Cross Border Payments – Drivers, Evolution, Multiple Rails and Interoperability

Cross-border payments are essential for international trade and various other financial activities. An efficient payment infrastructure is crucial for supporting any kind of transactions.

The backbone of cross-border payments is a correspondent banking network connected by SWIFT, which acts as the traditional infrastructure for international financial payment transactions. This traditional system involves banks having relationships with each other across borders to facilitate payments. When a customer in one country needs to pay someone in another country, their bank will use its correspondent banking network to route the payment through intermediary banks until it reaches the bank of the beneficiary.

Key Challenges in the traditional Correspondent Network

The current cross-border payment environment is fragmented and relies on intermediaries to achieve a global reach. Transactions are often slow, taking several days to settle due to reliance on legacy correspondent banking networks. This leads to high costs for a payment transaction and lack of transparency. Regulatory mismatches due to limited coordination between the countries as well as fragmentation around anti-money laundering (AML)/ Combating the Financing of Terrorism (CFT) rules and regulations create further frictions and complexity.

Innovative companies have emerged as strong players in the cross-border payments market, offering alternative payment infrastructure and solutions that can often be more cost-effective and faster than traditional banking methods.

Beside business innovation, new technologies as well as local and global initiatives drive the evolution of cross border payments:

- **Globalization of Commerce**
  Growth in international trade, e-commerce and Gig economy platforms increase the demand for efficient cross boarder payments
- **Technology Innovation**
  New technologies such as distributed ledger technology (DLT) and digital currencies (e.g. CBDCs, stablecoins) enables faster and cheaper cross-border payments processing with less intermediaries.
- **Standardization based on ISO 20022 message formats**
  The richer ISO 20022 data format allows transmission of more detailed transaction and tracking information (Legal entity identifier, UETR). This should lead to smoother interoperability between different payment systems across the border and ease compliance checks with enhanced and structured data.
- **European Union (EU) initiative Single Euro Payments Area (SEPA)**
  The primary goal of this initiative has been to harmonize the euro payments with the EPC SEPA payment scheme for Credit Transfer and Direct Debit payments. Setting cost limits and fee transparency rules for SEPA payments were further goals of the EU directives.
  The latest initiative by the European Payment Council (EPC) is the introduction of the SEPA One-leg out (OLO) Instant Payment (IP) Scheme which enables new IP cross boarder business cases: as for example to connect the SEPA IP scheme with Swish from Sweden. Starting from April 2025, TARGET Instant Payment Settlement (TIPS) supports (besides the Euro) and the Swedish kronor (SEK) now also the Danish kroner (DKK). TIPS goes in the direction of a multi-currency settlement approach which will fuel SEPA OLO within EU.

Governmental and Multilateral Initiatives

The G20 has made improving cross border payments a global priority due to their critical role in the global economy. In coordination with the Financial Stability Board (FSB) and other bodies, the G20 pursues a multi-year roadmap with 11 targets in the following categories:

TCS BaNCS - Payments - G20 Goals of Cross-border Payment enhancement

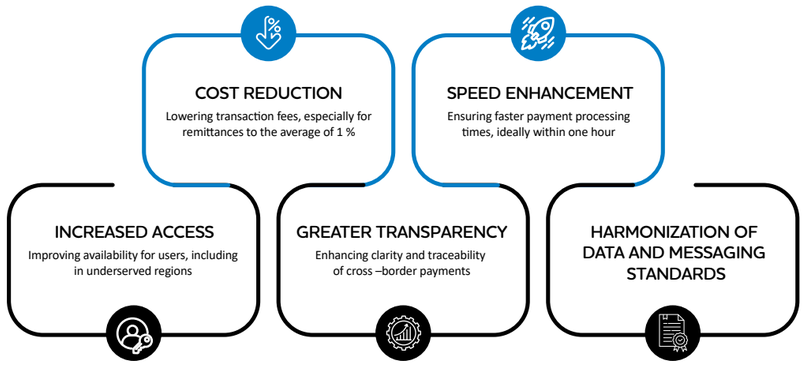

Figure 1: Categories of G20 Roadmap goals for enhancing cross border payments until 2027

Multiple Payment Rails
This evolution has led to the development of multiple payment rails built on different technologies, optimized for speed, and lower costs to meet the business and customer experience needs of different payment stakeholders:

- **The traditional correspondent banking network/SWIFT**
  Payments are routed through a chain of intermediary banks, using a system like SWIFT. The latest evolution step of SWIFT is the introduction of SCORE+ for corporates. SCORE+ allows real-time tracking of payments and optimizes liquidity management by initiating real-time balance queries for timely cross-border payments.

  For consumers, SWIFT Go is the new standard in low-value international payments. SWIFT Go enables retail customers to send quick cross-border payments with fees and FX costs known upfront. SWIFT Go supports also several pre-validation services; for example, beneficiary validation.

  Use Case: SWIFT focuses on high value transfers and inter banking covers payments, B2B payments, and supports trade finance transactions. With SWIFT Go, the low value consumer segment is also supported.

- **Real Time Gross Settlement (RTGS) linkages for real/near time payments**
  The EPC introduced in 2023 the SEPA One-leg out (OLO) Instant Credit Transfer scheme which links the fragmented instant payments clearing system networks within SEPA countries. For example: SEPA Instant Payments in Europe can be linked with Swish in Sweden over the OLO scheme or with the SIC5 instant payment RTGS in Switzerland. The cross border forwarding of the payments will be performed by a so-called Exit/ Entry Payment Service Provider (PSP), which has the opportunity of currency exchange earnings.

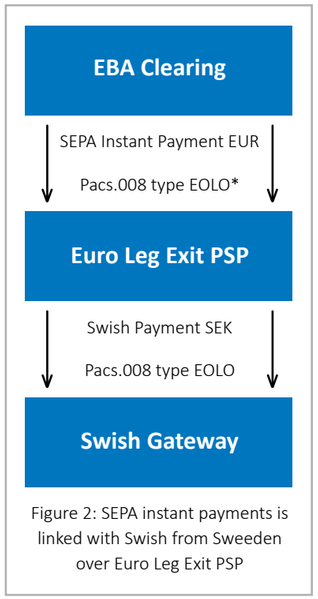

Figure 2: SEPA instant payments is linked with Swish from Sweeden over Euro Leg Exit PSP

The domestic real time payment systems of Singapore's FAST were linked with Thailand's PromptPay for cross border real-time payments.

Use Case: Enabling low-value cross border (e.g. SEPA OLO is restricted to EUR 100k) fast money transfer which includes also the possibility of currency exchange. The linkage of IP networks leverages the existing instant payments transfer infrastructure.

- **Blockchain and Crypto networks**
  Using Distributed Ledger Technology/Blockchain to send value across borders (Bitcoin, stablecoins).

  As an example, the projected Agora under the umbrella of the Bank for International Settlements (BIS) could be emphasized: The Agora project involves seven central banks and a large group of private sector companies and investigates proposals and solutions that combine tokenized commercial and wholesale central bank money on a multi-currency unified ledger for cross-border payments. The objective of Agora is to demonstrate how a unified ledger could enhance the efficiency of business processes in correspondent banking payment chains, thereby reducing transaction times and costs. The project will continue throughout 2025, and a report will follow when this phase is completed.

  Use Case: Transfer amount can be cut into any small pieces. This enables so called micropayments. Blockchain and crypto networks enables fast and low-cost remittances and the development of unserved markets

- **Fintech/Alternative Payment Networks**
  Non-bank Payment Service Providers (PSP) (build their own payment networks, often using local settlement in each country on a daily base.

  Use Case: Consumer remittance

- **Mobile Money and Wallet Networks**
  Digital wallets and mobile money transfer platforms (e. g PayPal, Alipay, and Twint in Switzerland) enable near time transfer between mobile device users. These platforms have high user experience and offer additional services.

  A disadvantage is that these platforms are closed ecosystem with poor connectivity to outside.

  Use Case: Mobile payment solutions support P2P Money transfers, especially micropayments.

- **Card Networks (VISA, Mastercard)**
  The big players in the card business maintain global payment network systems which facilitate payments between consumers, merchants, acquiring banks (merchant's banks) and issuing banks (cardholder's banks). Card to card transfers or the load of prepaid cards can serve as a remittance method.

  Mastercard offers "Move Commercial Payments", a near-time cross-border payments solution that operates 24/7. The solution is integrated with the existing SWIFT messaging systems, and compatible with current correspondent banking relationships. These elements help banks maximize operational efficiency, improve liquidity management while minimizing risk.

  VISA offers a similar solution called Visa Direct: Visa Direct also leverages a multi-rail approach that supports card-based and account-to-account transfers which is integrated with The Clearing House RTP and FedNow.

  Use case: Card payments have the focus on consumer purchases especially on e-commerce and travel. Multi-currency settlement is supported as well as the possibility of chargebacks in case of not authorized bookings.

Interoperability between payment rails
TCS BaNCS for Payments supports multiple rails of payment processing through coupled architectural components and concepts such as microservices. Comprehensive Order Management enables the acquisition from various payment initiation channels, display and routing different payment types to the processing microservice instances of these payment rails like SWIFT cross-border, SEPA Instant, WISE, Blockchain and local automated clearing houses (ACH). Central services offer common reference data like Beneficiary Master, bank and clearing directories, routing rules, Payment Limits and Customer Product Agreements. These reference data are replicated or can be accessed by APIs.

The payment solution supports APIs of Fintech's like WISE and Ripple to process payments alongside Distributed Ledger Technology (DLT) based payment rails.

TCS BaNCS can directly interact with a clearer using Distributed Ledger Technology (DLT) / Blockchain or update the blockchain with TCS Quartz. TCS Quartz is the crypto gateway component of the TCS BaNCS family and delivers the capabilities to manage blockchains and crypto currencies.

The further evolution and usage of stablecoins and digital currencies as central bank money (CBDC) will push this digital asset payment rail and makes it even more interesting for banks and Payment service providers to integrate the crypto currency payment rail into its payment universe.

To summarize: Multiple rails of cross-border processing could be used by banks to provide best fit of turnaround time, optimize FX spread in case of currency exchange and reduce costs to their customers, depending on the banks' business model.

The interoperability between the different payment rails optimizes customer experiences and enables to optimize the operational revenue of the bank. The dynamic routing between the different payment rails is based on routing rule KPIs such as speed, low costs and contractual situation with counterparties.

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