



Beyond Payments:
Digitalization Trends in the
Cross-Border Checkout
Revolution



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Introduction

Throughout the past decade, the rapid proliferation of mobile payment solutions has been a key enabler for growing digital economies across Asia and beyond. Accelerated in part by the global pandemic, deepening digitalization, enabling digital infrastructure, and omnichannel shoppers gaining momentum, the digital payment industry has taken a new shape.

Building on our 2020 report exploring the emerging digital life in South and Southeast Asia, this paper examines new policy, industry and technology developments in the digital payment arena over the past four years in the Asia Pacific region. Governments' initiatives to develop digital economies, as well as public-private collaboration in modernizing payment infrastructure, has helped to install fast payment systems and national QR code schemes.

With booming cross-border commerce and international tourism restoring full recovery, global connectivity and payment interoperability has become a dominant theme in both private and public-sector efforts to boost regional e-wallet adoption. Meanwhile, to meet customers' growing preferences for an omnichannel shopping experience, e-wallets have expanded beyond just payments to now incorporate a suite of services through mini apps. The checkout revolution is not only going beyond national borders, but also beyond the traditional narrow definition of "payment" itself.



Executive Summary

1 Trend One: The digital payment evolution: the rise of the cashless economy

- Digital wallets have been the fastest growing payment method, driven by policy support and consumer preference. The Asia Pacific region accounted for nearly two-thirds of the global spending at a combined US\$9.8 trillion, while boasting the highest digital wallet penetration rates among all regions.
- The digital wallet market attracts major players spanning multiple industries. Banks and credit card companies have expanded partnerships with digital wallets and fintech players, highlighting the importance of interoperability in driving innovations.

2 Trend Two: Private and public sector collaboration is key to greater payment interoperability

- Payment interoperability has become a dominant theme in both private and public-sector efforts to boost regional e-wallet adoption. E-wallet players have begun to develop cross-border payment solutions to allow consumers to use their home e-wallet app while travelling abroad. Governments have also introduced open banking regulations, real-time payment rails, and standardized national QR systems to modernize digital public infrastructure.
- With global connectivity being the focal point of digital payment adoption, cross-border payment linkages have been launched in Southeast Asia, giving rise to an interoperable QR code payment ecosystem in the ASEAN region.
- Public-private cooperation plays a crucial role in driving cross-border fintech innovation and initiatives.

3 Trend Three: Digital wallets go beyond payments and enable omnichannel commerce

- To adapt to the trend of omnichannel commerce post-pandemic, e-wallets and banking apps are rapidly evolving into super apps by assembling many third-party services through mini apps on their integrated platforms and building an all-in-one commerce solution.
- Super apps assist retailers' omnichannel transformation by extending market reach, streamlining shopping journeys across channels, and harnessing data analytics to deliver customized customer experiences.

4 Trend Four: Fintech eyes inclusive and sustainable growth

- Payments have a proven record of driving financial inclusion, leading to stronger regional growth and greater social impact.
- Payment solutions and innovations facilitate MSMEs to grow their businesses and outreach, as well as sustainability transformation by addressing their financing and reporting gaps.
- As the digital transformation deepens, cross-border fintech innovators have begun to see payments as a gateway to an extended journey of user engagement and value creation.



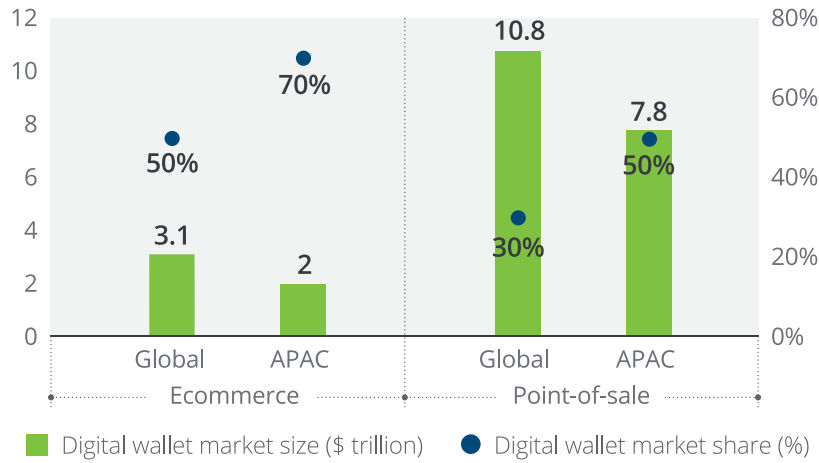
Trend One:

The digital payment evolution: the rise of the cashless economy

The Asia Pacific region is spearheading the world's shift to a cashless society

Because digital wallets provide a fast, easy and secure checkout option for customers, they have become people's go-to choice for payments globally, accounting for half of the global transaction value and a combined \$14 trillion in consumer spending across channels in 2023. The Asia Pacific region accounted for nearly two-thirds of the global spending at a combined \$9.8 trillion, while boasting the highest digital wallet penetration rates among all regions (figure 1).

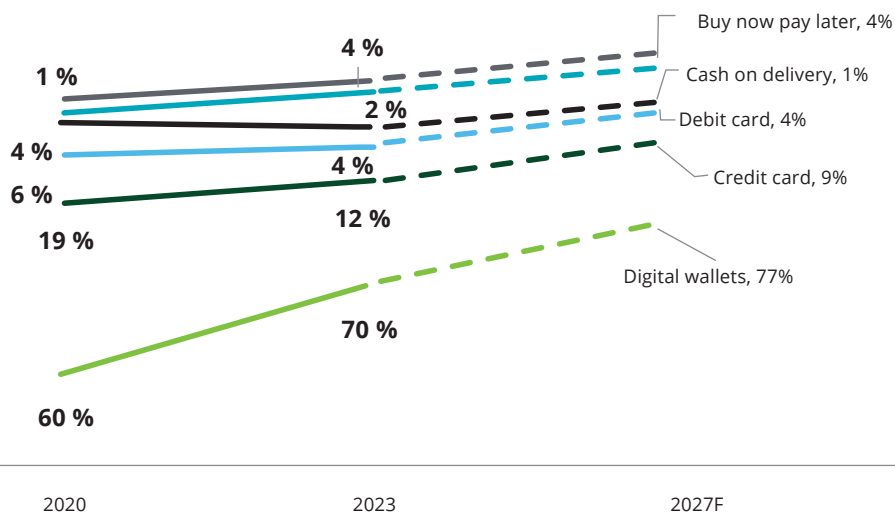
Figure 1: Digital wallets as people’s choice of payment (Global vs Asia Pacific in 2023)



Source: The 2024 Global Payments Report by Worldpay

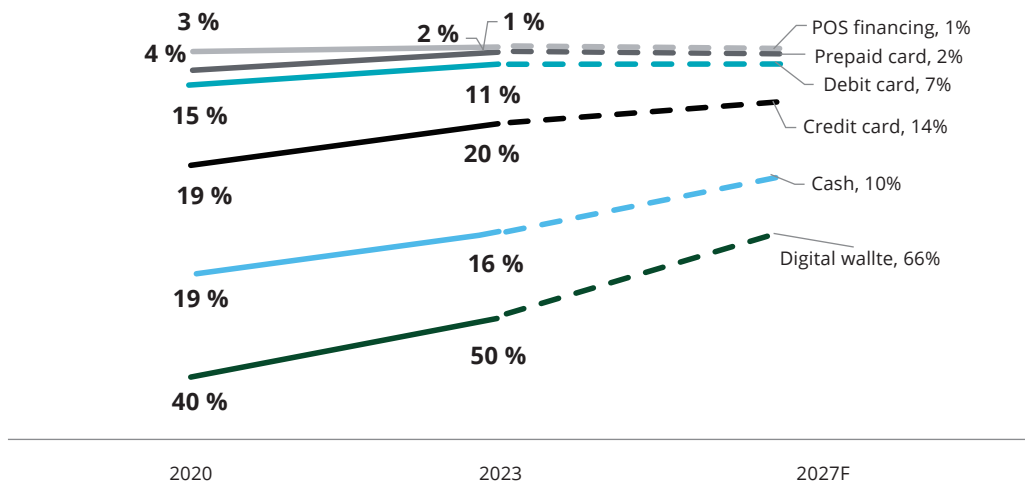
The Asia Pacific region has been a pioneer in developing digital economies and adopting digital payments. Our survey on the burgeoning digital landscape in Southeast Asia in 2020 discovered that digital payments are a key enabler of creating and connecting digital life for consumers, providing streamlined solutions for financial services, ecommerce, digital entertainment, and lifestyle services¹. Since then, the widespread popularity of digital wallets among consumers has brought forth continuous financial innovation and collaboration from both private and public fronts.

Figure 2: APAC payment method % of ecommerce transaction value



Source: The 2020 and 2024 Global Payments Reports by Worldpay

Figure 3: APAC payment method % of point-of-sale transaction value

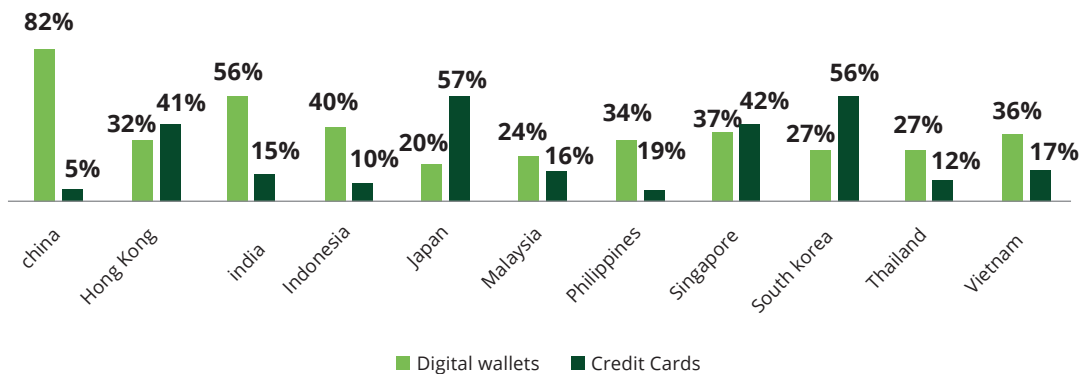


Source: The 2020 and 2024 Global Payments Reports by Worldpay

Driven by increasingly ubiquitous interoperable QR codes, wallets are the leading and fast-growing payment method in the region with a projected 13% CAGR to 2027. Buy Now Pay Later (‘BNPL’) is seeing strong consumer demand, while the use of cash continues to drop rapidly across the Asia-Pacific region with a year-over-year 12% in 2023.

Digital wallets were the leading e-commerce payment method in the following five Asia-Pacific markets: China, India, Indonesia, The Philippines and Vietnam. Physical credit cards are the people’s choice in Hong Kong, Singapore, and South Korea. Account-to-account dominated e-commerce checkout in Malaysia and Thailand, at 39% and 44% respectively.

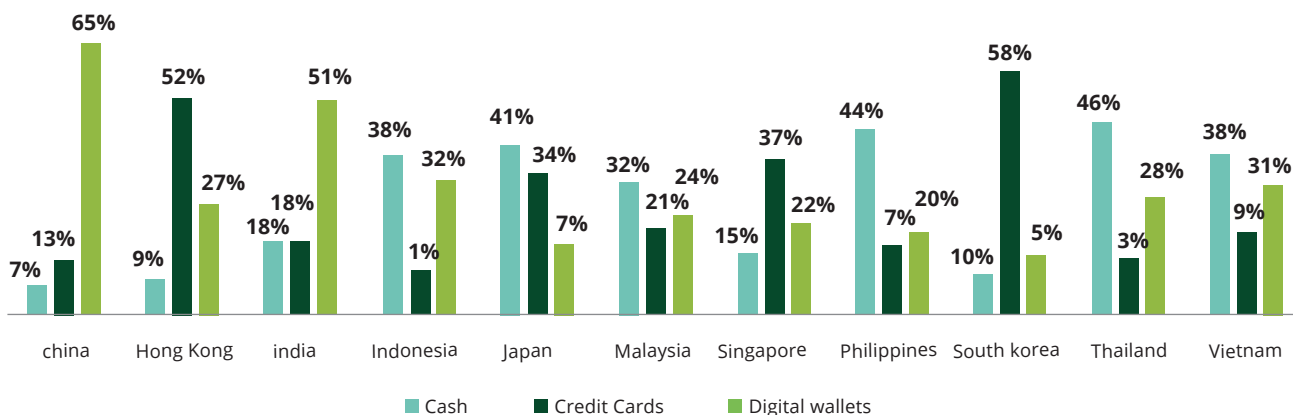
Figure 4: Asia Pacific e-commerce payment methods – Select markets



Source: The 2024 Global Payments Reports by Worldpay

Regarding the point-of-sale market, wallets were the leading payment method in only China and India in 2023. Cash was the point-of-sale payment method in six Asia-Pacific markets, namely Indonesia, Japan, Malaysia, Philippines, Thailand and Vietnam. The use of cash is forecasted to drop with -8% CAGR from 2023 to 2027.

Figure 5: Asia Pacific point-of-sale payment methods – Select markets



Source: The 2024 Global Payments Reports by Worldpay

The popularity of digital wallets is attracting attention from major players across numerous industries

As the digital transformation deepens and continues to reshape customer experiences, competition for the share of the global digital wallet market has attracted major players across various industries, including smartphone manufacturers, banks and ecommerce platforms, leading to a more intricate and collaborative network.

As technology and financial services begin to converge in response to consumer demand for frictionless payment experiences, financial institutions are increasingly turning to partnerships with fintech companies, integrating third-party solutions into their existing networks. The partnerships highlight the importance of interoperability and open banking principles in driving innovation within the payment industry. For example, Visa, MasterCard and J.P. Morgan have been expanding cooperation and partnerships with fintech, neo banks and digital wallets to bring them into their payment ecosystems, such as co-branded credit cards with digital wallets.

Trend Two: Private and public sector collaboration is key to greater payment interoperability

The rapid proliferation of digital payment innovation is making connectivity and interoperability a central theme in the checkout revolution in both online and offline spheres. Equipping digital wallet customers with global connectivity options achieves two goals: first, facilitating seamless travel experiences, and second, optimizing access to digital banking services from any location. According to the World Tourism Barometer, international tourism reached 88% of pre-pandemic levels in 2023 and is expected to achieve a full recovery by the end of 2024. E-wallet players have begun to develop cross-border payment solutions to allow consumers use their home e-wallet app while travelling abroad. In the online space, ecommerce platforms are also improving global connectivity for both merchants and consumers, as seen by the increasing number of payment methods supported by Amazon.

Convenience, costs and security protection are top concerns for consumers and businesses engaged in cross-border transactions, especially for Micro, Small and Medium-sized Enterprises ('MSMEs'), making the creation of digital bridges among payment methods a focal point for wider digital payment adoption. Since 2020, cross-border interoperability and orchestration has become a dominant theme in both private and public-sector efforts to boost regional wallet adoption.



支 | Alipay+ |

Alipay+, Ant International’s cross-border mobile payment and digitalization technology provider, leads Asia in e-wallet interoperability, now connecting 30 mobile partners, including e-wallets and banking apps etc., to over 90 million merchants worldwide (Figure 6).

Figure 6: Alipay+’s global partnership map



Along with the spike in online payment traffic, the demand for robust and reliable payment gateways has led to the emergence of numerous payment integration and aggregation service providers. With merchant payments being a major use case in the digital payment ecosystem, service providers target MSMEs in their global digital operation and offer tools to boost their revenue through broader international outreach, optimized transaction efficiency and enhanced customer satisfaction.



Ant International's Antom is a leading provider of payment and digitization services to merchants worldwide. Antom provides one-stop, vertical-specific digital payment solutions to meet the payment needs for merchants of all sizes, especially SMEs. With a presence in over 150 markets, Antom currently supports merchants in over 40 markets with the flexibility to accept payments in more than 100 currencies. Antom also provides digital marketing solutions and merchant digitization services to help merchant in digital operations and to better engage with their customers.

Upgrades and cooperation in digital payment infrastructure promote payment interoperability and regional integration

Proactive policymakers are quick to catch up with investments in cross-border digital payment infrastructure ('DPI') to ensure broader interconnectivity among private endeavours. Governments have introduced open banking regulations, real-time payment rails, and standardized national QR systems to construct the underlying digital public infrastructure.

One central element in the DPI revolution is government-backed fast payment systems ('FPS') where the transmission of the payment message and the availability of final funds to the payee occurs in real time or near real time. According to the World Bank, as of June 2023, some 100 countries had or were implementing a government-backed FPS.² Due to the popularity of QR codes in Asia for merchant and bill payments, fast payment arrangements in this region tend to put significant effort into enabling payments through QR codes.

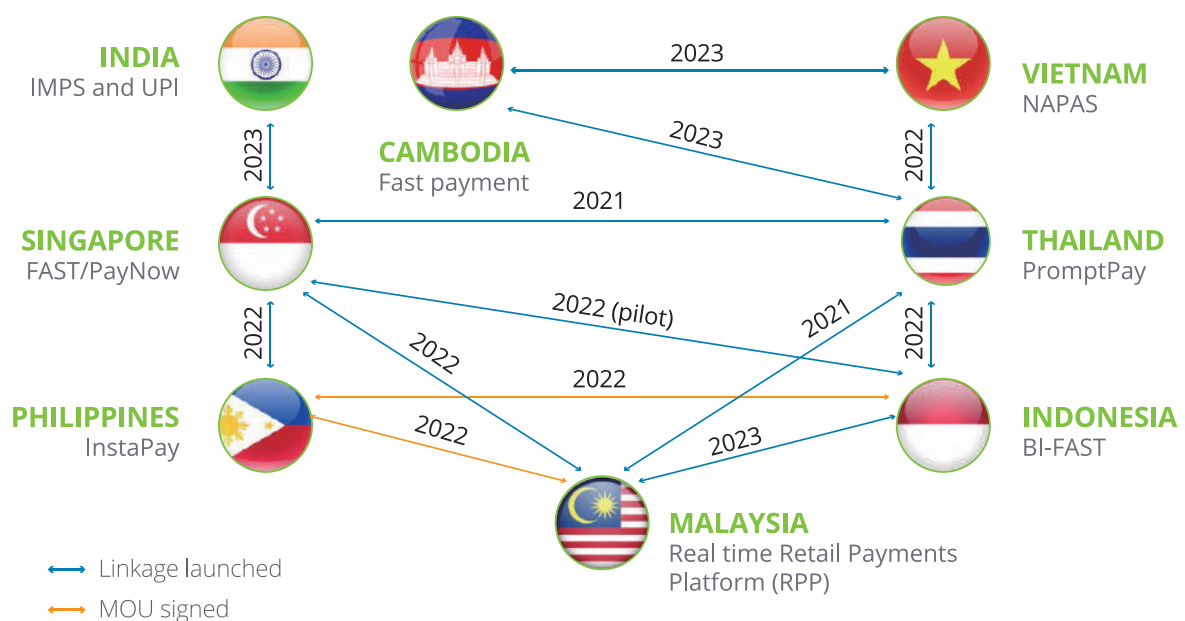
Figure 7: Countries in Southeast Asia adopting national QR codes for FPS

Country	FPS	National QR standard
Cambodia	Fast Payment	KHOR
India	IMPS and UPI	UPI QR and Bharat QR
Indonesia	BI-FAST	ORIS
Malaysia	Real time Retail Payments Platform (RPP)	DuitNow
The Philippines	InstaPay	OR Ph
Singapore	FAST/PayNow	SGOR
Thailand	PromptPay	MvPromptQR
Vietnam	NAPAS	VietQR

Source: World Bank, public information, Deloitte research

In order to modernize payment systems and promote regional integration, numerous bilateral cross-border QR code payment linkages have been launched in Asia, giving rise to an interoperable QR code payment ecosystem in ASEAN, a first of its kind globally. A few interoperability programs were implemented, highlighting the power of collaborative regional initiatives to fuel the global adoption of digital wallets, including those shown in Figure 8, as well as cross-continental programs such as **Project Nexus**, which provides payment linkages between the Eurosystem’s TIPS, Malaysia’s RPP and Singapore’s FAST systems.

Figure 8: ASEAN payment interoperability, 2024



Source: Boston Consulting Group, ASEAN Business Advisory Council Indonesia 2023, Deloitte research



Payments Network Malaysia Sdn Bhd ('PayNet') is the national payments network and shared central infrastructure for Malaysia's financial markets. It was formed in 2017 through a merger between MEPS, Malaysia's ATM clearing and fund transfer network, and Myclear, Malaysia's check clearing network. Today, PayNet's core services include transfers, online retail and payments, instore retail, cash services and PayNet secure. Its shared ATM network enables bank customers to conveniently access their funds from more than 10,000 ATMs of participating banks in Malaysia.

Currently, PayNet is launching on several new initiatives, including fraud recovery leveraging AI, open payments at transits and expressways, open banking and cross-border payments. PayNet and Alipay+ announced a partnership in 2023 that allow the five e-wallets within the Alipay+ payment network to make cashless payments while they are in Malaysia via Alipay+.

Since 2021, PayNet has been collaborating with Bank Negara Malaysia and five central banks in Southeast Asia and Europe to enable instant cross-border payment systems ('Project Nexus'.) In 2022, the team built a working prototype of Nexus, based on the 2021 blueprint and used it to connect the test systems of three established instant payment systems from Europe, Malaysia and Singapore. Together with new collaboration with Alipay+, PayNet is set to facilitate the targeted 23.5 million international tourist arrivals for Visit Malaysia 2026.



Public-Private Collaboration in Evolving Digital Payment Infrastructure

The maintenance, governance and sustainability of DPI are critical to establishing an enabling environment for the digital payment ecosystem. It is worth noting that while a few Southeast Asian countries lead the world in comprehensive support for DPI programs, including national QR codes or FPS such as Singapore's PayNow, Malaysia's DuitNow and Thailand's PromptPay, they take a pragmatic approach in frontloading collaboration with private-sector partners. According to Nextade Group Study, FPS models driven by the private sector as well as public-private systems have been widely popular³. Building private sector solutions into the FPS's business model is essential to ensuring market efficiencies, innovation and potential to scale up.

Besides from establishing basic digital payment infrastructure, cooperation and collaboration among public authorities and private companies play a crucial role in promoting cross-border QR payments. National QR schemes from Singapore, Malaysia, Cambodia, Sri Lanka and South Korea have partnered with Alipay+ to bridge the cross-border gaps between their home QR schemes. The acceptance of Alipay+ payment partners across their home QR networks will bring added convenience to tourists who prefer to 'pay like a local' by using the payment methods they are familiar with wherever they can. This collaboration will make it easier for international tourists to shop at local businesses, particularly micro merchants, thereby bringing these merchants more opportunities and stimulating the overall growth of the tourism ecosystem in these Southeast Asian countries.

Public-private partnerships are also spearheading broader global fintech initiatives. The Monetary Authority of Singapore ('MAS') stands out as the frontrunner in promoting the digital economy at home and abroad through its experimentations. Of these, **Proxtera** is a digital platform that empowers SMEs to trade across platforms and provides them with integrated financial and digital tools to go global, extending brand and product reach from Southeast Asia to the Middle East and Africa. With asset tokenization gaining momentum in commercial applications, MAS is working with 17 financial institutions to expand asset tokenisation initiatives and develop foundational capabilities to scale tokenised markets, namely **Project Guardian**.



Trend Three:

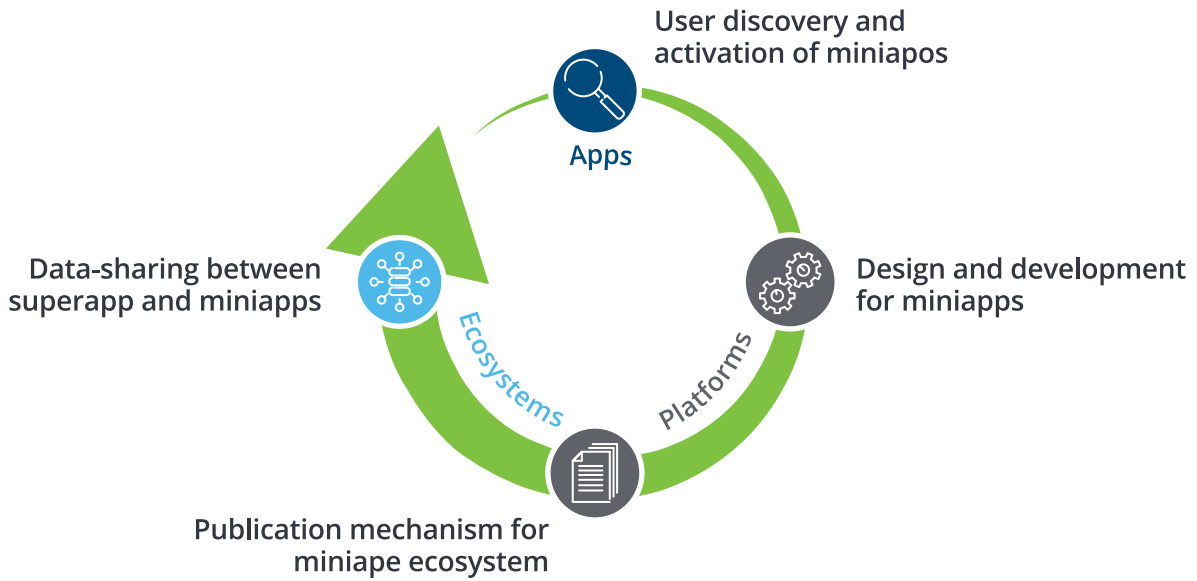
Digital wallets go beyond payments and enable omnichannel commerce

Digital wallets go beyond payments and now offer a suite of services

Digital wallets are evolving into integrated platforms of applications to meet the shifting shopping preferences of consumers post-pandemic. With super apps assembling many third-party services through mini apps on their integrated platforms, consumers are not required to download separate apps from third parties on their mobile phones, as the 'instant use and instant drop' capabilities within super apps enable mini apps to appear for purchase and vanish post-purchase, providing a seamless user experience. Super apps and mini apps allow for simple user authentication, such as single sign-on and tracking of user preferences or app usage (Figure 9).

Super apps are among the world's most successful brands in digital wallets. Alipay and Wechat Pay, for instance, dominate the world's largest digital wallet market in China. Digital wallet players in Southeast Asia followed suit and embraced the concept of the 'super app'. For example, Malaysia's Touch'N Go, initially known for its physical card used for toll payments, launched its e-wallet in 2018, enabling users to make digital payments for tolls, parking, and public transportation. Over the years, the wallet app surpassed its roots in transportation payments to become the most utilized e-wallet brand in Malaysia since 2020, according to a survey on digital wallet usage by Oppotus⁴.

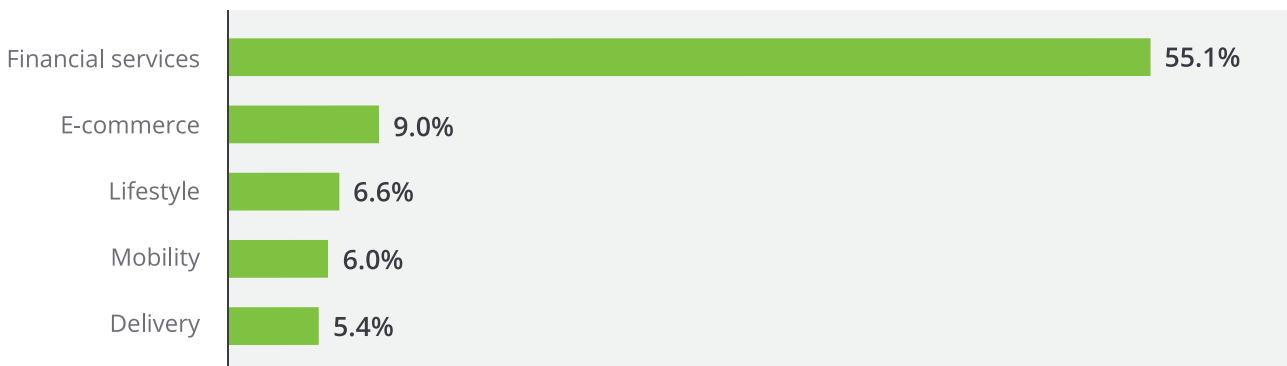
Figure 9: characteristics of a super app



Source: Gartner, 'Top Strategic Technology Trends 2023'

Financial services is the leading application market for super apps in 2023. Financial services and payments account for more than half of the super app landscape, signifying the substantial influence they wield within this ecosystem. By incorporating a swathe of services, including mobile banking, peer-to-peer payments, insurance and investment platforms, the financial super apps have emerged as disruptors to conventional financial institutions. With built-in two-factor authentication and tokenization, digital wallets offer more secure transactions and peace of mind for consumers when dealing with personal financial information, while offering convenience regardless of the underlying funding method used.

Figure 10: Super apps by application 2023



Source: Kobil, 'Global super app trend report 2023'

Super apps contribute to streamlining the shopping journey

In the retail and commerce space (the second largest application market of super apps), an omnichannel approach is becoming vital to satisfy consumer choice in the Asia Pacific region, driven by changes in consumers’ shopping journeys post pandemic (as shown in figure 11 below). Stronger touchpoints and venues in the post-pandemic era, such as ecommerce and social media platforms and live stream channels, can be mostly accessed through super apps and mini apps. An average buying journey today might involve multiple touchpoints—in store, online, at home, across various digital platforms such as social media, apps, websites, automated messaging, and often jumping back and forth to complete a single transaction. Consumers, on average, are purchasing through three or more channels, and joining up their journeys provides a better user-experience, as well as enhanced sales and rewards scheme opportunities.

Figure 11: post-pandemic changes to consumer shopping journeys

Reach		Understanding and Transformation		Transaction	Retention
In-store	E-commerce platform stores	In-store experience	E-commerce platform stores	In-store shopping	Memberships & SMS
KOL endorsement	Brand SMS pushes	KOL endorsement	Internet live streaming	Travel & agent purchases	Public account follows
Social platform promotions	E-com platform advertisements	Online reviews	Web searches	Official brand websites	Membership activities
Online reviews	Pop-up & unmanned stores	Social platform promotions	Pop-up & unmanned stores	E-commerce platform stores	Writing reviews
Private communication	Traditional outdoor ads	Word of mouth		Social networking & miniapps	Word of mouth
Internet live streaming				Pop-up & unmanned stores	
				Internet live streaming	

■ Weaker touchpoints & venues during & after epidemic ■ Stronger touchpoints & venues during & after epidemic

Source: Deloitte China, "Future Consumer" Series: Omnichannel Transformation Begins by Grasping the Key to Consumer Mentalities

To create a seamless commerce experience, many retail brands have put omnichannel transformation on their agenda and have started developing direct-to-consumer divisions. Retailers are assessing the choices they offer in all areas of the customer journey, as well as ensuring that every interaction provides a chance to deepen loyalty, introduce new products, and create upsell opportunities. During this transformation, all-in-one commerce solutions empower retailers to extend market reach, streamline purchasing processes across various channels, and harness data analytics for delivering highly personalized customer experiences.



Bank Mandiri was established in 1998 during the Indonesian government's bank restructuring program following the Asian financial crisis. Bank Mandiri became one of the largest banks in Indonesia, with a significant market share in the country's banking industry. Today and beyond, Bank Mandiri persistently strives to transform into the forefront in establishing a green digital ecosystem, ensuring a seamless experience, and building an ever-accelerating digital lifestyle through the development of cutting-edge digital products with reliable features on Super App Livin' by Mandiri and Digital Super Platform KOPRA by Mandiri.

Bank Mandiri launched its super app Livin' by Mandiri to provide comprehensive banking services in one app, and later in 2023 Livin' Merchant by Mandiri, which digitizes payment transactions for MSME merchants. According to Bank Mandiri's annual report, as of December 2023, the number of registered users of the super app Livin' was recorded at 22.8 million, which makes the super app the highest growing mobile application in Indonesia⁵. Livin' Merchant provides comprehensive Point of Sale (POS) services and facilitates sales recording, efficient product stock management, acceptance of various payment methods, and seamless disbursement of sales proceeds.



Launched in 2020, AirAsia MOVE is a travel super app with a wide range of offerings. The app leverages the Capital A ecosystem including OTA services such as flight and hotel bookings, ride-hailing, dining, travel insurance and more, and is underpinned by the integrated financial services of BigPay and a strong loyalty programme known as AirAsia rewards. In 2023, AirAsia MOVE launched an embedded digital wallet version of BigPay in AirAsia MOVE, as well as cross-border DuitNow QR capabilities.

In March 2024, Capital A announced a strategic collaboration with Ant International whereby:

- AirAsia MOVE will work with Ant International to integrate Alipay+ e-wallets as payment options within the MOVE's payment flows, explore the use of various Wallet Tech including super app-related solutions, and develop mini-programs within Alipay+ ecosystem.
- AirAsia MOVE will leverage Ant International's extensive user base to roll out targeted promotions, exclusive deals for Alipay+ wallet users, and increased visibility for AirAsia MOVE within the Alipay+ ecosystem.
- BigPay will become the latest Alipay+ partner wallet to allow its 1.5 million users to pay seamlessly when they travel abroad. BigPay will also explore using Alipay+ Wallet Tech, including fraud prevention and other innovative technologies to develop a more robust payment platform.
- Both sides cooperate in enhancing access to sustainable finance for the MSME community.



Trend Four: Fintech eyes inclusive and sustainable growth

Digital systems have demonstrated the potential to disrupt the financial services industry. With the right enabling environment and public support, payments could expand and drive inclusive finance, leading to stronger growth and greater social impact. With ESG principles fast emerging as mainstream business practice, payment service providers and banks have introduced various ESG initiatives.

Digital payments have become an anchor for financial inclusion and a pathway to growth

Financial inclusion has been a value pillar for the fintech industry as digital technology brings increasingly reliable, efficient and lower-cost services to underbanked populations and businesses. According to the World Bank's Global Findex Database 2021, about 30% of adults do not have a formal transaction account and more than 40% do not make or receive digital payments.⁶ Moreover, a large and increasing financing gap persists for MSMEs, with 40% of formal MSMEs having unmet financing needs.⁷

Central banks see real-time payments as a building block to modernize and digitalize financial ecosystems and achieve broader economic and social goals. Merchants, most of which are MSMEs, represent a large majority of businesses on an aggregate level as well as a major use case in digital payment ecosystems. For example, nine out of ten small businesses in the country rely on Pix, Brazil's real-time payment system.⁸

Given the focus on MSMEs, cross-border fintech innovators no longer see payments as the sole checkout point in a transaction, but rather as a gateway to an extended journey of user engagement and value creation. Many e-wallet players have actively launched various rewards programs with multiple lifestyle and travel brands, including tourism bureaus, airlines and duty-free shops, outreaching consumers at their fingertips before the start of their trips and curating various services to create an all-inclusive experience. Payment integration providers offer service packages for MSMEs that facilitate transactions and the establishment of online storefronts with ease, as well as digital marketing solutions for increasing user growth and outreach across multiple markets.



Opening new possibilities for MSMEs' sustainability transitions

Digital inclusion programs may also open new possibilities of setting up sustainability goals for MSMEs. Climate action by MSMEs is often constrained by knowledge, capacity, and lack of agreed-upon guidance in terms of sustainability reporting. Today, collaborative efforts have been put in place among prominent financial institutions and private wallet players to promote financial innovation and to close the sustainability gap, including developing digitalization tools for MSMEs, enhancing their data collection capacity, and fostering public-private open dialogues to drive sustainability inclusion.

Payment solutions and innovations also help address the financing gap for MSMEs by enabling them to access transaction data, making it possible to develop credit scores and models. Digital payment platforms can capture and analyse transaction data, such as payment history and frequency, to make the creditworthiness of MSMEs easy to assess. MSMEs' digital records can be used to develop credit models that are more accurate and inclusive than traditional credit scoring methods, which instead often rely on physical collateral or financial statements.



In March 2024, Programme Sirius was unveiled as an industry-led knowledge initiative that aims to support MSMEs operating on digital platforms in their journey towards sustainability. 'Sirius' stands for 'Sustainability Innovation for Regenerative & Inclusive Purpose'. Programme Sirius aims to:

- establish digital pathways to facilitate MSMEs' green transition and strengthen public-private dialogues to drive sustainability inclusion for MSMEs
- enhance MSME capacity and data collection, improve the quality of ESG reporting, and harness insights and unlock new opportunities in a sustainable world
- advance financial institutions' competence and increase access to sustainable finance.

Notably, Sirius is the world's first global e-wallet alliance for sustainable financing and gathers a group of cross-sector partners, including GPRNT, an initiative by the Monetary Authority of Singapore to offer digital reporting solutions for MSMEs to seamlessly report their ESG information, in addition to over 20 regional e-wallets and cross-border service providers.

Digital wallets as one-stop platforms to promote carbon reduction

Many banking and e-wallet apps now offer carbon offset programs as a one-stop platform to promote carbon footprint reduction, often with the following functions:

1. Integrate features that calculate and track the carbon footprint of a user's transactions, therefore providing real-time insights and helping users understand the environmental impact of their spending habits.
2. Offer carbon offset programs where a portion of each transaction is directed towards environmental initiatives, such as reforestation or renewable energy projects.
3. Incentivize sustainable behavior by offering rewards or cashback for eco-friendly purchases or actions, such as using public transportation or buying from green retailers.



Gcash, is the Philippines' largest cashless digital ecosystem, with an active user base 10 times larger than the next e-wallet in the country with six million merchants and social seller networks. Gcash has a comprehensive suite of digital financial services, covering deposit savings, investments and fund management, and insurance. Since then, Gcash has evolved into a comprehensive financial platform that offers a range of services, including payments, investments, loans, and insurance. According to a 2022 Q3 earnings report from its parent company Globe, Gcash currently has 71 million registered users, or at least 63.9% of the Philippine population.⁹

Gcash plays a significant role in promoting financial inclusion in the Philippines, where a large portion of the population remains unbanked or underbanked. By leveraging transaction data accumulated via platform financial services, Gcash has innovatively introduced a credit rating score for its users. The birth of credit scores further simplifies the process of traditional due diligence to evaluate a loan applicant's default risk, thereby facilitating a streamlined, collateral-free lending process. Gscore enables Gcash to provide credit access to over 3.9 million unique borrowers.¹⁰

As a pioneer in the Philippines' mobile payment sector, aligning with its commitment to corporate ethics and sustainability, Gcash has significantly influenced the landscape of financial inclusion and green finance. The platform has adeptly filled the institutional void for many Philippine MSMEs, which traditionally lack eligibility for conventional lending due to stringent requirements for formal documentation and collateral. The platform currently has 6 million MSMEs, including many informal merchants.

Inspired by Ant Forest, GCash launched Gforest in 2019, an eco-friendly platform where users can plant digital and real trees by using GCash for digital transactions. As of December 2022, Gforest has 12 million registered users who have saved over 30.5 billion grams of carbon emissions.

Responding to an evolving fraud landscape

The ecommerce and m-commerce boom, the adoption of fast payment systems and the complexity of the payment landscape in the Asia Pacific region are increasing the risk of fraud and financial crimes. Fraudsters are constantly adapting their techniques and weaponizing new technologies to exploit vulnerabilities in the payment ecosystem, particularly when cross-border payment reforms are rapidly carried out. According to Sift, merchant losses due to payment fraud reached \$38 billion in 2023 and are expected to soar to a total of \$362 billion by 2028¹¹. Common threats and trends include:

1. Classic online financial fraud, including phishing attacks, online scams, and data breaches, continues to challenge the industry. This issue might take on renewed urgency when the broader-based SME community that might lack exposure to financial education or cybersecurity resources is moving towards deeper digitalization.
2. Advances in new AI technologies make fraud typologies increasingly sophisticated. AI-powered softwares that create fake identities exacerbate the risks of identity takeover, and the industry is racing to develop capacity to cope and counter.
3. The surge of cross-border digital payment flows, and its bigger role in global commerce, calls for more intensive and systematic intergovernmental and public-private collaboration in technology as well as policy design, spanning from well-crafted open-banking policy framework, to privacy-preserving computing standards.

With the heightened urgency to upgrade security measures, regulators have strengthened their legal frameworks and raised anti-fraud control requirements within financial institutions. Many regional e-wallet players have been investing in forward looking, AI-powered anti-fraud technologies. For instance, e-wallet players including GCash in the Philippines, Touch 'n Go in Malaysia, TrueMoney in Thailand and bKash in Bangladesh, have leveraged AI-powered security solutions. Industry-wide collaboration has also been stepped up to collectively present a more multifaceted approach to enhance fraud detection and prevention, real-time monitoring, and recovery capabilities at both industry and regulatory levels, contributing to a healthy, robust ecosystem.

Conclusion

Asia's unique characteristics such as its large, urbanising, digitally savvy yet underbanked population and its supportive regulatory environment have positioned it as a fertile ground for payment and ecommerce innovation, as well as technological disruption. Having identified and explored the latest trends in the digital payment evolution, this paper reaches three main conclusions:

1. Payment solutions and innovations have demonstrated the potential to drive inclusive growth, reap economic benefits and bring shared prosperity through facilitating MSMEs' digital transformation. By offering tools to extend market reach and by enabling access to transaction data, payment platforms help strengthen MSMEs' digital records, making their creditworthiness easy to assess. This, in turn, helps to close the gap in financing and sustainability transitions for MSMEs.
2. With global connectivity and payment interoperability being central themes in the checkout revolution in both online and offline spheres, public and private sector efforts have been put in place to enable seamless, cross-border payments and to drive fintech innovations. Taking a collaborative and pragmatic approach in driving fintech innovations, as well as building more alignment in global consumer protection standards by embracing public-private partnerships, ensures the efficiency and competitiveness of the digital infrastructure.
3. As the digital transformation deepens and consumers become omni-channel shoppers, digital wallets are now evolving into super apps, diversifying beyond just payments and financial services. By curating various services under one ecosystem and joining up shopping journeys across multiple channels, super apps create a seamless, personalized user experience and boost loyalty from both consumers and merchants.

Every new innovation and industry development serves as a building block towards a borderless future of digital commerce. This involves the scaling-up of MSMEs' digitalisations, the development of emerging open-banking ecosystems and further collaboration in privacy-preserving computing. With the public-private partnerships having produced such encouraging results in the payment ecosystem, including infrastructure building, interoperability enablement and security solutions, it is paramount to carry forward this approach to integrate fintech innovation and digitalization in order to drive long-term social impact.

We would like to express our heartfelt appreciation to the companies mentioned above for their generous sharing of practices and insights.

Appendix:

Select Country Profiles

The Asia Pacific is home to diverse digital payments markets. In regions with robust legacy payment systems such as Hong Kong, Singapore and South Korea, physical credit cards are still people's choice, while the adoption of digital wallets is quickly catching up as the primary payment instrument. In emerging markets and countries that have previously been heavily reliant on cash, digital wallets and electronic payments have made enormous progress in the e-commerce and m-commerce space, such as in India, Indonesia, the Philippines and Vietnam. In point-of-sale commerce, the use of cash is declining but it still remains the major payment method in six Asian markets: Indonesia, Japan, Malaysia, the Philippines, Thailand and Vietnam.

We have included five country profiles to showcase the diversity of the digital payment landscape in the Asia Pacific:

1.1 China leads global adoption of digital wallets

China has emerged as a frontrunner in the adoption of digital wallets which have already overtaken traditional payment methods such as cash and cards. At present, China is the largest e-commerce market globally, with digital wallets accounting for an estimated 82% of e-commerce transactions in 2023. Digital wallets have also taken the lead in China's point-of-sale (POS) transactions, accounting for nearly two-thirds of POS spending in 2023. Alipay and WeChat Pay together comprise more than 90% of digital payment transactions, while state-owned UnionPay has an effective monopoly with 99% of card payment value¹².

The popularity of digital wallet payments is primarily driven by the ubiquitous use of QR codes. QR code-driven digital wallets offer small merchants a cost-effective solution compared to traditional bank card transactions. Advancements in mobile payment technology, along with a supportive regulatory framework and continued investments in digital infrastructure by the Chinese government, has helped transform the country towards a cashless society.

China's payment space has actively responded to the revival of international tourism. Since 2023, China's payment platforms allowed foreign tourists to link Discover, JCB, Mastercard and Visa cards to their digital wallets, allowing them to pay like a local during their stay in China.

1.2 UPI drives rapid growth in India's digital payment space

India's fast payment system, Unified Payments Interface (UPI), is the main driver behind growing domestic digital wallet adoption. Google Pay, Paytm and PhonePe collectively contributed an estimated 95% of UPI transactions. Driven by the adoption of UPI-enabled QR codes, e-wallets accounted for 56% of e-commerce and 51% of POS spending in 2023¹³. Linkage of UPI with credit cards further increases its use in retail payments, with small-value payments gradually shifting to credit cards.

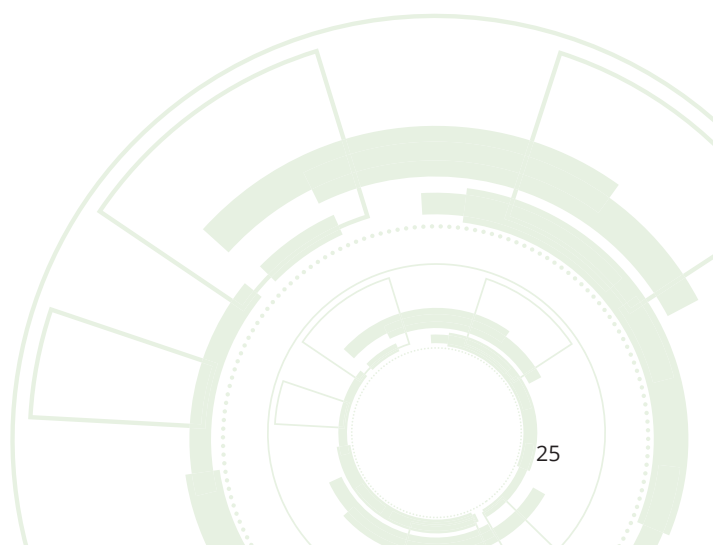
India has also invested in modern payment systems, for instance, the Central Bank Digital Currency (CBDC) has launched a pilot initiative on retail and wholesale CBDC. CBDC can potentially lower the costs of transactions due to the involvement of fewer stakeholders, which brings greater cost-effectiveness and faster transfers for cross-border transactions, especially those of low value.

1.3 Growth in Japan's cashless market outpaces the government's target

Japan has a high level of cash usage, although this is slowly declining. Cashless payments have been developing quickly, primarily propelled by government efforts to promote a cashless society and payment innovation. The cashless payment ratio steadily climbed to 39.3% (126.7 trillion yen) in 2023, thereby having already reached the 2025 target of around 40%¹⁴.

Cashless payments in Japan include credit cards, e-money, and QR-code payment services. Credit cards were the most used cashless payment for online purchase in Japan. QR code payments have gained momentum, with a growing number of providers such as PayPay, NTT DoCoMo, and Rakuten Pay collaborating with banks to promote QR code payments in Japan. Similarly, digital wallets are becoming increasingly popular due to their simplicity in enabling online bill payments and other money transfer services.

Japan's cashless payments market is highly fragmented, with major players including Rakuten Pay, PayPay, Line Pay and Amazon Pay, which all offer QR code payments. While Japan's cashless payments market is fast growing, security still remains a concern for many Japanese consumers.



PayPay was founded in 2018 as a joint venture between SoftBank Group and Yahoo! Japan. Since its launch, PayPay has adopted nation-wide marketing and promotional strategies to attract new users and merchants. On the user side, PayPay launched a '100 billion yen' promotional campaign in November 2018 that offers users up to 20% cashback on purchases made through PayPay. The amount of cashback reached the cap of 100 billion yen within 10 days. On the merchant side, PayPay adopted a free-of-commission strategy in the first three years of its launch.

In October 2021, PayPay started charging 1.60% and 1.98% merchant fee for subscribers and non-subscribers of PayPay MyStore respectively, the lowest rate among domestic QR code payment methods. In addition to commissions, PayPay launched its "PayPay MyStore" merchant services offering offline-to-offline marketing solutions to merchants. The service not only attracts consumers to merchants by offering coupons, but also assists them in customer relationship management, as well as operational support and digital management.

PayPay has been making attempts in potential business areas that could be developed based on current business assets, such as the introduction of a digital wage model whereby workers' wages will be paid through digital payment methods including PayPay. PayPay also started a partnership with Chinese e-commerce platform Temu in April 2024. In the area of financial services, PayPay launched the deferred payment feature in February 2022, which offers a revolving payment option to meet customers' diverse payment needs while generating more commission revenue. Lastly, PayPay introduced an insurance product called "PayPay Hoken" in 2022, which is adapted to the ease of use of smartphones. Through this, users can complete the whole process from application to payment on their smartphones.

Following its growing success in Japan, PayPay has set its sights on the global market and hopes to collaborate with global partners to provide new experiences for users. Early in 2019, PayPay established partnerships with KakaoPay from South Korea and Alipay+ from China. Partnerships with other cashless payment systems allow PayPay's 63 million registered users (as of March 2024) to make fast payments without having to sign up for a new account in many regions of the world. The global network of PayPay will provide transaction convenience for increasing numbers of foreign tourists, and hence boosting Japan's tourism industry.

1.4 Singapore leads the pack with its innovative payment systems

Known for its innovation, Singapore has one of the most advanced payment systems in the world. The innovation effort in payments was mostly led by the incumbent banks in collaboration with the Monetary Authority of Singapore (MAS). The national unified payment QR code system, known as Singapore Quick Response Code (SGQR), enhances the interoperability of regional payment systems and allows merchants to accept 23 payment methods by signing up with just one financial institution. Even though wallets have become more common in Singapore, they are not as prevalent as in other countries in the region. Singapore is an advanced economy, and 98% of the population is banked, according to Statista.

The Singaporean payment market is highly competitive, with key market players including DBS PayLah, GrabPay, PayPal, Fave Pay, and Alipay+. From a digital payment perspective, GrabPay dominates Singapore's digital wallet market due to its seamless integration with the Grab ride-hailing platform, which offers an extensive range of services.

1.5 Steady growth in Malaysia's digital payments ecosystem

While previously heavily reliant on cash, Malaysia has made considerable progress in adopting digital payments. Cash still remains the go-to payment option for POS transactions, but account-to-account ('A2A') payments are becoming increasingly dominant among Malaysian customers, accounting for 39% of e-commerce spend in 2023. Digital wallets are now the second choice for both online and point-of-sale transactions. Key e-wallet players include Touch 'n Go eWallet, GrabPay, Boost and ShopeePay. The growth of digital wallets and electronic payment systems have contributed significantly to financial inclusion, propelling Malaysia up to 18th place in the 2023 Global Financial Inclusion Index, up from 20th place in 2022.¹⁵

Malaysia is among four Southeast Asian markets to connect their real time payment systems. Consumers in Indonesia, Malaysia, Singapore and Thailand can now pay in local currencies in any of the ASEAN countries using interoperable QR codes, with the Philippines and Cambodia soon to follow.

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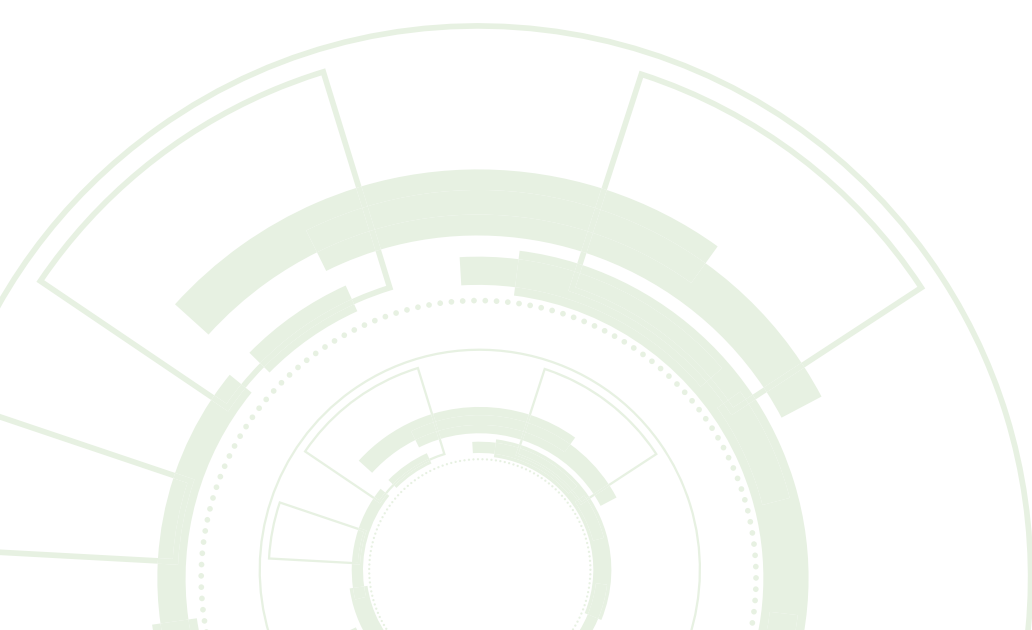
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