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A Landscape Analysis on Emerging Payment Channels in APEC and their Potential for Accelerating Financial Inclusion

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Glossary

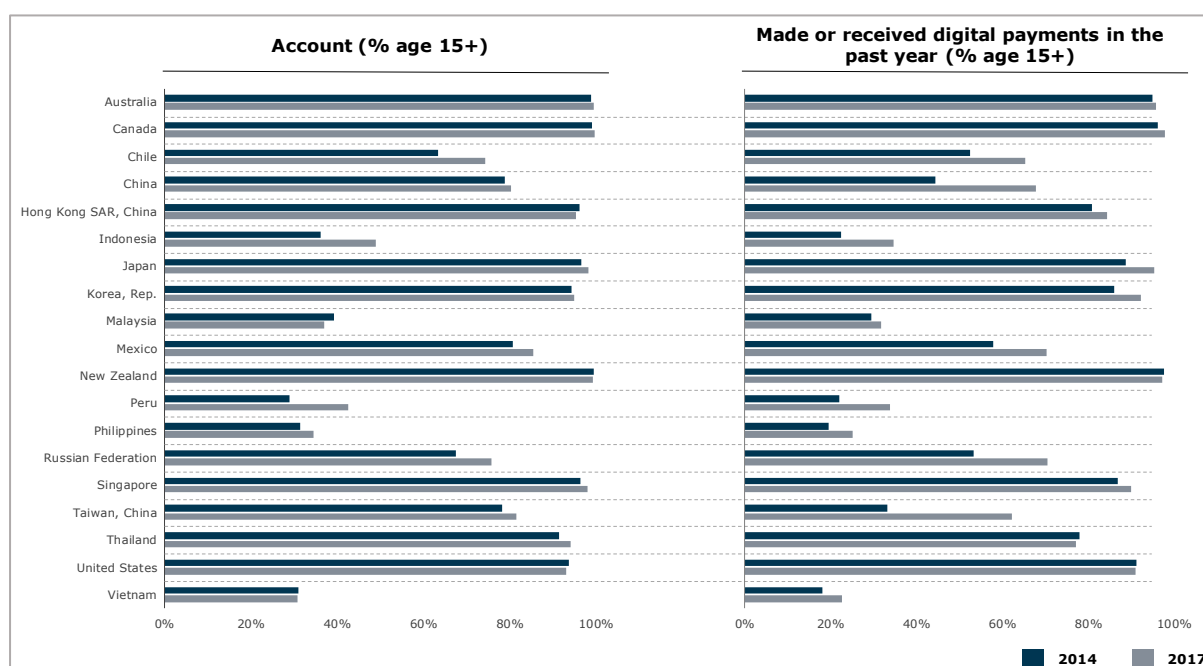
ABN	Australian Business Number
ABR	Australian Business Register
AML/CFT	Anti-Money Laundering/ Countering Funding of Terrorism
API	Application Programming Interface
ASIC	Australian Securities and Investment Commission
ATM	Automated Teller Machine
ATO	Australian Taxation Office
BI	Bank Indonesia (Indonesian central bank)
BNM	Bank Negara Malaysia (Malaysian central bank)
BSP	Bangko Sentral ng Pilipinas (Philippine central bank)
BTC	Better Than Cash alliance
CBPR	Cross Border Privacy Regime (APEC)
CCRC	Credit Reference Center
CDD	Customer Due Diligence
CFTC	Commodity Futures Trading Commission (US)
CPEA	Cross-border Privacy Enforcement Arrangement (APEC)
DBM	Department of Budget and Management (Philippines)
DFS	Digital Financial Services
DSWD	Department of Social Welfare and Development (Philippines)
FAST	Fast and Secure Transfers
FATF	Financial Action Task Force
FPX	Financial Process Exchange
FSI	Financial Service Institution
FSS	Fast Settlement Service
GST	Goods and Services Tax
HKMA	Hong Kong Monetary Authority
IA	Insurance Authority (Hong Kong China)
IBG	Interbank GIRO
ITMX	Interbank Transaction Management and Exchange
KYC	Know Your Customer
MAS	Monetary Authority of Singapore
M-CCT	Modified Conditional Cash Transfer Program
MSMEs	Micro-, Small- and Medium-Sized Enterprises
NAPAS	National Payment Corporation of Vietnam
NEPI	National Expanded Immunization Program (Vietnam)

NFC	Near Field Communication
NIIS	National Immunization Information System (Vietnam)
NPP	New Payments Platform (Australia)
NRPS	National Retail Payment System (Philippines)
OEM	Original Equipment Manufacturer
OJK	Indonesia's Financial Services Authority
P2P	Peer to Peer
PBOC	People's Bank of China
PhilPaSS	Philippine Payment and Settlement System
POS	Point Of Sales
QR	Quick Response codes
RBA	Reserve Bank of Australia
RENTAS	Real Time Electronic Transfer of Funds and Securities System
RTGS	Real Time Gross Settlement
SBV	State Bank of Vietnam
SFC	Securities and Futures Commission (Hong Kong China)
TDIF	Trusted Digital Identify Framework
TFN	Tax File Number

1. Alternative & Emerging Payments Technologies and Channels

Digital payments have become increasingly prevalent and accessible in recent years due to the combination of a rapid surge in the ownership of mobile devices – creating the possibility of mobile services delivery – and a host of new innovations in both delivery channels and business models. Thus, extending well beyond the consumer banking applications developed by traditional financial institutions, alternative distribution channels have been emerging and gaining traction, enabling previously excluded and underserved individuals and businesses to gain access, transact and participate.¹ This increasing access to, and use of, digital payments is true across *all* APEC economies, even while economies may be at very different levels of financial system development and maturity (Figure 1).

Figure 1: Overview of Financial Inclusion and Use of Digital Payments Across APEC (2014 and 2017)



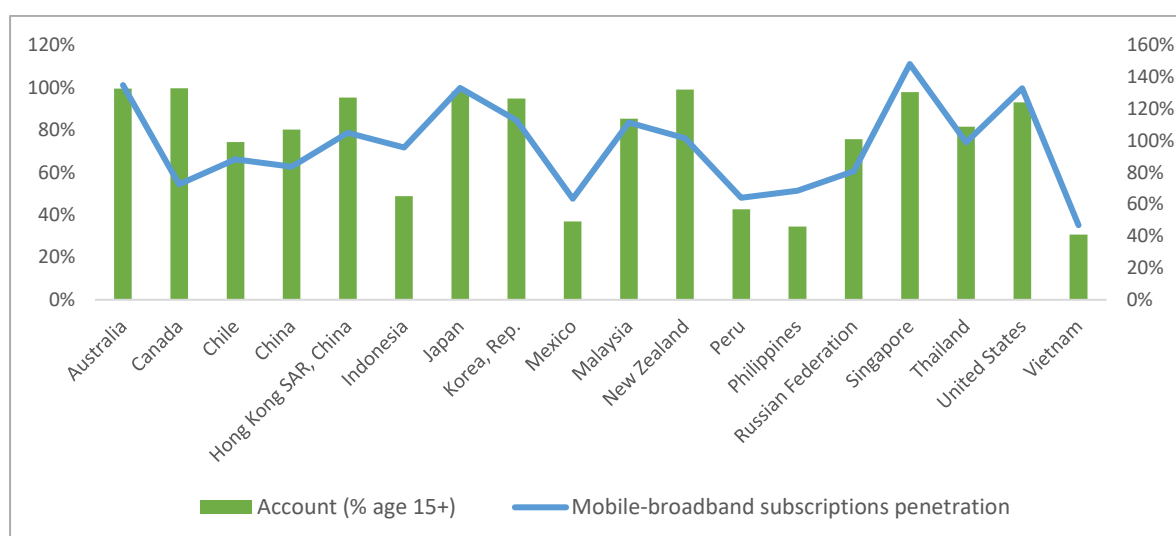
Source: [The Global Index Database 2017: Measuring Financial Inclusion and the Fintech Revolution](https://www.afi-global.org/policy-areas/digital-financial-services).

The number of unique mobile subscribers in the Asia Pacific is forecast to increase from 2.7 billion to 3.2 billion by 2025, continuing the growth that has been occurring, with the latter figure estimated to represent 73% of the region's population. This, however, would *still* leave a significant portion of the region's population without access to mobile devices and mobile-money services.² One reason for this is low mobile broadband penetration which has direct consequences for financial access. As Figure 2 highlights, low broadband penetration correlates with account ownership, being lowest in developing economies such as Vietnam, Peru and the Philippines, who each have relatively large unbanked populations.

¹ AFI Digital Financial Services, <https://www.afi-global.org/policy-areas/digital-financial-services>

² GSMA (2018), <https://www.gsma.com/mobileeconomy/wp-content/uploads/2018/02/The-Mobile-Economy-Global-2018.pdf>

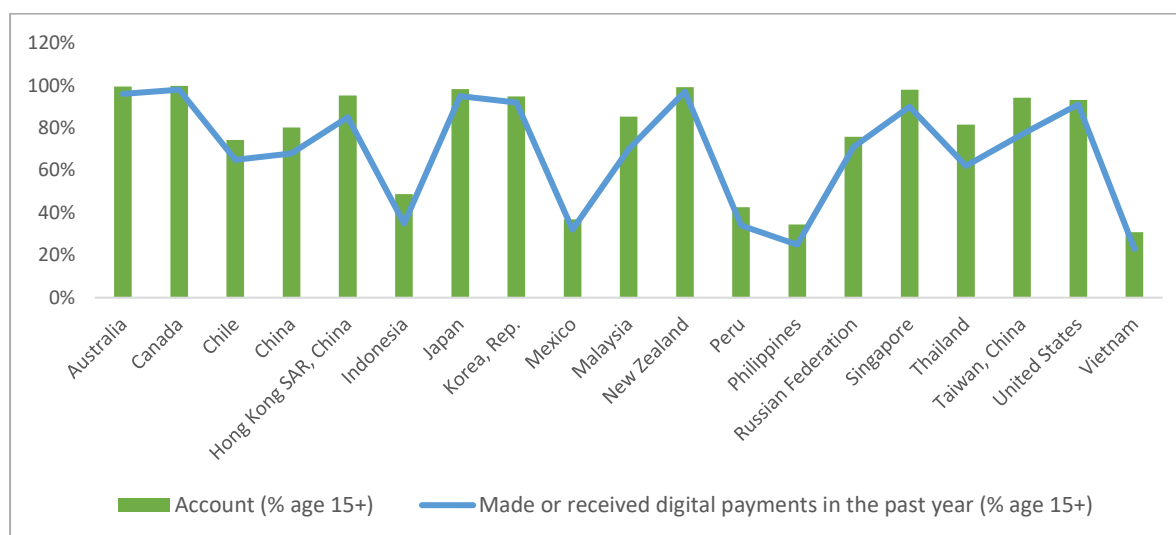
Figure 2: Account Ownership and Mobile Broadband Penetration (2017)



Source: [The Global Index Database 2017: Measuring Financial Inclusion and the Fintech Revolution.](#)

Low account ownership also impacts the *early* use of digital financial services. Figure 3 shows digital payments usage to be lowest in economies with large unbanked populations, indicating a heavy reliance on cash. This picture, however, is already being challenged – rapidly in some economies – by the introduction of new payments channels utilizing new technologies and new business models that lower cost, broaden access and specifically target those without traditional accounts, as illustrated in the findings below.

Figure 3: Account Ownership and Digital Payment Usage (2017)



Source: [The Global Index Database 2017: Measuring Financial Inclusion and the Fintech Revolution.](#)

The potential for emerging payment channels to accelerate financial inclusion in APEC is indeed striking, such as for instance, by circumventing the barriers that have excluded both individuals and businesses from formal financial participation. Such barriers include remoteness from ‘brick and mortar’ bank branches and the difficulties in providing adequate documentation or collateral to meet Know-Your-Customer (KYC) requirements of traditional financial institutions. Since KYC procedures have traditionally been conducted in person, even those with the necessary documents

can still be hindered from opening a bank account if they are unable to readily present at a physical bank branch.

Often the new players are not regulated in the same way as a bank and can therefore take a more flexible approach to acquiring and amassing a customer base (rapidly and relatively cheaply), for instance by adopting a more proportional or tiered framework designed to respond to the challenges facing the unbanked and underbanked. Such an approach was endorsed by the Financial Action Task Force (FATF) in 2017, which notes the need for tiered criteria to respond to the domestic context, including, among other factors, the profile of financially excluded groups.³

1.2 Review of Alternative Channels

As a result, we find that the digital payments market is booming. New technologies are encouraging the emergence of innovative payment methods, creating business opportunities for both incumbent financial institutions and non-bank organizations to extend their reach to new customers and to increase their offerings to existing customers.

As the payments market in APEC evolves, there has been a shift not only from traditional payment methods, but also from card-based payments (credit and debit, as well as stored value), to newer mobile- and digital-enabled payment methods. Mobile payments can be conducted through text message, mobile browser, in-application, contactless near field communication (NFC) or quick response (QR) codes. With smartphone users expected to grow to 2.5 billion by 2019, approximately 36% of the world's population will be using a smartphone.⁴ Hence the expectation for an exponential rise in the use of these alternative payment channels. At the same time, the technologies behind emerging payment channels including m-wallets, P2P transfers, and FAST payment systems, are becoming increasingly sophisticated. These are serving to enhance convenience for consumers and merchants by speeding the checkout process and improving security and confidentiality by the adoption of tokenization and second factor authentication. These solutions are also creating greater payment system efficiency by decreasing the costs of operating and maintaining the infrastructure needed for paper-based payments. Looking ahead, the success and longevity of these alternative payment channels will depend to a large extent on consumer and merchant experiences in terms of how fast, secure and frictionless a method is for conducting transactions.

Across APEC, a particular aspect of a number of the emerging digital payment channels is their integration with e-commerce platforms, point-of-sale systems, and shopping cart software, as well as accounting and billing solutions. This in itself is often helping to drive uptake, but can confuse the picture for regulators in terms of licensing. Alternative payment technologies are creating the means for broader financial services access and driving the creation of new business models in response to demand for specific products, such as micro-insurance. This is further serving to challenge the once-powerful role of traditional financial institutions as intermediaries.

This paper discusses new and emerging digital payment channels in APEC economies, the progress made, the benefits that potentially stand to be reaped, and some of the challenges that are appearing. The paper takes a case study approach to the developments across APEC economies, to provide illustrative examples from a wide variety of environments. Recommendations for APEC economies to adopt so as to fully optimize the development of new and emerging payment channels include:

(i) Establishing digital identities and interoperable consumer identification

³ FATF (2017) Anti-Money Laundering and Terrorist Financing Measures and Financial Inclusion, <http://www.fatf-gafi.org/media/fatf/content/images/Updated-2017-FATF-2013-Guidance.pdf>

⁴ Statista Number of Smartphone Users Worldwide, <https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/>

When combined with the growing use of mobile devices, universal digital IDs: make it easier for the unbanked to obtain financial accounts by simplifying documentation requirements at account opening; help financial institutions more cost-effectively comply with customer due diligence requirements, including through remote verification and onboarding; and, enable the adoption and delivery of new services and new business models. In short, digital IDs transform customers previously considered ‘uneconomic’ into potential customers for acquisition. And they establish an identity that can be used for multiple other purposes.

Digital ID could be a shared goal for APEC economies to work together on aligning regulatory frameworks or establishing mutual recognition systems. Such frameworks will serve to rapidly lower settlement costs and costs for international remittances.

(ii) Committing to responsible *digital* financial practices

With the emergence of alternate payment and distribution channels come a variety of new service offerings and business models. This holds great promise for personalizing service, increasing access, and dramatically lowering acquisition, transaction and settlement costs – thereby rapidly increasing financial inclusion. However, the rapid broadening of access exposes vulnerable communities to issues of data protection and data privacy abuse for which they may not be prepared.

APEC finance ministers should look to establish overarching advisory bodies in their economies to ensure consumer protection and data protection in digital finance. APEC should establish common principles for member economy adherence and alignment. A strong precedent that could be looked to in this regard is the APEC Cross-border Privacy Enforcement Arrangement (CPEA), and the related Cross Border Privacy Regime (CBPR).

(iii) Establishing coordinating agencies to oversee digital financial deployment

Enabling new payment channels to have a transformational impact requires a whole-of-government approach to be successful, so as to coordinate *simultaneously* the need for: top-down governance, cross-sectoral enablement, cross-jurisdictional enablement, and multi-stakeholder participation.

APEC economies will benefit from ensuring that initiatives are not undertaken in silos, but through a coordinated approach involving relevant government departments and agencies, along with other key stakeholders in the private sector and civil society. This will allow governments to move towards a more enabling approach by rethinking the role of the regulator, increasing agility and creating inclusive opportunities.

(iv) Establishing common digital financial services indicators

Across digital economy development there is a dearth of consistent and effective measurement indicators. This is particularly true for the digital financial sector, not least because of its cross-cutting nature. But for new policy initiatives to be effective, for development programs to be able to be assessed, and for innovations to be rolled out in a way that ensures overall economic and societal benefit requires the ability to measure and assess impact.

APEC economies should give strong priority to developing a common set of baseline digital financial sector measurements, so that economies can assess and track both their absolute and comparative progress.

2. The Importance of Alternative & Emerging Payment Technologies

New technologies and alternative payments channels have disrupted the payments market in important ways for enabling financial inclusion. These can be summarized along four key parameters:

1. **Lower costs:** Digital methods directly lower costs for both consumers and merchants. *For consumers*, online and mobile banking is considerably cheaper than traditional payments methods such as credit and debit cards, allowing them to transact locally in small amounts and be better able to manage uneven incomes and expenses. *For merchants*, digital reduces both delivery and transaction costs, as well as lowering fraud and chargebacks. Merchant and interchange fees for cards have long incentivized interest in exploring alternative channels. Now, services such as Google Pay allow business owners and shops to use the application with their individual current account to accept digital payments from consumers. The payments go directly into the merchant's bank accounts – with no fees (up to certain incomes thresholds).⁵

Integrated payments solutions allow payments processing and accounting functions to work together, thereby enabling merchants to save time and money (otherwise spent on redundant data entry and credit card verification, reconciliation of accounts etc). For small businesses, these can translate into big cost savings, as well as increased efficiencies.

2. **Increased reach and economies of scope:** The expansion in Internet provision and proliferation of mobile devices, combined with the potential for mobile service delivery of new payments solutions overcomes the challenges of building branch access out to remote locations. Moreover, with no 'brick and mortar' requirements, alternative distribution channels cost considerably less, including for access points such as automated teller machines (ATMs). Mobile and online payments solutions drive adoption by both retailers and customers, broadening access to new demographics seen to be not previously possible.⁶

This can then result in the delivery of new financial products such as savings accounts, micro-loans and micro-insurance, to those previously deemed 'uneconomic' by traditional financial institutions. One example is the mobile crowdfunding platform CROWDE which helps Indonesian farmers to grow their businesses through market access support, sourcing of equipment like tools, seeds, fertilizers and pesticides, and access to credit.

Non-bank finance innovations, such as CROWDE, bring to the fore *existing demand not currently being met by the formal banking system*. By enabling farmers to circumvent the obstacles to inclusion in the formal banking ecosystem, these types of innovations not only benefit farmers' businesses, but help to build customer profiles for use in authenticating identity and credit risk, paving the way for greater financial integration.

3. **Lower barriers to entry and new market entrants:** As costs are lowered, new opportunities emerge. By offering targeted products and services in attractive and useful ways, new entrants have been able to intensify competition in the payments space and create virtuous cycles of supply and demand which did not previously exist.

For instance, the ability of farmers to communicate and transact directly with buyers improves market access, paving the way for greater participation and improvements in supply chain efficiencies (without necessarily relying on a traditional bank to intermediate the process). Mobile phones also compensate for poor infrastructure, such as slow postal

⁵ Google Pay for Business overview, <https://support.google.com/pay/business/answer/9054423?hl=en>

⁶ PWC Emerging Markets: Driving the Payments Transformation, <https://www.pwc.com/gx/en/industries/financial-services/publications/emerging-markets-driving-payments.html>

services and bad roads in developing economies, allowing individuals to connect, including in carrying out transactions. This directly impacts economic growth.⁷

Broader participation of non-traditional financial players, and the digitization of SME sales processes, enhances the economic empowerment of women and other marginalized groups. Increased participation of women further positively impacts human capital and growth in the economy: as women have more access to financial resources they increase spending on nutrition, education and healthcare. In Indonesia (and India) it was found that reliable digital salary payments increased attendance rates of teachers to 90%, compared to 60-80% in other states.⁸

Convenience, ease of use and security of transactions are the key drivers of growth. The sector is also witnessing new business models, unrelated to financial services. For instance, Digital payments are also making the emergence of new integrated business models possible, such as pay-as-you-go utility models. And, this in turn, has enabled solutions such as solar panels and other clean technologies.⁹ Companies are also tying-up with transport companies, energy providers, and educational institutions in similar ways.

Establishing shared digital infrastructure such as open banking application programming interfaces (APIs) and data exchange solutions can further serve to reduce barriers to entry. Peru took advantage of high levels of mobile penetration to bring together the public sector with a number of financial institutions, telecom carriers, large (enterprise) payers and the end-user payees to create the 'Modelo Peru' partnership, based around the 'Bim' payment service called. As the first interoperable mobile money platform in Peru, Bim allows members to issue affordable products, competing on design and service, thereby focusing on financial inclusion.¹⁰

Open APIs

Data about financial products and services has traditionally been held by, and only accessible through, larger financial institutions. The open banking model enables authorised third parties to access this data and offer customers who opt in greater transparency and availability around standard product and pricing information. The model relies on application programming interfaces (APIs) which facilitate connections and the transfer of data between banks' platforms and third-party developers.¹¹

Prior to open banking, aggregation sites were used to combine users' account information from various financial institutions onto one site via screen scraping.¹² APIs are a faster, secure and more 'hygienic' alternative to screen scraping as they enable applications to share data quickly without exposing account credentials or passwords.¹³

With an increasing number of regulatory sandboxes being introduced (see below), the development of new API-driven open banking services and applications that target the financially underserved stands to create numerous opportunities to accelerate financial inclusion.

⁷ A World Bank study found that an extra ten phones per 100 people in a typical developing economy boosts GDP growth by 0.8%. GSMA (2012) What is the impact of mobile telephony on economic growth? <https://www.gsma.com/publicpolicy/wp-content/uploads/2012/11/gsma-deloitte-impact-mobile-telephony-economic-growth.pdf>

⁸ MGI (2016) Digital Finance for All: Powering Inclusive Growth in Emerging Economies, <https://www.mckinsey.com/~media/McKinsey/Featured%20Insights/Employment%20and%20Growth/How%20digital%20finance%20could%20boost%20growth%20in%20emerging%20economies/MGI-Digital-Finance-For-All-Executive-summary-September-2016.ashx>

⁹ MGI (2016) Digital Finance for All: Powering Inclusive Growth in Emerging Economies, <https://www.mckinsey.com/~media/McKinsey/Featured%20Insights/Employment%20and%20Growth/How%20digital%20finance%20could%20boost%20growth%20in%20emerging%20economies/MGI-Digital-Finance-For-All-Executive-summary-September-2016.ashx>

¹⁰ BTCA (2016) Accelerators to an Inclusive Digital Payments Ecosystem https://btca-prod.s3.amazonaws.com/documents/238/english_attachments/BTC_Accelerator_Report.pdf?1474430605

¹¹ <https://www.mckinsey.com/industries/financial-services/our-insights/data-sharing-and-open-banking>

¹² <https://www.finextra.com/blogposting/16494/open-banking-vs-screen-scraping-looking-ahead-in-2019>

¹³ <https://www.finextra.com/blogposting/16494/open-banking-vs-screen-scraping-looking-ahead-in-2019>

Open banking reduces the requirements of developing customised services and applications, thereby lowering the barriers of targeting the underserved. This works well for workers on short-term work contracts, as open banking offers a fast and simple way of accessing basic financial services, such as payment or credit borrowing, that can be transferred across employers and financial service providers – i.e., is not dependent upon a customized enterprise solution.

Two non-APEC examples are worth highlighting in this regard:

Teknospire, a fintech specialising in last mile banking and financial inclusion, offers an integrated digital banking platform that automates banking processes, enabling rural and remote individuals to pay utility bills through its platform.¹⁴ Teknospire's open banking services are real-time, reducing the opportunity cost of using the service. The company has helped cooperative, regional, rural, small finance and public sector banks in India to expand their services and customer base without significant additional costs.¹⁵

In Myanmar, Wave Money, a joint venture between Telenor Group and Yoma Bank, promotes financial inclusion by providing access to secure and real-time financial transfers on mobile phones.¹⁶ Wave Money can be used for various types of payments such as e-commerce and wages, as well as sending remittances to family members in rural or remote areas without formal bank access. In areas without formal bank access, money can be collected from authorised Wave Shops once a transfer is made.¹⁷ There are over 31,000 authorised Wave Shops in Myanmar, covering 85% of the economy, with a customer base of 1.3 million.¹⁸

- 4. Customer-centricity:** As alternative payment channels grow, the increase in competition means that industry players are concentrating on more customer-centric business models. The models are more focused on understanding and being able to respond to customer needs, matching them with product offerings and an ever-improving customer experience.¹⁹

The shift to such models is the result of two drivers. First, customers demanding real-time, anytime, anywhere payment processing.²⁰ Second, non-bank players (such as Google, Apple and Alibaba) are often far closer to their customers than the banks due to the other services they offer. This has helped them understand customers better and stay ahead of their competition, including through partnerships with fintech firms.

Given all of the above, four business model trends can be seen to be driving much of the alternative payments trajectory:

- **'Push' money:** Technology that enables consumers to push money to friends, family, and merchants directly. In 2016, a staggering eight billion WeChat "hong bao" were exchanged on Chinese New Year, eight times the number gifted the prior year.²¹ Payments are no longer tied to banks and mediation by conventional institutions. People can pay and be paid directly by friends, family, and acquaintances, eliminating some of the security risks associated with cash and reducing the often high transaction and opportunity costs, including travel time to banks.

Pull to Push Payments

Recognizing the challenges, economies are gradually shifting from traditional pull to push payment models. Credit cards, wire transfers or checks are conventional type of pull payments where the consumer receives and approves an invoice and then pays the merchant for goods and services received. Thereafter,

¹⁴ http://teknospire.com/about_us/

¹⁵ <https://blogs.oracle.com/startup/how-teknospire-the-fintech-firm-is-boosting-financial-inclusion>

¹⁶ <https://goexplorer.org/mobile-money-opens-doors-for-the-unbanked-in-myanmar/>

¹⁷ <https://goexplorer.org/mobile-money-opens-doors-for-the-unbanked-in-myanmar/>

¹⁸ <https://goexplorer.org/mobile-money-opens-doors-for-the-unbanked-in-myanmar/>

¹⁹ PWC Emerging Markets: Driving the Payments Transformation, <https://www.pwc.com/gx/en/industries/financial-services/publications/emerging-markets-driving-payments.html>

²⁰ Accenture Payments in the Digital Age, https://www.accenture.com/t20180717T083406Z_w_us-en/acnmedia/PDF-81/Accenture-Payments-in-the-Digital-Age.pdf

²¹ Michael Wade and Jialu Shan, *The Red Envelope War* (Switzerland: International Institute for Management Development, 2016), 2.

the merchant (or their bank) processes the transaction and the consumer and merchant reconcile their accounts. Push payments also involve a consumer receiving and approving an invoice, however the transaction is processed automatically, and the funds are pushed directly into a merchant's account. Faster payments, direct deposits (for payroll for instance) are examples of push payments.

The shift to push payments is driven not only by cost considerations, but they are also more secure, expose consumers and merchants to less risk and better manage liability. In the broader fintech context, they may also promote more innovative services. These modernisation initiatives do not require new payment networks or technology and can be accomplished by tying existing channels with standardised initiation and verification procedures.²² Prior to open banking, aggregation sites were used to combine users' account information from various financial institutions onto one site via screen scraping.²³ APIs, which facilitate push payments, are considered the faster, secure and more 'hygienic' alternative to screen scraping as they enable applications to share data quickly without exposing account credentials or passwords.²⁴

- **Seamless transactions:** Seamless experiences like Uber – in which customers are automatically charged digitally for the transaction, and do not need to provide payment information each time – add value to payments services for consumers, entrepreneurs and retailers. Of even greater impact, particularly in terms of extending financial inclusion, are solutions that promote “digital liquidity” whereby people are able to transact digitally, without having to revert to cash, across devices and across service providers. However, for this to be possible, it is necessary to have pervasive digital merchant acceptance payment networks – i.e., where consumers can purchase goods or services in shops digitally. For such networks to emerge, both consumers and merchants need to have adequate incentives to turn away from cash-based transactions.
- **Alternative credit models:** The use of data analytics (and related alternatives such as the use of social media correlations) as opposed to an individual's banking history to score credit worthiness and provide affordable loans to consumers and business owners. One foundation estimates that in the six biggest emerging markets alternative credit has the potential to provide 325-550 million people access to formal credit for the first time.²⁵
- **Digital data security and privacy:** The importance of security and reliability – of trust –for the wide scale adoption and use of digital payment technologies cannot be overemphasized. Consumers must be confident in the service and channel. Especially for new users and new channels, the service must work as expected. This means continuous investment to upgrade storage encryption and systems with the most advanced and reliable technology, even after a product has been launched.

One innovative tool in this space is biometrics for the challenge of verifying and authenticating account holder identity on digital and mobile platforms. In the context of financial inclusion, the right application of biometrics can facilitate access, overcome barriers such as lack of identity cards, low levels of literacy and high costs of KYC compliance – combining to create ease of use and consumer confidence. One bank, for example, developed a savings card that holds fingerprint identity as part of an approach to help those who cannot afford formal identification or read well enough to handle account-opening paperwork.²⁶

The emphasis upon each of these trends look somewhat different in different markets. In developed markets, Internet marketplaces that match lenders and borrowers predominate. In emerging markets, early successes have, to date, been through partnerships that leverage mobile network operators' considerable structured data (e.g. airtime top-ups, mobile money use), although that too

²² A Push Payments Manifesto, <https://adrian.hopebailie.com/a-push-payments-manifesto-2d8ff105f48a>

²³ <https://www.finextra.com/blogposting/16494/open-banking-vs-screen-scraping-looking-ahead-in-2019>

²⁴ <https://www.finextra.com/blogposting/16494/open-banking-vs-screen-scraping-looking-ahead-in-2019>

²⁵ Arjuna Costa, Anamitra Deb, and Michael Kubzansky, *Big Data, Small Credit: The Digital Revolution and Its Impact on Emerging Market Consumers*, (California: Omidyar Network, 2015), 4.

²⁶ In Malawi, the card was so valued by rural women who wanted a safe place to save that it became a popular wedding gift.

is now changing, given the rapid rise of e-commerce and various integrated digital platforms. Fintechs are also increasing the attention given to the use of unstructured data such as call records and web browsing, and soliciting consumer psychometric data via digital surveys. As can be seen from an overview of developments in APEC economies, much of the focus has been on consumer retail credit and microenterprise lending, but that too is changing as alternative digital payments begin impacting more traditional sectors and various supply chains.

3. Disruptive Payments Developments in APEC

As the nature of payments continues to shift, including in how users, service providers interact and interface with each other, new considerations and challenges are emerging for policymakers and regulators. This section explores some of the different types of payments channels being introduced, the business models emerging, and some of the frameworks that economies are introducing to enable, manage and, where appropriate, encourage these changes. Where possible, we have highlighted these developments with examples from APEC economies and beyond.

3.1 Mobile Payments and Digital Wallets

A mobile wallet or digital wallet allows users to make online or in-store transactions using a mobile device (smartphone, tablet, computer, etc). Consumers can make transfers, receive payments and reload wallets through different payment mechanisms. This can also include NFC payment systems, wherein consumers purchase goods or services by moving the device close to the payment device (see also 'QR codes' and 'Integrated platforms' below). By 2020, it is estimated that the mobile contactless payments market could be driven by OEM Pay wallets, with users reaching 450 million, enabling over US\$300 billion in transactions or 15% of total contactless in-store transactions.²⁷

Mobile wallets offer increased security and confidentiality to consumers by generating a unique barcode for each transaction instead of sharing card details with the merchant and the merchant's bank. For instance, platforms such as Apple Pay and Google Wallet, require unlocking through a second factor of authentication. They are also convenient to use for consumers and merchants, as they speed up the checkout process.

But mobile is not just an alternative channel for existing digital commerce platforms. Crucially, it is changing the landscape of financial inclusion in developing economies where the majority of people without access to formal financial services live. People living in remote and rural communities are able to use mobile money to purchase goods and services that were previously unobtainable. For example, in Papua New Guinea, the MFI Nationwide Micro bank launched a mobile payment service, MiCash, extending financial services to the unbanked with a particular focus on women. Their approach has meant that, by 2018, nearly 40% of their customers are women, many of whom were previously financially excluded.

In the Philippines, where rural banks were some of the first financial service providers to offer SMS reminders for commitment savings (allowing for and helping to drive often dramatic increases in savings rates), a host of new fintech players have emerged focused on the savings market and low-income customers. One example, Juntos, equips financial services providers with customized end-to-end solutions, focused on high-touch personalized conversations delivered via SMS to build trusted, *informative* relationships with customers. A significant potential is seen for to utilize the same approach and technology in other emerging markets such as Indonesia, where goal-based savings to

²⁷ <https://www.iuniperresearch.com/press/press-releases/contactless-payments-to-represent-1-in-3-in-store>

meet expenditures for major events such as Ramadan is seen to be an attractive and under-served opportunity.

A Smart Money Approach

In the Philippines, mobile carrier Smart has adopted an interesting approach in addressing competition from emerging fintechs. In 2015, Smart parent company PLDT and Rocket Internet launched the joint venture PayMaya to offer mobile-first payment services, focusing on the young, tech-savvy but underbanked market segment.

PayMaya is based on a virtual Visa or MasterCard debit card. In addition to services available via Smart Money and Smart Padala, PayMaya offers a number of solutions to the market:

- A prepaid online payment app that enables the unbanked and the 'uncarded' to pay online without the need for a physical card²⁸

- PayMaya Business, a solution that allows businesses to receive payments from all cards anytime, anywhere

A SIM-agnostic service is not a new concept, however this is the first time that a mobile operator has built a strategy based on an OTT service to expand beyond their subscriber base and leverage their existing platform and services outside their home market.

Against this potential, is the reality that the pace of mobile money and e-money growth is still constrained in many parts of the region. Cash remains the preferred medium of payment in many places, and differing regulatory frameworks along with different definitions of what constitutes *payments* continue to constrain transactions. Mobile money providers are also faced with multiple challenges, such as growing their agent networks, ensuring liquidity through those networks, and building viable businesses while ensuring that transaction costs remain low.

Digital Financial Tools Improve Access to Education in the US

Digital financial tools can enable both students and educators a more convenient means to access educational resources. Such tools have proven to be more efficient and transparent and can help democratise access to those who need it most. For example, government distributed welfare benefits which are disbursed through m-wallets can be used to pay for school fees, uniforms, and textbooks. It is also more likely for funds to be disbursed efficiently and transparently, where spending can be tracked and monitored for improved policy making.

Digital financial tools also make it easier for rural families to save and borrow for school fees, by offering alternatives to banks and microfinance institutions when obtaining loans without existing lines of credit, formalised salaries, or home addresses. The digitisation of school transactions can improve efficiency and provide a better experience for both parents and students.²⁹ Currently in the United States, most school websites are unable to process payments electronically. An estimated 75% of payments are made in person and collected in either cash or cheques.³⁰ Furthermore, these tools could help to reduce the number of theft cases reported by K-12 schools.³¹

Solutions such as SKOOKii (skookii.com) for K-12 public, private, rural, and charter schools in the US, enable parents to make payments for items ranging from field trips and afterschool programmes to school lunches through the application's online system. The cost of using the service is capped and parents can use a single account to handle all of their children's school payments, making such approaches efficient, particularly for schools in rural areas.³² St David Unified District in Arizona, for example, was one of the early adopters of

²⁸ PayMaya – Operates initially with a virtual card, physical card is issued upon request

²⁹ Digital Payments Education (2017), <https://www2.deloitte.com/content/dam/Deloitte/au/Documents/public-sector/deloitte-au-ps-digital-payments-education-240717.pdf>

³⁰ PR Newswire, <https://www.prnewswire.com/news-releases/skookii-simplifying-payment-process-for-parents-and-schools-with-app-300660286.html>

³¹ Hiscox Embezzlement Study (2018), <https://www.hiscox.com/documents/2018-Hiscox-Embezzlement-Study.pdf>

³² Education World, <https://www.educationworld.com/what-do-parents-want-pay-school-fees-front-office-vs-mobile-app>

the service, allowing parents in the rural community to make payments for all school fees and purchases via their mobile phone.

Another service, PaySchools, uses its software to streamline the manual payment process in schools. Parents can schedule payments as one-off or recurring, and manage spending limits for their child's day-to-day access. PaySchools also acts as a secure communication channel for the schools to send alerts to parents. The Whitmore Lake Public Schools and Minnesota Association of School Administrators have both implemented PaySchools as their district's online payment processing system, a decision motivated by the fact that the system allows for multiple payments of multiple students, across different districts, to be conducted simultaneously.³³

Digital financial tools such as Flywire (flywire.com) enable schools to reach out to students who may be experiencing financial difficulties as the payment term progresses or have outstanding balances. The digitising of school fees eases the process for students coming from rural areas, which are typically far from banks, prior to their enrolment in college.

3.2 QR Codes

Quick Response (QR) codes are two-dimensional, machine-readable barcodes, initially designed to contain product-specific information about the attached item. In terms of payments, the same process applies with the barcode enabling users to bypass intermediary steps, such as cards, and move directly to digital payments using their mobile device. Low operating costs, simplicity and convenience for consumers and merchants alike have been the drivers for relatively fast adoption of QR codes, particularly in Asia. There is also the potential for QR codes to further financial inclusion by removing the need for merchants or remote payments providers to invest in point-of-sales (POS) devices, and by enabling end-user electronic top-ups to mobile accounts.

In a consumer-presented QR code, consumers generate a code that contains their payment information, to be scanned by the merchant. A merchant-presented QR code contains the payment information for a customer to be able scan with their device and initiate the payment process. The latter has been more prevalent in the early phases of adoption, but the former is beginning to become more common as consumers become more comfortable with the process and begin looking to integrate their accounts. To process a QR payment, multiple independent and potentially heterogeneous systems must connect to communicate. This broad exchange of information requires participating systems to adhere to agreed information processing standards in order to understand each-other.³⁴

By 2018, 4% of all global consumer transactions were already being made via QR Codes.³⁵ And while, in the US an estimated 9.8 million households scanned a QR code in 2018 (projected to hit 11 million by 2020), *more than 90% of mobile payments in China* – the world's largest mobile payments market – were already QR-based.³⁶

QR codes are rapidly becoming part of a number of other APEC economies' payment systems as well. In Thailand, the government used the Central Bank's regulatory sandbox to help standardize the codes to be used, and to demonstrate the effectiveness of the low-cost payment model in promoting adoption of electronic payments and e-commerce.

QR Code Rollout and Standardization in Thailand

³³ MSBA, <http://www.mnmsba.org/PaySchools>, WLPS, <https://www.wlps.net/payschools/>, PaySchools, <https://payschools.com/payschools-central/>

³⁴ Deloitte Bolstering Financial Inclusion in Indonesia, <https://www2.deloitte.com/content/dam/Deloitte/id/Documents/financial-services/id-fsi-financial-inclusion.pdf>

³⁵ Scanova QR Code Statistics 2018, <https://scanova.io/blog/qr-code-statistics/>; Scanova QR Code Statistics 2018, <https://scanova.io/blog/qr-code-statistics/>

³⁶ Technode (2018) Why QR Code Trump NFC in China, <https://technode.com/2018/03/16/qr-codes-nfc-china/>

In May 2017, MasterCard, UnionPay, and Visa jointly launched a standardised QR code for mobile payments in Thailand to allow users to scan the single code and choose which payment service to use.³⁷ To further drive interoperability and the use of open infrastructure, the Bank of Thailand (BoT) used their regulatory sandbox to have domestic banks develop their own QR payment services based on a jointly developed Thai QR code standard. By late-2017, five of the eight major domestic financial institutions had graduated from the sandbox to offer QR code payment services to the public.³⁸

The BoT also began work on a cross-border fund transfer initiative with Cambodia, Laos, Myanmar and Vietnam using QR codes.³⁹ The money transfer service is targeted to benefit CLMV migrant workers based in Thailand who will enjoy significantly lower costs for remittance services. The BoT and the National Bank of Cambodia subsequently signed an agreement to cooperate in a QR code payment system aimed at promoting the use of local currencies and supporting seamless use of secured domestic *and* cross-border payment transactions.⁴⁰

By mid-2018, Thailand had an established base of 1.2 million vendors accepting QR payments,⁴¹ with more than 1 million transactions per month – and growing.⁴² But perhaps more importantly was the rapidity with which the use had spread beyond the major urban centers into remote and rural townships and villages.

Boosting E-commerce and Promoting Financial Inclusion

QR codes can also serve to simplify the online payment process by speeding up the transaction and making it more secure. Unlike the typical payment process where the consumer payment is presented to the merchant, the QR code conveys the transaction information to the application on the mobile device where the payment was initiated, thereby avoiding being carried through the merchant's store network, and decreasing potential exposure.⁴³ QR codes have become a common substitute for cash on delivery in economies such as Thailand, particularly when goods are delivered or collected at the Post Office or other local pick up point in non-urban environments. Given the high mobile penetration rates across APEC, this has huge potential implications for financial inclusion. Three principal drivers can be highlighted:

- *QR codes make it easier to increase the size of acceptance networks.* Acquirers benefit from lower operating costs because they do not need to deploy a POS terminal for every merchant. Retailers save the POS cost because they can use the smartphone they already own; for those without a smartphone, a *laminated* printout of the merchant's QR code identifier (perhaps pasted on the shop's wall) can suffice.
- *QR codes provide an elegant solution to the card distribution challenge.* Delivering cards (debit or credit) presents providers with a major distribution challenge: card and PIN must be mailed to recipients through two separate mailers. This is expensive and can become complex when targeting low-income customers who often lack a street address. When a customer uses a QR code to make a payment, his or her smartphone replaces the card, removing the need for the multi-step physical mailing process.
- *QR codes offer a user simple and intuitive experience.* Users launch an app, scan a code and enter a PIN. When a transaction completes the user's phone vibrates, and a visual receipt is received on the phone. Merchants can serve another customer while processing a QR code payment like

³⁷ Mastercard (2017), <https://newsroom.mastercard.com/asia-pacific/press-releases/mastercard-unionpay-international-and-visa-make-e-payments-in-thailand-easier-with-the-introduction-of-standardized-qr-code/>

³⁸ The Nation (2018), <http://www.nationmultimedia.com/detail/business/30335150>

³⁹ Asian Banking and Finance (2018), <https://asianbankingandfinance.net/cards-payments/news/thailand-pushes-regional-cross-border-fund-transfer-qr-code>

⁴⁰ Asian Banking and Finance (2018), <https://asianbankingandfinance.net/cards-payments/news/cambodia-and-thailand-ink-deal-qr-code-scheme>

⁴¹ <http://www.nationmultimedia.com/detail/Corporate/30355645>

⁴² Bangkok Post (2018), <https://www.bangkokpost.com/business/news/1498958/scb-pushing-qr-code-transactions>

⁴³ <https://www.mobilepaymentstoday.com/articles/how-qr-codes-are-changing-e-commerce/>

they do during cash transactions – an important requirement for small merchants in developing economies.⁴⁴

Tourism Pushes Thailand's Payment Ecosystem

Thailand is one of the world's most popular tourist destinations and tourism is a key driver of the economy's growth. In 2018, Thailand hosted more than 38.3 million foreign tourists, with their spending alone accounting for approximately 12% of Thailand's GDP.⁴⁵ Yet, while the economy has been open to international influences, including the use of credit and debit cards, Thailand had largely remained a cash-based society, hindering its transformation in the digital era. This can be attributed to the vast majority of Thai businesses being MSMEs, with low and uneven incomes.⁴⁶

However, in the past five years, the payments landscape in Thailand has begun changing significantly. Local consumers and foreign tourists alike are now presented with a greater number of ways to pay for their goods and services digitally. The tourist appeal of Thailand may vary by region, but regardless of the activities, tourism in Thailand is undergirded by key related sectors such as accommodation, food and beverage (F&B), local commerce and transportation. From contactless payments to mobile wallets and QR codes, the way money is spent in these tourism-related sectors has evolved dramatically.

The change in Thailand's payments landscape can be attributed to the government's leadership in developing digital infrastructure. Listed below are some examples of digital payments platforms that tourists to Thailand would likely encounter.

- **F&B/ Commerce:** PromptPay, the domestic e-payment scheme introduced by the government in 2017, allows registered users to transfer money using their national identity or mobile number. PromptPay is also compatible with QR code technology. QR code-based payments have been increasingly adopted by a range of companies, from retail stores like Café Amazon, Daddy Dough and Hua Seng Hong Dim Sum, to food courts like Gourmet Market and Food Hall, and convenience stores like Jiffy.⁴⁷ The Bank of Thailand's introduction of a standardised QR code has also enabled small merchants to receive payment easily from credit and debit cards, e-wallets or bank accounts. In addition, Kasikornbank, Thailand's largest digital bank, together with AIS and Singapore's Singtel, launched mobile payment platform VIA, which offers cross-border QR code-based mobile payments through mobile wallets, Singtel Dash, AIS GLOBAL Pay and Rabbit Line Pay.⁴⁸ This has facilitated mobile payment for tourists travelling between Thailand and Singapore.
- **Transportation:** The MangMoom Card was introduced in June 2018 with the intention of allowing users to go cashless on the BTS, MRT, Airport Rail Link, buses, and Chaopraya River Boat transfer services with a single digital payment platform.⁴⁹ Previously, tourists (and residents) had to purchase separate, often cash-based, tickets or cards to ride on public transport systems.

Of notable impact in these regards has also been the increasing number of Chinese tourists to Thailand and their predisposition to digital transactions. In 2016, 61% of Chinese visitors to Thailand made transactions via e-payment platform Alipay.⁵⁰ In February 2019, over the Chinese New Year week, King Power, Thailand's leading travel retailer, saw a 50% increase in transactions from Chinese Alipay users; Alipay transactions at convenience stores also rose by 38%.⁵¹ The incentive to reap from Chinese tourists' willingness to spend and

⁴⁴ <http://www.cgap.org/blog/qr-codes-and-financial-inclusion-reasons-optimism>

⁴⁵ Bangkok Post (2019), <https://www.bangkokpost.com/business/tourism-and-transport/1619182/record-38-27m-tourists-in-2018-41m-expected-in-2019>

⁴⁶ Oxford Business Group Thailand's Economic Growth Strategy Focuses on Small Businesses, <https://oxfordbusinessgroup.com/analysis/ground-small-business-heart-government-growth-strategy>

⁴⁷ The Nation (2017), <http://www.nationmultimedia.com/detail/breakingnews/30333923>; <https://www.bangkokpost.com/business/news/1352767/the-mall-group-to-make-cashless-move>

⁴⁸ Singtel (2018), <https://www.singtel.com/about-us/news-releases/singtel-and-ais-debut-via-asias-first-cross-border-mobile-payment-alliance>

⁴⁹ Bangkok Post (2018), <https://www.bangkokpost.com/business/news/1540254/dual-chip-ktb-mangmoom-cards-for-mrt>. Persistent compatibility issues on the Airport Rail Link and buses were targeted for resolution by the government. Khaosod English (2018), <http://www.khaosodenglish.com/news/bangkok/2018/09/28/believe-it-or-not-mangmoom-cards-coming-to-buses-official/>

⁵⁰ The Asean Post (2018), <https://theaseanpost.com/article/digital-payments-are-future-transactions-southeast-asia-0>

⁵¹ The Nation (2019), <http://www.nationmultimedia.com/detail/Economy/30364519>

their preference for cashless payments cannot be overlooked when analysing the transformation of Thailand's digital payments landscape.

Impact on financial inclusion

For the 99.7% of Thai businesses which are MSMEs, the increase in small merchants' sales by 17%, directly attributable to the inclusion of digital payment methods, should incentivise further adoption.⁵² In 2017, it was found that 62% of Thailand's population (some 42.8 million citizens), used their bank account to make or receive digital payments.⁵³ By end-2018, on PromptPay alone, registration numbers reached 46.5 million.⁵⁴ As of July 2018, despite the service being operational for less than a year, the number of merchants registered to receive QR code-based payments had already surpassed 2 million. More importantly, participation is expected to increase significantly in the more remote areas of Thailand, given the push by the government and the various e-commerce players such as Alibaba.⁵⁵

According to the Global Findex Database, the percentage of Thailand's unbanked population decreased from 27% in 2011 to 19% in 2017.⁵⁶ This trend will be substantively supported as digital payments become an integral aspect of Thailand's tourism sector and the economy at large, in line with the Thai government's digital transformation agenda.

Different Adoption Models

Singapore too is aggressively promoting rapid QR code adoption, albeit with a substantially different model from that of Thailand. In September 2018, the Singapore Quick Response Code (SGQR), a single unified code, was launched. The single SGQR label replaced more than 19,000 versions of QR codes that had sprung into existence through the first phase of adoption. The SGQR is compatible with 27 payment schemes including both domestic and international providers. The initiative is intended to provide a streamlined payment experience to consumers and merchants. In Thailand by contrast, five banks offer standardized QR code payment services, with customers able to make payments using any of the participating bank's mobile apps to scan the merchant's QR code.⁵⁷ The Thai approach creates efficiencies but does not ensure that *all* merchants use one universal code, as is the case in Singapore.

Despite the different adoption models, both economies are collaborating on domestic and regional payment initiatives. For instance, Singapore NETS entered into a partnership with ITMX, Thailand's interbank payment infrastructure, to standardise Singapore and Thai QR codes, allowing residents of Singapore and Thailand to use their QR-enabled mobile wallet to make payments in either economy.⁵⁸

3.3 Faster Payments

The establishment of FAST (Fast and Secure Transfers) payments allows for the initiation and processing of transactions in real time or near-real time, on as close to a 24/7 basis as possible. These technologies stand to create significantly greater payment system efficiencies, decreasing processing times, increasing the velocity and subsequent volume of capital circulating in the financial system, and not least by decreasing the cost of operating and maintaining the infrastructure needed for paper-based payments. When employed in a domestic system, this approach can improve the

⁵² Open Gov (2019) Start-up accelerator and bank partner to help Thai SMEs go digital

<https://www.opengovasia.com/start-up-accelerator-and-bank-partner-to-help-thai-smes-go-digital/>

⁵³ World Bank (2017) The Global Findex Database: Measuring Financial Inclusion and the Fintech Revolution,

<http://documents.worldbank.org/curated/en/332881525873182837/pdf/126033-PUB-PUBLIC-pubdate-4-19-2018.pdf>

⁵⁴ Bangkok Post (2019), <https://www.bangkokpost.com/business/telecom/1629311/digital-payments-on-the-rise>

⁵⁵ Open Gov (2018) In Thailand E-pay is the Way, <https://www.opengovasia.com/in-thailand-e-pay-is-the-way/>

⁵⁶ World Bank (2017) The Global Findex Database: Measuring Financial Inclusion and the Fintech Revolution,

<http://documents.worldbank.org/curated/en/332881525873182837/pdf/126033-PUB-PUBLIC-pubdate-4-19-2018.pdf>

⁵⁷ <https://fst.net.au/news/singapore-thailand-reveal-separate-fast-payment-qr-code-schemes>

⁵⁸ Fintech News, <http://fintechnews.sg/25941/mobilepayments/nets-itmx-cross-border-qr/>

fluidity of access to capital and participation in the formal financial system; when employed internationally – i.e., interoperating between domestic payment systems – the impacts upon greater financial inclusion can be profound.

The costs and delays of delivering international remittance through traditional channels, for example, can be excruciating for both senders and receivers. It is estimated that sending USD200 to an economy in the Asia Pacific can result in *at least* 8.33% being consumed in fees – i.e., at least USD16.50 out of the original USD200 – not *accounting for exchange rates*.⁵⁹ Often times the amount is substantially more. And the time taken for the recipient to actually receive funds can take from days to weeks.

In the Philippines *personal* remittances from overseas Filipinos amounted to USD5.3 billion in the first two months of 2019 alone, a 2.3% growth on the previous year.⁶⁰ The potential therefore for alternative payment channels to result in faster, cheaper and more secure means of transferring remittances is huge. This in turn will directly foster greater financial security, and thus greater financial inclusion for migrants. If a broadening of the payments access channels further enables a more effective and efficient means of reaching customers through non-bank providers – i.e., accessing those not served by mainstream payment options or by providing faster payment solutions to unbanked or underbanked consumers – the impact upon economic and social participation, and thereby into economic growth and new trade opportunities will be a direct corollary.⁶¹

Philippines e-Peso initiative

In the Philippines, only 26% of Filipinos had access to formal financial channels as of 2015, with 610 out of 1,635 municipalities not having banks. Despite the rampant proliferation of mobile phones, up to half of all mobile users in the Philippines are still unbanked in any formal way. E-payments, particularly delivered over a mobile device, allow for the poor and unbanked to participate more broadly in the formal economy, but in the Philippines, cash still accounts for upwards of 98% of all retail payment transactions.

The *e-Peso* initiative was thus established by the government to accelerate the shift from paper to digital transactions, and to do so in a manner that would contribute to overall economic growth.⁶² The e-Peso initiative allows users to access a digitized equivalent of the Philippine Peso. It promotes interoperability across e-payment transaction accounts (as part of the Bangko Sentral ng Pilipinas (BSP) implementation of the National Retail Payment System) and offers a greater ability to track financial flows thus enabling the Government's thrust towards greater transparency and accountability in financial transactions.

In partnership with the Department of Social Welfare and Development (DSWD) Modified Conditional Cash Transfer (M-CCT) Program, Landbank of the Philippines and local e-money issuer OmniPay began working to transition all 4.5 million families (23% of all households in the Philippines) receiving conditional cash transfers from the government to receiving electronic payments.⁶³

3.4 Peer-to-Peer (P2P) Exchanges

P2P exchanges take a decentralized approach to the exchanges between individuals, as well as between individuals and other groups. Downloadable mobile applications have made P2P transfers and remittances faster, cheaper more precise, and accessible to consumers in most economies. PayPal is one of the most established P2P mobile exchange services with 267 million user accounts

⁵⁹ Paysafe, <https://www.paysafe.com/blog/the-benefits-of-using-digital-wallets-for-remittances/>

⁶⁰ Bangko Sentral ng Pilipinas (BSP), <http://www.bsp.gov.ph/publications/media.asp?id=4998>

⁶¹ Faster Payments Task Force, <https://fasterpaymentstaskforce.org/payment-landscape/benefits-of-faster-payments/>

⁶² The initiative was established under House Bill 4914, that created the 'e-Peso' as an online medium of exchange for Filipinos, had the Central Bank look at cryptocurrencies and blockchain based peer-to-peer transaction systems, and release an amount of e-Peso equal to 1% of the total supply of Philippine currency in circulation. The e-Peso initiative was also supported by USAID under the U.S.-Philippines Partnership for Growth (PFG).

⁶³ The Philippines Department of Budget and Management (DBM) also required all government disbursements to be made via electronic payments beginning in 2016. This is a part of the Philippine government's commitment under the Better Than Cash (BTC) alliance.

as of the end of 2018.⁶⁴ It allows users to send money domestically and internationally from a checking account, PayPal account balance or through a debit or credit card. In-store payment applications can also simplify the payment process, allowing people to pay through a simple application instead of swiping a credit card.⁶⁵

Another application, online peer-to-peer lending, has opened up significant opportunity, both for individual consumers and for SMEs, and has garnered a lot of attention very quickly, particularly in emerging economies where access to financing for SMEs can be difficult. But this merits oversight to guard against abuse and to protect consumers who may not be aware of inherent difficulties in the business model when they make an investment.

Indonesia's P2P Transaction Start-ups Accelerate Financial Inclusion

There are numerous barriers to formal financial services for MSMEs in Indonesia – which are estimated to make up 99% of all enterprises in the economy.⁶⁶ According to 2017 estimates, only 49% of adults (95 million people) had a bank account⁶⁷ – well short of the National Strategy for Financial Inclusion (SNKI) target of 75% by 2019.⁶⁸ Although the 2017 figure is a significant improvement on the estimated 20% of bank account holders in 2011,⁶⁹ access to financial services still present a significant hurdle for over half the population.

One solution that is suddenly flourishing is the use of P2P services, particularly targeting underserved individuals, given their access to mobile phones and the Internet.⁷⁰ Indonesia's Financial Services Authority (OJK) reported that P2P transactions already accounted for USD951 million in the first three quarters of 2018,⁷¹ projecting that total transactions would grow to USD2 billion by the end of 2019.⁷²

A variety of P2P players have emerged in the economy in a relatively short period of time looking to address – or capitalise on – a wide range of current market shortcomings. For example:

- **Small loans:** KoinWorks addresses minimum transactions thresholds and offers loans at a minimum of IDR100,000 (USD7.10)⁷³
- **Efficiency:** Modalku targets physical barriers and allows documents to be submitted via its app, or online⁷⁴
- **Assessment:** Amarnya addresses issues with limited or no credit history by developing and applying other measures of assessing creditworthiness such as machine learning⁷⁵

Individuals have also benefited from increased access to financial services from P2P players, notably through the so-called 'superapps'⁷⁶ such as Go-Jek and Grab (via Ovo), which facilitate P2P transfers through their digital wallets and integrated platform offerings, and through their acquisitions of other P2P players. For example, Ovo, Grab's e-wallet provider in Indonesia, acquired Taralite a P2P startup which

⁶⁴ <https://www.statista.com/statistics/218493/paypals-total-active-registered-accounts-from-2010/>

⁶⁵ <https://www.paypal.com/stories/uk/introducing-paypal-beacon-a-new-signal-for-retail>

⁶⁶ Asia Pacific Foundation of Canada (2018) 2018 Survey of Entrepreneurs and MSMEs in Indonesia: Building the Capacity of MSMEs Through Human Capital, https://apfcanada-msme.ca/sites/default/files/2018-10/2018%20Survey%20of%20Entrepreneurs%20and%20MSMEs%20in%20Indonesia_0.pdf

⁶⁷ The World Bank (2018) The Global Findex Database 2017: Measuring Financial Inclusion and the Fintech Revolution, <https://globalfindex.worldbank.org/>

⁶⁸ Presidential Regulation No. 82/2016 on the National Strategy for Financial Inclusion (SNKI), <http://peraturan.go.id/peraturan/view.html?id=11e6b61dc065aea0a831313032323337>

⁶⁹ Fintech News (2018) World Bank Global Findex: Indonesia Leads in Financial Inclusion Progress, <http://fintechnews.sg/19095/indonesia/world-bank-global-findex-financial-inclusion-unbanked/>

⁷⁰ The Nikkei Asian Review (2018) Indonesia tightens screws on peer-to-peer lenders, <https://asia.nikkei.com/Spotlight/Sharing-Economy/Indonesia-tightens-screws-on-peer-to-peer-lenders>

⁷¹ The Jakarta Post (2018) P2P lending transactions total RP 13.8 trillion in first three quarters, <https://www.thejakartapost.com/news/2018/11/28/p2p-lending-transactions-total-rp-13-8-trillion-in-first-three-quarters.html>

⁷² KrASIA (2019) What to expect from Indonesia's startup landscape in 2019, <https://kr-asia.com/what-to-expect-from-indonesian-startup-landscape-in-2019>

⁷³ KoinWorks (2019) FAQ, <https://koinworks.com/en/lend/faq>

⁷⁴ Modalku (2019) FAQ, <https://modalku.co.id/faq>

⁷⁵ Amarnya (2019) Modernizing Micro Finance Through Advance Technology, https://amartha.com/en_US/cara-kerja/

⁷⁶ Grab and Go-Jek have expanded beyond offering ride-hailing services into other sectors including food-delivery, payments, courier and logistics etc.

enables loans and credits to be extended to both consumers and merchants alike.⁷⁷ Similarly, Go-Pay, Go-Jek's payment platform, has formed strategic partnerships with P2P lenders Findaya, Dana Cita and Aktivaku to service unbanked communities.⁷⁸

In order to provide some basic guidelines for the industry, in 2016 OJK issued a regulation outlining registration and licensing requirements, capital thresholds, and foreign ownership caps.⁷⁹ Despite these rules – and the more recently released umbrella fintech regulation⁸⁰ – both local and foreign P2P players have taken advantage of the market opening to offer easy loans resulting in dubious online loan shark arrangements.⁸¹ OJK has worked with the central bank, Bank Indonesia (BI), leading commercial banks, the ICT Ministry (Kominform), and a number of the global digital platforms such as Google, to crack down on illegal online lending operators, identifying and shutting 231 such operations in the first three months of 2019 alone (bringing the total number of banned operators to 635 since 2016).⁸²

P2P start-ups have certainly improved access to payments dramatically in Indonesia and accelerated financial inclusion. However, the regulators, OJK and BI, will need to find a way to ensure stability and trust in the system, if they are to promote sustainable growth and resilience, and to see the early enthusiasm spread beyond the P2P offering and into other aspect of financial sector deepening.

3.5 Payment Gateways and Domestic Payment Gateways

Payment gateways serve as points of interconnection, and when established at scale can be fundamental in advancing interoperability in a domestic payment system. On the one hand, by enabling the authorisation and payment settlement process, payment gateways form the foundation for digital payment acceptance.⁸³ On the other, when provided as a neutral point of interconnection they facilitate the flow of transactions data between providers – be those from the same sector (e.g., among commercial banks, and including other FSIs and card payments providers; between insurance providers; airline companies, and so on), or *between* sectors (e.g., enabling e-commerce merchants, digital platform integration into the wider economy, enabling fintech, etc).

A key benefit of a payment gateway is its ability to facilitate secure transactions. Through Secure Socket Layer (SSL) certification, for example, all payment and card data is encrypted, which helps keep the data secure and provides reassurance to customers.⁸⁴ It can also 'tokenise' a customer's credit/debit card information before storing details on a central server. This involves replacing the card data with randomly generated strings of characters, called tokens.

Payment gateways are crucial for enabling online transactions, thereby facilitating digital commerce. McKinsey's estimated world-wide digital commerce to have exceeded USD3 trillion in 2017 (13% of total commerce), and to be expected to more than double by 2022.⁸⁵ Asia Pacific comprises over 50% of this volume with its share likely to increase to almost 70% by 2022.

⁷⁷ Tech In Asia (2019) In brief: Indonesian digital wallet Ovo acquires P2P lending startup Taralite, <https://www.techinasia.com/indonesian-digital-wallet-ovo-acquires-p2p-lending-startup-taralite>

⁷⁸ Reuters (2018) Indonesia's Go-Jek to partner with peer-to-peer lending firms, <https://www.reuters.com/article/us-indonesia-gojek-fintech/indonesias-go-jek-to-partner-with-peer-to-peer-lending-firms-idUSKCN1LK0YS>

⁷⁹ OJK Regulation No. 77/POJK.01/2016 regarding IT Based Lending Services, <https://www.ojk.go.id/id/ regulasi/ otoritas- iasa- keuangan/ peraturan- ojk/ Pages/ POJK- Nomor- 77- POJK. 01- 2016. aspx>

⁸⁰ OJK Regulation No.13/POJK.02/2018 regarding Digital Financial Innovation in the Financial Services Sector, <https://www.ojk.go.id/id/ regulasi/ Pages/ Inovasi- Keuangan- Digital- di- Sektor- Jasa- Keuangan. aspx>

⁸¹ South China Morning Post (2019) Indonesia's online P2P loan sharks are driving people to suicide, <https://www.scmp.com/week-asia/economics/article/2188185/indonesias-online-p2p-loan-sharks-are-driving-people-suicide>

⁸² South China Morning Post (2019) Indonesia's online P2P loan sharks are driving people to suicide, <https://www.scmp.com/week-asia/economics/article/2188185/indonesias-online-p2p-loan-sharks-are-driving-people-suicide>

⁸³ CyberSource, https://www.cybersource.com/content/dam/cybersource/en-LAC/documents/Payment_Gateway_brief.pdf

⁸⁴ Chargebee Blog, <https://www.chargebee.com/blog/online-payment-gateway-service-provider/#importance-of-payment-gateway-provider>

⁸⁵ McKinsey, <https://www.mckinsey.com/~ / media/ McKinsey/ Industries/ Financial% 20 Services/ Our% 20 Insights/ Global% 20 payments% 20 Expansive% 20 growth% 20 targeted% 20 opportunities/ Global- payments- map- 2018. ashx>

As an example, PeaceSoft in Vietnam heads a group of companies, including eBay Vietnam, shipping and cash-on-delivery gateway ShipChung.vn, warehousing and fulfilment agent BoxMe.vn, and online payment system NganLuong. Given the low penetration rates of credit cards and debit cards in Vietnam, NganLuong designed a payment wallet solution, offering multiple types of settlement methods including credit and debit cards, bank transfers, mobile phone billing, ATM payments and others. By 2015, only 30% of NganLuong's revenues still came from within the PeaceSoft group, while 70% came from the 20,000 merchants that NganLuong is connected to. Innovators like NganLuong are helping to slowly introduce sellers and consumers to new forms of payments, opening the doors to a range of online services.

Similarly, in Indonesia, Doku is encouraging digital adoption by making it easy for businesses to process all types of payments online, and by doing so encourages merchants to go online and invest in digital technologies. Although clients initially came from the insurance and airline sectors, Doku now has merchants in industries as varied as property, food and beverage, marketplaces, and transportation. In recent years in Indonesia, over 20 e-commerce companies have emerged either locally or as foreign ventures.

in the Philippines, PesoPay enables businesses to accept online payments via multiple channels such as credit cards, debit cards, e-wallet payments, and direct transfers.⁸⁶ To make this possible, PesoPay interconnects with local payment services such as BancNet for ATM debit cards, GCash and Smart Money for e-wallet payments, and PayCash, a cash-based payment processing service that allows those without bank accounts to pay online.⁸⁷ PesoPay's system can be interconnected and integrated into e-commerce websites or shopping platforms, providing merchants the ability to securely accept electronic payments.

In Thailand, local switch company National Interbank Transaction Management and Exchange (National ITMX) partnered with Mastercard and Visa to widen e-commerce acceptance of local debit cards.⁸⁸ This was done to increase security, efficiency and the potential scale of e-commerce transactions. By enabling the interconnection of local merchants into millions of debit cardholders in Thailand, the gateway promotes e-commerce and the overall payments ecosystem in the economy.

The Rapid Emergence of Domestic Payment Gateways

While payment gateways accelerate e-payment adoption by increasing the affordability of and access to digitally enabled financial services, the emergence of domestic payment gateways may instead promote a protectionist agenda. Domestic payment gateways can in theory lower transaction costs and increase transaction levels by consolidating switching and clearing. However, the introduction of restrictions on foreign payment services by some economies dampens the potential of both individual digital economies and overall digital trade. Requiring foreign payment service providers to comply with each economy's domestic payment gateway system would lead to an increase in compliance costs for these players, posing a potential barrier to entry. This can increase business friction, and decrease competition and innovation, as foreign entities are faced with tough market entry conditions.

Table 1 elaborates briefly on the different domestic payment gateways in the region. As each develops its own systems and places varied compliance requirements, it can lead to fragmentation. A lack of interoperability across systems could slow transaction velocity due to limited transaction capabilities and capacity, while increasing security risks. Creating a centralised system that processes and stores all transaction data may further create a honey pot" that hackers and other cyber criminals will find difficult to resist.⁸⁹

⁸⁶ PesoPay, <http://www.pesopay.com/>

⁸⁷ FinancesOnline, <https://financesonline.com/top-3-payment-gateway-providers-philippines/>

⁸⁸ The Nation, <http://www.nationmultimedia.com/detail/Corporate/30364792>

⁸⁹ Asia Cloud Computing Association (ACCA), http://www.asiacloudcomputing.org/images/research/acca-fsi2018_report_final.pdf

Table 1: Domestic Payment Gateways in APEC

Australia	<p>The New Payments Platform (NPP)</p> <p>In February 2018, Australia launched the New Payments Platform (NPP), an open access infrastructure for fast payments in Australia.⁹⁰ The NPP, a “distributed switch of individual payment access gateways” relays financial messages between the gateways, allowing consumers, businesses and government agencies to make payments between accounts at participating financial institutions. It uses ISO 20022 messaging formats, an international interoperable standard for electronic data exchange between financial institutions and organisations.</p> <p>The Reserve Bank of Australia (RBA) was responsible for building the settlement component of the NPP (the Fast Settlement Service (FSS)). The FSS allows each transaction, regardless of size, to be cleared and settled in real-time.</p>
Indonesia	<p>National Payment Gateway (NPG)</p> <p>Bank Indonesia launched the NPG in 2017, comprising four local interbank switching companies – PT Artajasa Pembayaran Elektronik, PT Rintis Sejahtera, PT Alto Network and PT Jalin Pembayaran Nusantara. They jointly manage and operate the common payment infrastructure.⁹¹ The first phase of the NPG included infrastructure sharing by several banks to reduce the cost of interbank transactions as well as the electronification of toll roads.</p> <p>The second phase began enabling lenders to lower banking transaction costs through more efficient processes, and facilitates payment for 20 utilities, including electricity and phone bills.⁹² By mid-2018, 95 banks had been connected.⁹³</p>
Malaysia	<p>PayNet - Payments Network Malaysia</p> <p>Jointly owned by Malaysia’s central bank, Bank Negara Malaysia (BNM), and the financial industry, PayNet was launched in 2017 with an aim to accelerate the growth of e-payment services in the economy.⁹⁴</p> <p>PayNet will operate the nation’s critical payment systems including the Real Time Electronic Transfer of Funds and Securities System (RENTAS) facilitating the transfer and settlement of high-value interbank payments and securities transactions. PayNet will also operate a number of retail payment and clearing systems, including the Shared ATM Network, Interbank GIRO (IBG), Instant Transfer, JomPAY, Financial Process Exchange (FPX), Direct Debit, domestic debit card network (MyDebit) and the cheque clearing system.</p> <p>Individuals can use PayNet to transfer funds between banks, pay bills electronically, and make purchases using debit cards. It is also an Internet payment gateway for businesses to accept card payments and collect payments for bills and invoices. Financial institutions access PayNet’s services for real-time retail payments and real-time gross settlement for Ringgit, Renminbi and USD.</p>
Philippines	<p>PESONet and InstaPay</p> <p>While the National Retail Payment System (NRPS) and the NRPS Framework were launched by the Bangko Sentral ng Pilipinas (BSP) in 2015, it was not mandatory for banks to participate in this system until November 2017. To further operationalise the NRPS, the BSP established two multi-party automated clearinghouse (ACH) frameworks -- PESONet and InstaPay.⁹⁵</p>

⁹⁰ Reserve Bank of Australia (RBA), <https://www.rba.gov.au/payments-and-infrastructure/new-payments-platform/about-npp.html>

⁹¹ Deloitte, <https://www2.deloitte.com/content/dam/Deloitte/id/Documents/financial-services/id-fsi-financial-inclusion.pdf>

⁹² OpenGov Asia, <https://www.opengovasia.com/indonesia-ready-for-second-phase-of-national-payment-gateway-system/>

⁹³ The Jakarta Post, <https://www.thejakartapost.com/news/2018/08/06/bank-indonesia-pushes-use-of-national-payment-gateway.html>

⁹⁴ Bank Negara Malaysia, http://www.bnm.gov.my/index.php?ch=en_press&pg=en_press&ac=4440

⁹⁵ Milken Institute, <http://www.milkeninstitute.org/publications/view/961>

	<p>PESONet is an “interbank account-to-account fund transfer system that supports bulk, recurring, low-value, less-time sensitive payment and collection transactions”.⁹⁶ More than 47 banks are using the PESONet ACH. Introduced in 2018, InstaPay is an electronic fund transfer system that enables “almost immediate” transfers of up to PHP 50,000 (USD100) on demand.⁹⁷</p> <p>Additionally, BSP owns and operates the Philippine Payment and Settlement System (PhilPaSS), that processes and settles interbank high value transactions on a real-time and gross basis through the demand deposit accounts of the banks maintained with the BSP.⁹⁸</p>
Vietnam	<p>The National Payment Corporation of Vietnam (NAPAS) Gateway</p> <p>NAPAS’ online e-commerce payment gateway enables enterprises and service providers to collect goods and service fees from customers with cards and bank accounts from banks/organisations connected to the NAPAS system.⁹⁹ Once a customer places an order, the transaction details are sent to NAPAS, which then forwards this information to issuing organisation/bank for authorisation. Through a single connection to the NAPAS Payment Gateway, organisations can give their customers a quick, safe and convenient way to make online payments.¹⁰⁰</p>

Source: TRPC Research

3.6 Digital Currencies & Cryptocurrencies

Issued by a central bank, money made available electronically – like traditional paper money – can serve as a medium of exchange for goods and services, means of payment, or a store of value. However, unlike paper money, it can add convenience and traceability and may be cheaper to issue and administer. It can also directly encourage the uptake of digital payments.

A central bank may use blockchain technology to make a digital currency available and securely tradable, but with restricted access to authorized financial institutions alone. Digitally issued, cryptocurrency-based payment solutions work differently from other forms of payment. Following a ‘push’ model, the owner transfers the coins or tokens directly to the recipient. These payments do not involve middlemen, thus improving the speed and security of payments, while reducing transaction costs.

The distinction between legal tender (which could be a *digital* currency) and a crypto-currency (which is issued *digitally*) lies in the former being recognised as a currency, whereas a crypto-currency – consisting of crypto-coins or alt-coins and of ‘tokens’ that can be issued on top as derivatives or ‘promises to pay’ – is more often regarded by monetary authorities as a tradeable asset or security than as a medium of exchange, a means of payment, a unit of account, and as a store of value, which are the traditional attributes of a domestic currency.

The reason the issue arises is because a cryptocurrency is issued as a digital asset that, like gold, can have limited supply and can be widely accepted as a medium of exchange, a means of payment, or a unit of account. But the conditions under which it can function as a reliable store of value are questionable. It would appear that widespread confidence in cryptocurrencies is the *necessary* condition to be regarded as a currency, but *not a sufficient* condition unless the monetary authorities, such as a central bank, are prepared to underwrite its value.

So far, only Japan has recognised a cryptocurrency as legal tender where a digital currency is distinguished from electronic money, which has a specific issuer and can only be used by authorised

⁹⁶ Philippine Clearing House Corporation, <https://pchc.com.ph/services/electronic-peso-clearing-system-epcs/>

⁹⁷ Milken Institute, <http://www.milkeninstitute.org/publications/view/961>

⁹⁸ Bangko Sentral ng Pilipinas (BSP), http://www.bsp.gov.ph/payments/philpass_overview.asp

⁹⁹ National Payment Corporation of Vietnam (NAPAS) <https://napas.com.vn/en-us/for%20customers/for-enterprises-and-service-providers/online-ecommerce-payment-gateway-2-16.html>

¹⁰⁰ FinTech News, <http://fintechnews.sg/17689/vietnam/mobile-payment-service-providers-in-vietnam-the-complete-list/>

persons. However, it remains uncertain if and how Japan's Central Bank will take steps to rescue a cryptocurrency from losing its value. By contrast, where other economies have adopted a policy, they treat alt-coins as tradeable assets and securities. For example, as early as 2015, the US Commodity Futures Trading Commission (CFTC) designated a cryptocurrency such as Bitcoin – the first and best-known example – not as a currency but as an asset or a means of storing wealth, akin to gold or a precious painting.¹⁰¹

3.7 Digital IDs

Digital identification (aka 'digital ID' or 'eID') is a collection of electronically captured and stored identity attributes, potentially including biographic data (e.g. name, age, gender address) and biometric data (e.g. fingerprints, iris scans facial photographs) that uniquely describe a person within a given context and are used for electronic transactions.¹⁰² If set up correctly, and interoperably, digital IDs enable transactions across multiple different domains, supporting multiple types of services delivery without compromising performance.

Given this, digital IDs are increasingly being recognized as an important foundation piece of *public digital infrastructure*. As an enabling technology, sitting across the access networks – often acting as the authentication gateway into and between those networks – they can be pivotal in almost all interactions between individuals and institutions, including the delivery of public services, e-commerce, electoral participation, financial services, education and healthcare.

In Singapore, **SingPass** allows citizens to access *all* e-governments services and transactions. 'MyInfo' (or 'Tell Us Once') means that users are not required to repeatedly provide and verify their personal information to government agencies when transacting online. Online forms are automatically filled when the user makes a transaction. In May 2017, MyInfo was extended to five banks and more than 30 banking services, resulting in an average decrease of up to 80% in administration time for users, with banks reporting up to 15% higher approval rate due to better data.¹⁰³

Australia strengthens Digital ID and Financial Inclusion

In a bid to make *all* government services digitally accessible through comprehensive digital platforms, myGovID, a secure, user-friendly digital identity scheme, was put in place.¹⁰⁴ myGovID is the digital equivalent of a 100-point ID check, making it possible for Australians to prove who they are, when doing business with government organisations, without physically visiting an office or shopfront. Using myGovID to apply for a Tax File Number (TFN), for example, will reduce processing times from a month or more to 1 day. Other programs to be run include grants management, business registrations, student services, and some government disbursements. Some 2.8 million transactions will be moved online as a result of myGovID.

Running in parallel to the myGovID scheme is the Trusted Digital Identify Framework (TDIF), a set of tools, rules, and accreditation criteria that allows non-government third parties (banks, for instance) to offer digital ID services across platforms. The approach to use federation and thereby enabling third parties (multiple identity service providers) to disseminate digital IDs through innovative new services, while adhering to a common system, is a creative one that will have a long-term impact on internal government processes.

A digital ID is also being developed for registered businesses. In 2018, the federal government launched a consultation to find ways to update the Australian Business Register (ABR) and turn it into a data-sharing

¹⁰¹ Until the end of 2017, Bitcoins sold at close to USD20,000 each, but by early February 2018 they sold below USD6,000, and a year later for less than USD4,000. USD4,000 is more than nothing and shows a degree of demand, not least by money-launderers and cyber-hackers demanding ransom payments.

¹⁰² GSMA (2016) Digital Identity: Towards Shared Principles for Public and Private Sector Cooperation, <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2016/07/Towards-Shared-Principles-for-Public-and-Private-Sector-Cooperation.pdf>

¹⁰³ GovTech Singapore, <https://www.smartnation.sg/docs/default-source/cos2018/national-digital-identity-factsheet.pdf>

¹⁰⁴ ZD Net, www.zdnet.com/article/australia-kicks-off-mygovid-pilot

and data-harmonising platform for different government agencies. The plan is to bring the ABR and 31 different business registers onto a single platform that will be administered by the Australian Taxation Office (ATO). Meanwhile, the Australian Business Number (ABN) is also being modernised. The ABN will be used as a PayID for the New Payments Platform (NPP) supporting the deployment and administration of the Goods and Services Tax (GST).

The economic benefits of the Australian digital identity ecosystem have been conservatively estimated at AUD8 billion, through:

- Reduced customer service costs from self-service verification and authentication;
- Reduced cost of fraud and reduction in other forms of crime;
- Improved consumer experiences by reduced friction from multiple identity steps at checkout and added payment security, which increases usage and lifts revenue;
- Savings in consumers' time, reducing the opportunity cost of verifying, authenticating and managing their identities, and filling in forms to apply for services.¹⁰⁵

Expanding inclusion

While virtually all of the Australian population is banked, it remains important to ensure that vulnerable segments of the population – the poor, the elderly, remote and rural communities – effectively benefit from the opportunities created by the digital economy. In this regard, companies such as **Prosopa** (an online lender to small businesses that can enable access to funds in 24 hours), **Zip Money** (a micro-loan platform for consumers that provides immediate funds), and **AfterPay** (a digital payment service that provides payment security, compliance, and fraud services to consumer-facing retail organisations) provide vastly different services, all serve to make financial services more convenient, accessible, and affordable. They allow people to absorb unexpected losses, be financially mobile, and save for the future. They also help SMEs to be able to better plan for and respond to market disruptions and expansion opportunities.

Compliance and Authentication Requirements

When effective, a digital ID system has the capability to support both compliance with authentication services, including anti-money laundering and combating financing terrorism (AML/CFT) requirements. Therefore, non-bank providers of alternative payments may be able to adopt a risk-based approach as called for by the Financial Action Task Force (FATF) requiring the calibration of AML/CFT regulatory, compliance and oversight measures to mitigate the risk posed by providers, customers, products and services.

While there are many facets to the risk-based approach, a common method of adoption is through the use of tiered Customer Due Diligence (CDD), allowing for increasing levels of CDD as the size of customer transactions or the functionality of the account increases. In other words, so-called 'low-value/higher-risk' customers can be provided with low function and low transaction accounts until they have built a stronger relationship with the financial institution, thereby lowering the organization's risk.¹⁰⁶ In Mexico, for example, low-income individuals were unable to satisfy the KYC and AML/CFT requirements for opening a bank account or obtaining a loan. To address this issue, *risk-tiered accounts* were created in 2009, with lower *initial* CDD requirements. This had three immediate impacts: (i) enabling far easier account opening for remote and rural customers, and those without standard documentation; (ii) lowering the cost for service providers to register customers for accounts – thereby reducing the number of 'uneconomic' citizens; and (iii) enabling non-banks to be able to onboard customers through lower diligence documentation and verification.

¹⁰⁵ Australian Postal Corporation, <https://auspostenterprise.com.au/content/dam/corp/ent-gov/documents/digital-identity-white-paper.pdf>

¹⁰⁶ GPFI Digital Financial Inclusion: Emerging Policy Approaches, <https://www.gpfi.org/sites/default/files/Digital%20Financial%20Inclusion-CompleteReport-Final-A4.pdf>

In the last instance, customers brought on through a non-bank account tend to migrate up into a bank account over time, providing more on-ramps into the formal financial system. In 2017, further regulatory adjustments were made enabling financial institutions to use biometric indicators for opening high-risk accounts and loan approvals.

Impact on Financial Inclusion

When combined with the growing use of mobile devices, universal digital IDs *can* have far-reaching impacts on financial inclusion:¹⁰⁷

- a) Digital IDs make it easier for the unbanked to obtain financial accounts by simplifying the documentation requirements at account opening.
- b) Digital IDs help service providers comply with CDD requirements. This is also more cost-effective, as agents can use digital ID authentication to register customers. If agents have biometric compatible technology, the customer can be onboarded without a bank representative even being present. The identity of the customer is authenticated, transmitted and stored through electronic or digital channels.
- c) Digital IDs contribute to financial sector deepening by supporting the adoption and delivery of new services such as credit and insurance. Through the creation of credit histories for previously unserved customers, service providers find new business opportunities, while being able to better monitor customer behaviour and liabilities.

Vietnam's Transactions-based Delivery Solutions for Healthcare

In 2012, PATH worked with Vietnam's National Expanded Immunization Program (NEPI) to develop ImmReg, an online digital registry for immunization, and VaxTrak, a vaccine-tracking tool. The project was originally piloted on a small scale in Vietnam's Ben Tre province, but over the next five years it progressed to become a core part of the economy's national healthcare system. Within a year of the launch of ImmReg, Ben Tre reduced the duration of listing monthly registries from two days to 30 minutes. The rate of people vaccinated on schedule increased by almost 15%, and newborns were registered within 8.5 days after birth – as compared to 33.4 days previously.¹⁰⁸

In 2017, the Ministry of Health launched the National Immunization Information System (NIIS), developed with PATH and using both the ImmReg and VaxTrak systems.¹⁰⁹ The objectives of the NIIS are to ensure the health of Vietnamese people through tracking the immunization of all Vietnamese citizens from birth to death, and ensuring the efficiency of the vaccine supply chain.

How does it work?

On an individual level: Health workers register pregnant women and newborns in the NIIS using any connected device.¹¹⁰ All users are issued a unique identification number and barcode on the system. This identity will be managed and updated on the NIIS for a person's entire life. The ImmReg system enables the NIIS to set and send reminder text messages to patients and/or their caretakers, to come in for vaccination, improving immunization coverage and timelines.

On the domestic level: Through the integrated VaxTrak system, the NIIS provides the health centre with information on the vaccine types and amounts it has in stock, and the number it will be administering each month. This live reporting helps centers manage their stock to avoid stock-outs, and reduces waste from reporting errors, or poor planning. In addition, health administrators can view reports from the commune, district, provincial, and national level, providing essential data for immunization stock monitoring and planning.

¹⁰⁷ GPFI (2018) G20 Digital Identity Onboarding, https://www.gpfi.org/sites/default/files/documents/G20_Digital_Identity_Onboarding.pdf

¹⁰⁸ http://www.path.org/publications/files/ID_vietnam_unf_cs.pdf

¹⁰⁹ Vietnam News (2017), <https://vietnamnews.vn/society/health/373535/health-ministry-launches-national-immunisation-information-system.html#G2fs6zG3qItBYuh.97>

¹¹⁰ PATH Expanding Reach of the Immunization Registry in Vietnam https://path.azureedge.net/media/documents/ID_vietnam_unf_cs.pdf

Why is this significant?

The success of the NIIS is due to factors which may be extrapolated to other digital inclusion projects:

- Digital identity. The NIIS system is built on the assumption that immunization may be tracked centrally with unique personal identification numbers.
- Scalability. While the pilot project was initially designed for only the Ben Tre province, the scalability of the system allowed for quick expansion from commune to province to national level. As of June 2018, the NIIS had been made available to nearly 99.8% of Vietnam's commune health centres, with more than 11 million children and women registered with the system.
- Transaction-based delivery system. Measurements and tracking of a project's success rates will determine the sustainability of most digital inclusion projects. Part of this project's success is due to the fact that the immunization process was designed as a bundled solution, which served both customer delivery and inventory tracking. As the ImmReg and VaxTrak – and now the NIIS – included transaction as part of the delivery solution - i.e. the appointment and receipt of a vaccine – the usage of the system provided immediate, measurable feedback and proof that the system was being used effectively.

3.8 Financial Regulatory Sandboxes

With the rapid rate of innovation and surge of fintech products being developed, regulators have increasingly come to recognize that their current regulatory toolkit, unless updated, is not always fit for purpose and may unnecessarily inhibit innovation. Following the launch of the first regulatory sandbox in the United Kingdom in 2014, a majority of APEC economies have subsequently followed suit and launched their own sandboxes (Table 2).

Table 2: Regulatory Sandboxes in APEC Economies

	Eligibility	Participants (as at end-2018)
Australia Securities & Investment Commission	Exemption limited to businesses with no more than 100 retail clients and total client exposure not exceeding AUD5m	1 entity; 5 players exited
Autoriti Monetari Brunei Darussalam	Locally registered fintech companies and financial institutions	2 entities
Canadian Securities Administrators	Eligible for start-ups as well as established firms and assessed by local securities regulator	8 entities
Hong Kong Monetary Authority	Only HKMA authorised institutions launching initiatives in HK Non-authorised institutions require local partners	46 products tested 32 pilot trials completed 20 trial bank collaborations with techs
Bank Indonesia / OJK	Fintech registration with BI or OJK (registration with Fintech Association required)	N/A
Japan	Open to local and foreign firms operating in any sector, not just finance	5 entities
Bank Negara Malaysia	Financial institutions and fintechs (even without Malaysian presence) are eligible	7 entities
Bangko Sentral ng Pilipinas	'Test and Learn' approach assessed on a case by case basis upon application for regulated financial institutions	N/A

	Non-regulated fintech firms require regulated partners	
Central Bank of Russia	Open to financial institutions and fintech firms	N/A
Monetary Authority of Singapore	Regulated financial institutions and unregulated firms are eligible	1 entity 2 players exited
Korea's Financial Services Commission	Open to financial institutions and fintech firms	19 entities under review 86 pending applications to be reviewed by H1
Chinese Taipei FinTechSpace	Limited to FinTech space participants involved in open API common platforms	18 entities
Bank of Thailand	Locally registered fintech companies and financial institutions	4 approved fintechs 8 players exited

Note: Chile, Mexico, Papua New Guinea, the United States, and Vietnam have also announced their intentions or are in the midst of drafting their respective regulatory sandbox frameworks

Source: TRPC Research

The objective of a sandbox is to trial the use of new or innovative products and services in a controlled environment. This allows the regulator to oversee and evaluate the potential for any new *unlicensed* fintech financial service while ensuring that systemic financial risks can be identified and addressed. For emerging economies where resources, staff, and expertise may be limited, sandboxes also allow regulators the opportunity to work hand-in-hand with fintech firms to better understand the new technologies without unnecessarily impeding market opportunity and market growth. The approach can create a collaborative working environment between regulator and industry in identifying opportunities, regulatory gaps, and possible risks, and to be able to work on addressing solutions and updating regulations in a timely fashion.

For fintech firms, regulatory sandboxes offer the opportunity to bypass lengthy registration, licensing, and costly compliance requirements that may not be applicable or appropriate, and to demonstrate the benefits from new products, delivery mechanisms, or business models, that can serve to address market gaps, improve financial sector efficiency, or expand financial inclusion.¹¹¹ Examples have included the use of cloud-based delivery tools and smartphone apps to provide secure authentications for micro-transactions; and the use of big data analytics to power alternative credit scoring systems for customers without sufficient 'traditional data'.¹¹²

APEC: A diversity of approaches

While the objectives of regulatory sandboxes can *seem* to be largely aligned, the differences among them are proving to be significant. This includes the fact that successful graduation from one economy's sandbox does not guarantee that a company may operate in a separate economy due to the differing regulatory environments. Nor does it facilitate an accelerated participation trajectory. In today's global digital economy, where prices and margins are usually low to encourage participation, businesses aspire to expand and offer services across borders seamlessly. A divergence in objective and regulation can therefore mean having to start from scratch in each new market,

¹¹¹ ADB (2016) Financial Inclusion in the Digital Economy, <https://www.adb.org/sites/default/files/publication/200001/financial-inclusion-digital-economy.pdf>

¹¹² Regulatory sandboxes should not be conflated with the sandboxes established by commercial firms. A private sector sandbox will generally seek to encourage the testing of new products and services that could—potentially—be incorporated into that entity, rather than as a means of testing regulatory implications (which would be outside the purview of a private institution). Many private banks now have such sandbox initiatives running as they seek to keep pace with the rapid development of alternative providers which pose a competitive threat. For example, in 2018 Citibank launched a global sandbox to encourage developers to test new ideas with the intention of offering developers a partnership should the idea that was tested solve a problem or create a value-added service. Citibank (2018) Citi Continues to Expand APIs for Treasury Services, <https://www.citibank.com/tts/about/press/2018/2018-0605.html>

incurring, if not licensing and compliance costs, certainly application, registration and trial costs and time – *despite having already proven their viability in a separate regional economy*. Question marks also still often remain on how organizations which leave the sandbox are able to effectively port over services from the sandbox into the real-world.

Such gaps are proving to be a constraint on the emergence of digital economy innovation across the region and on the emergence of *regional* successes at scale. Some of the differences in approach, objective, and risk appetite are illustrated below.¹¹³

(i) Unclear rules and guidelines

The Philippines has had its ‘Test and Learn’ approach since 2004, a precursor to what has now come to be known as regulatory sandboxes. First promulgated to allow e-money product pilots, the BSP approach has not evolved significantly. The downside is that the BSP provides little in the way of guidance on specific attributes of the sandbox environment and on how participants are assessed.¹¹⁴ While this allows flexibility in responding and imposing restrictions on certain activities as risks become known, the lack of clarity can create significant uncertainties for interested or participating firms, and can disincentivize participation.

(ii) Limited scope and application

The Australian Securities and Investment Commission’s (ASIC) regulatory sandbox has a ‘light-touch’ approach that does not require interested participants to apply for individual approval but instead provides licensing exemption for up to 12 months. Interested participants only need to inform and provide their details to ASIC; however, the exemption is limited to firms with less than 100 retail clients, and with total customer exposure of less than AUD5 million, i.e. for particularly small (and start up) firms. Further the exemption also only applies to a limited set of services including distributing or advising on insurance products, some securities or simple schemes, payment solutions from licensed financial institutions, and consumer credits and loans contracts. The restrictive eligibility qualifications were broadened in 2017, after only one start-up had participated in the sandbox since its launch in 2016.¹¹⁵

(iii) Broad and inclusive framework

In contrast, Japan’s regulatory sandbox is open to both large and small, as well as *foreign and local organizations*. Following the Financial Services Agency’s (FSA) “FinTech Proof-of-Concept (PoC) Hub” in 2017, the government decreed a new regulatory sandbox framework in 2018 to undertake regulatory reform *across all industries*.¹¹⁶ Recognizing the need to reinvigorate the economy, the government is promoting regulatory flexibility in a bid to spark innovation and the rapid deployment of new technologies operating *across* sectors, for example the use of drones to deliver packages in ports or in fisheries. These tests are being used to inform regulatory reform to further facilitate the creation of new commercial activities and business models.

A regional sandbox or regional approach?

The ASEAN Financial Innovation Network (AFIN), launched in 2017, seeks to drive collaboration between fintechs and incumbent banks through an “industry sandbox” where participants can use cloud-based architecture to test out new ideas, with a focus on financial inclusion. In parallel, the UK’s Financial Conduct Authority (FCA) launched the Global Financial Innovation Network (GFIN) in 2019 in an effort to create a setting for the cross-border testing of new ideas. GFIN brings together

¹¹³ UNSGSA, Briefing on Regulatory Sandboxes, <https://www.unsgsa.org/files/1915/3141/8033/Sandbox.pdf>

¹¹⁴ Regulation Asia (2019) Philippines Fintech Push Makes it a Compelling Market to Watch, <https://www.regulationasia.com/philippines-fintech-push-makes-it-a-compelling-market-to-watch/>

¹¹⁵ AFR (2017) One fintech in ASIC’s sandbox, so government to expand it, <https://www.afr.com/business/banking-and-finance/one-fintech-in-asic-s-sandbox-so-government-to-expand-it-20170528-gwepui>

¹¹⁶ JETRO (2018) New Regulatory Sandbox framework in Japan, https://www.jetro.go.jp/ext_images/en/invest/incentive_programs/pdf/Detailed_overview.pdf

11 financial regulators, including from Australia, Canada, Hong Kong China, and Singapore, as well as CGAP to facilitate knowledge sharing and collaboration on related policy initiatives.

While both initiatives aim to better align cross-border financial innovation by creating a borderless testing environment, limitations remain. First and foremost are the differing legal systems among member economies raising issues of compliance and compliance costs.¹¹⁷ Second are the quite starkly differing objectives in the establishment and use of the sandboxes in many cases. For example, while financial inclusion may be a key priority for many emerging economies, it is rarely a core priority for developed markets.

Most crucially however, are the governance issues: Where does an innovation actually reside? To whom do participants address queries and concerns? How can conflicting views among regulators be resolved? Will a participant automatically be able to launch their product in all jurisdictions represented or have to go through separate processes for economy-specific approvals?

An alternative is to focus on the need for **portability across sandboxes**. Thus, products and services that have been successfully tested in one market, are able to be ‘fast-tracked’ into the sandbox of another jurisdiction. This requires sandboxes to adhere to an agreed set of principles in establishment, while still respecting the differences in approach by economy.

There is a growing recognition of the need for alignment and better coordination across sandboxes. In February 2019, the sandboxes of the Hong Kong Monetary Authority, the Securities and Futures Commission (SFC), and the Insurance Authority (IA) announced that entities seeking to conduct a pilot trial of cross-sector products would be assisted in liaising with other regulators and other respective sandboxes. While regional sandboxes may be a good idea to foster long-term cross-border innovation, a principles-based approach, with portability at its core, may be far more achievable in the short-term.

Singapore Boosts Innovation Through the Fintech Regulatory Sandbox

To encourage innovation in the financial sector without fear of being caught in a regulatory bind, the Monetary Authority of Singapore (MAS) launched the Singapore Fintech Regulatory Sandbox in 2016.¹¹⁸ This Sandbox provided a supervised space for fintech experimentation for regulated financial institutions unregulated firms, to experiment with providing financial services that are, or could potentially be, regulated by the MAS.

Financial firms had provided feedback to the MAS that they were concerned about being able to fully comply with the regulator’s evolving technology risk management¹¹⁹ and outsourcing guidelines, while also needing to spend time addressing other legal issues such as data privacy, cross-border data transfers, cybersecurity, and the use of artificial intelligence. Therefore, to allow financial institutions and fintech players to experiment with their products and services under a defined but more relaxed regulatory framework, the MAS launched the Singapore Fintech Regulatory Sandbox.

The Sandbox met with near-immediate success, as many companies looking to experiment safely applied to be included. What MAS quickly realised was that many applicants did not need the Sandbox at all, as their business innovation ideas and applications did not require any regulatory exemption.¹²⁰ It then assessed these exemption cases, and gave them the green light to go ahead and launch their solutions. The process of opening applications for the Sandbox had the effect of removing regulatory uncertainty for innovation, providing speedy and positive feedback to enterprising companies with new solutions.

¹¹⁷ GCAP (2018) Global Financial Innovation Network: Not Global Yet, <https://www.cgap.org/blog/global-financial-innovation-network-not-global-yet>

¹¹⁸ Monetary Authority Singapore (MAS), <http://www.mas.gov.sg/Singapore-Financial-Centre/Smart-Financial-Centre/FinTech-Regulatory-Sandbox.aspx>

¹¹⁹ Monetary Authority Singapore (MAS), <http://www.mas.gov.sg/~media/MAS/News%20and%20Publications/Consultation%20Papers/Consultation%20Paper%20on%20Proposed%20Revisions%20to%20Technology%20Risk%20Management%20Guidelines.pdf>

¹²⁰ Fintech News, <http://fintechnews.sg/14352/fintech/lessons-singapores-fintech-sandbox/>

The Sandbox met with further success when insurance start-up PolicyPal became the first company to graduate in August 2017.¹²¹ The start-up entered the Sandbox for six months to test its app which applies artificial intelligence to help individuals and organisations manage their insurance policies. MAS' Sandbox allowed them to trial and validate their Singapore business and distribution model prior to launch.

Developments since 2016

The launch of the MAS' Fintech Regulatory Sandbox marked a shift in the relationship between innovator and regulator – the former had always been considered risk-takers, while the latter were enforcers of restrictive rules and license obligations. With the launch of the Sandbox, MAS signalled a new approach towards regulation: one where the regulator understood that the marketplace principles of organisational agility and experimentation also extended to public sector policies.

This approach continued in 2018, where MAS further improved the process with Sandbox Express, an accelerated fast-track application and approval¹²² process for eligible companies. Sandbox Express allows companies dealing with low-risk activities, or activities considered to be well-understood by the market and regulators, to develop faster and facilitate quicker entry into the market.

3.9 Integrated (Digital) Platforms

Digital platforms rely on IP-based networks or the Internet to provide a range of content or services. Examples of content providers include YouTube and Netflix, and examples of service providers include Uber, Grab and Airbnb. Companies such as Facebook, Amazon and Alibaba straddle both. Increasingly, digital platform providers whose core business may not be in providing payments have started providing digital and mobile payment solutions, some of which are offered globally (e.g. GooglePay, ApplePay, AliPay) while others have specific domestic or regional footprints (e.g., GrabPay and Go-Pay). Where the digital economy is impacting across *all* sectors of the economy, such digital payment services can help to facilitate both access and trade, especially where payment channels are integrated within existing services to create seamless experiences for users.

The cross-border nature of the Internet and the digital economy means digital platforms can provide content and services to users anywhere in the world without having to be physically located in an economy. This has not just led to the opportunity for firms to significantly expand and scale, but also for local users to take advantage of new and innovative services offered from foreign providers. However, while this has given rise to significant opportunities, there remain contentious issues between digital platforms and local providers which may feel the former has less regulatory burden to comply with.

Two key issues for regulators and policymakers to consider on 'regulating' digital platforms are:

- I. Ensuring digital platforms comply with local regulations without overburdening businesses
- II. Promoting fair business competition between domestic players and digital platforms

Playing by local rules and fostering competition

An ongoing issue of contention is how digital platforms and over-the-top (OTT) providers abide and comply with local regulations. These include issues such as privacy, cybersecurity, consumer protection, legitimate content, and so on. But all impact and are further complicated once payments – or transactions – are integrated into the digital service provision. For foreign digital platform providers to operate in a separate jurisdiction, registration with the relevant authorities is often required. Registration is necessary for regulators to hold service providers accountable to domestic

¹²¹ Straits Times, <http://www.straitstimes.com/business/companies-markets/insurance-start-up-policypal-graduates-from-mas-fintech-regulatory>

¹²² Monetary Authority Singapore (MAS), <http://www.mas.gov.sg/News-and-Publications/Media-Releases/2018/MAS-Proposes-New-Regulatory-Sandbox-with-FastTrack-Approvals.aspx>, <http://www.mas.gov.sg/~media/MAS/News%20and%20Publications/Consultation%20Papers/2018%20Nov%20Sandbox%20Express/Consultation%20Paper%20on%20Sandbox%20Express.pdf>

regulations, for example in the enacting of sanctions due to a violation. It also facilitates the fulfilment of tax obligations, which in turn funds the government budget. The registration requirements of jurisdictions vary, including in-economy presence, permanent establishment, financial domicile, partnerships with local firms, the installation of surveillance cameras in cyber cafes to record and register users, etc.

The notion of registration is not inherently bad, but some requirements may be tedious, inconvenient and even border on the infringement of individual rights. These may inadvertently frighten foreign providers from offering their services in an economy, especially if they may be liable to severe sanctions. Likewise, requiring digital platforms to establish local-offices and operations may seem an easy fix but is not always feasible and seldom makes economic sense. Additionally, they may affect the ability of MSMEs to scale and expand globally.

Who to regulate?

From a regulation perspective, the *definition* of a “digital platform” becomes crucial for identifying *who* and *what* to regulate. Should digital platforms be regulated as a whole, i.e. based on the digital medium they use, or by the industry/vertical they are involved in?

Further complicating this issue is the fact that the market share of a digital service provider can extend across multiple verticals, and they may well utilise the dominant platform in one sector to leverage market share in another sector. For example, Indonesia’s Go-Jek, which began as a bike-hailing service was, by 2019, offering well over 20 services including grocery-shopping and delivery, courier services, food distribution, entertainment ticket sales, on-demand massages, manicure and beauty treatments, utility payments and many more.¹²³ All of these are enabled by its Go-Pay service, with over half of Go-Jek's 100 million monthly transactions processed through Go-Pay.¹²⁴ These new integrated business models are not just blurring the lines on sectoral regulation, but on payments, and even more broadly on competition policies as well.

Fintech Companies Develop Innovative Credit Rating System in China

The Chinese government has long recognized the importance of improving financial inclusion among MSMEs and individuals who lack collateral or credit histories such as migrant workers, women and rural households. As such, the National Commercial and Consumer Credit Reporting System was set up by the Credit Reference Center (CCRC) under the People’s Bank of China (PBOC) in 2006.

However, despite supplementing their databases with information on social security payments, housing provident funds and records of administrative penalties imposed, CCRC continued to rely heavily on financial institutions for providing credit information for both enterprises and individuals – which necessarily limited the coverage of the database to existing borrowers and companies with existing credit histories.¹²⁵

Therefore, in a bid to further facilitate financial access for the 225 million unbanked and underserved people, the government began expanding its efforts in 2015 by leveraging fintech companies’ user data amassed from their e-commerce, payment and social media platforms to augment the government’s centralized credit scoring system. Ant Financials’ *Sesame Credit*, as well as *Tencent Credit*, and six other credit service companies, were granted permission by the PBOC to pilot personal credit reporting systems.

Both Sesame Credit and Tencent Credit apply similar credit scoring criteria pertaining to a user’s financial history, online consumption behaviour (including bill payment and P2P transaction records), their ability to honour an agreement, and socio-economic indicators such as education level, income, profession and social network affiliations. Apart from being able to accelerate loan application approvals and secure higher loan

¹²³ Go-Jek, About, <https://www.gojek.io/about/>

¹²⁴ Nikkei Asian Review (2018) Go-Jek sparks an Indonesian banking revolution, <https://asia.nikkei.com/Spotlight/Cover-Story/Go-Jek-sparks-an-Indonesian-banking-revolution>

¹²⁵ CCRC claimed to have credit profiles on over 20 million businesses and 830 million individuals as of the end of 2013. http://www.pbccrc.org.cn/crc/zxgk/index_list_list.shtml. In addition to coverage limits, by incorporating court judgments into the credit scoring system, individuals or organizations could be denied access to finance based on wrongdoings unrelated to credit-worthiness such as traffic violations.

amounts, opt-in users with higher credit scores¹²⁶ began being rewarded with privileges including expedited healthcare services, free product trials, deposits waivers on apartment rental and shared bikes¹²⁷ which in turn boosted e-commerce, driving online payments and the usage of online lending service.

While the government is taking the lead in establishing the *national* credit reporting system, it is the private sector that has actively promoted the use of credit scores among credit service providers and consumers to enhance the provision of payment and credit-related services. A unified, secure and comprehensive credit scoring system, based upon the concerted efforts of financial institutions and fintech companies, that improves algorithmic transparency and reduces default rates is seen to be a crucial way for bringing costs for financial participation down, and incentivizing interoperable and ubiquitous use of credit rating systems.

4. Recommendations

Key recommendations emerging from our review of emerging and alternate payments channels in APEC are outlined below. The particular lens that we came at this from was their impact upon, or ability to, further financial inclusion across our various economies. In this regard we have prioritized the importance of the recommendations from highest and most immediate, although all require immediate attention by finance leaders and regulators. The exact order of focus will, of course, depend upon the characteristics and development level of the particular economy.

(i) **Proactively encourage the establishment Digital Identities and interoperable consumer identification in order to promote Digital Financial Services (DFS)**

Digital IDs are increasingly being recognized as an important foundation piece of *public digital infrastructure*. As an enabling technology, sitting across the access networks – often acting as the authentication gateway into and between those networks – they can be pivotal in almost all interactions between individuals and institutions, including the delivery of public services, e-commerce, electoral participation, financial services, education and healthcare.

When effective, a digital identity system has the capability to support both compliance with authentication services and AML/CFT customer identification and verification requirements. Therefore, non-bank providers of alternative payments are able to adopt a risk-based approach (as called for by the Financial Action Task Force (FATF)) requiring the calibration of AML/CFT regulatory, compliance and oversight measures to mitigate the actual risk posed by providers, customers, products and services.

When combined with the growing use of mobile devices, universal digital IDs:

- a) make it easier for the unbanked to obtain financial accounts by simplifying the documentation requirements at account opening.
- b) help financial institutions comply with the customer identification components of Customer Due Diligence (CDD). This is also more cost-effective, as agents can use digital ID authentication to record a customer's identity. If agents have biometric compatible technology, customers or personnel of the financial institution may not even need to be physically present.
- c) contribute to financial sector deepening by supporting the adoption and delivery of new services such as credit and insurance. Through the creation of credit histories for previously unserved customers, service providers find new business opportunities, while being able to better monitor customer behaviour and liabilities.

In short, digital IDs transform customers previously considered 'uneconomic' into potential customers for acquisition, and establish an identity that can be used for multiple other purposes.

¹²⁶ Sesame Credit score ranges from 350 to 950. Users who have no violations of laws usually receive a score of 600 when they first opt-in.

¹²⁷ Whats On Weibo (2018), <https://www.whatsonweibo.com/insights-into-sesame-credit-top-5-ways-to-use-a-high-sesame-score/>

The flip side of the same process is that through digital identity, it is *non-FSIs*, such as mobile operators or fintechs, who are playing a key role (particularly in Asia), facilitating digital payments and user authentication, and accelerating the digital commerce ecosystem through partnerships with service providers and financial investments.

Digital ID could also be a shared goal for APEC economies to work together on aligning regulatory frameworks or establishing mutual recognition systems. Such frameworks will serve to rapidly lower settlement costs and costs for international remittances.

ABAC calls for the creation of a Working Group to develop the baseline requirements for an APEC Digital ID. We suggest that this could (eventually) develop into the next iteration of the APEC Business Travel Card, and could leverage off many of the same agreements.

(ii) Establish some commitment to responsible digital financial practices to protect consumers and data

With the emergence of alternate payment and distribution channels come a variety of new service offerings and business models. This holds great promise for personalizing service, increasing access, and dramatically lowering acquisition, transaction and settlement costs – thereby rapidly increasing financial inclusion. Whether this be in peer-to-peer (P2P) lending initiatives, the use of new credit rating systems, or government disbursements over integrated digital channels, all will result from the efficiencies introduced by digitalization and data analytics (and targeting).

However, the rapid broadening of constituencies exposes many of our most vulnerable communities to issues of data protection and data privacy abuse for which they may not have experience or be fully prepared. Not only does this represent a challenge in itself, but if not dealt with in an early and timely fashion, any abuse of the opportunity stands to damage trust and risk unnecessarily slowing development for long periods.

In the early stages of the P2P loans market for example, the emergence of “eye-watering interest rates, allegations of fraud, and menacing debt collectors” with no customer recourse, followed by allegations of data misuse and either corporate or government surveillance have resulted in boom and bust cycles ending in companies collapsing and small lenders losing their savings in some markets, causing extreme wariness to enable the emergence of certain types of digital financial services in others.

In this regard, APEC finance ministers should look to establish overarching advisory bodies in their economies to ensure consumer protection and data protection in digital finance. And APEC should establish common principles for member economy adherence and alignment. A strong precedent that could be looked to in this regard is the APEC Cross-border Privacy Enforcement Arrangement (CPEA), and the related Cross Border Privacy Regime (CBPR).

(iii) Require the Establishment of Coordinating Policy Agencies to Oversee Digital Financial Sector Deployment

Enabling new alternate payment channels to have a transformational impact appear to require a whole-of-government approach to be successful. Most whole-of-government initiatives are directed top-down from senior leadership, and require a disciplined approach to information gathering and program deployment. This allows agencies to move towards a more enabling approach, by rethinking the role of the regulator, increasing agility and creating inclusive opportunities.

- **Top-down governance & bottom-up scale:** need to be addressed simultaneously. Digital initiatives are framed upon scale based upon aggregating demand, and lowering both participation costs and barriers to entry. New market players need to be allowed to enter the market with less onerous registration and participation costs than has been the norm. While the proof-of-concept programs to illustrate their potential need to be enabled from the bottom up

through mass customer acquisition. This requires more nimble approaches by regulators and more responsive policy framing.

- **Cross-sectoral enablement:** Digital cannot be thought of as a single sector as it cuts across all sectors of the economy and society, enabling all. Creating a digital financial service often equally requires breaking down such boundaries within policy and the economy. As a result, governments are choosing to create distinct entities in charge of coordinating initiatives across sectoral silos. Specialised agencies alone won't create a cross-sectoral process without establishing formalised communication channels and collaboration methods.
- **Cross-jurisdictional enablement:** Interoperable regulatory regime setting requires accepting the principle of equivalence – for example, in the levels of data protection offered and expected when data is transferred from one jurisdiction to another. On the local level, domestic standards bodies have to consider the costs of setting localized standards as opposed to following international ones – differences can affect the costs and competitiveness.
- **Multi-stakeholder approach:** Governments not only need to coordinate various public sector stakeholders, but engage the private sector, civil society and academia in setting the agenda for digital financial development.
 - Much of the expertise for digital disruption and digital transformation resides in the private sector.
 - The necessary knowledge of how to establish frameworks and rules for participation sits in the public sector, government and multilateral groupings such as APEC. This is particularly true when it comes to the need for enabling cross border data flows and cross border transaction flows, wherein privacy regimes, security frameworks, etc, need to be able to talk to each other effectively.
 - And, finally, to be inclusive, diverse and sustainable, the voice of civil society needs to be heard as new frameworks are being created. This is not least because in the new world solutions need to be created simultaneously from the top-down – the enabling frameworks – and the bottom up – the proof of concepts and of scale.

With the payments market poised for growth, APEC economies will benefit from ensuring that initiatives are not undertaken in silos, but that a coordinated approach is applied, involving relevant government departments and agencies. This will give policy makers, as well as other stakeholders a broader picture of the goals of digital financial inclusion, as well as reveal challenges and gaps in cross-sectoral areas, better enabling governments to handle them. This will in turn inform public policies that address, for example, the requirements of regulatory framework, critical infrastructure and interoperable platforms.

ABAC calls for the establishment of a “Digital Finance Taskforce” bringing together Finance Ministers and relevant Digital Economy Ministers to discuss cross-sectoral coordination. The initiative recognizes that digital transactions increasingly go beyond traditional finance areas, causing gaps to emerge. When these gaps are not dealt with, they can have a significant impact on the developments of the regional regulatory architecture on the one hand, or on regional trade agreements such as with e-commerce.

(iv) APEC Finance Ministers to Require the Establishment of Common Digital Financial Services Indicators for Measurements and Program Tracking

Across digital economy development there is a dearth of consistent and effective measurement indicators. This is particularly true for the digital financial sector, not least because of its cross-cutting nature. But for new policy initiatives to be effective, for development programs to be able to

be assessed, and for innovations to be rolled out in a way that ensures overall economic and societal benefit requires the ability to measure and assess impact.

In many cases, introducing new initiatives, particularly those that appear to threaten incumbent organizations or are targeted at rolling out resources to remote or disenfranchised populations will require political leaders to spend significant political capital. To be able to do this, they will need to be able to show success, so that they can bank their wins and further such developments.

APEC economies should give strong priority to developing a common set of baseline digital financial sector measurements, so that economies can assess and track both their absolute and comparative progress.

ABAC calls for the establishment of a Task Force to oversee the development of APEC Digital Finance Indicators, and the development of an APEC Digital Trade Index. Following initial development of the indicators for APEC economies, ongoing collection would be by APEC member economies, with collation and analysis by the APEC Secretariat.