cai Bao) can easily build their markets leveraging customer and behavior data from Alipay.

**FIGURE 16** | Alipay as an Ecosystem to its Products

Source: China Internet Watch

FIGURE 17 | Alipay Wallet Features



Source: China Internet Watch



## KEY FINDINGS

The growth of digital payments using existing platforms and networks in China has brought with it a much wider range of digital financial services that

are both expanding financial inclusion and economic opportunity for individuals and creating valuable new business models for companies.

1

### The growth of new financial services has delivered benefits to large numbers of people

Alibaba worked with Tianhong Asset Management and launched Yu'E Bao (meaning "leftover treasure") product, a low-risk money market account similar to a bank savings account. Customers can take the money "left behind" on their digital wallets and invest it on the Yu'E Bao product.

Yu'E Bao has grown from having 0.2 Bn RMB (US\$29 Million) in assets under management (AUM) in 2013<sup>a</sup> to more than 810 Billion RMB (US\$117 Billion), serving more than 152 million customers 3 years later and making it one of the largest money market funds in the world.

2

### Digital finance has dramatically increased economic and e-commerce activities among merchants and consumers

As of September 2016, Ant Financial had lent a total of RMB 740 Billion (US\$107.3 Billion) to over 4.11 million small and micro enterprises and entrepreneurs. New business models enabling lending to people on low

incomes are driving significant new usage of digital payments in a country where 79% of adults have had a bank account at some point, but only 10% of these have ever borrowed in the formal financial system.



3

### Effective incentives and demonstrable utilities are key factors in stimulating initial use case and build customer retention

One of the best example was in 2014, when Tencent launched its “WeChat Red Envelope campaign”<sup>9</sup>, a digital version of an old Chinese custom of giving small amounts of money to friends and family in red envelopes during Chinese New Year. In order to receive the red envelopes, the recipients were required to have a WeChat account that was connected to a bank account. Within the first week, more than 8 million

people used the service, and the number of new bank accounts connected to WeChat surged by the millions.

During Chinese New Year 2017, WeChat users sent each other 46 billion<sup>10</sup> digital red envelopes, an increase of 43% from 2016.

4

### New credit scoring services are becoming available which are increasing access to credit, particularly for people on low incomes and small businesses

One such service - “Sesame Credit” - also provided by Alibaba’s Ant Financial, is able to assess credit worthiness for over 350 million real-name registered users and 37 million small businesses that buy and sell

on Alibaba Group marketplaces. When users sign up for Sesame Credit, they agree to allow Ant Financial to use their transaction data to determine their credit score.

5

### The major digital payments providers are rapidly expanding beyond China and investing in new financial technology companies

Users can now use Alipay and WeChat Pay in Thailand (one of the most popular destinations for Chinese tourists) to pay for goods and services in many stores.

Alibaba has made a significant investment in India’s PayTM and Tencent into India’s PayU, two of the largest digital payment providers in India.

These and other experiences in China show there are clearly vast opportunities that other countries can harness by using existing e-commerce platforms and social networks as the foundation for expanding the digital payments ecosystem.



# 03

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## INDONESIA MOBILE PAYMENT CLASSIFICATION & USE CASES



**FIGURE 18** | Classification of Indonesia's Mobile Wallet Service**Pay by QR**






































Method that requires user to scan a code through camera to legitimize transaction. Currently this method is being compromised by Bank Indonesia.

**NFC**

Method that requires user to connect through RFID. An investment of infrastructure is necessary such as a capable EDC Terminal and a phone that uses NFC chip.

**OTP**

A payment method that requires a code to be certified by both parties.

Source: MDI

Ventures &  
Mandiri Sekuritas  
Research

**Billing**

Can be used to pay recurring bills, top-up vouchers, or ticket purchase

**C2C**

Peer-to-Peer transfer, online shops. Not applicable for cross-channel transfer.

**Online B2C**

E-commerce, online merchants. Requires partnership with e-commerce.

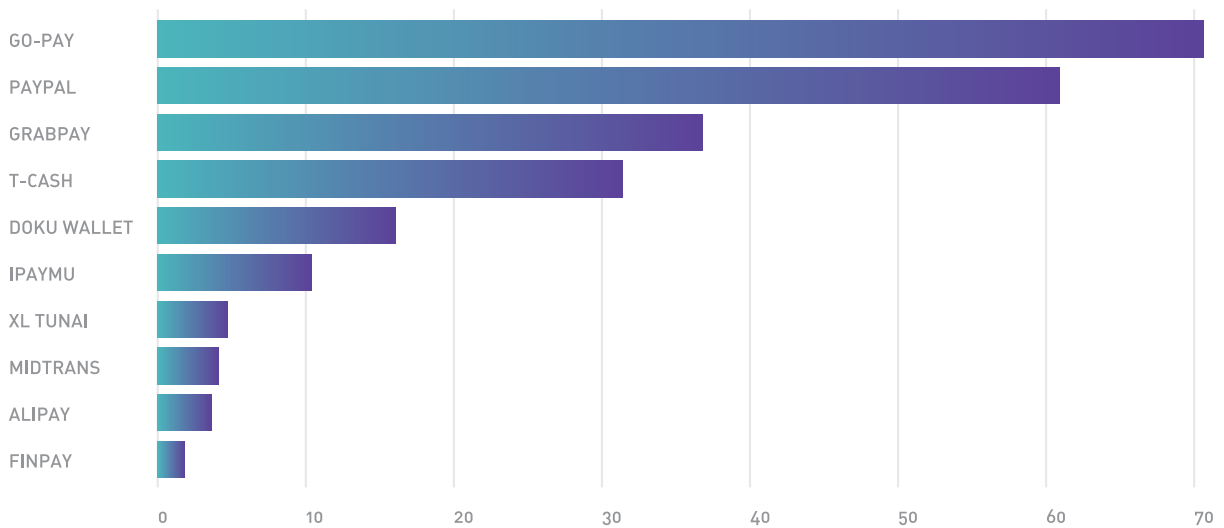
**Offline B2C**

Brick and Mortar Shop in malls and other places. Requires partnership with merchant.

Based on our research, almost all mobile payment wallet players in Indonesia are tapping on the Billing and peer-to-peer transfer (C2C) sector through code pairing, or OTP method. The reason is that it is the easiest and require no partnership to implement the service. However, all mobile payment wallets has its limitations: They are not applicable for cross-channel transfer. This means that one wallet will not be able to transfer to another wallet or banks (some offer transfer to banks but only limited to its own bank).

Go-Pay has a unique approach in its use case. Go-Pay is a part of Go-Jek, in which its service empowers its

more than 900,000 drivers and have contributed to 30% of cashless transaction in Indonesia. The decision was made to make their cash flow circulate inside the company, since they are struggling to break even in the company. Go-Pay can be used for all Go-Jek services, such as Go-Ride, Go-Send, Go-Shop, and Go-Food. We insert Go-Pay as a legitimate mobile payment wallet, but its usage case requires a Go-Jek driver to do their task. This means that a user is unable to pay using Go-Pay directly to a Go-Pay-supported merchant, although this may change after its acquisition of Kartuku, Midtrans, and Mapan.

**FIGURE 19** | Most Popular Mobile Payment Brand in Indonesia**WHICH MOBILE PAYMENT SYSTEMS DO YOU REGULARLY USE (% OF RESPONDENTS)**

Source: *Financial Times*<sup>11</sup>

NFC technology has yet to penetrate deeply into Indonesian market because it requires an investment in hardware infrastructure, such as EDC and NFC-enabled devices. The only players who are tapping on this are corporate-backed company such as Telkomsel's T-Cash and PayPro (formerly Indosat Dompetku). So far, the technology has never been able to be adopted by Indonesian market due to its low to moderate internet penetration in the market.

Payment by QR is an alternative that requires much lesser adoption cost than NFC, since it requires printing an image that can be identified by camera to communicate. While it seem to be a favorable method, the government and Bank Indonesia has intervened with the development and currently ordered cease and desist until a regulation regarding payment by QR is complete.

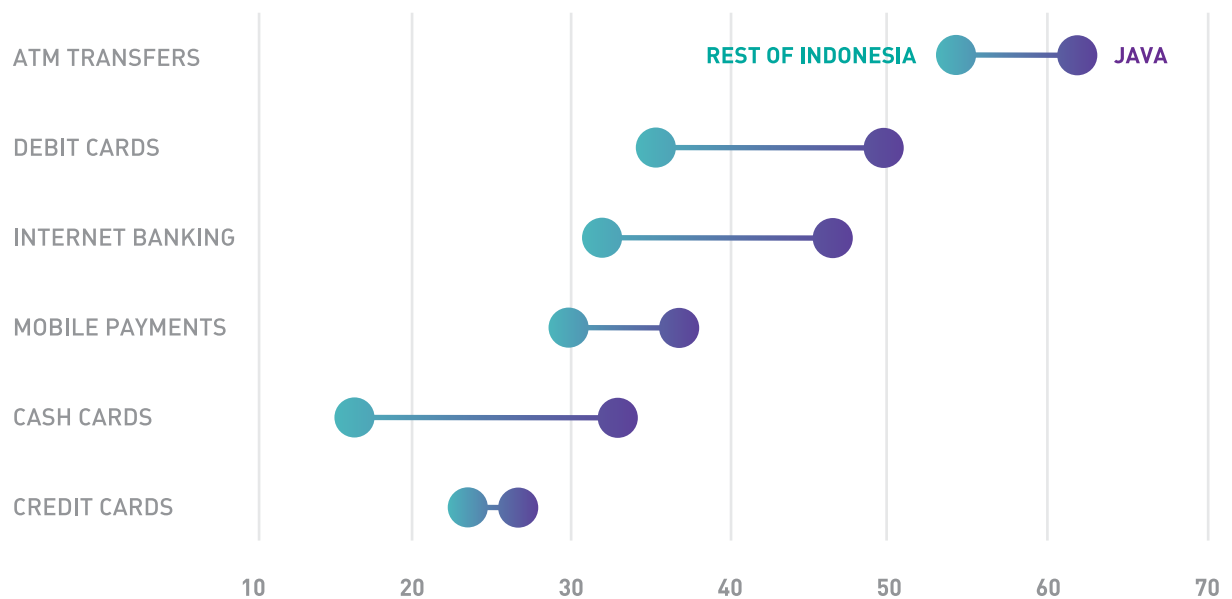
Top-up and cash-out process varies from each wallet. For example, OVO is unable to top-up via credit card and has to be transferred via Bank Transfer (Nobu Bank) and on-the-spot top-up (limited to cash only).

Indonesia is ready to embrace the mobile wallet as a method of payment. With the increasing middle-class demographics and smartphone penetration in the country, the adoption rate will continue to increase at a high and steady rate. FT Confidential Research's latest survey of 1,000 urban consumers in 25 Indonesian cities revealed about a third used mobile payments at least once in the three months to the end of September 2017. As expected, the adoption rate is higher in Java, the island that generated almost 58.5 percent of Indonesia's GDP in 2016, compared with the rest of the country.



**FIGURE 20** | Java has higher take-up of cashless payment than rest of Indonesia

CASHLESS PAYMENT SYSTEM USED IN THE PAST THREE MONTHS (% OF RESPONDENTS)



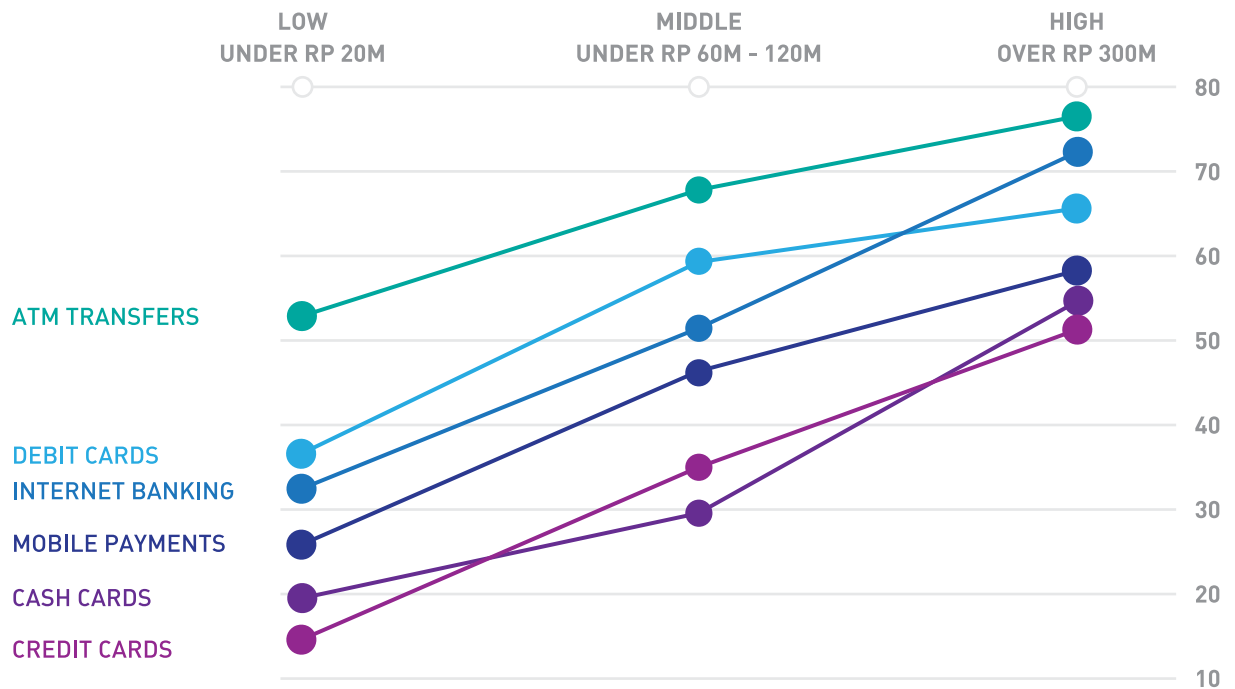
Note: Multiple choice, unlimited selection

Source: FT Confidential Research

Income levels also influence the use of mobile payments. Consumers in the middle income category and above - those who earn more than Rp60m (\$4,400) a year - had an adoption rate of more than 46 per cent<sup>12</sup>.

**FIGURE 21** | Cashless Take-Up Rises with Income

## ADOPTION OF CASHLESS PAYMENT SYSTEM BY INCOME LEVEL (% OF RESPONDENTS)

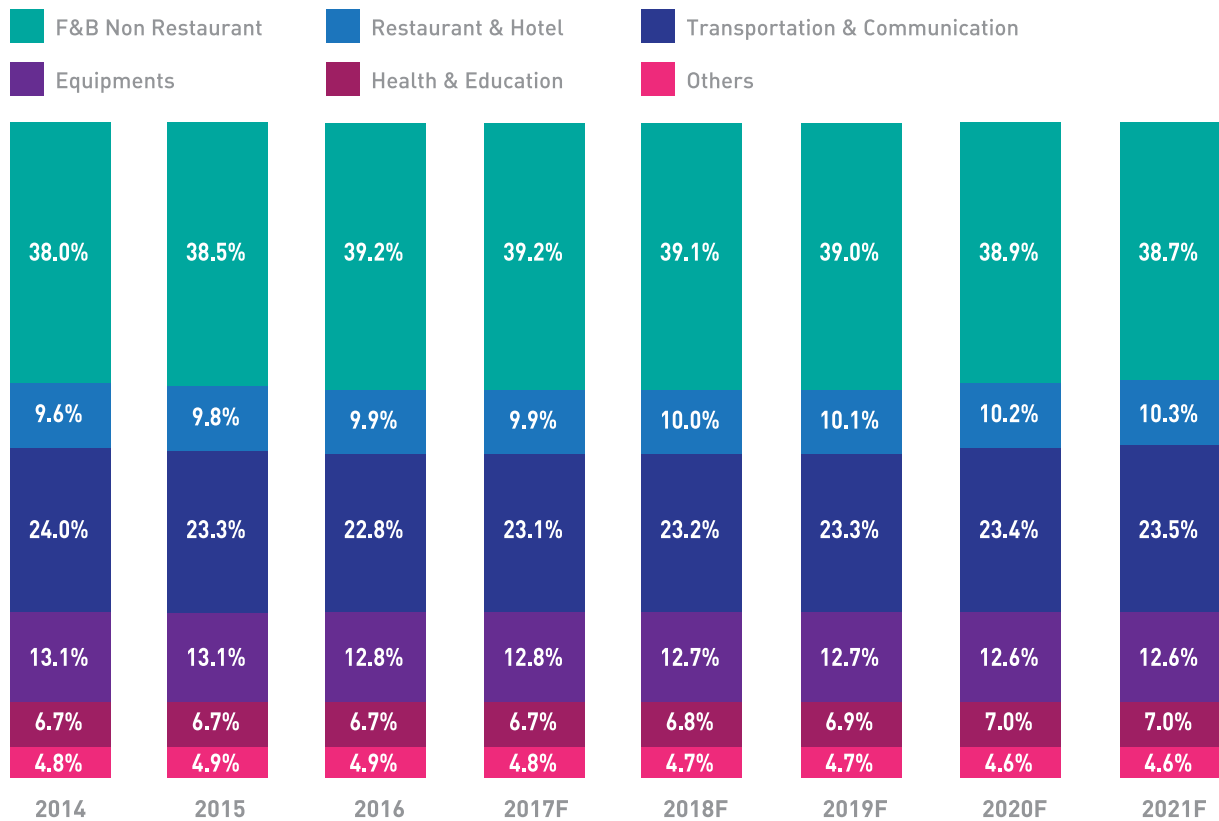


Q: Which cashless payment systems have you used in the past three months? (multiple choice, unlimited selection)

Source: FT Confidential Research

In conclusion, each of the mobile payment wallets have its own unique usage that they offer, and one mobile payment service is more popular in terms of usage than the other. So far, there are no leading mobile payment player in Indonesia that has dominated the market.

However, from a research by Mandiri Sekuritas, we can see that expenditures in F&B Non-Restaurant and Transportation & Communications sectors are steadily taking almost 60% of Indonesia's household expenditure share. From this number, we can imply that market domination in mobile payment industry will be held by services that are focused on those 2 sectors.

**FIGURE 22** | Indonesia's Household Consumption Expenditure Share 2014-2021 (Forecasted)

Source: MDI Ventures & Mandiri Sekuritas Research



04

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## CONCLUSION

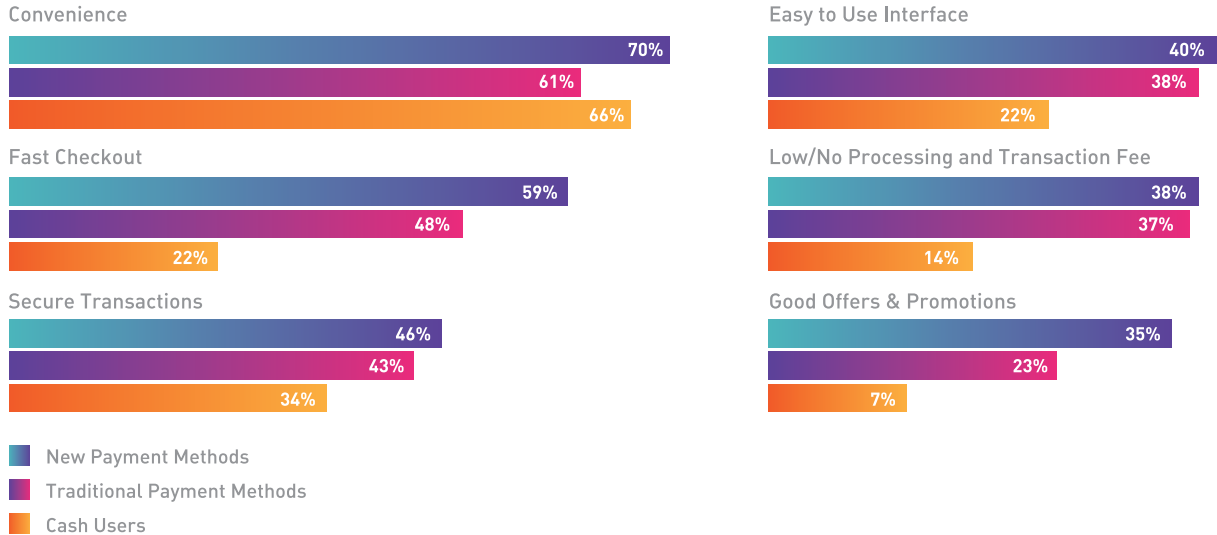


## MOBILE PAYMENTS: MORE THAN SHEER CONVENIENCE

From all these elaborations, we can conclude that some main incentives for users to choose mobile payment services as their main payment channel have a lot to do with convenience, security, and promotions availability. A research by Paypal titled

“Digital Payments: Thinking beyond Transactions”<sup>13</sup> stated that 35% of people in APAC that are using new payment methods most often said they get good offers and promotions, and 70% claimed that they get more convenience out of the payment services (see figure 21).

**FIGURE 23** | Incentives for Users in APAC to Use New Payment Services



However, mobile payment services are actually offering more than convenience, especially to retailers. All the players in the industry are actually pursuing the consumers' purchase behavior data out of these mobile payment transactions. By using big data and analytics, retailers can find ways to add value. A report by IDC

stated that in order to drive adoption, mobile payments need to provide users with more than just cashless convenience, they must also offer added value that is relevant to both the individual person and the situation at hand<sup>14</sup>. In order to be able to do that, Big Data is the key.



## BIG DATA DRIVEN ANALYTICS IN THE PAYMENTS INDUSTRY

Payments industry can benefit tremendously from adopting the latest techniques in data storage and analysis. There are several ways that big data can

leverage the extensive data assets out of the mobile payment transactions:

### 1 Detecting Payments Frauds

Big data can dramatically change fraud detection with advanced analytics solutions that are powerful enough to detect fraud in real time and also building

models based on historical transaction data (and deep learning) to proactively identify risks.

### 2 Risk Scoring of Payments in Real Time

Payment providers assess the risk score of transactions in real time depending upon various attributes, such as consumers' country of origin, IP addresses, historical transactions, etc. Big data

enables these attributes to become granular by helping support advanced statistical techniques to incorporate behavioral techniques (e.g: transaction is out of normal behavior for a consumer's buying patterns).

### 3 Merchant Analytics

Payment providers have been sitting on enormous consumer data and currently in progress of finding the possibilities of monetizing these data. An area of increasing interest is to provide sophisticated analytics to merchants as a way of driving merchant rewards programs. Retailers and other online merchants

need to understand what segments their customers fall into as well as what would be the best channels to market to each of them. Using all of the payment data available, payment providers can help merchant retailers understand their customers better as well as improving their loyalty programs.

## 4

## Giving credit scores to the “unscorable”

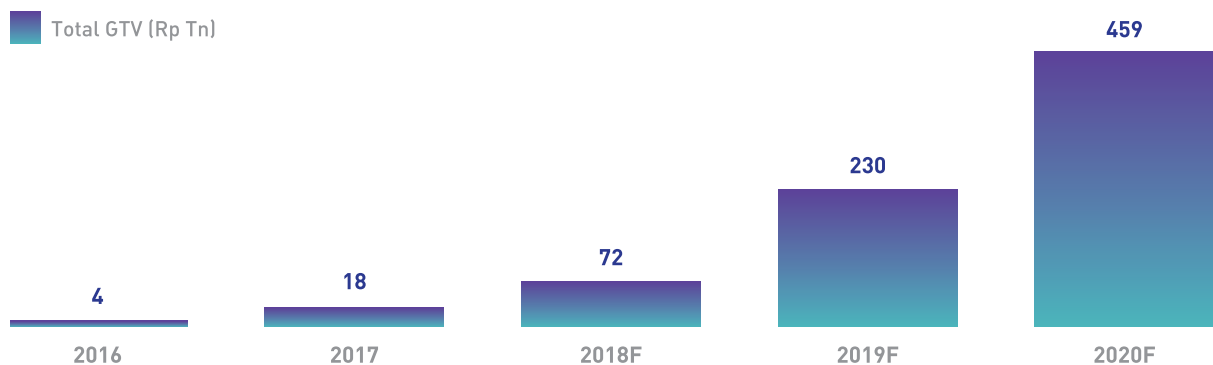
Leveraging mobile payment transactions data will enable fintech companies to develop technology to create a more accurate credit scoring system, especially for the unbankable population. As an example, independent fintech companies in China are targeting a wider population by developing the best credit scoring algorithms for matching lenders with borrowers (the unscorable 75%). A company called China Rapid Finance (CRF), China’s largest consumer-lending marketplace by number of loans facilitated,

dubbed this segment as “EMMAs” (emerging middle-class, mobile-active consumers). Another company called Yongqianbao distinguishes itself by a high loan approval rate - 20% to 30% (the industry average is in the single digits) and lower default rate - 60% of the industry average<sup>15</sup>. This is possible due to an accurate AI risk-management model, ICE (identification, calculation, and evaluation), powered by sophisticated big data.

## MOBILE PAYMENT: US\$30 BN POTENTIAL MARKET BY 2020

Based on our estimate, Indonesia’s mobile payment market will reach IDR 459 Tn (~US\$30 Bn) in total GTV by 2020, reaching a CAGR of 158% between 2016-2020.

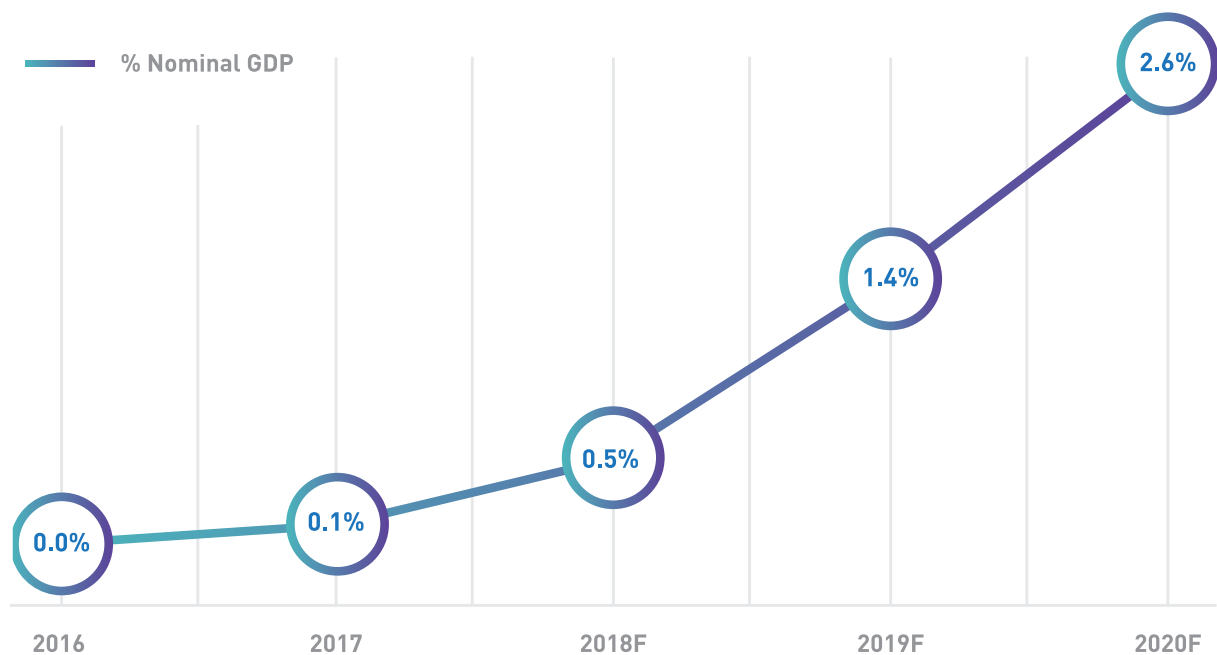
**FIGURE 24** | Indonesia Mobile Payment GTV - 2016-2020 (forecasted)



Source: MDI Ventures & Mandiri Sekuritas Research

We also estimate that by 2020, mobile payment services will be processing payment volume at the size of approximately 3% of Indonesia's nominal GDP.

**FIGURE 25** | Indonesia's Mobile Payment GTV as % of Nominal GDP - 2016-2020 (forecasted)

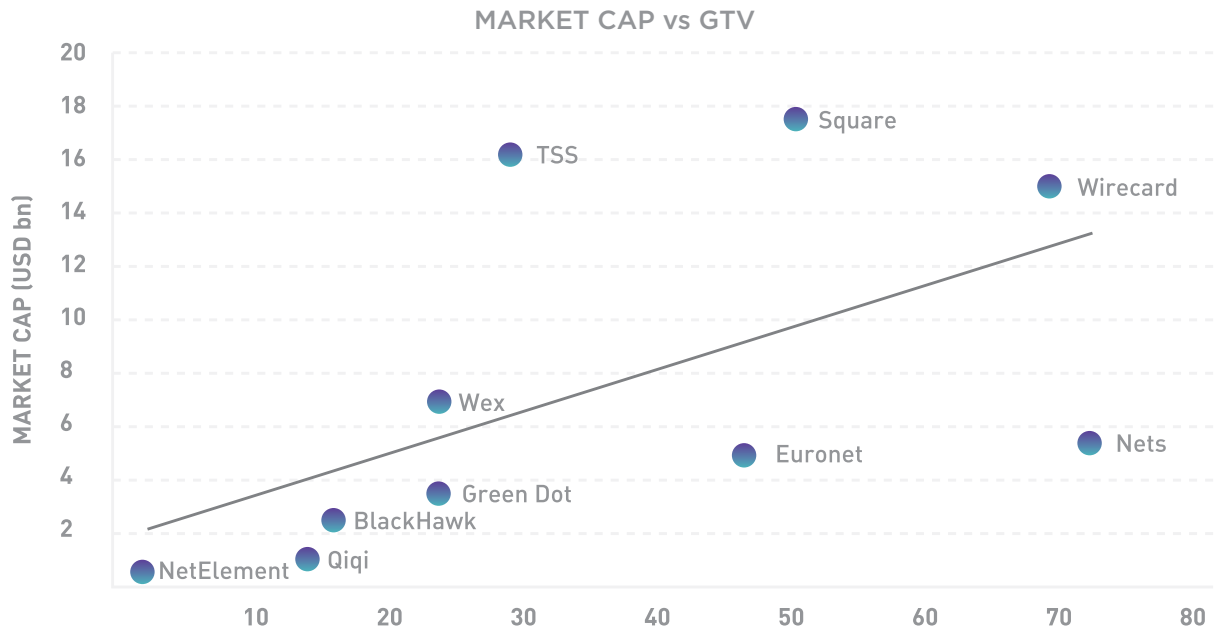


Source: MDI Ventures & Mandiri Sekuritas Research

These numbers show that the market is growing rapidly and will be a crucial sector in the nation's economy. We believe that these opportunities will lead to the increasing number of mobile payment services in the market, and also the influx of investment money into these services, which are coming from corporations, venture capital firms, and big conglomerates, from both domestic and multinational companies.

From our benchmarking exercise of the global payment companies, we also found out that there is a linear correlation between GTV and market capitalization, which implies that in order to increase company valuation, we will see mobile payment companies burn money to increase their GTV - through promotions, cross-selling, merchant partnerships, cashbacks, etc.



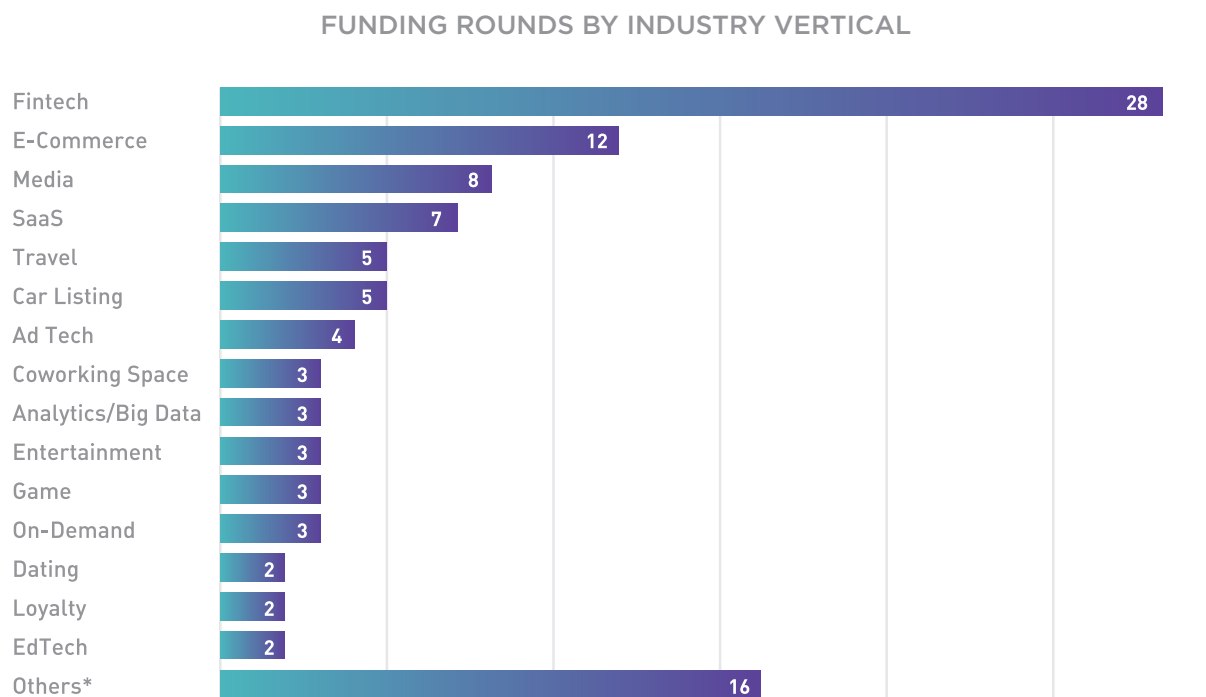
**FIGURE 26** | Correlation Between Mobile Payment Companies' GTV and Market Capitalization

Source: Bloomberg, MDI Ventures & Mandiri Sekuritas Research

## MOBILE PAYMENT: RACE TO BIG DATA DOMINATION

Indonesia's mobile payment ecosystem is still at its nascent phase, and most of the players in the industry are still figuring out some ways in educating the market and immersing this new payment behavior to their users. In terms of investment, Fintech is still

the most popular sector in Indonesia, as a research conducted by Dailysocial<sup>16</sup> stated that there are 28 investment rounds into Indonesian Fintech startups in 2017 - more than twice the number of E-Commerce vertical.

**FIGURE 27** | Funding Rounds by Industry Vertical during CY2017 in Indonesia

\* The rest are funding on Verticals each with one startup. These single-player verticals include: AI, Email Marketing, Fisheries, Food, Healthcare, HR, IoT, Logistics, Messaging, Printing, Security, Sports, Vendor Marketplace, Virtual Item Marketplace, VR/AR, Wearable

Source: *Dailysocial Startup Report 2017*

We are also seeing mobile payment players are pouring money into users acquisition - services like Go-Pay, T-Cash, and OVO are constantly making investments into promotional activities with merchants in each platform to increase their user base. These activities should raise a lot of questions from skeptic industry practitioners and observers, about whether "cashless society" is another hype bubble.

Prices in the fintech and mobile payment industry are definitely inflating, but we believe that it can be justified, if we put mobile payment platforms' ability to capture consumer data and use it for other multiple use cases. One of the most familiar use cases are a predictive analytics on what users will buy next - a feature that Amazon has put on its platform's checkout process when users are entering the shopping cart - to entice users to buy more.

**FIGURE 28** | An illustration of Amazon's predictive analytics feature

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From the case studies in China, one of the best use cases that we can learn is from Alibaba on its ability to use its consumer data that has been gathered from its mobile payment platform Alipay over the years, to cross-sell other financial products. One of the best examples is how Ant Financial - Alibaba's financial technology arm - has successfully grown Yu'e Bao, its money market fund, to become the largest money market fund in the world with 370 million account holders and US\$211 Bn in assets in just 4 years<sup>17</sup> - more than twice the size of JP Morgan. Its ascent has been a byproduct of a sharp shift among Chinese consumers toward mobile payments. Yu'e Bao draws its funds from users of Alipay, using its data algorithm to target the right users that match Yu'e Bao's investment profile and providing generous returns. We can imply that this use case is driving financial inclusion in China, as it entices Alipay users, which is roughly at the size of one-third of China population, to start investing their money into multiple financial instruments.

Moving further to the future, use cases of the mobile payments' data are limitless. One of the best examples of mass usage of mobile payments data is the development of social credit scoring in China. On June 14, 2014, the State Council of China published a document called "Planning Outline for the Construction of a Social Credit System", where

the government is developing the Social Credit System (SCS) to rate the trustworthiness of its 1.3 billion citizens. The Chinese government is pitching the system as a desirable way to measure and enhance "trust" nationwide and to build a culture of "sincerity". The SCS will be developed by leveraging data that has been gathered by the Chinese tech behemoths, such as Tencent (China Rapid Finance/ WeChat) and Alibaba (Sesame Credit/Ant Financial). In those data, there are at least 5 factors that are used to score the worthiness: credit history, fulfillment capacity, personal characteristics, behavior & preferences, and interpersonal relationship. The algorithm would create a "Citizen Score" and it would tell everyone whether or not you were trustworthy. Plus, your rating would be publicly ranked against that of the entire population and used to determine your eligibility for a mortgage or a job, where your children can go to school - or even just your chances of getting a date.

We believe that this big data-leveraged algorithms that can be used for multiple use cases is the reason why the mobile payment players are making huge investments into user acquisitions and usage, because whoever gets more data and finding the best use cases to leverage them is the one who will be dominating the market.

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# Glossary

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<b>APAC</b>	Asia Pacific
<b>ATM</b>	Automatic Teller Machine
<b>AUM</b>	Asset Under Management
<b>B2B</b>	Business-to-Business
<b>B2C</b>	Business-to-Consumer
<b>Bn (bio)</b>	Billion(s)
<b>C2C</b>	Consumer-to-Consumer
<b>CAGR</b>	Compounded Annual Growth Rate
<b>CY</b>	Calendar Year
<b>EDC</b>	Electronic Data Capture
<b>EMMA</b>	Emerging Middle-class, Mobile-Active
<b>F&amp;B</b>	Food and Beverages
<b>FINTECH</b>	Financial Technology
<b>GDP</b>	Gross Domestic Product
<b>GTV</b>	Gross Transaction Value
<b>IP</b>	Intellectual Property
<b>Mn (mio)</b>	Million(s)
<b>NFC</b>	Near Field Communication
<b>OTP</b>	One-time Password
<b>P2P</b>	Peer to Peer
<b>PC</b>	Personal Computer
<b>QR Code</b>	Quick Response Code
<b>RFID</b>	Radio Frequency Identification
<b>RMB</b>	Chinese Yuan (also called CNY)
<b>SME</b>	Small and Medium Enterprise
<b>Tn</b>	Trillion(s)
<b>USD</b>	United States Dollars
<b>USSD</b>	Unstructured Supplementary Service Data



## MOBILE PAYMENTS IN INDONESIA: RACE TO BIG DATA DOMINATION

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