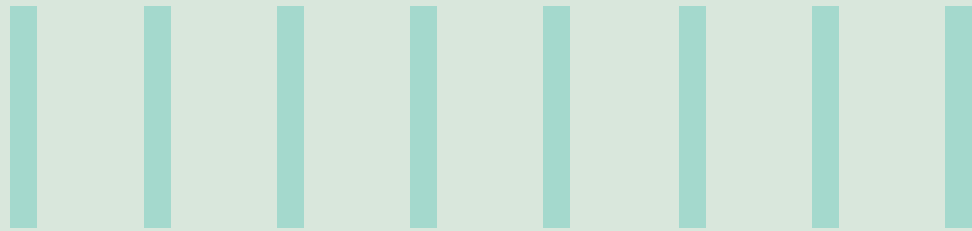


TRENDS IN DIGITAL PAYMENTS



Financial institutions are facing increasing competition from technology giants and FinTech startups for winning the consumer mindshare by providing them with a seamless payments experience. Incumbent card players are investing in Omnichannel experiences to keep pace with payments digitization and the relentless changes sweeping the industry. Countries across the globe are revamping their payments infrastructure to enable businesses and consumers to move money faster and at the same time help monetize the platforms. When combined with the shift towards opening up traditional banking silos, financial institutions are focused on upgrading their payment services offerings to meet future payment requirements related to volume, speed and agility.

Consumer preferences varies from country to country. Digital payments have evolved in various ways in each of the geographies based on various factors such as consumer preferences, industry structure and support from Central banks. However, there are Digital Payment trends that show universal adoption across the globe. In the following sections, let us look at geography specific developments as well as trends that have universal adoption across the globe.



Country Wise Trends in Digital Payments

India, China and European Region are good examples to showcase how Payment preference varies from one country to another and how Digital Payments have evolved as a result of existing industry structure, Central bank initiatives and regulations. Though India was not in initial

set of countries that embraced Real Time Payments (RTP), support from Central bank & Indian government to increase digital payment adoption and allowing Fintechs to provide digital front-end for RTP rails led to fast adoption of Digital payments at a fast scale which few countries have exhibited. In contrast, China's digital payment journey has been led to few FinTech firms that have quickly gained

enormous scale to disintermediate banks to the point of making them invisible to the consumers. Europe on the other hand has embraced various forms of digital payments including digital wallets, RTP and continue to use Card based transactions for eCommerce. Let us look at each of these regions in detail in the following section.

Digital payments in India

Digital payments growth enabled by existing payments rail

The growth of digital payments in India is led by offerings from the National Payments Corporation of India (NPCI) including the United Payments Interface (UPI) and Immediate Payment Service (IMPS). UPI enables consumers to open digital wallet accounts linked to their bank account held with any bank in India. Users can use UPI for digital money transfer (P2P), payments at merchant outlets, utility payments and payments to businesses. Volumes of transactions through UPI grew 349% year-over-year to nearly 800 million and the value of transactions grew 45% year-over-year to over USD18.9bn during FY 2018 - 2019.

NPCI launched its own UPI mobile app BHIM in December 2016 to enable its partner ecosystem (small-sized banks) to become UPI compatible and allow their retail banking customers the convenience of using the UPI platform. Demonetization in November 2016 and the presence of only 15 UPI-enabled mobile apps propelled BHIM's usage. By April 2017, its market share in UPI reached 44.1% by transaction value and 44.3% by transaction volume. However, BHIM faced stiff competition from apps such as Google Pay, PhonePe, Paytm and Mobikwik. By April 2019, there were over 100 apps in the market that interfaced with UPI and BHIM's

market share of transaction value and volume fell to 1.9% and 4.6% respectively.

FinTechs lead the way in consumer adoption

Most UPI apps help accountholders pay their utility bills. FinTech apps have introduced innovative features — PhonePe enables payment of credit card bills or to buy gold, Paytm can be used to invest in mutual funds. Through these apps digital gold can be bought for any denomination and any weight.

Google Pay features in 8 Indian languages. Using Google's Audio QR Technology, its "Cash mode" enables users to send or receive money from other Google Pay users in near vicinity without sharing their mobile number or bank account details. Google Pay had 327 million installations in 2018, far ahead of its nearest competition PhonePe with 49 million installations. With monthly active users (MAU) rising from 25 million in September 2018 to 45 million in March 2019, Google Pay added the most number of users during the period. However, PhonePe has caught up subsequently; PhonePe mobile app had processed 342 Mn UPI transactions in August 2019 followed by Google Pay app (320 Mn UPI transactions) and Paytm app (157 Mn UPI transactions). Of the USD18.9bn of UPI transaction value, Google Pay had a 32.8% market share or USD6.8bn, whereas its nearest rivals could only manage USD4.6bn. Google Pay's

average transaction value (ATV) is 50% higher compared to PhonePe and Paytm — it is considered more trustworthy and is a preferred app for merchants. As per a report by Razorpay, Google Pay accounted for 54% of merchant transactions.¹

Digital Payments in China

Rapid growth of mobile payments in China

Mobile payments in China has a penetration rate of nearly 90% amongst its billion mobile internet users. TenPay (WeChat Pay) and Alipay dominate the market with 820 million users and 650 million users respectively. The relatively backward economic regions have not lagged in mobile payments. Offline, consumers use WeChat Pay and Alipay to pay at supermarkets, catering, daily travel orders, entertainment, etc. Online, Alipay is strong in e-commerce while WeChat Pay is used to recharge games. Alipay's bus card and Tencent's Metro QR code are widely used for public transportation payments — Tencent Metro QR code payments is currently active in over 70 cities in China.

Customers won over by social media and e-commerce platform services

In 2012, paying using mobile phones was a novelty in China. Today, it is significantly embraced and defines how money moves in the economy. In 2017, 62% of

¹Razorpay

global mobile payment transactions were performed by the Chinese.

Alibaba's customer base in financial services outstrips counterparts in the U.S. The tech giant serves 520 million customers in Payments (PayPal serves 203 million), 330 million customers in wealth management (Charles Schwab serves 10.6 million) and has credit references on 257 million customers (FICO has for 180 million).

The Chinese model is opposite to that in the U.S. China started with a social platform and moved to become a payments facilitator, whereas, in the U.S., the financial services industry came first, followed by social and loyalty. Although QR codes might not be as secure as the near-field communication technology used by ApplePay and other apps in the U.S, it is cheaper for merchants who don't have to pay for technology to accept payments.

Duopoly disintermediating the Chinese banks

More than 90% of Chinese mobile payments run through Alipay and WeChat Pay. China UnionPay, the nation's dominant card network, is a distant third. Alipay and WeChat Pay wallets are linked to a bank account or credit card. With the ecosystem controlled by two players, Chinese banks have become 'dumb pipes' — silent funders whose accounts are used to top up customers digital wallets². While bank bears compliance and account-related expenses they do not benefit from fees or branding opportunities typical of cards or other bank-run solutions.

In the above model, banks do not own the customer relationship but are only being disintermediated. The model limits transaction data available to banks — which can be leveraged to cross-sell products and services, such as wealth management, insurance or loans. WeChat Pay and Alipay use their central positions to offer high-rate money-market accounts,

investment advice and short-term loans, among other financial services. In 2017, Alipay-affiliated Yu'e Bao became the world's largest money-market fund, with over USD 200 billion in assets, surpassing JPMorgan Chase's government market fund. The speed of migration to their wealth-management and money-market funds has been tremendous.

Digital payments in Europe

Europe is the most diverse market for digital payments with multiple players

Europe stands out in its diversity when it comes to the use of online payments. PayPal is the most popular method of online payment in Germany and Spain whereas debit and credit cards are the preferred mode in France.

In the Netherlands, most online purchases are made using iDEAL, a domestic bank transfer system-based on SEPA Credit Transfer, and is supported by all Dutch banks. After selecting iDEAL and their bank, consumers authorize the pre-filled payment in their online banking portal or their mobile banking app. The merchant instantly receives a payment guarantee. The funds are irrevocably credited by SEPA Credit Transfer.

In Belgium, Bancontact (a domestic payment scheme) is used more than credit cards for online payments. In France, Paylib, an eWallet containing cards supported by the interbank scheme Carte Bancaire, has become the most popular alternative to debit and credit cards for online payments. In the U.K., the Pingit app supports payment at merchant outlets (using QR code) and also for e-commerce payments. Money is moved between current accounts using the U.K. Faster Payments service. Formerly Barclays Pingit, the app can be used by accountholders of other banks in the U.K.

There are several digital payments services

in Europe focused on local markets. Payback (Denmark), Vipps (Netherlands), Swish (Sweden), Mobile Pay (Denmark and Finland) are examples of such local players. Skrill, Neteller and PayPal are active across Europe.

The era of open banking APIs (Application Programming Interfaces), facilitated by Payment System Directive 2 (PSD2), will usher in a range of new consumer services making it easier for new payment intermediaries to launch. Several wallets now offer biometric authentication allied to tokenization of payment details, thereby increasing the security of such transactions higher than CP (Card Present) transactions.

Industry Trends That Resonate Across the Globe

Industry Trends such as leveraging Distributed Ledger for Cross Border payments, Embracing API / Open Banking, leveraging Real Time Payments for various needs of consumers / corporates and Banks focus on API layers can be observed across countries and continents. These are some of the industry shifting trends that have gained acceptances across all geographies considering that these trends are enabling new players to leverage technology to disintermediate established players and provide new value proposition to their customer segment. In the following section, let us look at each of these trends in detail.

Leveraging distributed ledger for cross border payments

Global businesses and international trade have steadily risen over the past 20-30 years. A worldwide diaspora has also increased cross-border payments. These have led to challenges including the fixation of exchange rates post the transfer of funds, further exacerbated by the involvement of multiple financial institutions with complex procedures, delays and inaccuracies and accompanying fees at each stage of the transaction.

²<https://dowbor.org/2018/08/banks-are-becoming-obsolete-in-china-could-the-u-s-be-next-alipay-in-the-u-k-alibabas-proprietary-payment-platform-alipay-has-shown-up-in-advertisements-overseas-such-as-this-one-in.html/>

FinTech startups leverage non-traditional approaches to solve these pain points.

Ripple focuses on cross-border and inter-bank commercial payments by leveraging distributed ledger technology. It connects banks and payment providers via its RippleNet which runs on blockchain technology. Customers have access to source liquidity using the XRP (digital currency). Ripple has leading banks such as Standard Chartered, Santander, CIMB Bank, MUFG Bank as its partners.

Incumbent players acquire FinTech capabilities

J.P. Morgan's in-house Blockchain Center of Excellence developed and open-sourced Quorum in November 2016. This blockchain architecture, a permissioned implementation of Ethereum, meets regulatory requirements, ensures data privacy and can process up to hundreds of transactions per second.

Visa Inc. acquired control of payments firm Earthport, that provides cross-border payment services to banks, money transfer service providers and businesses via the world's largest independent ACH network.

MasterCard acquired Transfast, a global cross-border account-to-account money transfer network. Transfast's network covers over 125 countries globally. It is a proprietary payment network, consisting of direct integrations with 300+ financial institution APIs, SFTP, web and mobile product applications.

Open Banking Initiatives

Payment System Directive 2 (PSD2) was launched to make payments safer, innovative and provide a level playing field to all players. It ensures new players can access consumer's payment account (X2SA - access to account) to pay on their behalf (via credit transfer) and provide consumers with a consolidated view of various accounts held by them. FI holding the payment account provides access to new players via API interfaces.

PSD2 introduces Third Party Payment Service Provider (TPP) — players who don't hold

payment accounts for their customers but have a specific scope of Payment Initiation (PISP - Payment Initiation Service Provider) and Account info aggregation (AISP - Account Info Service Provider).

U.K.'s open banking service that came into force in January 2018 is designed to bring more competition and innovation to financial services. Open banking ensures the participating banks share their data in a secure and standardized form with authorized organizations online. The accountholder must give their explicit approval to any data exchange. FinTech players can leverage open banking to aggregate data about consumers and provide them with new offerings in payments, loans, etc.

Regulations are not a prerequisite for open banking

The U.S does not have any regulations on PSD2 and open banking. However, financial institutions have tied-up to share data and account aggregation services. JPMorgan Chase has partnered with Intuit to make sharing data easier and safer through API interfaces. Their interface leverages Open Authentication and Open Financial Exchange (OFX) 2.2 API. Accountholders can authorize the bank to share data on digital apps like Mint and QuickBooks. Customers decide what they want to share and when they want to share it.

Fannie Mae launched a pilot for automated asset verification in mortgage applications. Fidelity launched Fidelity Access, enabling customers to grant third parties access to their account data for use in applications such as tax preparation, personal financial management, and portfolio advice.

Wells Fargo struck bilateral data-sharing agreements with Expensify and PointServ. The bank has exposed APIs to allow small businesses to have their bank account data transferred directly into the accounting software provided by Xero. Finicity enables real-time financial data aggregation and insights. Finicity has partnered with Wells Fargo to use APIs for Wells Fargo customers' account information with the financial apps

and services that Finicity supports.

FinTechs leverage open banking initiatives

Tink is a European FinTech focused on open banking APIs. It is an FSA-regulated partner to big banks, FinTechs and small startups and serves 12 European markets. Tink offer account aggregation (AIS) and payment initiation (PIS) on a single, cloud-based platform enabling FinTechs and banks to innovate and launch new products with one API integration. Swedish bank SBAB launched The Mortgage Match – a service that uses Tink's account aggregation technology to instantly collect a user's existing mortgage information from their bank, and compare with a rate from SBAB. ABN AMRO's Grip app is ABN AMRO's standalone personal finance management app. The app is built on top of the Tink platform and is based on a customized white-label version of Tink's front-end design. Nordic bank SEB developed its own personal finance management app based on the Tink platform.

Plaid is a U.S. based FinTech that serves as a trusted intermediary for the fintech ecosystem by securely connecting consumers, their banks, and financial applications. Plaid connects bank accounts to apps such as Venmo, Robinhood, Coinbase, Acorns and with digital banks like Chime and Varo. Plaid Direct enables popular financial applications to link between themselves, instead of routing it back to a traditional bank account — Venmo, Wealthfront, Acorns or Betterment plug-in to each other and can bypass banks. Plaid provides inter-operability between various financial apps.

API performance is critical in a digital payments ecosystem

API dependent services and business models have transformed financial services. The industry's reliance on service quality has become critical to banks and FinTechs and consumers and business customers. However, certain APIs are under scrutiny

including the “GET/accounts” (an API request type). They return comparable data, such as the location of a bank’s ATMs or details of commercial credit cards offered, from broadly similarly sized bank entities that face the same business and technical challenges in designing and maintaining their APIs within the context of the UK retail banking industry. Banks whose APIs were monitored include RBS, Danske, Ulster, NatWest, Nationwide, AIB, HSBC, Bank of Ireland, Santander, Lloyds HBOS and Barclays. Availability and latency (broken down into DNS, handshake, connection, upload, download and processing times) were analyzed, and the APImetrics CASC (Cloud API Service Consistency) scoring system was used to indicate overall API service quality. Performance analysis in 2018 identified a persistent quality issue monthly, with approximately 30% of the APIs monitored not reaching a CASC score of at least 800 — the generally accepted minimum score for a satisfactorily performing API. The API Layer is pivotal to the success of FinTech startups and banks. As banks increase their focus on digital channels, performance standards of the API Layer will be the key differentiator in the future.

Real-time payments

Real-time payment (RTP) systems are live across around 40 countries with live RTP systems and 16 more expected to debut by 2020. This rapid expansion is fueling predictions that the global real-time payments market will rise from USD6.8 billion in 2018 to USD26.9 billion by 2023 — a 5-year CAGR of 30.9%.

In India, NPCI UPI 2.0 is aimed at enabling corporates and SMEs to leverage UPI for business payments. UPI 2.0 enables the UPI account to be linked with overdraft accounts held by business entities. Payment mandates can be created with one-time block functionality for transactions. Customers can pre-authorize a transaction and pay at a later date. Invoice in the inbox allows payers to check the invoice sent by suppliers or merchants before making the payment. Signed intent and QR enables users to

check the authenticity of these suppliers or merchants by scanning the QR code to ensure that the supplier is a verified UPI merchant. UPI 2.0 enables banks and lenders to obtain access to transaction data which is expected to boost account profiling and credit scoring.

EBA’s (European Banking Association) clearing mechanism RT1 supports SEPA Instant Credit Transfer through 1,000 addressable payment service providers in 12 countries. SCT Inst scheme enables transfers within 10 seconds, 24/7, to any of the SEPA territories. Real-time payments are processed on the RT1 platform in under 3 seconds — from the moment the originating PSP creates the transaction until it receives confirmation that the beneficiary PSP has accepted the transaction and payment is settled.

A real-time payment platform, New Payments Platform (NPP) was launched in Australia in early 2018. NPP processes domestic payments in real-time and is available 24 * 7 * 365. As of April 2019, there were more than 55 million Australian bank accounts accessible via the NPP (estimated at 85% of all accounts that will eventually be reachable) and around 2.8 million PayIDs had been registered. The platform processes more than 600,000 payments worth AUD 500 million every day.

Zelle Network is operated by Early Warning Services, owned by seven of the largest U.S. banks. Zelle can be used to send, request or receive money by using the recipient’s email address or mobile number. Over 85 million customers of 5,300 financial institutions can use Zelle Network’s real-time payment services through their bank’s mobile banking app or by registering their debit cards on the Zelle mobile app.

TCH, co-owned by 25 banks, launched its real-time payments in November 2017. The new rail facilitates 24/7 payment clearing and settlement in real-time.

Recommendations to Banks

Banks need to increase their focus on product differentiation through innovation and leverage technology to build digital payment offerings that meet customer

needs. Banks are increasingly setting up incubator hubs to work closely with FinTech startups and mentor them. They need to take a collaborative approach with FinTechs to leverage FinTech’s product and platform offerings, and insights into digital preferences of millennials. FinTech’s agility and fast-paced innovation make them ideal banking partners, especially in product development and innovation. Their agile approach to innovation enables faster prototyping and piloting of ideas and also helps them learn from their fail-fast approach.

Banks must provide offerings with digital touchpoints that score high on their usability and relevance to digitally native customers. Gen X customers leverage omnichannel services provided by banks across mobile apps, internet banking, ATM, IVR, call centers and physical branches. Given the expectations, it becomes imperative for banks to build state-of-the-art digital touchpoints and robust back-end platforms that enable straight-through processing — these form the bedrock of digital-first banks. UPI in India is an example of how BigTech and FinTech offerings such as Google Pay, PhonePe, Paytm have won the lion’s share of UPI transactions. Consumers and merchants prefer digital apps provided by FinTechs due to their app features and usability. In their role of Payment Initiation Service providers, FinTech startups have opportunities to build insights into the financial needs of customers and cross-sell other financial products such as personal loans, investments and mortgages.

The success of AliPay and WeChat Pay in China is an example of how FinTechs disintermediate banks and win customer trust and mindshare. Both have launched multiple product offerings to cross-sell services. It is significantly important for banks to tune their digital strategy and launch innovative product offerings to stay relevant from a customer perspective and to remain in the customer’s mindshare.

Conclusion

The proliferation of digital payments has led to many variations in payment methods as the digital payments ecosystem varies from one country to another. This is not surprising as customer behavior and needs vary. The prevalence of QR codes based digital wallets in China, real-time payments based on the digital payment ecosystem in India, presence of multiple digital payment forms and players in Europe, and adoption of ApplePay in the U.S. are examples of how each region has embraced various forms of digital payments and has its own unique set of customer needs. It is imperative to understand the different requirements of each geo market and the payment preferences of consumers in those markets.

There are a common set of themes in the proliferation of digital payments that resonate across geo markets in good measures. Customers expect payments experience to be seamless, simple, frictionless and secure. They do not want to traverse through multiple screens from different entities and enter data. Customers look for a one-click experience. Leveraging biometrics on mobile phone in various forms by digital payments service provider is a case in point.

With the onslaught from FinTech startups, incumbent banks are innovating in various ways to make the payments journey seamless for retail and corporate banking customers. Distributed ledger-based cross-border payments, SWIFT Alliance Lite2, SWIFT gpi for transforming cross-border payments are examples of how incumbent banks are focused on product offerings and the digital front-end to stay relevant in a crowded marketplace. FinTechs leverage platform-based offerings and collaborate with financial institutions to provide innovative solutions. Flinqr's offering for trade payables and Traxpay's Financing Platform are examples of platform-based approach of FinTechs. As the digital payments market evolve, we expect increased collaboration between incumbent banks and FinTech in their joint pursuit of making digital payments seamless, simple, frictionless and secure.



About the Authors



Vijay Anand

Senior Industry Principal, FSDCG - Cards & Payments

Leads Global Cards & Payments domain consulting practice at Infosys. His team focus on deepening Domain competency and build alliances to strengthen product professional services capabilities in Cards and payments space. He brings in expertise across the cards and payments value chain and has been instrumental in managing large Cards and payment relationships in Infosys with leading financial institutions across the globe. Our Clients are the leaders in their space and consume a range of payments services across geographies such as Issuing Banks, Acquiring Banks, Payment Schemes, Merchant and FI Processors, Retailers, Remittance Players, OEMs and Product players. In his role, Vijay frequently interacts with Senior Executives and Analysts in Cards and payments space and oversees Infosys engagements giving him a unique perspective of the industry needs and technology solutions. He is an active member of various Industry forums for Payments like US Fed reserve task force for Faster payments , US Fed reserve task force for Faster payments , Remittance coalition etc.



Manickavasagam S

Principal Consultant, FSDCG - Cards & Payments

Manickavasagam is a Principal Consultant with Cards and Payments Practice at Infosys. He has 20 years of experience in Cards and Payments domain. He is involved in consulting assignments and platform implementation initiatives in Credit card platforms, Loyalty servers, Payment Gateways, Card Customer Service platforms and Prepaid Card processors.

References

<https://www.flinqer.com/>

<https://www.traxpay.com/>

<https://tink.com/>

<https://plaid.com/>

<https://www.cnbc.com/2019/05/22/plaid-gives-digital-banks-and-fintech-a-new-tool-to-bypass-traditional-finance.html>

<https://www.mckinsey.com/industries/financial-services/our-insights/open-bankings-next-wave-perspectives-from-three-fintech-ceos>

<https://www.americanbanker.com/news/jpmorgan-chase-and-intuit-partner-to-share-data-via-api>

<https://www.ecommercestategychina.com/column/the-development-and-trends-of-chinas-mobile-payment-in-2018>

<https://asia.nikkei.com/Business/Business-trends/In-China-cash-is-no-longer-king>

<https://www.americanbanker.com/news/why-chinas-mobile-payments-revolution-matters-for-us-bankers>

<https://www.statista.com/topics/3946/digital-payment-methods-in-europe/>

<https://merchantriskcouncil.org/resource.../the-future-of-digital-payments-in-europe>

<https://www.clearhaus.com/blog/mobile-payments-and-digital-wallets/>

<https://www.chargebee.com/blog/online-mobile-wallets-payment-options-usa-europe-asia/>

For more information, contact askus@infosys.com



© 2019 Infosys Limited, Bengaluru, India. All Rights Reserved. Infosys believes the information in this document is accurate as of its publication date; such information is subject to change without notice. Infosys acknowledges the proprietary rights of other companies to the trademarks, product names and such other intellectual property rights mentioned in this document. Except as expressly permitted, neither this documentation nor any part of it may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, printing, photocopying, recording or otherwise, without the prior permission of Infosys Limited and/ or any named intellectual property rights holders under this document.