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Fintech Innovations Across Emerging Markets: Multiple Models, Shared Lessons

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Abstract: *Fintech is emerging as a key driver of financial inclusion and innovation across emerging and developing economies. Its rapid growth is underpinned by large unbanked and underbanked populations, rising internet penetration, a shift towards mobile-first consumer behaviour, younger demographic profiles, and the digital acceleration catalysed by the COVID-19 pandemic. This paper examines how different fintech ecosystem models evolve under varying institutional, regulatory, and technological conditions. Drawing on illustrative cases from Latin America, ASEAN, Africa, and South Asia, it highlights how enabling regulatory frameworks, digital public infrastructure, startup ecosystems, and mobile-first solutions have shaped fintech development. These models are not mutually exclusive and often coexist within the same ecosystem, generating shared challenges such as fragmented markets, uneven regulatory capacity, persistent digital divides, and weaknesses in digital infrastructure. Realising fintech's transformative potential therefore requires deliberate policy choices that promote equitable digital participation, foster competition, and support responsible innovation. For ASEAN, regional initiatives such as the ASEAN Regional Payment Connectivity and the Digital Economy Framework Agreement present timely opportunities to deepen integration, expand cross-border fintech services, and support sustained growth. Aligning fintech development with financial inclusion objectives will be critical to ensuring that digital finance contributes to sustainable and equitable development across the region.*

Keywords: Fintech; Innovation; Emerging Market; ASEAN

***JEL Classification*: L260, O140, O3, P520**

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1. Introduction

Fintech start-ups have steadily secured their position in the global financial system over the past decade. In 2025, over 30,000 fintech firms were recorded worldwide, marking an increase of more than 7 times over the last couple of decades (Statista Research Department, 2026). Fintech continues to show robust growth, becoming a key driver of innovation in major global hubs including Singapore, London, Berlin, and New York (Startup Genome, 2025; StartupBlink, 2025). Publicly traded fintech companies grew up to three times faster than traditional banking and insurance revenues, doubling their market capitalisation to US$550 billion between 2019 and 2023 (Anan et al., 2023; Goyal et al., 2025). Funding trends across 2019–2020 and 2023–2024 convey a similar message: fintech is exhibiting consistent growth in both total funding and deal counts, signalling ecosystem maturity and deep integration within global start-up activity (Startup Genome, 2025).

Alongside its significant growth opportunities, fintech is drawing increased attention due to its critical role in advancing financial inclusion agenda. The sector brings affordable and accessible services to young people, low-income groups, women, small businesses, and other underserved communities (B20 South Africa, 2025; Del Sarto and Ozili, 2024; Kishor, Bansal, and Kumar, 2025; OECD, 2020; Patwardhan, Singleton, and Schmitz, 2018). The momentum is particularly pronounced in emerging markets and developing economies such as ASEAN, Africa, and Latin America, where financial exclusion remains widespread, yet rapid digital adoption offers opportunities for innovation. While specific models vary across regions, common drivers and impediments can be observed, underlining the benefits of coordinated policies to support deeper regional integration.

2. Key Factors Driving the Fintech Industry in Emerging Markets

Several factors underpin the rapid development of fintech markets, some of which are unique to specific regions. Nonetheless, five drivers consistently stand out:

- sizeable unbanked and underbanked population,
- rising internet access,
- shift to mobile-first behaviour,
- growing young, tech savvy population, and
- the COVID-19 pandemic.

Unbanked and underbanked population. 'Unbanked' is a term commonly referring to individuals without a bank account, while the 'underbanked' have limited access to traditional financial services such as loans, insurance, more sophisticated financial products and investment opportunities. These two groups often comprise marginalised communities such as ethnic minorities, the less educated, unemployed, and low-income populations. Klapper et al. (2025) note that 1.3 billion adults remain unbanked, mainly due to a lack of funds, geographic inaccessibility, and insufficient documentation. Unbanked and underbanked individuals account for a large share of the population in many emerging economies in Southeast Asia and Latin America – representing over 70% of the adult population in each region, according to 2019 estimates for Southeast Asia (Bain & Company, 2019) and more recent estimates for Latin America (Aleman, 2025; Briggs, 2023; Getnet, 2023). Bain & Company, Google, and Temasek (2019) highlight the vast potential of these groups as a growth engine for digital financial services (DFS) in Southeast Asia, where small and medium-sized enterprises (SMEs) remain largely underbanked. The region is also home more than 70 million micro, small, and medium-sized enterprises (MSMEs) (ASEAN, n.d.). As such, 88% of the surveyed experts in 2019 believed that DFS would transform the livelihood of the underbanked by 2025 (Bain & Company, Google, and Temasek, 2019).

Rising internet access and young, tech-savvy generations. Internet connectivity has continued to expand at pace. Between 2005 and 2024, the number of global users rose by 4.48 billion, or 439.2% (ITU, 2024), with middle-income countries nearly closing the gap with the high-income group. These circumstances have created fertile ground for fintech ventures as they can deliver faster, cheaper, and more inclusive financial services. Reflecting this, fintech companies report that 47% of their customers are from low-income groups – 41% are women, and 57% are MSMEs (Ferri de Camargo Paes et al., 2025). Southeast Asia is one of the most dynamic regions for fintech innovations: as of October 2025, there were almost 600 million internet users (including Timor-Leste), with 125,000 new users coming online each day (Tila, 2025; World Economic Forum, n.d.). This expanding connectivity, combined with fintech companies' data-driven business models in the region, is enabling new services such as microloans and microinsurance for MSMEs and micro-entrepreneurs (ERIA, 2024a).

Mobile-first behaviour. Opportunities for financial innovation have also been propelled by the explosion of mobile usage in developing regions such as the Asia Pacific, Latin America, and Africa, where over 60% of the population own a mobile phone in 2023 (ITU, 2025a). In many cases, people may not have bank accounts, but they possess smartphones. Thus, fintech solutions can bypass traditional barriers and reach customers even in the most remote areas through mobile phones. The trend is reinforced by a demographic shift that has now skewed toward younger generations. As they were born into a world of smartphones, internet, and social media, they are more comfortable adopting and experimenting with emerging technology, including mobile payments and e-wallets (Wei et al., 2021; Persada et al., 2021; Taufiq Hail et al., 2024; Wandhe, 2024). This openness can also be attributed to their greater demand for financial services and weaker attachment to traditional financial institutions. In 2017, the fintech adoption rate was 39% percentage points higher amongst individuals aged 25–34 years compared to those aged 75 years and above (EY, 2017).

The COVID-19 pandemic. When COVID-19 was first declared as a global public health crisis and widespread lockdowns were imposed, digital technology quickly became essential as people turned to electronic payments, online shopping, and social media to maintain business activities. This shift contributed to a 21–26% increase in daily downloads of finance-related mobile applications, with markets under more stringent lockdowns reporting even higher growth in fintech transactions (Fu and Mishra, 2022; CCAF, World Bank, and WEF, 2020). In Kenya, Safaricom's M-PESA[2] successfully reduced physical cash exchanges and accelerated mobile money adoption by waiving transfer fees for person-to-person (P2P) transactions under KSh 1,000 (US$8.95 on the first day of the implementation) for 90 days during the COVID-19 pandemic. Similar patterns are evident across other African countries, with the number of fintech firms on the continent doubling between 2019 and 2022 (Alliance for Financial Inclusion, 2023). Nevertheless, it is more accurate to view COVID-19 as a catalyst that accelerated an existing trajectory, as fintech had already been gaining momentum since the aftermath of the 2008 financial crisis (Sapulette et al., 2021; Anagnostopoulos, 2018; Buchak et al., 2018).

3. Diverse Characteristics of Fintech Ecosystems Across Regions

Across regions, the development of fintech ecosystems has been shaped by local characteristics, market demand, distinct pull factors, enabling environments, and industry histories. This paper discusses emerging models found across emerging markets such as Latin

[2] M-PESA – where 'M' stands for mobile and '*pesa*' means money in Swahili – is a mobile-based payment and store-of-value system. It was launched by Safaricom, Kenya's largest mobile network operator, in March 2007. Customers register with authorised agents to deposit cash into a mobile wallet linked to their phone number, enabling money transfers, bill payments, and withdrawals via SMS with PIN-based security. First conceptualised in 2003 with support from the UK's Department for International Development (DFID), M-PESA became one of the first fintech operators in Africa, if not the world (Hughes and Lonie, 2007).

America, Africa, and Asia. While these different models coexist within individual ecosystems, the following sections describe salient characteristics and provide an analytical framework to better understand the origin and evolution of fintech innovation in emerging markets. Key examples from Latin America, Asia, and Africa have been selected to illustrate some of the driving factors at the origin of successful fintech ecosystem development across regions. These drivers can be grouped as follows:

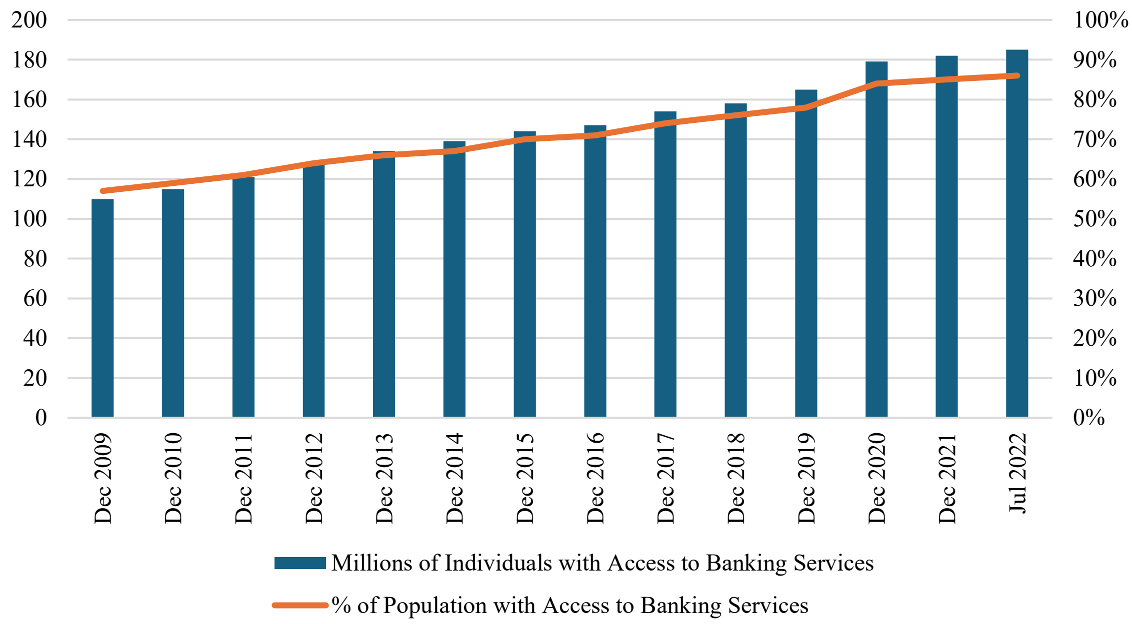
- Fintech innovations driven by smart regulation
- Fintech innovations driven by public infrastructure development
- Fintech innovations driven by private sector actors: start-ups, telco, and banking

3.1. Examples from Latin America: Fintech Driven by Smart Regulation

Fintech is emerging as a key driver of development in Latin America and the Caribbean. From 2017 to 2023, the number of fintech companies grew 340% from 703 to over 3,069 across 26 countries – and by 2024, the sector dominated the start-up landscape, accounting for 61% of total funding and 31% of deals (Inter-American Development Bank, 2024; Startuplinks, 2025). Latin America's fintech market was valued at approximately US$15 billion in 2025 and is forecast to expand to US$54 billion by 2034, reflecting a Compound Annual Growth Rate (CAGR) of around 15% over 2026–2034 (IMARC Group, 2025). A large unbanked and underbanked population is one of the major drivers of fintech adoption, making 57% of fintech companies in the region specifically targeting this group in 2024 (Inter-American Development Bank, 2024).

Brazil is an emblematic case of how a top-down development through supportive policy and regulations can foster industry growth. In 2010, Brazil's financial services were concentrated amongst five banks, with only 57% of the population having access. Between 2009 and 2022, as shown in Figure 1, an additional 75 million people entered the banking system – an expansion linked to the emergence of fintech start-ups, whose numbers had reached the hundreds by 2022 (Strange and Oliveira, 2022). Concurrent with this development were government efforts to modernise financial regulations and create a level playing field for non-traditional financial institutions, fostering competition with non-discriminatory treatment.

Figure 1: Access to Banking Services Amongst Brazilian Individuals (2009–2022)



Source: Data from the Brazilian Central Bank, as cited in Strange & Oliveira, 2022.

In Brazil, the credit and payment segments fall under the jurisdiction of the Central Bank of Brazil (Banco Central do Brasil, BCB), while other fintech segments are regulated by the Securities and Exchange Commission (Comissão de Valores Mobiliários, CVM) and the Superintendency of Private Insurance (Superintendência de Seguros Privados, SUSEP). Amongst the country's most notable innovations was the launch of PIX in November 2020, an instant payment system providing free, real-time, 24/7 money transfers. Within less than 2 years, PIX had been adopted by 139 million users (roughly 75% of the population), and in 2024 alone, it processed 57 billion transactions worth approximately US$3.8 trillion (Galileo, 2025; Strange and Oliveira, 2022). To further accommodate innovation, BCB streamlined licensing for non-traditional financial institutions through more targeted and tiered schemes. A prominent example is the introduction of two categories of credit fintech licensing: Direct Credit Society (SCD) and Peer-to-Peer Loan Company (SEP) (Banco Central do Brasil, n.d.-a). Both have enabled start-ups to operate directly in the credit market without having to partner with traditional financial institutions.

BCB has also worked closely with other national agencies to strengthen Brazil's fintech ecosystem. Together with the National Monetary Council (CMN), BCB established the Open Finance framework, designed to facilitate the sharing of data, products, and services between regulated entities with prior consent from the customer. BCB implemented this regulation gradually in four phases: the first phase made data on offering institutions' channels, products, and services publicly available; the second phase enabled customers to share registration data and transaction activities with third-party providers (TPPs); the third phase expanded the system to include data on payment initiation services and the submission of credit proposals; and the fourth phase entails a wide array of financial products such as foreign exchange, investment, insurance, pensions, and accreditation in payment arrangements (Banco Central do Brasil, n.d.-b). Details on the scope of data and services of Open Finance are stipulated in the Joint Resolution CMN-BCB No. 1/2020 and BCB Circular No. 4,015/2020. Within just 2 years of its launch, 15 million users and over 800 financial institutions had joined the Open Finance ecosystem (Banco Central do Brasil, 2023).

Lastly, BCB's Regulatory Sandbox, developed in collaboration with the Ministry of Economy, CVM, and SUSEP, provided a controlled environment for testing innovative projects under temporary regulatory frameworks. In its pilot year, 10 of the 11 participating companies – including Pier and Stone – received permanent authorisation to launch their products (Strange and Oliveira, 2022). Complementing this initiative, the Financial and Technological Innovations Lab (Lift) offers a virtual platform facilitating the collaboration between academia, the market, technology enterprises, and start-ups to develop and evaluate innovation projects. Conducted jointly by BCB and the National Federation of BCB's Civil Servants Associations (Fenasbac), Lift invites proposals aligned with predefined annual themes, with large tech companies supporting selected ideas (Banco Central do Brasil, n.d.-a).

Beyond Brazil, Mexico pioneered fintech regulation in 2018 through its Law to Regulate Financial Technology Institutions. It encompasses provisions on authorisation, virtual assets, consumer protection, regulatory sandboxes, and operational safeguards for financial technology institutions. The country was also a trailblazer for real-payment infrastructure as its central bank established Cobro Digital (CoDi) in 2019 to handle low-value retail transactions on top of the country's existing Sistema de Pagos Electrónicos Interbancarios (SPEI) payment system, established in the 2000s (GSMA, 2025b; Aguirre, Ponce, and de Teresa, 2024). In 2023 alone, Mexico's SPEI system processed 3.8 billion, mostly low-value, transactions worth MXN 530.7 trillion or US$30.97 billion in total (Forbes, 2024). More recently (2021–2023), Chile's Fintech Law and Colombia's regulations on interoperable low-value instant payments and open finance further strengthened the region's fintech ecosystem (Inter-American Development Bank, 2024; Tellez-Merchan and Davico, 2024).

3.2. Examples from India: Fintech Driven by Digital Infrastructure

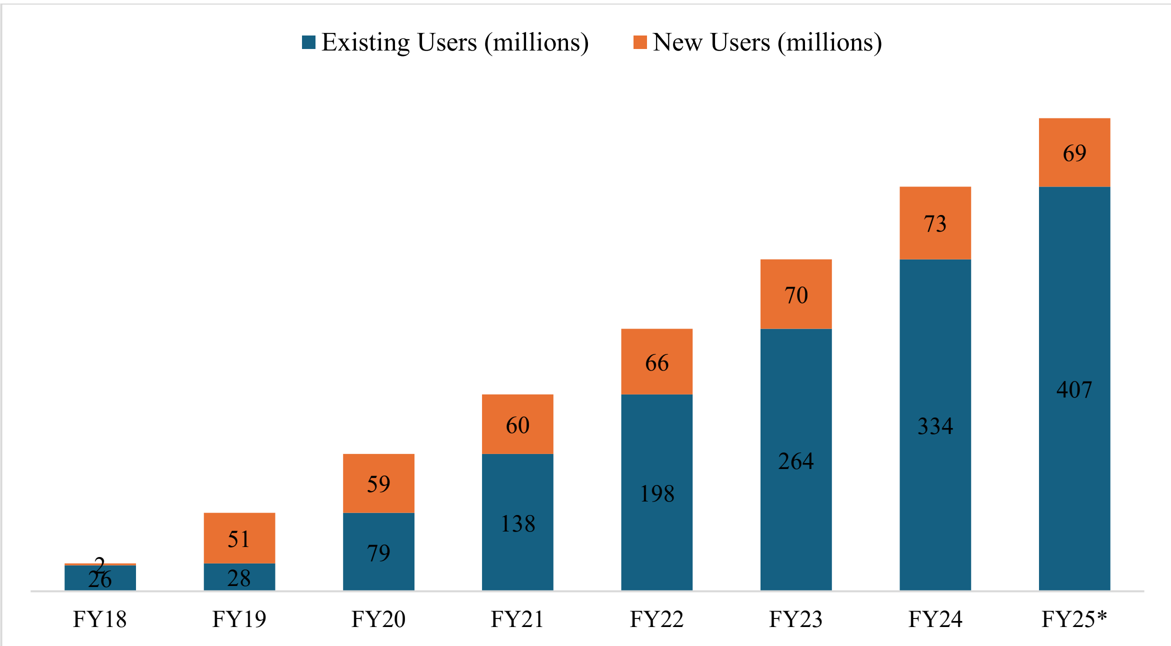
Another notable model is fintech innovation driven by Digital Public Infrastructure (DPI), with India standing out as a pioneering example. DPI refers to a set of shared digital systems, applications, and platforms, built on open and interoperable standards. India's DPI development began with the Unique Identification Authority of India (UIDAI) and the Aadhaar digital identity system, a biometric-based platform for efficient identity verification and service delivery. Together with the Jan Dhan accounts and mobile access, the three constituted the JAM trinity[3] which anchored future development of DPI in the country. This evolved into the 'India Stack', a framework consisting of three different layers of unique digital identity (Aadhaar), payments (Unified Payments Interface, Aadhaar Payments Bridge, Aadhaar Enabled Payment Service), and data exchange (DigiLocker and Account Aggregator) (Alonso et al., 2023). Collectively, these systems enable paperless, cashless, and safe digital access to a variety of public and private services, including fintech innovations. India's experience showcases how DPI can support a bottom-up model of economic development that empowers informal entrepreneurs and advance financial inclusion, by lowering participation barriers and creating open, interoperable infrastructure (Sahasranamam and Prabhu, 2024).

Specifically, the Aadhaar ID system, the Unified Payment Interface (UPI), and Account Aggregator have been crucial for fintech development in the country. With 1.38 billion registered users, Aadhaar was the first building block for the country's digital stack (ERIA, 2024b). It enables instant identity verification, supporting financial services providers to reach low-income customers more effectively while also strengthening Know Your Customer (KYC) compliance and reducing frauds. As of April 2025, Aadhaar had facilitated over 150 billion authentication transactions (KPMG, 2025). Meanwhile, UPI was created in 2016 by the National Payments Corporation of India (NPCI) to facilitate low-cost, real-time, bank-to-bank payments. UPI has been associated with rapid growth in digital payments adoption, with consistent annual increase for number of users since FY 2018 (Figure 2). Mobile money account ownership per 1,000 rose fourfold during 2017–2021, while UPI itself accounted for 70% of digital payment transactions in FY 2023–24 and currently facilitates over 20 billion

[3] JAM trinity – 'J' for Jan Dhan accounts, 'A' for Aadhaar, and 'M' for mobile – represents the Government of India's integrated approach to advancing financial inclusion. It was initiated with the introduction of the National Mission for Financial Inclusion, or Pradhan Mantri Jan Dhan Yojana (PMJDY), in 2014 under Prime Minister Narendra Modi. The initiative aims to expand access to financial services such as savings, remittances, credit, insurance, and pensions. Within just over a year, nearly 200 million bank accounts were opened (Prime Minister's Office - Government of India, n.d.), and by 2019, the JAM trinity was widely regarded as an established and operational system for financial service delivery (Center for Digital Public Goods and Indian Institute of Management Bangalore, 2025).

transactions each month (NPCI and BCG, 2025; Sánchez-Cacicedo, 2024; Alonso et al., 2023). Now the world's fifth largest payment network, UPI is extending its global footprint through strategic partnerships with 11 countries, including Singapore and France. Peru and Trinidad and Tobago have also adopted UPI licensing to build their own real-time payment systems (NPCI and BCG, 2025; Centre for Digital Public Infrastructure, 2024). Lastly, the Account Aggregator (AA) constitutes a DPI framework that was designed to facilitate consent-based and secure data sharing between customers and financial institutions. Since its rollout in August 2021, about 4.5 million individuals and enterprises have benefited from expanded financial access through AA (Alonso et al., 2023).

Figure 2: Number of Users Onboarded on UPI Year-on-Year (Million)



Source: NPCI and BCG, 2025.

With a market value of US$402 billion in 2024 (Statista Research Department, 2025a), lending currently represents the largest share of India's fintech market. Together with payments, lending represented approximately 60% of total funding in the first half of 2025 (KPMG, 2025). This puts India's Open Credit Enablement Network (OCEN) as another transforming force, as it facilitates collateral-free loans for small businesses and allows multiple industries to act as loan service providers. OCEN enables MSMEs to build their credit profiles and score using their digital transaction and business history. By standardising credit demand data and borrower information across financial institutions, OCEN streamlines the lending process and aims to address the estimated Rs 2–2.5 million crore (US$350 billion) credit gap amongst Indian MSMEs (Bag, 2023). Aadhaar Digital ID and AA are particularly vital components of the OCEN-enabled lending value chain, given that the system operates on the principles of open and trustworthy data sharing.

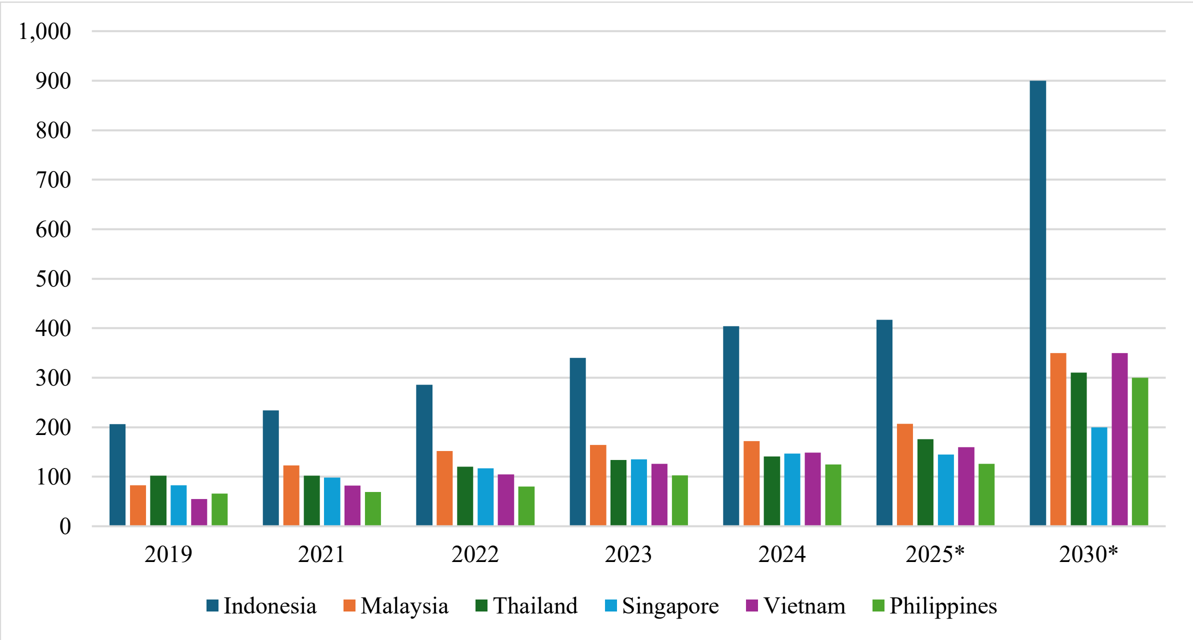
The model described above has given origin to successful fintech startups within the Indian market. For example, Moneyview, an Indian fintech unicorn startup, is amongst industry players leveraging AA and OCEN protocols to serve India's 'credit invisibles' – gig workers, self-employed individuals, and millions in Tier II/III cities with limited formal credit histories. These protocols support both credit risk assessment and loan underwriting for underserved consumers and MSMEs (Center for Digital Public Goods, Indian Institute of Management Bangalore, 2025). Moneyview also employs an AI-powered risk engine that uses alternative data like smartphone metadata, SMS alerts, and utility payments to assess creditworthiness (Agnihotri, 2025). These AI models for credit scoring and fraud detection are often trained on AA-enabled data, allowing Moneyview and other fintech start-ups to offer more tailored loan products.

Complementing this initiative for MSMEs is the Open Network for Digital Commerce (ONDC), which strives to democratise e-commerce by offering an open-source platform for merchants and customers nationwide. ONDC offers multiple services, such as payment and logistic supports, which in turn strengthen MSMEs' digital footprints for increased access to affordable online credits (Center for Digital Public Goods, Indian Institute of Management Bangalore, 2025). Through platforms like eSamudaay – an e-commerce start-up working with SMEs in smaller municipalities – ONDC's open architecture empowers local entrepreneurs to digitalise operations, reach new markets, and access financing through their digital footprints (Sahasranamam, 2025). The ONDC-powered 'Namma Yatri' ride-hailing service illustrates similar dynamics, having completed 5 million trips within its first six months of operation (Sahasranamam and Prabhu, 2024).

3.3. Examples from ASEAN and Africa: Fintech Driven by Private Sector Actors

ASEAN represents one of the fastest growing and most resilient ecosystems for the fintech industry. Over the past decade, fintech funding in six of the region's largest economies – Indonesia, Malaysia, the Philippines, Singapore, Thailand, and Viet Nam – surged more than tenfold (UOB, PwC, and Singapore Fintech Association, 2024). Even as global funding fell by 28% in the first nine months of 2024, fintech investments in the ASEAN-6 countries only declined by 1% over the same period (UOB, PwC, and Singapore Fintech Association, 2024). Encompassing 9 out of 16 unicorns in the ASEAN-6 region, digital payments remain at the forefront of financial innovation, with gross transaction value (GTV) rising 14 percent year-on-year in 2022 and reaching US$1.4 trillion by 2025 (Bain & Company, Google, Temasek, 2025; ASEAN, 2024; Okawara, 2024). Indonesia leads the growth, with transaction values reaching US$404 billion in 2024, followed by Malaysia, Thailand, and Vietnam (Figure 3). Much of this growth is underpinned by the rapid adoption of QR codes and mobile wallets, with the number of users projected to rise by 227 million from 2021 to 2026 (Okawara, 2024). Alongside payments, Buy Now Pay Later (BNPL) has emerged as another prominent trend; valued at US$14.7 billion in 2023, it was adopted by about 20.6% of adults and is projected to reach US$53.2 billion in value by 2027 (The Digital Banker, 2024).

Figure 3: Gross Transaction Value (GTV) of Digital Payments in Selected Southeast Asian Countries (2019–2030)



Source: Statista Research Department, 2025b.

Southeast Asia's fintech industry is often marked by the rise of super apps, commonly led by transport and delivery platforms. These apps integrate transportation, payments, shopping, and financial services into one platform, typically supported by proprietary e-wallets for seamless use. In Indonesia, 52% of surveyed users already use e-payments embedded in super apps (IDN Research Institute, 2025; Rizki, Joewono, and Susilo, 2024). This model particularly resonates with younger populations, as the accessibility of digital financial tools deeply aligns with their tech-savvy habits and preference for convenience. While this trend is not unique to Southeast Asia, it is especially prevalent in Asia due to the rapid growth of the digital economy, persistent financial inclusion gaps, and cultural openness to digital technologies (Hasselwander and Weiss, 2025).

Grab and Gojek are leading examples of Southeast Asian giants that grew from ride-hailing platforms into super apps by diversifying their services and integrating financial solutions. Gojek, originating from Indonesia, focuses on tailored financial tools to improve financial access for MSMEs and address their unique needs. Its GoPay Merchant app supports nationwide QRIS (Quick Response Code Indonesian Standard) payments and offers flexible disbursement options, alongside integrated fraud prevention tools (Goto, 2024; Cho and Anindya, 2021). Similarly, Grab puts emphasis on hyper-local solutions to cater to diverse market needs across Southeast Asia. It offers utility bill payments in Viet Nam and insurance linked to driver earnings in the Philippines. As 60% of face difficulties in accessing loans from traditional sources, Grab's Merchant Cash Advance product has also been instrumental in supporting small businesses across Thailand, Indonesia, and the Philippines (Grab Sustainability Team, 2024). Today, Grab serves 32 million users across eight countries (Grab, 2025).

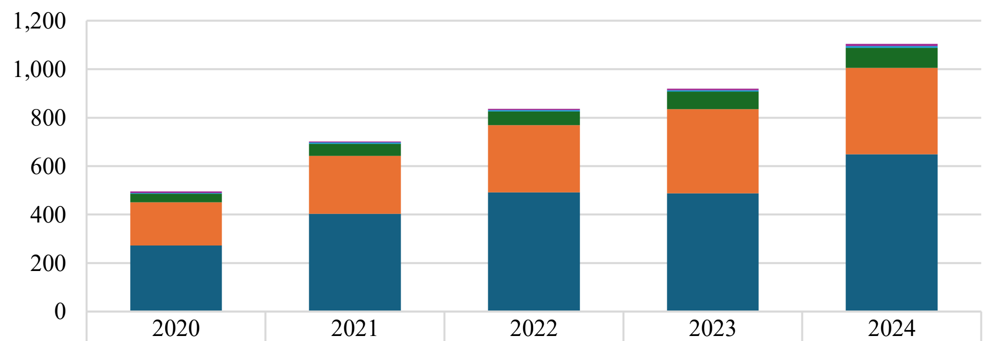
For super apps, the ability to deliver tailored services also hinges on a robust technological foundation that seamlessly supports a wide range of functionalities and, most importantly, advanced big data analytics. Since microloans and microinsurance primarily serve underserved groups with limited documentation, expanding these services introduces credit and operational risks that can only be mitigated through sufficient data on customer profiles, spending patterns, digital footprints, and preferences (Bayashot, 2025; ERIA, 2024a; Tech for Good Institute and Bain & Company, 2021). Grab, for example, leverages merchants' earnings and transaction history on its platform to assess the credit eligibility of small businesses before extending microloans (Grab Sustainability Team, 2024). The company has also started embedding Artificial Intelligence (AI) – developed in-house through strategic collaborations – into its data infrastructure to enhance decision-making, optimise risk assessment, and enable predictive modelling for secure financial service delivery.

On the other side of the globe, Africa's fintech ecosystem is experiencing similar trends of rapid expansions, with the number of firms nearly tripling from 2020 to 2024 (EIB, 2024). More than 70% of adults in Sub-Saharan Africa (SSA) utilise fintech services, with almost half of the continent's population projected to engage with digital marketplaces by end- 2025 (B20 South Africa, 2025). Fintech remains Africa's leading tech investment sector, consistently dominating the continent's venture capital landscape from 2019 to 2024 and securing about

45% of total start-up funding in H1 2025 (Scala, 2025; Partech, 2024). The trend is led by the 'Big Four' – Nigeria, South Africa, Kenya, and Egypt – where 77.2% of African fintech start-ups reside in 2023 and accounted for 76% of total funding in 2024 (Chauhan, 2025; BDO, 2024).

This expansion is mainly driven by mobile money activities. With over 1.1 billion accounts registered in Africa, the continent accounted for 74% of global mobile financial transaction volume and 66% of global transaction value in 2024 (Raithatha and Storchi, 2025). In SSA alone, mobile money added around US$190 billion to GDP (year-on-year) in 2023, and this growth is associated with the increase in adult account ownership from about one-third to over half between 2014 and 2021 (GSMA, 2025a; van Teutem, 2025). As illustrated in Figure 4, mobile money transaction values increased by more than twofold from 2020 to 2024. Around 90% of these transactions originated in East and West Africa (EIB, 2024), propelled by a large young and urban population, rising smartphone penetration, and the presence of digital platforms run by mobile network operators (MNOs), or commonly referred to as telcos.

Figure 4: Mobile Money Transaction Value in Africa in 2020 to 2024 (in Billion US Dollars), by Region



	2020	2021	2022	2023	2024
North Africa	5.40	3.70	4.70	7	10
Southern Africa	3	4.90	5.30	6	6
Central Africa	35.70	50.10	57.60	72	83
West Africa	178	239.30	277	347	357
East Africa	273	403.40	491.80	488	649

Source: Taylor, 2025a.

A defining characteristic across African countries is the high mobile penetration, yet with uneven traditional banking infrastructures. This environment gives telcos a comparative advantage, enabling them to leverage existing infrastructures to deliver financial services, commonly through mobile money. Africa's mobile money transformation began in 2007 with the launch of M-Pesa by Safaricom in Kenya. First launched as microloan repayments service, it swiftly became a wide-ranging financial tool, supported by strong consumer trust, vast agent networks, and broad national coverage. By 2010, there were more mobile money accounts than traditional bank accounts in Kenya, setting off similar trends across East Africa (TechAfrica News, 2025). By 2024, M-PESA had grown to more than 77 million users and processed 37 billion transactions annually, offering expanded services in payments, lending, and saving (Taylor, 2025b; Taylor, 2025c). Telcos have since become prominent actors in Africa's mobile money landscape, with telco-led platforms contributing an estimated 75-85% of the 2020's total fintech market revenue in Kenya and Ghana (Flötotto et al., 2022). Consequently, telcos have become indispensable to Africa's financial inclusion agenda. The integration of telcos with payment innovations is considered a key driver of economic transformation, offering inclusive, low-cost access to digital payments and identity systems via USSD technology (B20 South Africa, 2025).

However, beyond Kenya's telco-centred ecosystem, there are notable variations across the continent, as demonstrated by Egypt's bank-led and Nigeria's hybrid models. In Egypt, financial services historically revolved around formal banking institutions since the 1950s, following successive waves of bank nationalisation and privatisation (Briter and Lateral Frontiers, 2025). Coupled with the absence of dominant telco companies, fintech start-ups commonly partner with banks to deliver digital financial services, leveraging banks' regulatory expertise and large customer bases. An illustrative example is Fawry's collaboration with Banque Misr to launch Meeza in 2019. Meeza is the Egyptian National Payment Scheme, which allows users to make electronic payments, withdraw cash, and access funds, all under the supervision of the country's central bank. There is also Nclude, a consortium of Egypt's leading national banks – Banque Misr, National Bank of Egypt, and Banque Du Caire – serving as a fintech-focused venture capital investment platform.

In Nigeria, despite the presence of major telcos such as MTN and Airtel, their services are limited to mobile wallets under Payment Service Banks (PSB) licences (Briter and Lateral Frontiers, 2025). As a result, telcos are unable to provide the broader suite of banking services offered by platforms such as M-PESA in Kenya, hence creating opportunities for fintech companies to fill market gaps. Supported by established banks and payment infrastructure providers such as the Nigeria Inter-Bank Settlement System (NIBSS), fintech firms are increasingly partnering with traditional financial service providers. Flutterwave, a Nigerian unicorn, collaborates with institutions such as American Express (Amex) and First City Monument Bank (FCMB) to digitalise services and enhance interoperable payment systems.

These examples show how business-sector actors have played an instrumental role in fintech innovation developments across emerging markets, whether in the form of innovative start-ups in ASEAN, telco giants in Kenya, or financial companies in Nigeria and Egypt.

4. Importance of Robust Regulatory Frameworks, Market Integration, and Quality Digital Infrastructure

Data provides strong evidence that fintech is growing rapidly, especially in emerging markets and developing economies. Yet, fintech firms continue to face key challenges that limit growth prospects. Scalability concerns top the list, largely due to market fragmentations and limited access to credit (Inter-American Development Bank, 2024; OECD, 2024; Alliance for Financial Inclusion, 2023; Apostolides et al., 2021). Regulatory developments outside regional hubs often lag, resulting in unstandardised procedures that increase compliance costs, heighten risks, and complicate cross-border expansion. In many SSA countries, for example, regulations are in place for basic digital financial services (i.e. digital payments and e-money), but frameworks for digital lending, crypto assets, and Equity Crowdfunding (ECF) are far less developed. This gap risks concentrating growth and investments in more advanced jurisdictions, leaving smaller markets behind.

Regulatory incompatibility between jurisdictions has also contributed to the lack of interoperability. In Latin America, most fintech firms remain confined to their domestic markets, as 58.17% of surveyed firms still operate in one country in 2023 despite the general increase of cross-border expansion trends since 2020, largely due to regulatory incompatibilities (Finnovista, 2024; Ioannou and Wójcik, 2022; Cantú and Ulloa, 2020). While Colombia and Chile already have dedicated regulations for fintech and open finance, Peru's corresponding formal frameworks remain absent in 2024 as it governs the sector through general financial, data protection, and payment interoperability regulations instead (Garrigues, 2024). A similar pattern is also evident across Africa, where country-specific fintech licensing regimes, capital thresholds, and data regulations make market entry costly and time-intensive. Nigeria currently imposes the highest thresholds: Monile Money Operator (MMO) licence requiring ₦2 billion (US$1.376 million) in capital, while Payment Service Provider licences in Kenya, Ghana, and Rwanda require between US$21,000 and US$185,000, with processing time between three to six months (Davis, 2025). These regulatory burdens, which include variable fees, multi-stage approvals, and unclear timelines, ultimately create barriers impeding fintech firms' cross-border expansion.

Another persisting barrier is the lack, if not absence, of robust digital infrastructure. Without it, fintech firms face increased operational costs, unreliable service, and constrained user acquisition. The infrastructure gap risks exacerbating the digital divide and financial exclusion, affecting marginalised groups the most. Globally, 2.2 billion people remain offline in 2025, with the majority residing in rural regions of low-income countries (ITU, 2025b; UN Department of Economic and Social Affairs, n.d.). While weak infrastructure might not be the sole factor behind the slow growth, prior research consistently underlines it as a critical enabler for the adoption and diffusion of digitalised financial services (Bontadini et al., 2024; Didier Brandao et al., 2022; Feyen et al., 2021). For fintech, strengthened infrastructure for cybersecurity is particularly vital, yet government institutions (21%) and financial organisations (13%) in Latin America and the Caribbean recorded the highest number of cyberattacks between 2023 and 2024 (Bezborodko, 2025). As such, the 2024 European Investment Banking Survey found that banks operating in Africa value digital infrastructure investment as a priority (EIB, 2024).

India's case also shows the importance of ensuring equitable access to digital tools if digitalisation is to translate into inclusive growth. Despite the widespread adoption of DPI, direct correlation to the state's economic output and GDP remain limited, capped at 1% even under optimistic assumptions (Srivastava et al., 2025). While digital payments have grown in volume, the overall value of cash in circulation has not declined, indicating that digital transactions largely replace low-value cash or debit card uses rather than transforming consumption behaviours. This is particularly important for marginalised groups with limited digital literacy and access to digital tools. In India, women in rural areas are disproportionately affected, with gender gaps in digital access exceeding 30% in states like Gujarat and Karnataka (Samudra, 2022).

4.1. Role of Regional Policies Focusing on Integration, Interoperability, and Inclusivity

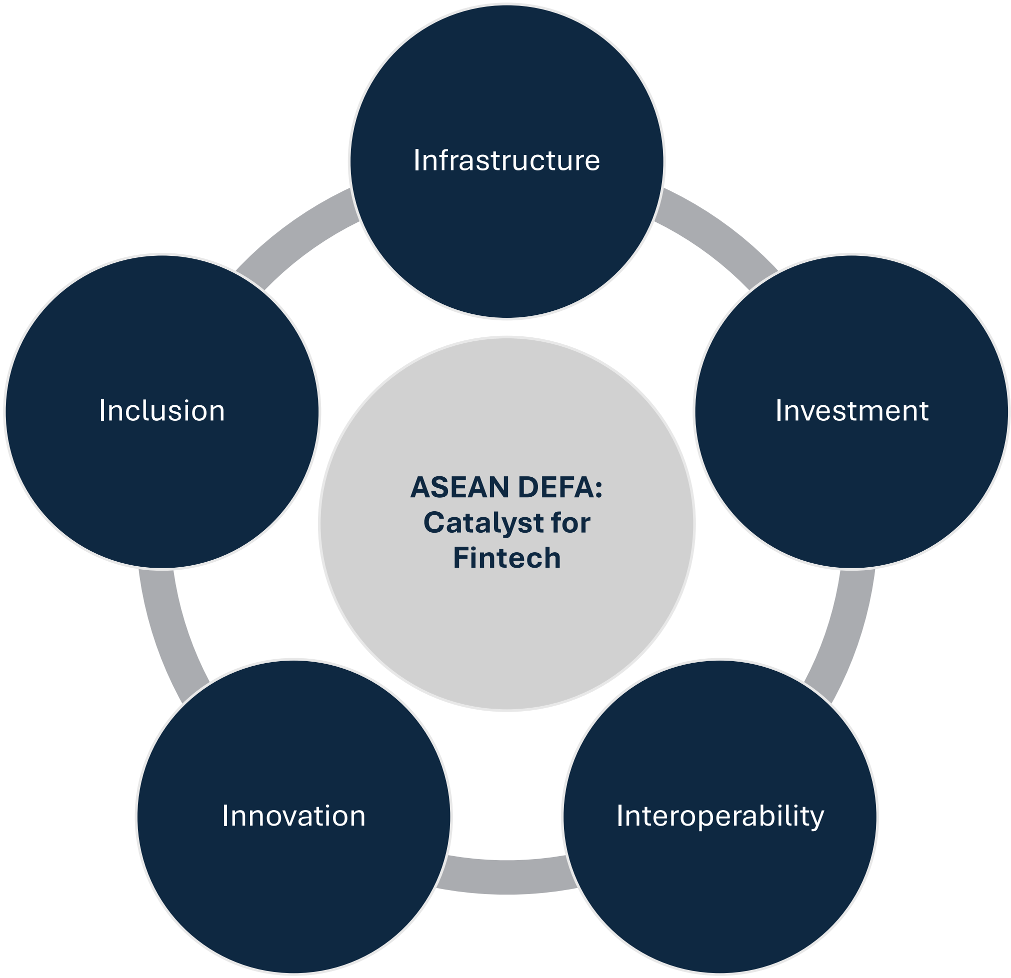
Recognising their modalities and potential, ASEAN Member States (AMS) have embarked on launching key initiatives to advance fintech industry through regulatory harmonisation that promotes market integration, interoperability, cross-border collaboration, and inclusivity. The ASEAN Regional Payment Connectivity (RPC) initiative, introduced in 2022, aims to streamline cross-border transactions by enabling local currency payments, reducing costs, cutting processing times, and improving convenience. Built upon preceding frameworks, such as the *ASEAN Economic Community (AEC) Blueprint 2025* and *ASEAN*

Payments Policy Framework for Cross-border Real Time Retail Payments within the ASEAN Region (2019), RPC emphasises a real-time, region-wide standardised QR code system. This is particularly relevant to the region, as over 85% of merchants in Thailand, Viet Nam, and Indonesia have adopted QR payments (Eurogroup Consulting, 2025). To date, eight ASEAN economies have been connected through bilateral QR payment linkages (i.e. Cambodia's KHQR, Indonesia's QRIS, Lao PDR's Lao QR, Malaysia's DuitNow, the Philippines' QR Ph, Singapore's PayNow, Thailand's PromptPay, and Viet Nam's VietQR), with further integration efforts underway with Hong Kong, India, and Japan (Mahusin and Prilliadi, 2025; Pande, Quách, and Choo, 2025).

Another initiative is the ASEAN Digital Economy Framework Agreement (DEFA), currently under negotiation and aiming to create a unified and secure digital market in the region. Digital integration has been a strategic priority for the regional bloc since the COVID-19 pandemic, underscored by the adoption of major strategic instruments such as the *ASEAN Digital Masterplan 2025* (2021) and the *Bandar Seri Begawan Roadmap* (2022). ASEAN's digital economy was initially projected to reach US$1 trillion by 2030, but the forward-looking DEFA aims to double that figure to US$2 trillion through nine core provisions that promote regulatory alignment, national investments, interoperability, secure digital access, co-operation, and inclusivity (BCG, 2024). For the fintech sector, these provisions are expected to support expansion and scaling across borders by lowering compliance costs, improving business environment, enhancing trust and security, as well as laying the groundwork for more advanced fintech applications.

Specifically, the ASEAN DEFA can support fintech growth through five strategic pathways that addresses key regional challenges and opportunities (Figure 5). *First*, it incentivises governments to invest in broadband expansion and close gaps within digital systems, as the agreement emphasises digital infrastructure as one of its core enablers. The *ASEAN Digital Integration Index* (ASEAN, 2021) reveals that despite generally strong infrastructure across the region, significant disparities persist, particularly between urban and rural communities and across income levels. DEFA therefore plays a crucial role in bridging these gaps, ultimately expanding fintech services to underserved and rural populations.

Figure 5: Pathways Through Which ASEAN Digital Economy Framework Agreement (DEFA) Accelerates Fintech Growth in the Region



Source: Developed by authors.

Second, DEFA-driven regulatory alignment is expected to deepen regional market integration, which in turn will stimulate intra-regional investment flows. In 2024, ASEAN became the world's fifth-largest economy, with a combined population of 684.1 million (8.4% of the global population) and an estimated GDP of US$3.9 trillion (ASEAN, 2025a). Intra-regional investment also reached US$31 billion in the same year, placing it amongst the top five sources of foreign direct investment (FDI) in ASEAN and accounting for 14% of the region's total FDI (ASEAN, 2025b). At the same time, a more integrated regional market also enlarges overall market size, helping attract additional extra-regional capital.[4] This creates

[4] OECD (2003) and ADB (2015) note that regional co-operation is an increasingly important development strategy that can make a whole region relatively more attractive for FDI by extending access to factors of production, products, markets beyond national boundaries. Such integration also enhances market predictability and helps close the credibility gap for investment.

more credit alternatives and financing options for fintech firms, addressing one of the region's key challenges, especially amidst the global investment downturn.

Third, the ASEAN DEFA promotes interoperability by encouraging the adoption of internationally recognised standards and establishing trusted frameworks for secure cross-border data flows. Such interoperability is essential for developing efficient and safe cross-border electronic payment systems, which underpin fintech expansion (Pande, Quách, and Choo, 2025; FSB, 2024; Sinay, Tumengkol, and Zendra, 2021). High interoperability improves efficiency and coverage by giving both traditional and new financial service providers easier access to payment systems, reducing duplication and lowering overall costs. In turn, fintech firms are able to scale more seamlessly across markets. The emphasis on interoperability reflects global trends, as illustrated by the European Union's efforts to establish a unified framework for electronic identification and trust services across member states through the eIDAS Regulations (EU No. 910/2014 and EU 2024/1183).

Fourth, the agreement facilitates collaboration between stakeholders, creating space for innovation. Advanced technology such as AI, blockchain, and big data typically require extensive testing before deployment to assess their feasibility and implications. Collaboration-enabled mechanisms, such as regulatory sandboxes, pilot programmes, and formal policy dialogues, allow start-ups to evaluate technological solutions under more lenient regulatory conditions, further supporting swifter commercialisation. The UK Financial Conduct Authority reported that 76% of the firms participating in its regulatory sandbox were still active after two years, compared to 57% of firms that were rejected from the cohort (Bains and Wu, 2023).

Fifth, the agreement underlines the importance of equitable digital transformation by strengthening digital literacy and advancing financial inclusion, which are crucial components of fintech. In ASEAN, over 70% of adults remain unbanked and underbanked (Bain & Company, Google, and Temasek, 2019), disproportionately affecting women, rural communities, and MSMEs. Fintech has been a main driving force for financial inclusion agenda in ASEAN throughout 2011–2021, most notably in Malaysia, Thailand, Indonesia, and the Philippines (Ha et al., 2025). DEFA promotes targeted initiatives that combine digital skills training, trust-building mechanisms, and tailored financial products to expand access to affordable digital financial services. Together, these five pathways enable the ASEAN DEFA to create a thriving, integrated, and inclusive fintech ecosystem that accelerates economic growth while ensuring equitable digital finance benefits across the region's diverse communities and markets.

4.2. The Merit of Cross-Border Partnerships

Yet, Southeast Asia is still not without its impediments as ecosystem variance persists. AMS have different starting points shaped by diverse socioeconomic structures, uneven digital infrastructure, varying institutional readiness, and differing levels of intraregional activities. These gaps often translate into divergent regulatory approaches. In the case of digital payments, debates continue between rule-based and principle-based frameworks. The former offers greater security and standardisation, benefiting countries with limited regulatory capacity, while the latter is often favoured by states with stronger institutions due to its flexibility in fostering fintech innovation (Mahusin and Prilliadi, 2025). Another case of disparity concerns standardisation; nine AMS have adopted ISO 20022 and eight have established national QR payment systems, while others are still in the transition, limiting their integration into more sophisticated regional frameworks.

In this context, cross-border partnership continues to be a central theme as knowledge sharing, technology transfer, and the exchange of best practices provide avenues to close capability gaps and ensure more inclusive growth. One notable example is the Indonesian fintech start-up Duithape, which developed e-wallet solutions using facial recognition technology. Initially targeting unbanked plantation workers in Indonesia who lacked smartphones or bank accounts, the start-up expanded its model to a depopulating rural village in Japan in 2022, where many elderly residents faced similar barriers to digital and financial access despite holding bank accounts. This pilot illustrates how cross-border collaboration enables fintech innovations to be adapted across diverse demographic and economic contexts to address common financial inclusion challenges.

In the absence of regional standardization and interoperability, cross-border partnerships can also become a trailblazer. In February 2025, Ghana and Rwanda signed a Memorandum of Understanding (MoU) which allows start-ups licensed in either country to operate in both markets with minimal additional regulatory requirements. The MoU also stipulated both countries' Central Banks agreement to link their national payment systems, which seen as a forward-looking step to encourage innovation and growth (Bank of Ghana, 2025). This decision was taken under the growing regional efforts to breakdown financial silos –Afreximbank's Pan-African Payment and Settlement System (PAPSS), the Smart Africa Alliance, and African Development Bank-led regulatory harmonisation (Davis, 2025). Together, these initiatives show that fintech and capital markets cannot scale without coordinated policies, making the Ghana–Rwanda agreement an early practical step toward African Continental Free Trade Area's (AfCFTA) digital goals.

Another example is the Pacific Alliance countries' effort to set on a series of guiding principles for fintech regulation in the sub-region. Eight principles were identified to balance between promoting innovation and mitigating risks from new technology: flexibility, activity-based regulation, technological neutrality, proportionality, consumer protection, financial integrity and stability, prevention of money laundering and the financing of terrorism, and multi-level,-stakeholder coordination and co-operation (Allianza del Pacifico, 2018a; Allianza del Pacifico, 2018b). With the support from the Inter-American Development Bank (IDB), the document was officially recognized in the 17th Meeting of Finance Ministers of the Pacific Alliance in 2018. Though more normative in nature, this effort represents one of the earliest attempts by countries in the region to pursue regulatory convergence that reduce uncertainty and enable fintech firms to scale up beyond borders (Inter-American Development Bank, IDB Invest, and Finnovista, 2018).

5. Conclusion

Fintech developments across emerging markets demonstrate how innovation can thrive under diverse circumstances, whether through enabling regulatory frameworks in Latin America, dynamic interplays between telcos and banking actors in Africa, DPI-driven models in India, or super-app–centred ecosystems in Southeast Asia. The listed models are not mutually exclusive but are instead emblematic cases, as several approaches can coexist within the same ecosystem. Nevertheless, these different frameworks illustrate the key players and key factors that disproportionally affected and drove fintech developments in each ecosystem. Across all regions covered in this paper, fintech innovation has been fuelled by sizeable unbanked populations, demographic shifts, and expanding internet and mobile adoption, with the COVID-19 pandemic serving as a catalyst. However, fintech growth remains constrained by market fragmentation, uneven regulations, and weak digital infrastructure. These shared challenges underscore that the sector's transformative potential does not arise automatically but rather requires deliberate strategies to bridge divides and ensure that innovation reaches underserved populations.

As fintech ecosystems continue to mature, policymakers must prioritise building enabling environments that ensure equitable digital participation, encourage competition, support experimentation, as well as strengthen trust and cybersecurity. Ensuring equitable participation starts from investments in accessible digital infrastructure and tailored programmes that empower marginalised communities, such as rural populations and women.

Meanwhile, a competitive business environment is fostered through clear, agile regulatory frameworks that lower entry barriers, promote interoperability, and maintain a level playing field for incumbents and start-ups alike. Creating a supportive environment for innovation is no less critical for countries seeking to unlock new engines of growth. Controlled environments where fintech firms can safely test new technologies (e.g. regulatory sandboxes and innovation hubs) can accelerate commercialisation while managing risks. At the same time, increased digitalisation inevitably demands robust cybersecurity frameworks, not only to protect consumers but also to maintain confidence in fintech platforms. Establishing clear standards, strengthening digital identity and reporting mechanisms, and promoting public–private partnerships are amongst the feasible avenues that policymakers can pursue. Combined, these policy efforts create a dynamic, inclusive, and secure ecosystem that facilitates fintech scalability, responsiveness, and resilience in emerging and developing markets.

For ASEAN, the next phase of fintech growth hinges on building a harmonised and resilient ecosystem. The newly adopted ASEAN Community Vision 2045 has stipulated a strategic goal of establishing a connected, open, seamless, and safe digital community. As such, regional initiatives such as RPC and DEFA present timely opportunities to deepen integration, expand cross-border services, promote collaborations, lower costs, and strengthen cybersecurity. By aligning innovation with financial inclusion goals, ASEAN can reinforce its position as a leading fintech hub while ensuring that fintech serves as a tool for sustainable and equitable growth.

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