Implementation of faster payments: Key considerations and the way forward

February 2020

Foreword

Dear readers,

It is our pleasure to bring to you the latest edition of PwC's Payments newsletter. In this edition, we have focused on global trends on faster payments and provided insights to be considered for design and implementation of an effective payments infrastructure.

In addition to our views on the future of faster payments, we have captured key challenges and the technology framework to be discussed and finalised for the design phase, post which the implementation can be initiated.

We hope you will find this to be a good and insightful read.

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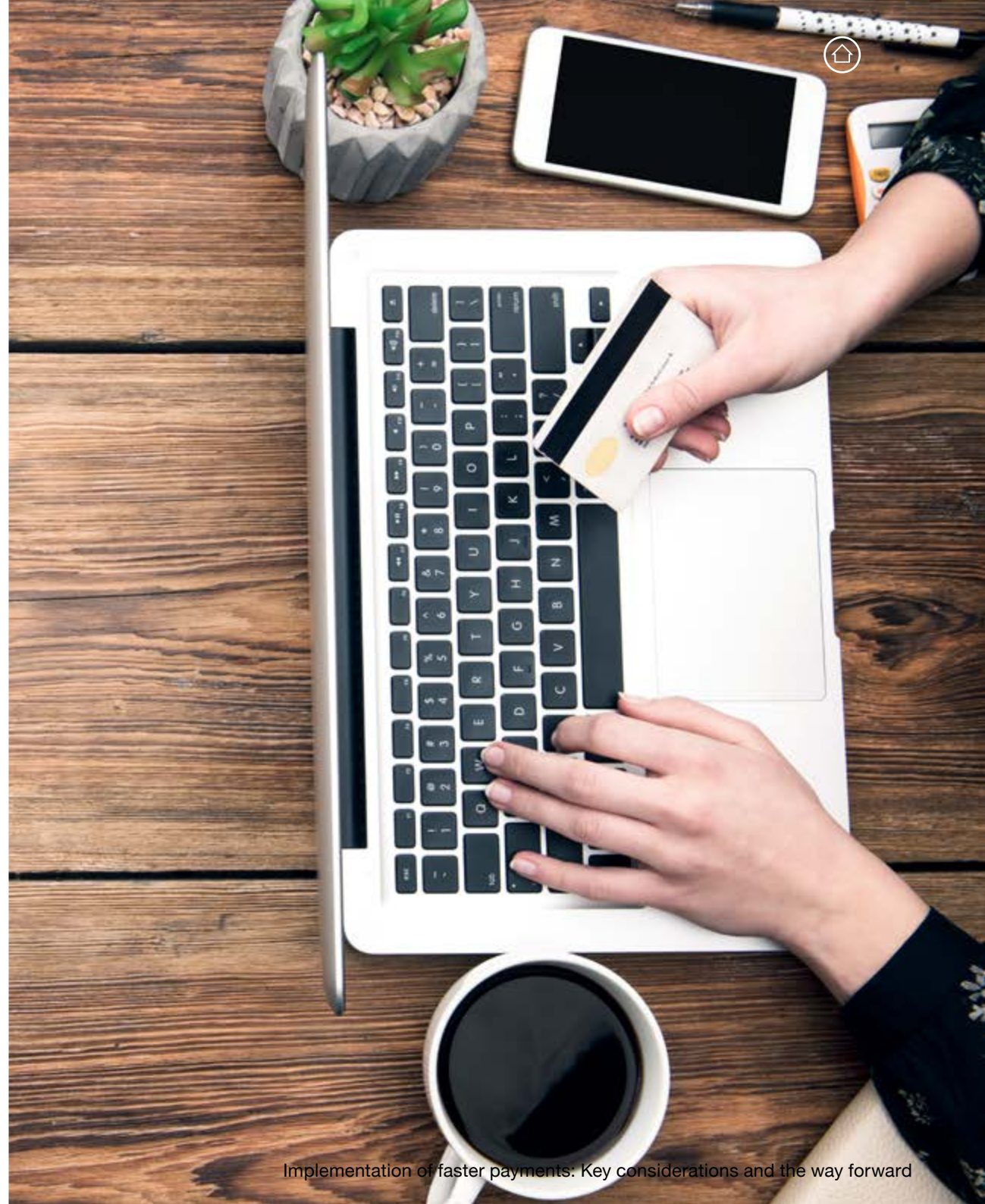
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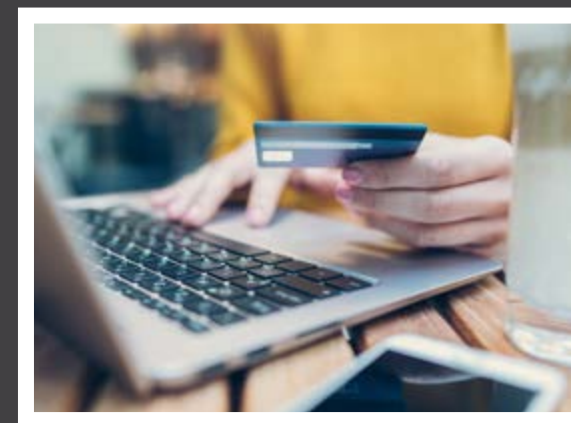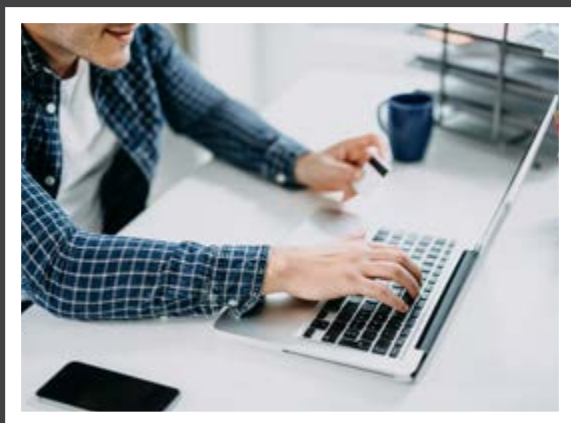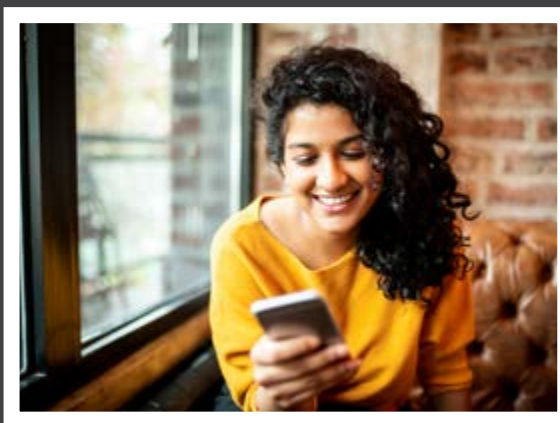
Introduction 01

Introduction

In the dynamic payments industry, faster payments have become the norm and are no longer just an option for market participants and regulators alike.

Faster payments can deliver payments at lightning speed, are available 24x7 throughout the year and enable extensive exchange of payments-related data between participants. These features of faster payments scheme significantly improve operational efficiencies, customer engagement and provide better cash flow management due to reduced clearing time, settlement time and data transparency.

The global value of real time payments was estimated to be around USD 6.9 billion in 2018 and is expected to expand at a compound annual growth rate (CAGR) of approximately 30% from 2019–2025.[1] Cashless transactions have been growing at a rapid pace across almost all geographies. The entry of BigTechs and the rise of mobile banking has resulted in the faster adoption of real-time payments globally. Also, multiple regulations around open banking such as the Payment Services Directive II (PSD2) in Europe, the General Data Protection Regulation (GDPR) in the European Union (EU), digital and tiered know your customer (KYC) guidelines have added impetus for existing and new market participants to adopt faster payments and become part of the modernisation journey by providing alternatives to legacy payment modes.

More efficient and intuitive customer experience has resulted in higher acceptance of faster payments by end customers. Real-time payment systems like the Unified Payments Interface (UPI) in India and the New Payments Platform (NPP) in Australia have further made it easier for people to adopt them.

Real-time payments essentially have two types of clearing – credit push and debit pull payments. Faster payments schemes around the world are experimenting more with credit push rather than pull payments. In a push payment scenario, the payment service provider (PSP) has more control over the security infrastructure, resulting in economies of scale due to factors like reduced chargebacks. In a pull payment scenario, the user needs to authenticate the payment and a mandate is created against a specified merchant wherein an amount of funds is debited at a specified date. Key use cases for a pull payment scenario would be subscription-based payments, merchant payments, bill splitting, bill payments, etc. Some of the common risks associated with pull payments include non-funded accounts at the time of debit which might result in penalties for the customer. Specific regulations related to collection of debit pull payments exist in some countries. However, schemes around the world have started incorporating pull payments into faster payments schemes for specified use cases, like UPI in India (initial public offering payments) and PromptPay in Thailand.

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1. https://www.grandviewresearch.com/industry-analysis/real-time-payments-market

Introduction

Business use cases of faster payments

I. Domestic P2P payments

Domestic peer-to-peer (P2P) payment systems allow consumers to transfer funds to peers within seconds. Examples include bill sharing applications and conversational commerce. Most faster payment systems start off by offering this as a use case for customers.

II. Cross-border P2P payments

Increased standardisation in payments messaging for faster payments systems across global markets (ISO 20022 being a key example) enables interoperability and allows users to transfer funds across borders close to real time. The TARGET guidelines in the Euro region will enable real-time cross-border payments across participating banks and institutions.

III. P2M payments

Person-to-merchant (P2M) payments across the world can be made instantly using the faster payments rails. Payment systems like the UPI, PromptPay and Faster Payments Service (FPS) in the UK offer request to pay (RTP) proposition in addition to push payments. Merchant-based payments will be the most dominant use cases in P2M payments and the entry of multiple merchants will bolster faster payments, making it important for merchants to be a part of the instant payments bandwagon. This can be achieved by significantly modernising merchant services like easy resolution of refunds, invoicing support and provision of overdraft accounts.

IV. B2B payments

Business-to-business (B2B) payments help businesses to transfer funds amongst each other instantly, thereby allowing organisations to manage their cash flows better and reducing risks related to settlements. Banks are providing real-time payments services to corporates through enterprise resource planning (ERP) integration, significantly increasing straight-through-processing (STP) rates and reducing settlement times. However, a key concern for the modern-day treasurer is the limit on the value of transactions in any faster payments scheme which might inhibit businesses using them for B2B payments.

V. B2C/G2P payments

Refunds, insurance payments, benefit transfers can be made faster and more efficient with the implementation of business-to-consumer (B2C) and government-to-person (G2P) payments. Public identifiers like national identification and mobile numbers are being linked to faster payments services to enable disbursal of such payments, provided the payment falls under the faster payment scheme limit.

Challenges in implementation 02

Challenges in implementation

Countries and financial institutions across the world had to overcome multiple challenges in the adoption of faster payments.

Legacy payment infrastructures

Modern payment mechanisms require technology infrastructures, which don't match with the current legacy architecture possessed by some of the largest global banks in the world. But with all payment headwinds moving towards faster payments, banks are moving towards either modernising or overhauling their traditional architectures. Moreover, from a cost- or a load-handling perspective, banks find it more difficult to implement these modern payment mechanisms on legacy interfaces.

Achieving optimum balance, security and frictionless payments

Faster payments systems allow users to make payments within seconds. However, with payment times reducing and payment touchpoints increasing due to an open payment architecture, faster payments have become vulnerable to additional security threats. An optimum balance needs to be arrived at with adequate security procedures in place and at the same time, ensure that the user experience stays convenient and easy.

A value-based risk approach by banks or at a payment rail level (step up or stepdown fraud), where only a conditional fraud check is conducted as against all transactions in traditional payments, is working in payment modes like the UPI and the FPS in the UK. Artificial intelligence (AI)/machine learning (ML) based real-time fraud engines are also helping banks in reducing false positives.

Liquidity management

The volume of transactions in real-time payments volumes is unpredictable and large. With most faster payment services being operational round the clock, it becomes imperative for banks to manage their liquidity more effectively. In a normal business scenario, the treasury can generally estimate the probable cashflows for the bank and supply funding based on that projection. An example of streamlined liquidity management is the introduction of the Central Liquidity Management module as part of the new Target2 architecture in Europe for high-value euro payments.

Challenges in implementation

Regulation playing a key role

As seen with the global implementation of multiple faster payments schemes, regulations have played a major role in shaping real-time payments infrastructure, participation rules, service-level agreements (SLAs) and penalties for non-adherence. A classic example of this can be seen with the implementation of UPI in India, where the National Payments Corporation of India (NPCI) played an active role in SLA management. In the UK, the FPS operator continually monitors performance across banks to minimise failed transactions. However, a high restriction compliance environment with multiple regulators can deter innovation, with market participants finding it difficult to interpret and implement complicated regulations from multiple regulatory authorities. This problem gets more magnified in the case of cross-border scenarios. The regulators need to ensure balance between a healthy participation model and compliance.

Real-time fund settlement

Globally, majority of the payments schemes are currently using a net deferred settlement (NDS) mechanism. In an NDS mechanism, transactions are settled multilaterally at specific time intervals based on the total debit/credit balance against a particular counterparty. The key drawback of using an NDS mechanism is that as settlement cycles are fixed during the day by the clearing authority, this can result in liquidity shortfalls for banks.

Real-time settlement on the other hand involves an offsetting mechanism wherein payments are queued and immediately settled as and when they are received. These payments are irrevocable and settled in central bank money and can help banks to monitor their liquidity better and fulfil their central banking obligations.

This however requires added efforts from all participants and the payment rail operator for proactive SLA management to ensure that the settlement risk is largely negated.

Technology considerations

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Technology considerations

Every real-time payments system has multiple technology-level considerations that requires key decisions to be taken in collaboration with participants, the central operator and the regulators. These decisions will have an impact on the implementation timelines, efforts, costs and infrastructure design.

Inter-participant and operator communication type and protocol to be used

Selection of the communication type and its protocol forms the base of a technical system design meant for multi-party interaction as would be required in a real-time payments rail. While API-based communications are an efficient choice, a few faster payment systems have also adopted non-API based communication for implementation – Australia and Europe being two key examples. If defined by the regulators, open API standards can be leveraged for communication if API-based message communication is selected. Non-API communication can be used by participants for internal communication.

If the payment rail is to operate via API calls, choosing to work on synchronous or asynchronous communication protocol is another area that requires keen thought and discussion. While synchronous communication protocol is faster and limits extra overhead call, asynchronous communication protocol provides the flexibility to maintain multiple parallel sessions.

Selection of message type

Considering the growing need for interoperability and the ability to handle rich data generated from transactions, payments system operators are looking for a message standard which can deliver these functionalities. International Organization for Standardization (ISO) has the capability to provide standardisation across regions and is future-ready. ISO 20022 is the most common standard adopted globally for faster payments. It is costly and time-consuming for implementation as it requires a detailed impact analysis and updated legacy systems to work with new data requirements. Proprietary messages can provide the flexibility on customisation and are cost-effective but lack the ability to drive interoperability for cross-border transactions.

Selection of transaction type

Multiple use cases for real-time payments work on a credit push or a debit pull transaction. While technically a system can be designed to run on either /both of the transaction types, payment rails have to decide on the type they would choose to be cognisant of the existing regulations in the underlying country. For example, South Africa has separate collection-related regulations which need to be adhered to in case a debit pull transaction is initiated.

Choosing to implement either a credit push or a debit pull for the entire payment rail might be a cost-effective decision and easier to implement but building both as a part of the design can enable multiple use cases and enhance customer experience.

Technology considerations

Selection of clearing and settlement method

Clearing methodology varies from country to country and depends on the regulatory design for interbank payments in the country. European countries and Australia leverage the Society for Worldwide Interbank Financial Telecommunication (SWIFT) network for all domestic interbank as well as cross-border payments, while in countries like India and South Africa, clearing is routed and managed by central agencies appointed by regulators, or by the regulators themselves. However, the settlement for all interbank communication is maintained and managed by the central operator maintaining accounts of participants. For the new faster payments rail, it needs to be decided whether the existing batch settlement system (with required changes) is to be used or a new immediate settlement system, like the Fast Settlement Service (FSS) in Australia for NPP settlements where exchange settlement accounts held by participating banks are used for settlement, is to be build.

Finalisation of features

Using beneficiary account numbers and bank reference numbers has been the legacy method for any type of financial transaction. However, faster payments have been leveraged by various countries to provide enhanced customer experience by deploying features which may range from basic credit transfer using proxy setup, QR code payments, RTP or set up a mandate to debit account at scheduled frequency. The features to be built in the payment rail needs to be decided as per its purpose.

Security factors to be considered

Communication layer security, encryption of sensitive data and authentication of transactions are three key areas that demand attention from the central operator and regulators for defining the security protocols for a real-time payments rail.

The use of secure sockets layer (SSL), virtual private network (VPN) and other private networks must be leveraged as required. Tokenisation of sensitive data, asymmetric key encryption, hashing and using a hardware security module are just some of the means which need discussion from the right participants to arrive at a 'fit for purpose' security protocol for the payment rail.

User authentication security guidelines vary from region to region. While the two-factor authentication for added security (made mandatory by regulators) has become a global preference, the step up/down of authentication factors is still the call of the bank/account holder based on proprietary risk based approach and customer behaviour.

Allowing access to non-banking participants in the faster payment ecosystem has resulted in multiple innovative use cases being offered to customers, but it brings in added security concerns. The key decision here to be taken by the regulators is whether they are providing either a direct or indirect access to non-bank players, which will force regulators to issue stringent security guidelines accordingly to secure finances as well as customer data with robust liability clauses.

Technology considerations

Implementation model

There are various methods which can be adopted for implementation of faster payments:

- Leverage existing systems: Existing payments systems deployed by bank participants with either proprietary or ISO message format can be leveraged by building an orchestration layer above that for message conversion from existing to target message format. While this may be a quick fix solution, all potential benefits of the migration will not be realised with a message convertor.

- Conversion by central system: The central system takes the ownership to convert incoming messages to the format accepted by the central core system (PromptPay in Thailand) instead of transferring the load of message conversion to each participating bank in some countries. This method can significantly increase the responsibility with the central operator and due to inefficiencies related to message conversion, can devoid the system of all potential benefits. The participants still need to make the required changes in their systems to be compatible with the convertor at the operator's end.

- Build a new system: A completely new parallel system can be built by banks as per the defined technology specification of the faster payments system being implemented. While this may be more costly and time-consuming as compared to other adoption models, it will prepare all participating banks for a future-ready infrastructure and derive all potential benefits of modernisation. Multiple countries like the UK and the US have adopted a phased approach over multiple years to build a feasible implementation plan for participants in their faster payments system.

Global examples 04

Global examples

PromptPay in Thailand: Real-time payments enabled via translation services (ISO 8583 to ISO 20022)

Launched in 2017, PromptPay in Thailand is a real-time payments infrastructure with a central translator that translates ISO 8583 messages received from market participants to ISO 20022 for settlement purposes. PromptPay is:

- enabled with proxy-based payments, QR payments, contactless and mobile payments

- designed for existing infrastructures to be connected with the help of a translator

- roadmap-ready for cross-border transfers as per ISO 20022 standards.

IMPS and UPI in India: The global standard for real-time payments

Launched in 2010, the Immediate Payment Service (IMPS) is the first faster payment initiative implemented through NPCI, followed by UPI in 2016. Following are some features of the IMPS and the UPI:

- IMPS allow users to make instant payments via various channels like the internet or the mobile, using bank account number or user defined mobile money identifier (MMID). .

- The IMPS system follows ISO 8583.

- The UPI is enabled with proxy, QR code and RTP, and mandate features.

- A proprietary asynchronous API messaging solution has been implemented in the UPI.

- The UPI works on a four-party model with direct participation of non-bank entities.

NPP in Australia: ISO 20022 enabled faster payments

Launched in 2017, the key factor behind implementing real-time payments was to comply with ISO 20022 standards for network-wide communication. Following are some features of the NPP:

- The NPP is built on a non-API based ISO 20022 standard which enables richer data transmission.

- The NPP came up with real-time settlement mechanism which differentiates itself from other faster payments scheme.

- There is feasibility of overlay services above the NPP by bank and non-bank players, using API.

- The NPP can leverage the SWIFT network for clearing transaction messages.
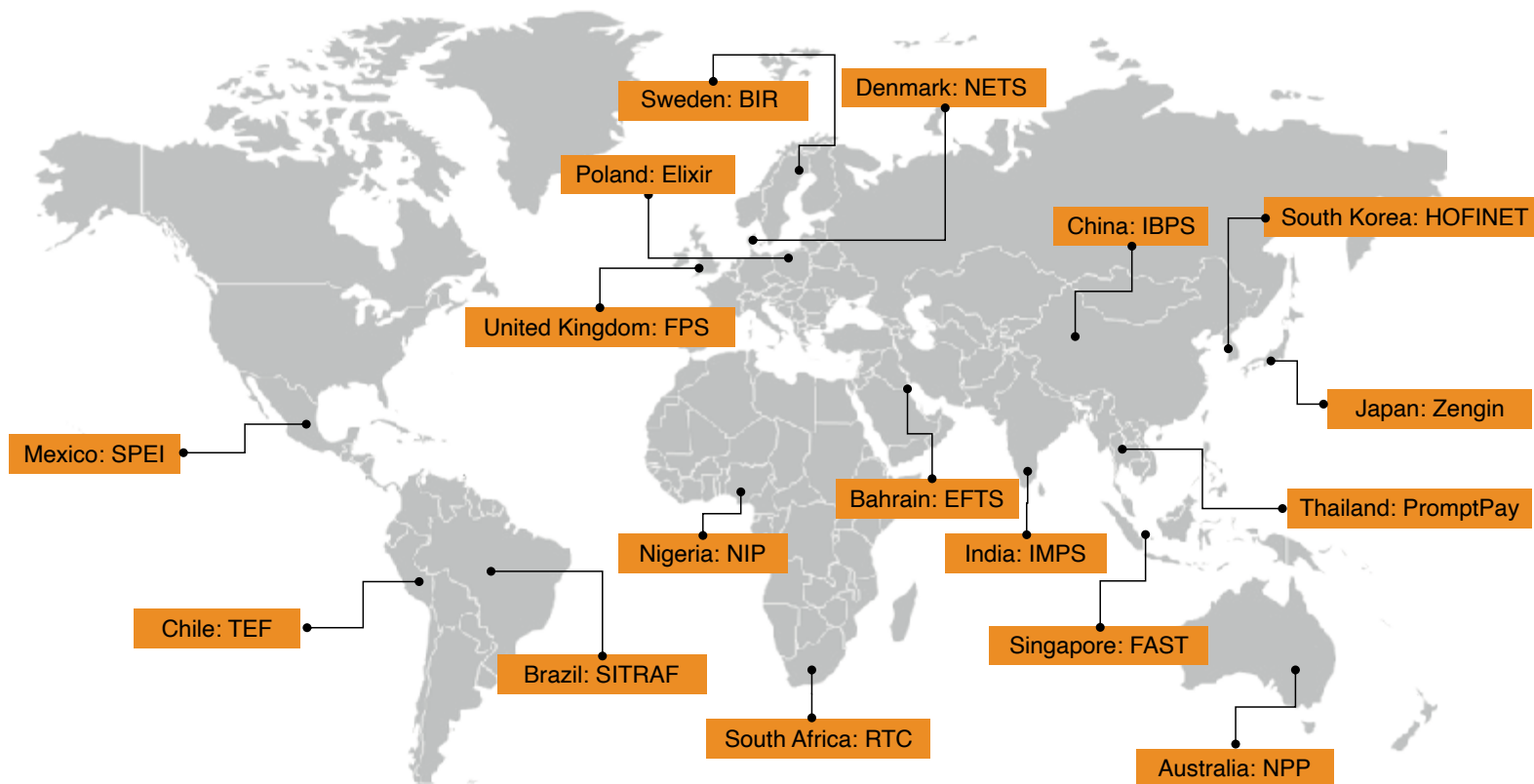
Global examples

FPS in the United Kingdom: Pioneer for global real-time payments

Launched in 2008 with the help of Vocalink, the FPS is a 24-hour service available 365 days of the year, enabling anyone with a bank account to transfer funds to anyone domestically. Key features of the FPS are:

- The FPS operates on NDS scheme held with the Bank of England (BoE).

- P2P payments and bill payments are the key use cases for the FPS.

- Key payment types supported are standing orders, forward-dated payments, payment returns and file-based payment.

- In the FPS, participants can integrate directly either as settlement or non-settlement partners.

Global faster payments schemes

Sweden: BIR
Denmark: NETS
Poland: Elixir
China: IBPS
South Korea: HOFINET
United Kingdom: FPS
Japan: Zengin
Mexico: SPEI
Bahrain: EFTS
Thailand: PromptPay
Nigeria: NIP
India: IMPS
Chile: TEF
Singapore: FAST
Brazil: SITRAF
South Africa: RTC
Australia: NPP

Source: Instant Payment Schemes by HSBC (February 2019)

Way forward

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Way forward

Many financial institutions and providers across the world are working towards developing open APIs or instant payment projects. However, standardisation and interoperability are still being worked upon, making delivery even more challenging. Inapt regulations by central authorities further restrict the launch of innovative solutions within real-time payments.

Some of the key considerations for successful implementation of faster payments systems are:

1 Open banking combined with real-time payments

A combination of real-time payments and open banking will help in creating effective overlay services that will benefit from onboarding participants to payments and finally settlements.

2 Bank-wide modernisation programmes of legacy payments platforms

With real-time payments, defragmented current legacy platforms will not be enough to handle volumes, performance and SLA pressures accompanying real-time payment mechanisms. Banks need to focus their efforts on modernising current payment platforms and reducing the sheer number of platforms they currently operate from, resulting in cost reduction, reusing shared resources, etc.

3 Real-time payments and security

1. Infrastructure and data-level security need to be considered.

2. Harmonising data laws with open banking regulations will act as an enabler for secure real-time payments.

3. Clearly documented standardised APIs including metrics and key performance indicators (KPIs) must be in place. This ensures maintenance of optimum balance between security and performance.

Regions with limited regulation on open API or faster payments are considering a sandbox approach to pull in technology service/financial solution providers to jointly develop and test innovative payment solutions.

4 Expanding the use case to payment adjacency will help bolster the business case for faster payments

Building faster payments infrastructure involves significant investment from the industry bodies as well as participants. In order to build a compelling business case, it is imperative to look at other overlay/adjacency services that can be built on top of the faster payments rail. Banks across the world have built services like bill payments, lending, equated monthly instalment (EMI) collections, credit scoring models and developing customer insights into areas like propensity to buy adjacent items like insurance. The exact overlay service that will be successful for a bank is a combination of multiple factors like the operating country, regulations, customer demand and other existing gaps in the market that need to be evaluated carefully.

Payments technology updates | 06

Payments technology updates

UPI hits 1 billion transactions in Oct, plans to go global

ETGovernment

Transactions using India's own domestic payments platform-Unified Payments Interface (UPI)-hit a landmark of one billion in September, three years after its launch. the National Payments Corporation of India (NPCI), which operates the UPI platform, aims to take the network global by enabling acceptance of UPI in Singapore and the UAE

Read more.

Banks' Biggest Real-Time Liquidity Challenges

Pyments.com

Faster and real-time payments capabilities continue to proliferate in the global financial services arena, and consumers aren't the only beneficiaries of the trend. Corporates, too, are beginning to explore opportunities in real-time transactions in areas like payroll and intra-company payments.

Read more.

Bharti Airtel, Western Union team up for real-time payments service

LiveMint

Western Union's collaboration with Airtel Payments Bank in India will offer another channel for real-time cross-border money movement into India. Senders from overseas would also be able to push funds directly to an Airtel Money mobile wallet in real-time

Read more.

Four in five Asian banks are losing money to fraud as real-time payments rise — and it will only get worse in 2020

Business Insider

Real time payments like UPI, India is aimed at making payment processes faster and easier. However, four in every five banks in Asia are losing money to fraud as a result of real time payments.

Read more.

Square Gets Patent for Crypto-Friendly Real-Time Payments System

Pyments.com

The patent application states that the technology will enable a person to pay in any currency and allow the recipient to receive that payment in whatever currency they choose, with the network itself automatically changing the first payment into the desired currency.

Read more.

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Data Classification: DC0

SG/February-M&C5224