

Cross-border payments - A primer



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Chapter

1

Cross-border payments - A massive opportunity

Cross-border payments denote financial transactions conducted among individuals, businesses, or financial institutions situated in disparate countries. These transactions entail the transfer of funds, across international borders. Beyond facilitating global trade, investment, and remittances, cross-border payments also contribute significantly to supporting travel and tourism.

In 2022, cross-border payment flows surged to approximately [\\$150 trillion](#)¹, marking a remarkable 13% increase within a single year. This substantial movement of funds led to an even more significant rise in cross-border revenues, soaring by 17% to reach \$240 billion. Notably, revenues from cross-border consumer payments, encompassing both C2B and C2C transactions, experienced double-digit growth rates, accelerating from the previous year's high single digits. Conversely, commercial payments, both B2B and B2C, expanded by 10%, albeit at a slower pace compared to the post-pandemic surge witnessed in 2021. Projections from a recent Forbes article suggest that the cross-border payments market may surpass [\\$250 trillion](#)² by 2027, driven by various factors. FXC predicts that the global B2B cross-border payments market could total \$56.1tn by 2030, driven by growth across large enterprises and SMBs, as well as increased digitization.

Financial flows continue to exhibit resilience, with numerous indicators of capital flows showing a recent rebound. The U.S. dollar remains central to these flows, as evidenced by the significant volume of global foreign exchange (FX) market daily transactions, amounting to [\\$7.5 trillion](#)³ in 2022 – more than double the turnover recorded in 2007. Notably, the U.S. dollar serves as one leg in 88% of all global FX trades and accounts for approximately 50% of commercial payment flows through SWIFT.

1. The 2023 McKinsey Global Payments Report | McKinsey

2. Navigating Currency Exchange Risks With Multicurrency Accounts | Forbes

3. FUTURE OF CROSS-BORDER PAYMENTS | Citi



3 key drivers of cross-border payments

1. Trade and Remittances remain robust

While the macro conditions across the world appear challenging, the World Trade Organization (WTO) expects trade growth to pick up to 3.3% in 2024, up from 0.8% in 2023. Remittances across the world too reached a staggering \$860 billion in 2023 and 78% of this (approx. \$ 669 billion) was directed towards low- and middle-income countries. The top five remittance recipient countries in 2023 include Mexico (\$ 67 billion), China (\$ 50 billion), Philippines (USD \$ billion), Egypt (\$ 24 billion) while India leads global remittance charts with \$125 billion in [2023](#)⁴.

According to a recent survey by Mastercard, 75% of SMEs plan to expand their international business operations in the future, with 61% already utilizing international suppliers or services more frequently than a year ago.

As disposable incomes rise, an increasing number of consumers are transitioning into international digital buyers, solidifying cross-border eCommerce as a persistent global retail strategy. According to Juniper Research, cross-border eCommerce is forecasted to surpass \$3.3 trillion by 2028, up from \$1.6 trillion in [2023](#)⁵.

2. Travel and tourism bouncing back

In 2023, international tourism reached [\\$1.4 trillion](#)⁶ and is anticipated to fully rebound to pre-pandemic levels by 2024, with initial estimates suggesting a 2% growth above 2019 levels. This resurgence in travel and tourism will drive an uptick in cross-border payments. Overall, cross-border retail spending, inclusive of

tourism and remittances, totaled approximately [\\$5 trillion](#)⁷ in 2023, with business-to-business payments amounting to eight times that figure.

Although B2B transactions remain the primary source of cross-border revenue, consumer categories exhibit higher profit margins and are projected to experience faster growth over the next five years, particularly in C2B transactions tied to increased travel and e-commerce expenditure.

3. Commitment across the board

In October 2020, the G20 endorsed a proposal aimed at enhancing cross-border payments. This initiative was developed by the Financial Stability Board (FSB) in conjunction with the Committee on Payments and Market Infrastructures (CPMI) and various other relevant international organizations and bodies responsible for setting standards. The G20's initiative aims to tackle persistent issues in the cross-border payments arena, such as exorbitant costs, slow processing times, restricted accessibility, and inadequate transparency.

4. India leads global remittance charts in 2023 with \$125 billion | The Hindu Business Line

5. 33% of eCommerce Spend to Be Cross-border by 2028 Globally | Juniper Research.com

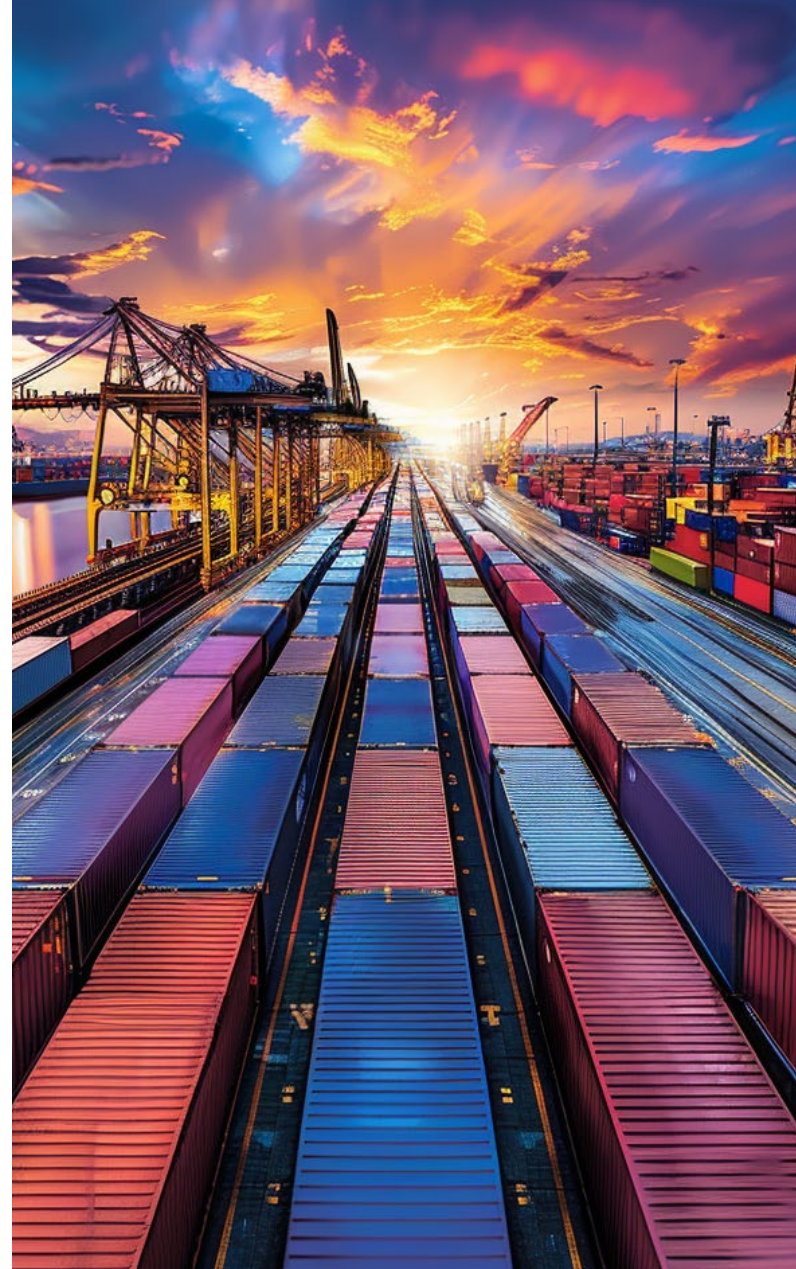
6. International Tourism to Reach Pre-Pandemic Levels in 2024 | UNWTO

7. The fight over the future of global payments | Economist

Summary

The sustained growth in global trade, coupled with the surge in remittances to low and middle-income countries, highlights a lucrative opportunity for banks. The G20's commitment to enhancing cross-border payments underscores the urgency for banks to address existing challenges. Additionally, the resurgence of travel and tourism, along with the exponential growth projected in cross-border eCommerce, emphasizes the critical role of banks in facilitating international transactions. With SMEs increasingly embracing global expansion and utilizing international services, banks cannot afford to overlook this burgeoning opportunity.

Despite the commitment demonstrated by global entities such as the G20 to enhance cross-border payments, significant issues persist. High costs, lack of transparency, slow processing times, and security concerns continue to plague the industry, hindering the seamless flow of funds across borders. As we delve deeper into Chapter 2, we'll explore these issues in detail, shedding light on the pain points experienced by individuals, businesses, and financial institutions engaged in cross-border transactions.





Chapter 2

Issues plaguing cross-border payments

Cross border payments have typically been plagued by high-costs, lack of transparency and slow processing time. In certain cases, a cross-border payment may require several days to process and could incur costs up to ten times higher than those of a domestic transaction.

1. High costs

High fees, exchange rate volatility and compliance costs add to the overall cost of cost of cross border transactions. In the first quarter of 2023, the worldwide average expense of transferring \$200 from one nation to another was approximately \$12, as per the World Bank's Remittance Prices Worldwide database. The Western card networks typical 1% cross-border fee they charge (on top of a 1-3% levy on merchants) supports company-wide net margins of around 50%, among the highest in the world for listed firms. Furthermore, banks persist as the priciest service providers, with an average cost of [11.48 %^a](#).

Looking at the positive aspect, the average remittance cost has decreased by one-third over the past decade, partially due to the emergence of new Fintechs. The G20 have set a target, reaffirming the United Nations Sustainable Development Goal, of a global average cost for sending a \$200 remittance of no more than 3 percent by 2030, with no corridors higher than 5 percent. Under competitive pressure, SWIFT has already upgraded its once-clunky system and has nearly halved the cost of messaging.

2. Longer settlement times

Varying enforcement of regulatory frameworks for sanctions screening and combating financial crimes results in the necessity of multiple checks on the same transaction to ensure that parties are not inadvertently engaging in illicit financial activities. Based on the underlying payments rails or technology, the time taken to complete a cross-border transaction can vary widely from being real time to near real time or to upto a few days.



By 2027, the G20 aims for 75% of all cross-border payments to reach the beneficiary within one hour, and the remaining 25% within one day.

Banks might employ various sources for conducting checks, potentially resulting in erroneous flags on payments. For instance, entities with names resembling those on sanctions or financial crime databases may trigger false alerts. This complexity escalates with the number of intermediaries involved, as the initial data provided for initial checks may lack elements necessary for compliance with other national regulations. Consequently, designing compliance checks becomes more expensive, automation efforts are hindered, and payment delays or rejections may occur.

3. Transparency

Transparency poses a significant challenge in cross-border payments. Individuals engaging in international money transfers often encounter unpredictable and obscure processes. This lack of transparency is primarily characterized by customers being unaware of the transaction costs, hidden fees, foreign exchange rates, and the exact amount credited to the recipient. Additionally, there is uncertainty about when the funds will be credited to the beneficiary, and in case of delays or issues, customers are left uninformed about the status and reasons for the delay. According to SWIFT's study done in 2023, which surveyed 7,000 consumers and small businesses, transparency was identified as a crucial factor for low-value international payments.

In the next chapter, let's understand the various optional forms making cross-border payments.





Chapter
3

Options for making cross-border payments

Customers across the spectrum, be it retail, or business have a plethora of options for making cross-border payments. Given the size of the opportunity, several players want a piece of this pie. Let's explore the various means by which both retail and corporate customers make cross-border payments.

1. Through Banks

International wire transfers represent a common method of cross-border payment, where the sender instructs their bank to transfer funds to a recipient in another country. Banks involved in the transfer facilitate the movement of funds across borders, often utilizing IBAN and BIC codes for interbank communication. This process heavily relies on the correspondent banking network, enabling banks to access financial services in different jurisdictions and support international trade. Correspondent banks maintain nostro and vostro accounts with local institutions worldwide in various currencies, enabling currency conversion for a fee.

SWIFT serves as the predominant standard for cross-border payments, with most large banks relying on SWIFT for international transactions. SWIFT gpi has notably enhanced transparency and addressed speed issues in cross-border payments, with over [55%](#) payment market infrastructures already exchanging gpi payments. SWIFT's transaction speed, with nearly [89%](#)¹⁰ of cross-border payments processed within an hour, surpasses the G20's end-to-end target of 75% by 2027. Furthermore, SWIFT is transitioning to the ISO 20022 messaging format by 2024-25, necessitating compliance from all banks to continue sending cross-border payments through SWIFT.

⁹ Swift GPI for Market Infrastructures | Swift

¹⁰ Swift's Cross-border Payments Processing Speed Surpasses G20 Target | Business Wire



Despite representing a smaller portion of cross-border payment flows, low-value payments (8% of cross-border payments) contribute significantly to one-third the revenue due to extensive retail networks and higher margins. SWIFT Go is specifically addressing the need for low-value cross-border payments in the consumer and SME segment. With SWIFT Go, customers can send up to 10,000 USD, GBP or EUR around the world, ensure beneficiaries receive the exact amount owed to them and have predictability along with transparency on the payment.

However, banks are also exploring other options of sending money across borders.

JPMorgan Chase, a prominent global bank responsible for a significant portion of dollar payments via SWIFT, collaborated with DBS and Temasek, Singapore's sovereign-wealth fund, to introduce [Partior](#)¹¹. This network seeks to address the shortcomings of correspondent banking by recording transfers on "permissioned" blockchain ledgers, accessible only to members for transaction validation. Partior promises real time, transparent, and "programmable" payments, where funds are transferred only upon meeting specific conditions.

[JPM Coin](#)¹² operates as a permissioned system, functioning as a payment rail and deposit account ledger. It enables J.P. Morgan clients to transfer US Dollars held on deposit with the bank, facilitating real-time liquidity funding and payments.

Citi has introduced a token service utilizing blockchain technology to provide digital asset solutions for institutional

clients. Known as [Citi Token Services](#)¹³, this service converts clients' deposits into digital tokens usable for real-time cross-border payments, liquidity, and automated trade finance solutions, available round the clock.

The [mBridge](#)¹⁴ project, a collaborative initiative involving the BIS Innovation Hub, four founding central banks, and over 25 observing members, explores a multi-central bank digital currency (multi-CBDC) common platform for wholesale cross-border payments. SWIFT and BIS are spearheading CBDC interoperability frameworks and pilots to assess the feasibility of using CBDCs for transitions between distributed ledger technology (DLT)-based and fiat-based systems, leveraging existing bank-centric financial infrastructure.

2. Through Card Networks

The global card network players Visa, Mastercard, UnionPay, amongst others have a cross-border payments play too. Visa B2B Connect introduced a pioneering solution for international B2B payments, utilizing Visa's extensive global network and advanced security technology. This platform empowers businesses worldwide to effortlessly authenticate and oversee their cross-border transactions. Through its partnership with SWIFT, Visa aims to improve the speed and certainty of cross-border fund transfers. Integration of SWIFT Payment Pre-validation will enable proactive checks on Visa B2B Connect payments, mitigating potential errors and minimizing delays. Furthermore, Visa intends to utilize SWIFT GPI capabilities to enhance visibility throughout the entire transaction process, culminating in a transition to Alliance Cloud for a scalable and secure link to SWIFT's network.

11. Partior | Transforming Financial Market Infrastructure

12. Coin Systems | Onyx by J.P.Morgan

13. Citi Digital Assets | Citigroup

14. Project mBridge :experimenting with a multi-CBDC platform for cross-border payments | BIS

[Visa Direct¹⁵](#) operates as a network that facilitates fund transfers for Visa's client financial institutions across 190 markets, backing 160 currencies. This platform facilitates near real-time fund transfers both domestically and internationally, covering person-to-person (P2P), business-to-consumer (B2C), and business-to-business (B2B) payments. It interfaces with 16 card-based networks, 65 domestic Automated Clearing House (ACH) schemes, seven Real-time Payment (RTP) networks, and five payment gateways.

Mastercard expanded its capabilities by acquiring Transfast in 2019, allowing the company to extend its services beyond low-value remittances. This infrastructure supports cross-border payouts in over 140 countries, including real-time transactions, and is utilized for various business payments such as overseas invoice settlements, payroll, and disbursements.

3. Through Fintechs

Numerous fintech firms offer cross-border payment solutions, leveraging their networks and partnerships to provide competitive exchange rates and lower fees. Leading fintech players like Wise, Airwallex, Nium, Rapyd, and Ripple are gaining market share from traditional banks.

Fintechs excel in delivering user-friendly, digital-first customer experiences tailored to both retail and SMEs' unique needs. Some fintechs adopt the Closed-Loop model, maintaining their own network and serving as payment service providers for both senders and recipients. Others operate on open-loop systems, collaborating with banks, payment networks, and financial institutions. They may

15. Visa Expands Global Money Movement Capabilities Beyond the Card with Visa Direct Payouts | Visa



utilize APIs to connect with banking networks, leverage messaging formats like ISO 20022, and partner with third-party currency exchange providers for foreign exchange services.

Fintech companies employ various methods for money transfer. For instance, Ripple, a blockchain-enabled crypto solutions firm, facilitates real-time settlement of funds using its Ripple payments solution. This solution purports to leverage a carbon-neutral digital asset, XRP, as a conduit between two fiat currencies. This facilitates the transfer of payments, allowing them to be sent and received in local currency at both ends of the transaction. This eliminates the need for pre-funding destination accounts and supports low-cost payments within seconds. Other fintechs leveraging blockchain for cross-border payments include Circle, Stellar, and BVNK.

Wise conducts international payments through its proprietary payment network instead of relying on SWIFT. This approach allows transfers to be processed swiftly, with 50% arriving within seconds and 90% within 24 hours, while also reducing costs compared to traditional banks. In September 2023, Wise and SWIFT announced a partnership enabling financial institutions to route SWIFT payment messages directly to the Wise Platform through the Correspondent Services solution. This collaboration enables customers to benefit from Wise's speed and convenience without requiring significant changes to their systems.

Airwallex has established its global payments network by integrating it with its local payments network. This approach allows Airwallex to efficiently collect funds in the sending country through

a local rail system, transfer the funds internally to its corresponding entity, and ultimately disburse them in the local rail of the receiving country. Fintech companies like Airwallex specialize in providing accounts and services that enable businesses to manage money across multiple currencies. This diverse range of capabilities positions multi-currency providers favorably in the cross-border payment market, offering low-cost international transfers for businesses. Features such as global accounts enable businesses to receive payments in local currencies and subsequently use the funds to settle bills or pay suppliers without the need for currency conversion.

Similarly, Revolut and Nium also offer global accounts supporting multi-currencies. Most fintech companies provide transparent conversion rates while prioritizing customer experience for both retail and business clients. Some fintechs also offer travel debit cards, available as virtual or physical cards, to assist customers with international payments during travel. However, these cards typically have partnerships with card network providers such as Visa or Mastercard.

Stablecoins represent blockchain-based digital currencies pegged to the value of an underlying asset, typically a reserve held at a regulated institution. Stablecoins aim to provide the benefits of tokenization while mitigating volatility by pegging their value to a stable fiat currency or other assets. PayPal recently launched its own U.S. dollar stablecoin, [PYUSD¹⁶](#), fully backed by U.S. dollar deposits, short-term U.S. Treasuries, and similar cash equivalents.

16. PayPal Stablecoin | US Dollar Cryptocurrency | PayPal US

Redeemable 1:1 for U.S. dollars, PYUSD operates on the Ethereum blockchain and is issued by Paxos Trust Company, subject to regulatory oversight by the New York State Department of Financial Services. Initially, PayPal users can utilize PYUSD for peer-to-peer payments, purchases, and conversions to other supported cryptocurrencies using compatible external crypto wallets. As mainstream adoption grows, potential use cases may include cross-border remittances and in-game purchases of digital goods.

4. Through Money Transfer Providers

The cross-border payments landscape, once dominated by MoneyGram and Western Union primarily in the P2P sector, has now become a crowded arena with numerous competitors offering diverse options for consumers to transfer funds internationally. Both MoneyGram and Western Union capitalized on their extensive physical networks, providing customers with the convenience of international money transfers, including cash pickup options, a feature not typically available with Fintech companies. MoneyGram, operating in over 200 countries and territories with approximately 400,000 agent locations, underwent a digital transformation pre-pandemic, significantly reducing its cost structure and average consumer fee to 2.9% of funds transferred. This shift to digital channels has propelled [MoneyGram's](#)¹⁷ business, serving over 150 million individuals worldwide, with digital transactions accounting for 44% of all transfers. MoneyGram's strategic investment in technology includes a partnership with the Stellar Development

17. Moneygram



Foundation, facilitating access to the digital economy through a solution that bridges cash and crypto transactions using USD Coin (USDC), a stablecoin fully backed by cash and U.S. Treasuries.

On the other hand, Western Union maintains its leadership in P2P cross-border payments and has recently forged key partnerships to enhance its services. Collaborating with Visa, Western Union integrates with Visa Direct for card issuance and value-added services, expanding its reach for customers to send or receive funds directly overseas. Another significant partnership is with Google Pay, enabling users in the U.S. to send money globally through Western Union's extensive financial network. Notably, both MoneyGram and Western Union operate their proprietary messaging systems for cross-border payments instead of relying on SWIFT, ensuring efficient money transfer processes within their networks.

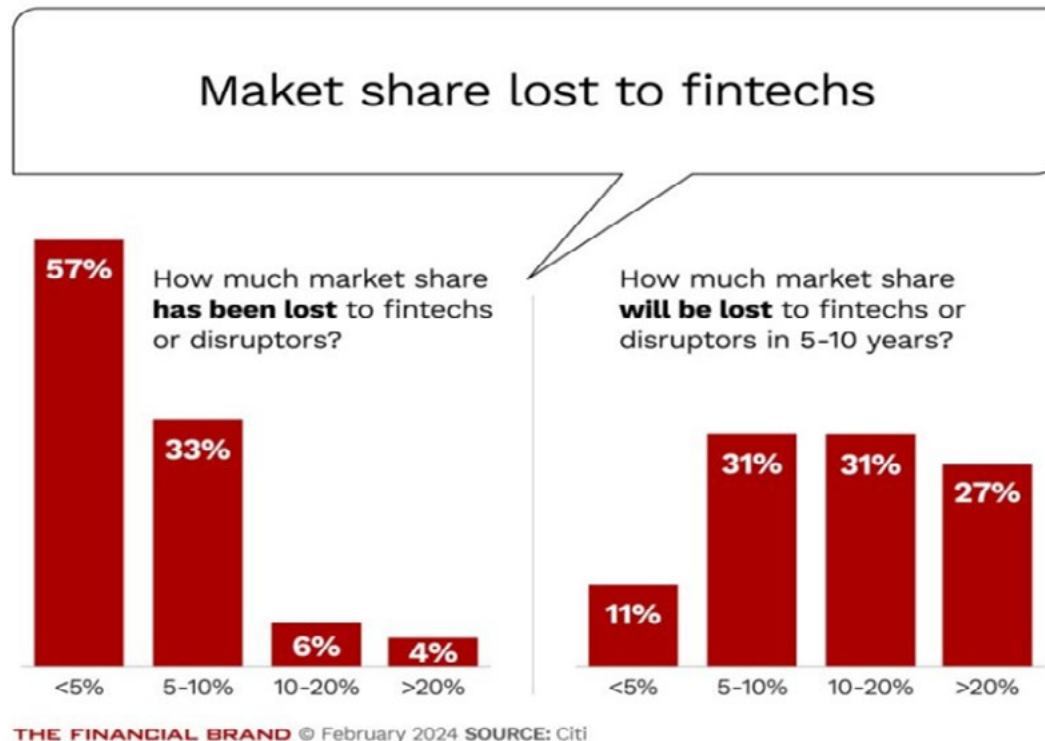


Diagram 1: Represents the % of cross-border business that banks lost to fintechs.

Source : [Citi](#)¹⁹

19. Fintechs Threaten Banks in Cross Border Payments, Citi Warns | The Financial Brand

Summary

The combination of innovation, customer-centric approaches, and strategic partnerships positions Fintechs, Card Networks, and Money transfer providers as key players in the evolution of cross-border payments, challenging traditional banks and financial institutions and driving increased competition and efficiency in the global payments landscape. Also, digital currencies, such as Bitcoin, Litecoin, and Ethereum, have gained popularity due to their low charges and diverse usage categories. While these payments offer quick and secure processing, cryptocurrency's volatility poses challenges. Blockchain technology and cryptocurrencies have facilitated cross-border payments without reliance on traditional banks, enabling direct transactions between parties with lower fees and faster settlement times.

Banks need to find a way to stave off competition and capitalize on the huge opportunity that lies ahead in the cross-border space. RTP could emerge as the silver-bullet for banks to rely on to both stave off competition and thrive in this space.



Customer experience proving pivotal

In the realm of cross-border payments, customer experience gains prominence, with QR codes and digital wallets emerging as focal points. QR code acceptance enables convenient digital payments by allowing customers to simply scan a code instead of entering payment details manually. Payment APIs facilitate easy integration with third-party applications to support digital commerce. Alias-based addressing simplifies peer-to-peer transfers by using aliases (such as phone numbers) rather than account numbers. QR codes have been increasingly integrated into faster payment services, which are monitored by central banks and private players globally. This integration is helping to provide a seamless payment experience for both merchants and customers. QR codes are being designed to be interoperable across different payment systems, allowing for seamless transactions between countries. This is particularly beneficial in regions like ASEAN, where efforts are being made to enable QR code payments across member states.

Digital wallets too have caught the fancy of customers, adapting to evolving consumer preferences and offering simplicity, rapid execution, and transparent costs. By 2026, over [60%¹⁸](#) of the world's population is projected to use digital wallets. Integration with digital wallet providers enables faster cross-border payments, leveraging the extensive reach and penetration of these platforms. Digital wallets also serve as gateways to heavily regulated markets like China, offering near-real time payments and simplified payment information. Also, in emerging markets with sizable unbanked populations, digital wallets provide access to financial services. Leading digital wallets like Alipay, PayPal, and Apple Pay dominate global e-commerce and point-of-sale transactions, facilitating trillions in consumer spending.

Additionally, mobile network operators like Vodafone and Airtel offer cross-border payment services, partnering with card network providers to drive simplicity, allowing customers to make cross-border payments.

18. Digital Wallet Users to Exceed 5.2 Billion Globally by 2026 | Juniper Research





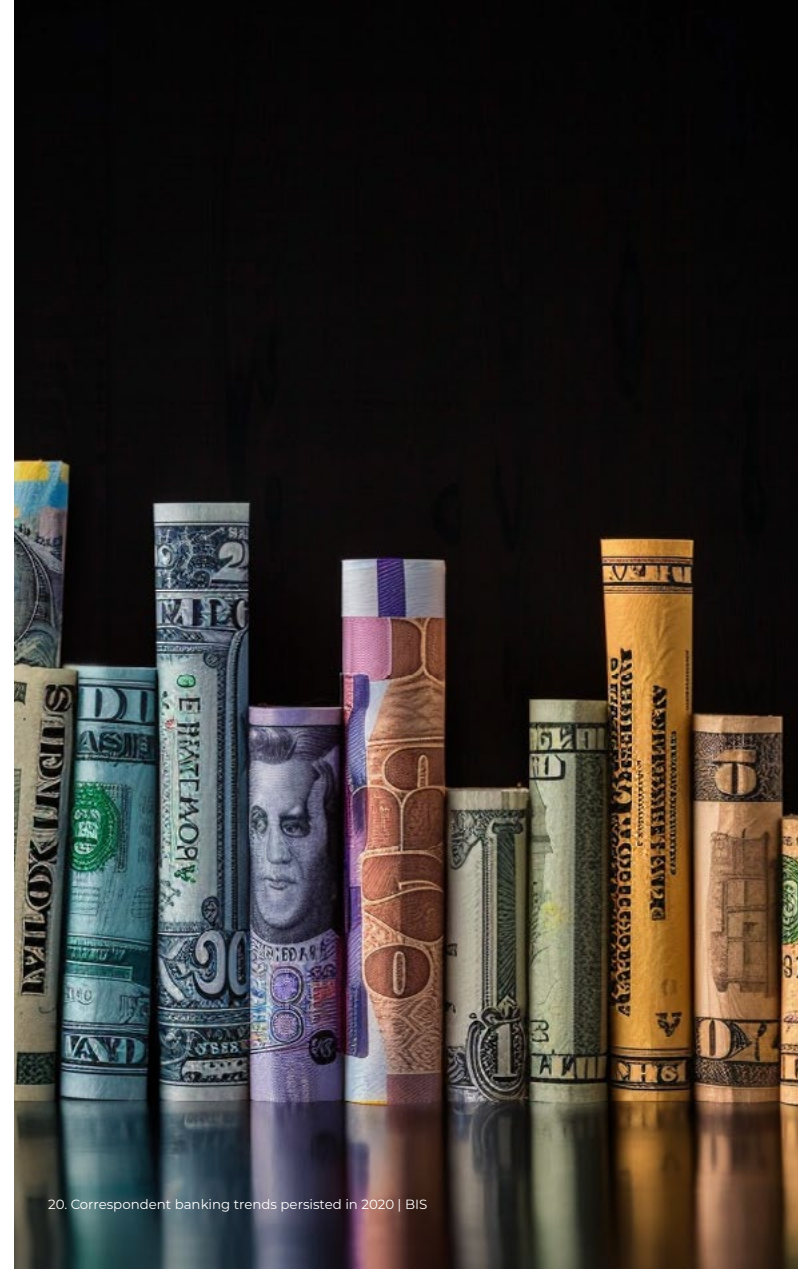
Chapter
4

RTP takes centerstage for banks

The need for faster payments across borders is not just limited to e-commerce and retail segment of remittances but is now increasingly being demanded by corporates to ensure fund movements are quick, efficient, and transparent allowing them to manage just in time liquidity along with their payables and receivables. Coupled with latest technology and models of operation, cross-border RTP is already a reality in some cases. Until recently, most cross-border payments traversed the traditional correspondent banking network, where clusters of banks communicated via an intricate network of correspondent banks to execute fund transfers. This process relied on the SWIFT financial messaging service, which boasts a user base of over 11,000 financial institutions, encompassing banks and securities firms from across more than 200 countries. Despite significant growth in both the value and volume of cross-border transactions from 2011 to 2020, data from the [BIS²⁰](#) reveals a substantial 25% decrease in correspondent banking relationships during the same period, possibly attributable to concerns regarding liquidity, transparency, and speed.

RTPs are the most recent phenomena in the payments ecosystem that has paved the way to a more innovative and transparent cross-border payment solutions. RTP allows for a smooth, seamless flow of funds between accounts at different banks and financial service providers. This delivers a consistent, convenient customer experience regardless of where accounts are held. Rather than postponing settlement, several RTPs (or Faster Payment Systems – FPS) are now using real-time settlement throughout all the entities involved. A faster cross border settlement would ensure that corporates are not required to maintain funds in various accounts for long periods of time and thereby allowing deployment of these funds more effectively, elsewhere.

An increasing number of domestic RTP rails have already adopted or are also on the verge of adopting the ISO 20022 message format, increasing their potential interoperability. The ISO 20022 standard specifies an



extensible markup language (XML)-based financial messaging schema. It provides a standardized and structured representation of transactions and associated metadata across the transaction life cycle. ISO 20022 messages consolidate and rationalize formats by establishing a common vocabulary of financial terms and codified meanings. Adoption facilitates integration between systems by harmonizing messaging protocols. By strengthening

operational resilience, lowering market fragmentation, and removing single points of failure, the ISO 20022 standard expands the potential for increased interoperability and harmonization among payment systems.

The diagram below depicts a typical flow of a cross border payment with various parties involved along with actions undertaken at each point.

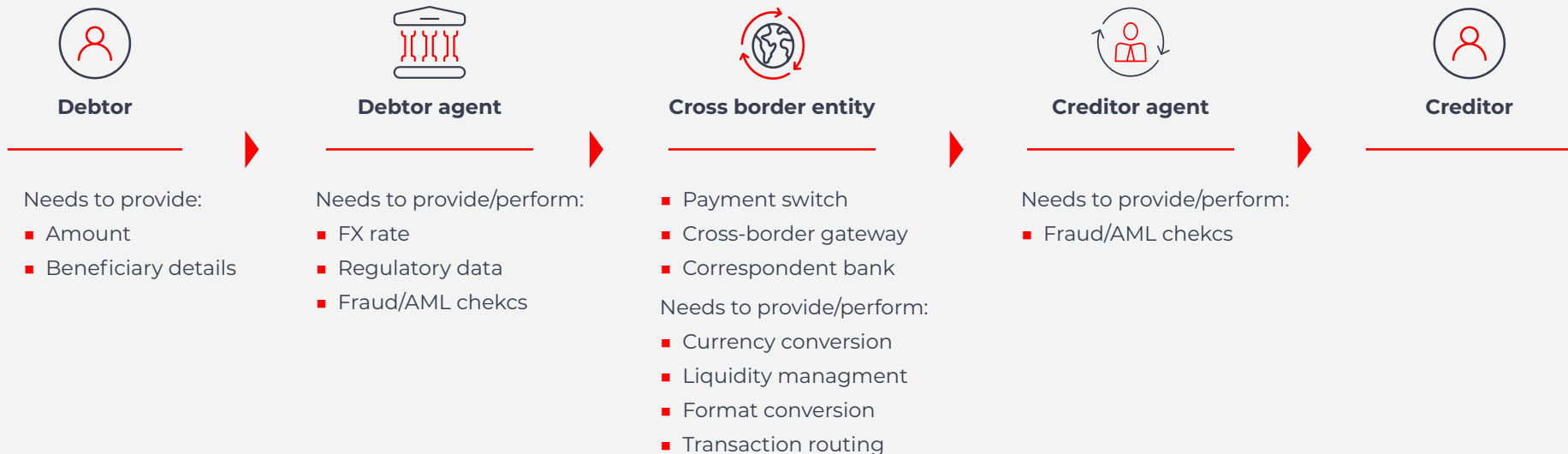


Diagram 2: Typical cross-border payment flow

There are essentially 2 models that bear critical significance in which RTPs have cut across boundaries of countries and have created a global marketplace.

Model 1 - Bi-lateral cross-border payments

In 2022, the gross digital payments in the six largest ASEAN economies amounted to \$806 billion, marking a 14% increase compared to the previous year. Projections indicate that this figure will nearly reach [\\$1.2 trillion²¹](#) by 2025. To keep up with the demands of the global economy, countries worldwide are investing in RTP capabilities. Several countries are linking their RTP systems through bilateral agreements and growing. By utilizing the strengths and technological knowledge of different players involved in RTP, countries can make better use of financial and technological resources in a transparent way that prioritizes end-users. By linking their national fast-payments systems, countries are reducing intermediaries and bringing down the cost of sending money abroad. Through a combination of central bank-driven projects, agreements, standardization like ISO 20022 and innovations in technology, cross-border RTP is a reality and are benefiting, both customers and businesses.

In this regard, progress in APAC has been fast.

- Thailand, Singapore, Malaysia and Indonesia, have connected their RTP rails, greatly expediting payment flows across their borders. Customers can now pay for goods and services in each other's countries using local currencies using a QR code, which analysts expect will boost tourism, consumer spending and remittance flows.

21. How ASEAN is making instant cross-border payments a reality | World Economic Forum



- In April 2021, Singapore and Thailand connected their domestic RTP systems to allow cross border payments.
- In June 2021, Thailand and Malaysia completed the first phase of the connection of their respective RTPs PromptPay and DuitNow. Similarly, Thailand's PromptPay has established bilateral links with similar systems in countries such as, Cambodia and Laos.
- In late 2022, HKICL launched the cross-border scheme on top of the existing domestic HK FPS (RTP rail) to address the need of cross-border RTP coming into Hong Kong to settle HKD through the RTP rail but also ensuring that all parties in the chain are captured from a compliance and fraud monitoring perspective.
- In Nov 2023, Singapore's PayNow-DuitNow linkage was established and enables real time, secure and cost-effective P2P fund transfers, and remittances between the two countries. This RTP systems linkage is also the first to include the participation of non-bank financial institutions from both countries, providing access to a broader group of users.
- At the recent ASEAN summit in May, leaders also reiterated their commitment to the project, pledging to work on a road map to expand regional payment links to all ten ASEAN members. The initiative aims to bolster and streamline cross-border trade settlements, investments, remittances, and various economic activities. Its objective is to establish an inclusive financial ecosystem across Southeast Asia.
- Indians can now use the Unified Payments Interface (UPI) to make payments in seven countries - Sri Lanka, Mauritius, France, UAE, Singapore, Bhutan and Nepal. India is currently in talks with almost 30 other countries to help them adopt the UPI model, creating international financial links. It could eventually become a "network of low value cross-border retail payments".
- The Australian Central Bank has also initiated bi-lateral cross-border payments as an overlay service on their domestic faster payment NPP, expected to be live by 2025.

User Journey: Singapore Real Time Payments & UPI: Real time payments in Singapore, now a reality



Ashok – A migrant worker in Singapore wants to send money back home to India

Ashok is a migrant worker in Singapore. Having family back in India who extensively use UPI, he is overjoyed to know that he can send money to his family because of UPI's integration with Singapore's Real Time Payments

Let's see how Ashok used digital remittance services using 'Singapore Real Time Payments-UPI'.

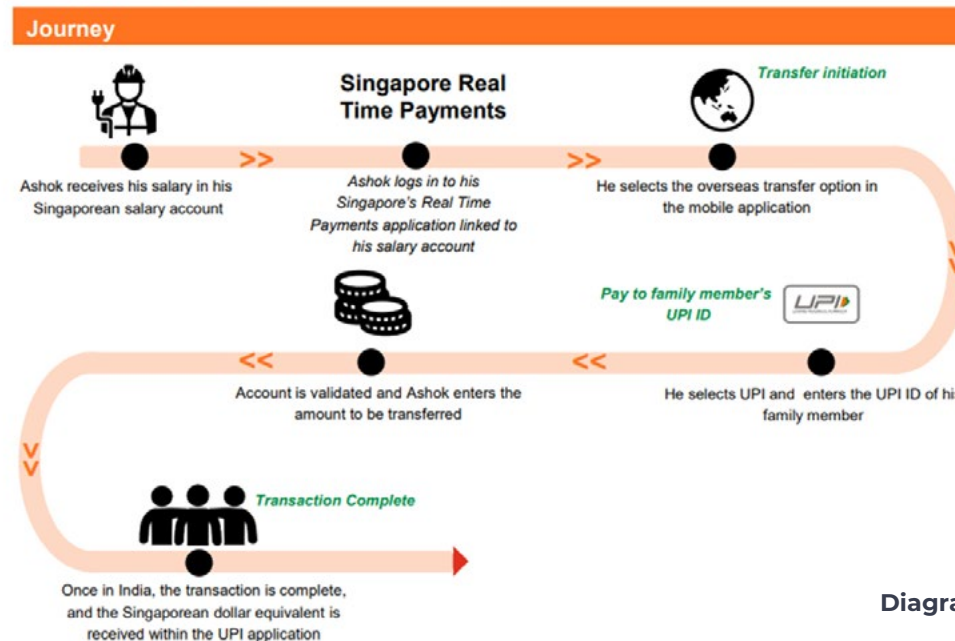


Diagram 3: User journey of cross-border remittance

Source : [NPCI²²](#)

Model 2 - Multi-lateral cross-border payments

Several multilateral cross-border payments initiatives are already operational, fostering regional trade. A multilateral platform, inherently spanning multiple jurisdictions, serves as a cross-border payment system. It can complement or replace traditional correspondent banking relationships or the direct interconnection of domestic payment infrastructures. Such a platform has the potential to streamline transaction processes by enabling participants from different jurisdictions to send or receive payments directly, bypassing numerous intermediaries. Depending on its configuration, the platform may extend operational hours to accommodate participants across various time zones and simplify compliance checks related to anti-money laundering and counter-terrorism financing (AML/CFT) regulations.

We have had regional multilateral cross border payment rails such as SEPA and Target 2 in place for quite some time and the benefits derived from these rails have been immense. However, these were not real time.

- The enablement of SEPA instant and recently Target 2 TIPS cross border real time payment settlement systems have seen both retail and corporate clients and banks alike, onboarding onto

the platform. To further drive the uptake and adoption of instant credit transfer, the EU has passed a recent legislation nudging the banks to start processing and offering SEPA instant transfers for the clients mandatorily and at par with the SEPA credit transfer service.

- Project Nexus, created by the Bank for International Settlements (BIS) Innovation Hub, presents a blueprint for regional interoperability. The Nexus prototype, showcased in 2022, exhibited cross-border payments among the Eurosystem's TIPS, Malaysia's RPP, and Singapore's FAST systems, affirming the feasibility of the concept. Building upon this accomplishment, central banks in Indonesia, Malaysia, the Philippines, Singapore, and Thailand plan to connect their Faster Payment Systems (FPS) through the Nexus approach.
- Immediate Cross-Border Payments (IXB) aims to link together real time payment platforms through synchronizing the settlement and converting messages. It has been developed by The Clearing House (TCH1) in the U.S, EBA Clearing (RT12) in Europe and SWIFT with the aim of creating a 24/7 USD-EUR payments corridor.

Platform	Coverage	Details
TIPS	Pan European	In launching TIPS, the Eurosystem aimed to provide a pan-European framework for the settlement of real time payments in central bank money, with the objective of allowing citizens and firms to make payments via their banks or other payment service providers anywhere in the euro area within a matter of seconds.
SIPA	Central American Region	SIPA is a regional platform linking the national payment systems of the central banks of Central America and the Dominican Republic. In terms of settlement, the SIP system operates a Real Time Gross Settlement model that will process and settle transactions with the settlement date equal to the value date, provided funds are available in the central bank's account.
AFAQ	Gulf Region	AFAQ, provided by the Gulf Payments Company, serves as a regional payments system for conducting financial transactions in local currencies across the GCC in real-time. The AFAQ system provides a unified regional platform linking the Real Time Gross Settlement (RTGS) systems of all GCC member states. This integration enables the instantaneous processing of financial transfers between them, ensuring same-day settlement finality and irrevocability.
REPSS	Central African Region	Regional Payment and Settlement System (REPSS) of the Common Market for Eastern and Southern Africa (COMESA). REPSS offers choice of payment in either USD or EUR across COMESA countries. It has a common clearing house in Zimbabwe, and the Bank of Mauritius acts as its settlement bank, debiting and crediting the accounts of the participating central banks on its books. Any payments made between participating countries are cleared daily, on a net basis.

Platform	Coverage	Details
EAPS	East African Region	EAPS offers multicurrency payments across the EAC countries. Unlike REPSS, EAPS settles in the local currencies of the participating countries. To settle, the system relies on the existing RTGS systems as well as bilateral account relationships between the central banks. Moreover, it requires commercial banks to prefund payments with their deposits at the central banks.
BUNA	Arab Region	Buna, a cross-border payment system, is backed by Arab central banks and operated entirely by the Arab Monetary Fund. It empowers financial institutions and central banks within and beyond the Arab region to initiate and receive payments in Arab currencies alongside major international currencies.
SADC-RTGS	Southern African Region	The SADC-RTGS (formerly known as SIRESS) is the regional cross-border real-time gross settlement (RTGS) system in the SADC region. It is an automated interbank settlement system operated by the South African Reserve Bank, as appointed by the SADC participating member central banks. Participants in SADC-RTGS include central banks and financial institutions, i.e. banks and non-banks in the SADC region that are authorized by their respective central bank to participate.

Table 1: Examples of multi-lateral cross-border payments

Source: [BIS²³](#), respective websites

²³. Payments without borders | BIS



Chapter
5

The way forward

RTP is clearly an option that banks could pursue, to stay relevant. However, some RTPs have not yet gained a critical mass of volume and participants in the jurisdictions in which they have been deployed. In addition, many have been designed with the aim of covering certain types of transaction in a domestic context, and not with the specific aim of being used for cross-border payments. As a result, the business rules and message formats might not be suited in all cases for easy integration into the existing cross-border network.

Additionally, numerous jurisdictions may encounter significant technical, regulatory, and policy obstacles when attempting to integrate RTPs. Moreover, with the expansion of RTPs utilization for both domestic and potentially international transactions, there could arise a demand for increased liquidity or pre-funding, particularly for systems operating on a deferred settlement basis, which may not be available if Real-Time Gross Settlement (RTGS) systems are not accessible. Consequently, while there appears to be potential for RTP to enhance cross-border payments, the extent of their applicability for various types of international transactions could be restricted depending on the configuration of the RTP.

A degree of harmonization between the switches will also be necessary to ensure the regulatory requirements are addressed in a consistent manner, allowing them to interoperate between the RTP schemes across the countries. With interconnected real-time payments, banks also need to overcome other challenges posed by payments infrastructure providers and the respective country central banks.



Area	Challenge	Potential Solution
Scheme rules	Different scheme rules across different schemes	Creation and adoption of a single set of rules to govern all the interconnected systems for end-end flow to be seamless and which all participants understand and adhere to
Regulation - AML & Sanctions	Various regulations and data requirements across countries for AML & Sanctions	Usage of a common standard such as ISO 20022 that could provide the structure towards supporting the sharing of additional information required as per local country regulation, while keeping the local switches unchanged
Regulation - Data Privacy	Different regulations around data privacy exist with some countries allowing customer data to be stored on the cloud/outside the country, while some not allowing, thereby affecting overall services	Creation of bilateral or multilateral agreements between countries or through a central repository that can be accessed via API but which is strictly governed in order to ensure privacy and security
Regulation - Regulatory Reporting	Different data requirements and reporting requirements across countries	Usage of ISO 20022 as a common standard. With this, most of the data would be available to sending and receiving banks for required regulatory reporting. Any additional data requirement over and above what is available, may be sought as part of the bi-lateral agreements between the respective country central banks and switches

Area	Challenge	Potential Solution
Message standards	Disparity in message standards across countries with some countries adopting full ISO 20022 implementation as against some using ISO 8583 or legacy formats, or even a skeletal version of ISO20022 which may have data limitations	All cross-border interconnected systems should de-facto adopt full ISO 20022 standards.
Scalability and reach	Harmonization of the disparate aspects of the domestic payment rails	Usage of a central gateway or intermediary between the sending and destination countries to streamline and normalize the differences between the domestic switches. The functions of a central gateway would likely include: <ul style="list-style-type: none"> ■ Country identification. ■ Transaction routing ■ Message mapping ■ Proxy (alias) resolution ■ Currency transposition
FX transparency and liquidity	Lack of concurrence on FX rate to manage liquidity and transparency	Usage of a central gateway or intermediary and a central FX and liquidity provider which can offer the agreed FX rates and provide liquidity in the transacted currency as required during the day

Table 2: Challenges banks need to overcome with inter-connected RTPs

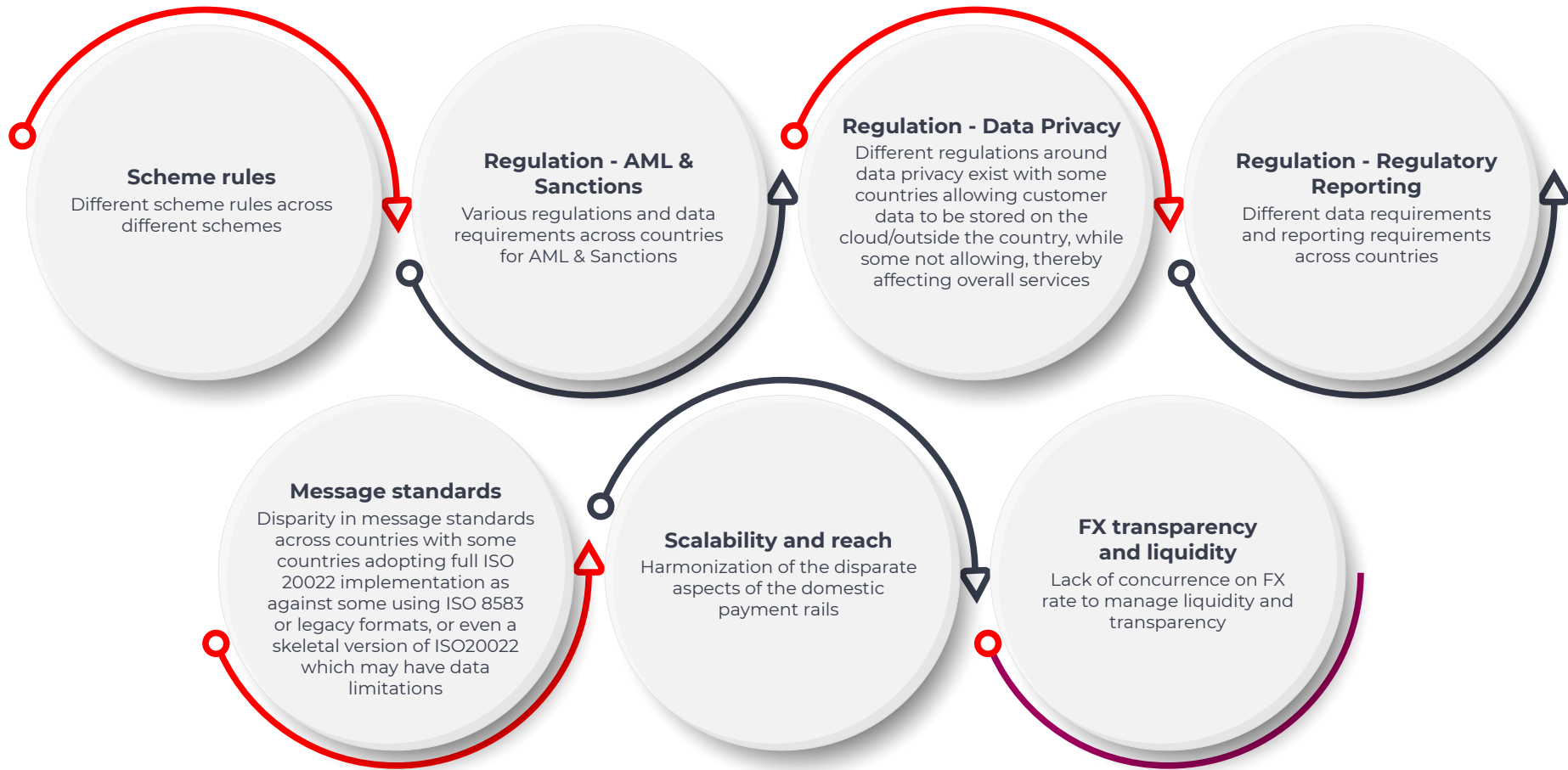


Diagram 4 : Challenges banks need to overcome with inter-connected RTPs

Irrespective of which option banks pursue to succeed i.e Bi-lateral or Multi-lateral, banks need to account for the following considerations to make the best use of the opportunity ahead.

1. Better Collaboration

Banks should collaborate with international payment networks such as SWIFT, Visa, Mastercard, and regional payment networks to ensure interoperability across borders. This involves implementing interfaces and connectivity solutions that enable seamless integration with these networks, allowing for the exchange of payment instructions and settlement messages in real-time. Establishing correspondent banking relationships with foreign banks that have robust interoperability capabilities and adhere to international standards and best practices is critical for facilitating cross-border RTP. These relationships enable banks to access local payment networks and clearing systems in different countries, allowing for the efficient routing and settlement of cross-border payments.

2. Interconnectivity and Scalability

Once banks decide to open their business for cross border RTP, the technical capabilities and scalability requirements become paramount due to higher volumes and stringent SLA requirements that come along. Due to increase in the number of hops, the requirement around < 1 sec SLA would come to fore. Banks need to upgrade their systems to offer seamless experience in cross border payments with very high end to end STP rates. An example of SLA consideration would be where a payment moves between Australia NPP to SEPA Instant – where NPP SLAs are 6-15 seconds for end-end processing and confirmations to SEPA instant is < 10 seconds; which essentially translates to end to end processing, settlement, and its confirmations in <15 seconds across the border.



3. Regulatory Compliance

Banks must navigate a web of regulations governing cross-border transactions. Compliance with anti-money laundering (AML), know your customer (KYC), and sanctions screening regulations is paramount. Understanding the regulatory landscape of both the sending and receiving countries is crucial. Apart from domestic regulations, cross-border transactions are subject to international regulations and standards. Banks are required to adhere to frameworks such as the Financial Action Task Force (FATF) recommendations and to comply with international payment standards established by organizations like the International Organization for Standardization (ISO).

4. Fraud Prevention and Security

RTPs increase the risk of fraud, especially in cross-border transactions where there may be less familiarity with the counterparty. Banks need robust fraud detection and prevention mechanisms, including real-time monitoring and authentication measures, to ensure the security of cross-border RTP. Cross-border transactions involve currency conversion, which adds complexity. Banks need to provide competitive exchange rates and transparent fee structures to customers. They may need partnerships with foreign exchange providers or have their own capabilities for currency conversion.

5. Customer Experience

Providing a seamless and user-friendly experience for customers is essential. This includes offering intuitive digital interfaces

for initiating and tracking cross-border payments, as well as responsive customer support to address any issues or inquiries. Given customers expect visibility into the status of their cross-border payments, banks should provide real-time tracking and transparency, allowing customers to monitor the progress of their transactions from initiation to completion.

6. Interoperability

Banks should invest in flexible and adaptable infrastructure that can support increasing transaction volumes, new payment channels, and emerging technologies such as blockchain and distributed ledger technology (DLT) to enhance interoperability and resilience in cross-border payment systems. Establishing common standards for message formats, data elements, and protocols is essential for interoperability. Organizations like ISO 20022 play a significant role in defining standard messaging formats for cross-border payments. Banks need to ensure that their systems adhere to these standards to facilitate interoperability with other financial institutions and payment networks. Embracing open banking principles and leveraging application programming interfaces (APIs) can enhance interoperability by enabling secure data exchange and integration between different banking systems and third-party service providers. Banks can expose APIs that allow authorized third parties to initiate cross-border payments on behalf of customers, thereby expanding the reach and accessibility of their payment services.

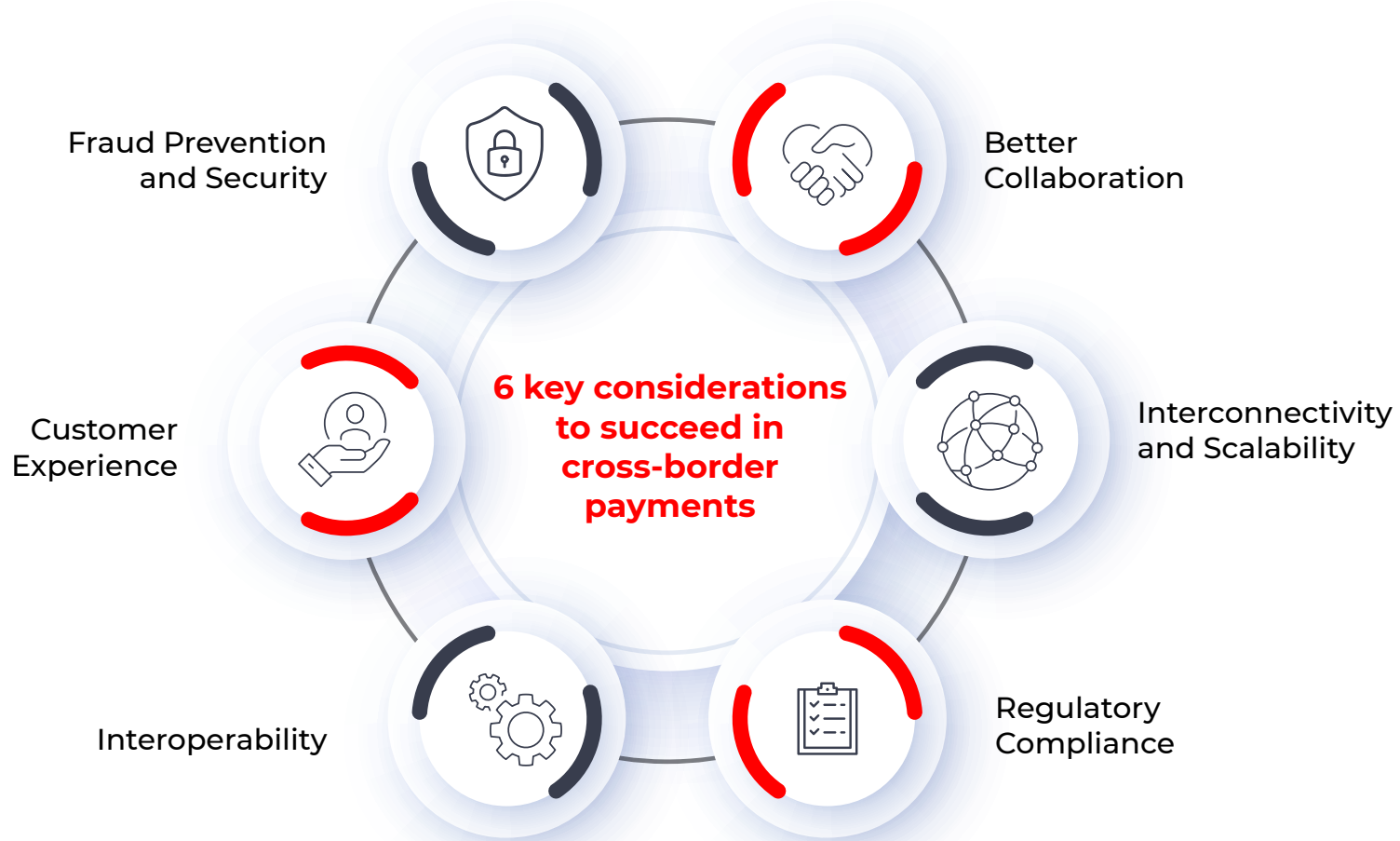


Diagram 5: Considerations to succeed in cross-border payments

Cross-border RTP presents a complex challenge for banks due to various regulatory, technological, and operational considerations. Banks require advanced technological infrastructure to support real-time processing of cross-border payments. This includes high-speed networks, robust data encryption, and scalable payment platforms capable of handling large volumes of transactions securely. With the growing demand for RTP in cross-border transactions, banks need to look at the opportunity holistically and look at composable payments' platforms.

Summary

Banks must address regulatory, technological, operational, and customer-centric considerations to effectively navigate the complexities of cross-border RTP and provide seamless, secure, and efficient payment services to their customers. Collaboration with industry stakeholders, investment in technology, and a customer-centric approach are key to success in this space.





Chapter
6

Finacle Payments Suite

A truly digital, real-time platform to accelerate your payments journey

Finacle Payments Suite helps banks successfully transform and modernize their payments landscape to deliver real-time, frictionless payments experiences – anytime, anywhere. Built on a modern architecture, the componentized suite has helped banks and payments focused financial technology companies around the world to reimagine their business with digital technologies to drive new revenue streams. The solution leverages emerging technologies, such as advanced analytics, blockchain and AI to offer impressive benefits to banks and their clients. Finacle Payments gives banks a RTP platform, with the agility and scalability to respond swiftly to changing needs. Banks can deploy a comprehensive payments engine with rich business functionality that can be delivered on all channels. No matter how big or complex the business, Finacle can give it a firm foundation of functional capability, architecture, and delivery readiness.

The cross-border payments offering from Finacle Payments is a cloud native, microservices driven, highly available and scalable platform; and supports all models of cross-border RTP. It is a unified offering that can cater to both bi-lateral and multi-lateral cross-border market infrastructure and has been developed inhouse.



We have wide experience assisting banks in their cross-border payments journey and have successfully helped banks complete their cross-border payments through SWIFT on CBPR+ MX journey. As part of the bi-lateral cross-border payments infrastructure; Finacle Payments is live on rails such as Hong Kong cross-border and is ready for Australia NPP cross-border payment. It also supports infrastructure for other bi-lateral models such as UPI-PayNow, PromptPay-DuitNow etc.

Similarly, multilateral cross-border networks like SEPA Credit Transfers, SEPA Direct Debits, SEPA Instant, Target 2, TIPS have been implemented for clients. The infrastructure can also support cross-border frameworks such as GCC BUNA, BIS Nexus, Visa B2B, Visa Direct, Mastercard Send, Partior, Ripple etc.

The suite includes



Finacle Payments

An open and cloud native microservices driven enterprise payments platform built leveraging ISO 20022 standards and on real-time foundations, empowers the financial institutions to enhance the customer proposition with value-added services and tailored payments offerings



Finacle Payments Connect

The blockchainbased payments solution, brings all partners on a single, trusted distributed ledger, simplifies global payments processes and enables banks to provide a frictionless experience across all relevant transaction areas.



Finacle Message Hub

An open and cloud native microservices driven enterprise message transformation hub that processes financial and non-financial messages in realtime, regardless of originating source and format.

The report was authored by



Ranganathan Hemmige

Associate Director - Product Marketing, Infosys Finacle
Ranganathan.hemmige@edgeverve.com



Siva Subramaniam

Senior Principal - Product Management, Infosys Finacle
sivasubramaniam.gv@edgeverve.com

Why we exist

To inspire better banking so that billions of people and businesses can save, pay, borrow, and invest better.

How we do it

Our solutions and people help banks to engage, innovate, operate and transform better, so that they can improve their customers' financial lives, better.

What we offer

A comprehensive suite of industry-leading digital banking solutions and SaaS services that help banks engage, innovate, operate and transform better.

Finacle is an industry leader in digital banking solutions. We are a unit of EdgeVerve Systems, a wholly-owned product subsidiary of Infosys (NYSE: INFY). We partner with emerging and established financial institutions to help inspire better banking. Our cloud-native solution suite and SaaS services help banks engage, innovate, operate, and transform better to scale digital transformation with confidence. Finacle solutions address the core banking, lending, digital engagement, payments, cash management, wealth management, treasury, analytics, AI, and blockchain requirements of financial institutions. Today, banks in over 100 countries rely on Finacle to help more than a billion people and millions of businesses to save, pay, borrow, and invest better.



For more information, contact finacle@edgeverve.com

www.finacle.com

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