



The Request to Pay Revolution

Treasury and Trade Solutions





Tony McLaughlin

Emerging Payments and Business Development,
Treasury and Trade Solutions, Citi

tony.mclaughlin@citi.com

AT A GLANCE

- Request to Pay (RTP) schemes are emerging around the world as a new way to collect from consumers and businesses.
 - RTP has potential benefits over existing card, Direct Debit and EBPP mechanisms: reduced costs, fraud, chargebacks and better information.
 - There are a number of potential shortfalls with RTP, especially surrounding the customer experience as a result of Strong Customer Authentication (SCA).
 - Merchants, marketplaces, fintechs, banks and governments must take an active role in making a success of RTP.
 - RTP is part of a broader transformation – the shift from batch to real time processing and a more open banking system.
-

A NEW WAY TO PAY

While cryptocurrency and blockchain garner most of the headlines, a quiet revolution in payments is gathering momentum: the emergence of real time **Request to Pay** (RTP) collections from bank accounts. The subject of real time payments has been written about extensively – this article focuses on lesser known developments in real time collections.

The RTP revolution is about regulators creating open digital markets, merchants reducing the friction and cost of collections, fintechs building new services on top of banking rails and financial institutions figuring out how to maintain the customer relationship. There is a paradigm shift underway as banking systems and processes migrate from batch to real time processing.

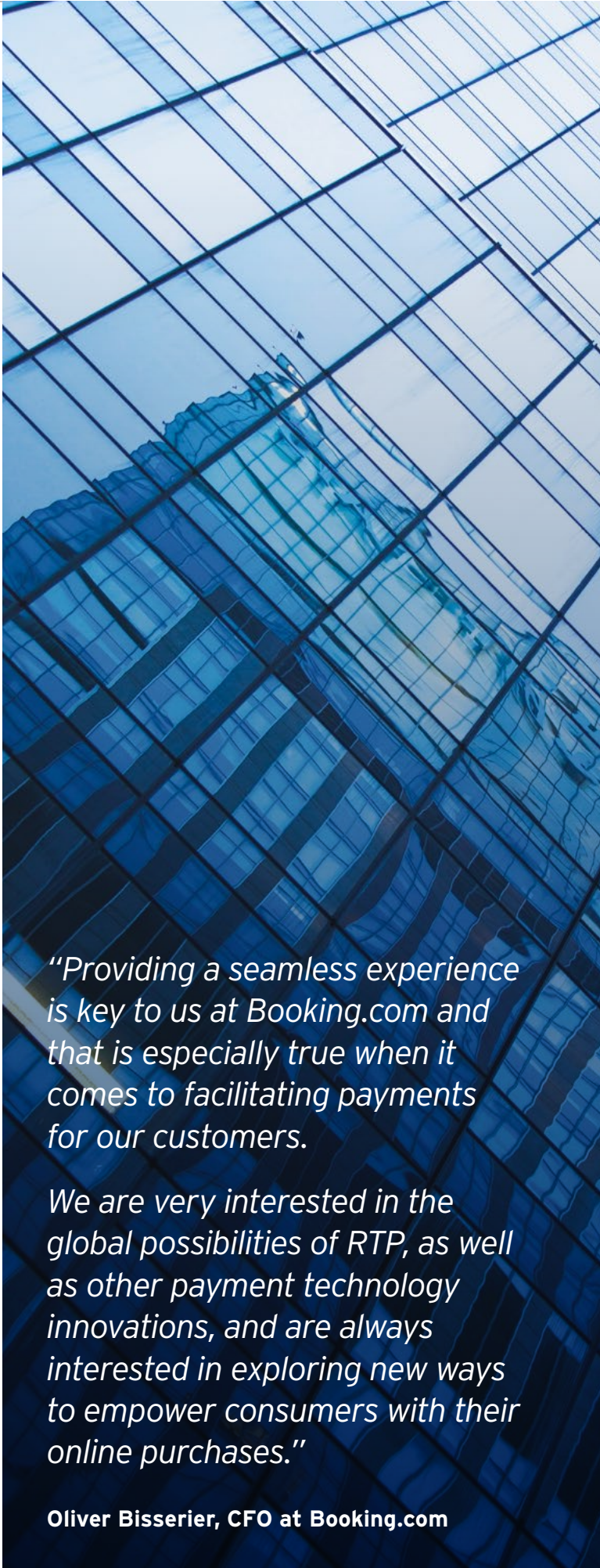
This article describes what is happening, but more importantly what the changes may mean for regulators, merchants, marketplaces, fintechs and banks. It is also a call to action, because RTP schemes will fall flat if they fail to meet the detailed needs of payment system users. Citi's goal is to enable progress of RTP as an efficient digital method of payment by highlighting critical success factors and sharing best practices from around the world.

HOW RTP WORKS

RTP is a collective term for schemes that trigger payments from bank accounts. In contrast with Direct Debits, RTPs are real time and suitable for single or ad hoc payments. They do not require a static upfront mandate from the payer and are not subject to extended rights of revocation. RTP may also be thought of as an upgrade of Electronic Bill Presentment & Payment (EBPP), enabling the payer to approve and execute the requested payment in real time.

RTP schemes work in broadly similar ways. This is the high level process for a Consumer to Business (C2B) RTP:

- 1 Checkout:** A consumer shops on a merchant's website and chooses to pay through their bank.
- 2 RTP initiation:** The merchant initiates an RTP to the consumer's bank, sending details of the purchase.
- 3 Authentication:** The consumer authenticates with their bank through a web or mobile channel.
- 4 Approval:** The consumer is presented with details of the payment then approves the transaction.
- 5 Confirmation:** The merchant receives assurance from the payer's bank that the payment is on the way, enabling the release of goods or services.
- 6 Payment:** The consumer's bank sends the payment to the merchant's bank through a clearing system, ideally in real time.



"Providing a seamless experience is key to us at Booking.com and that is especially true when it comes to facilitating payments for our customers."

We are very interested in the global possibilities of RTP, as well as other payment technology innovations, and are always interested in exploring new ways to empower consumers with their online purchases."

Oliver Bissierier, CFO at Booking.com

How RTP Works



When implementing an RTP scheme, countries can choose between two models:

1. **Centralized Clearing system** – a standardized national infrastructure that provides connectivity to the banks, e.g. UPI in India.
2. **Open Banking** – each participating bank is accessible through Application Programming Interfaces (APIs), e.g. PSD2 in Europe.

These models have their pros and cons – the central clearing system is harmonized but may be inflexible for future developments. The Open Banking model is potentially more extensible to add new services, but runs the risk of fragmentation unless standards are imposed. Each RTP system should choose the degree to which it is centralized and standardized for efficiency and harmonization without harming the potential for innovation and being open for new players to participate. The options are not mutually exclusive – it is likely that centralized systems and Open Banking will operate side by side in several markets.

As the infrastructure provider for several RTGS systems and the New Payments Platform (NPP) in Australia, SWIFT has firsthand experience in developing new real time payment systems. ISO 20022 and APIs are core technologies, creating the foundation for value added services like RTP."

Stephen Lindsay,
Head of Standards, SWIFT

RTP BENEFITS

In the payments space there is the contest between physical and digital instruments. Within digital payments there is a battle for supremacy between payment instruments. While credit card, debit card and electronic wallet based payments are expected to grow strongly, RTP has a number of benefits that could result in mass adoption.

1. **Reach:** RTP provides real time access to bank accounts, reaching a larger population than cards or wallets. In Asia, for example, 1.8 billion people have bank accounts but not credit cards.
2. **Low cost:** RTP may result in a step change in merchant costs, potentially moving to a model in which fees are measured in 'cents' rather than 'percents'. New RTP providers may see payments as a data business rather than a direct revenue opportunity.
3. **Risk and Controls:** RTP may reduce fraud and chargebacks because the consumer authenticates with their bank and approves each transaction. A reduction in payment decline rates could improve customer experience.
4. **Reconciliation:** information is captured along with the payment transaction ensuring a perfect match between payment and purchase. Rich information is facilitated by adoption of ISO 20022 messaging standards.
5. **Real time settlement:** when RTP schemes are built on real time payment rails, the merchant receives funds instantly rather than waiting for two or more days.
6. **Tokenization:** a powerful feature of RTP in some countries is that payments can be initiated through an email address or phone number; i.e. banking details are not obtained from the consumer. This makes customer registration easier, may facilitate consumer adoption, reduces merchant pain points with Payment Card Industry Data Security Standards (PCI DSS) and reduces the risk of personal data breaches.
7. **Reduction in late B2B payments:** businesses in many countries suffer from late payments – an efficient RTP process may help them get paid quicker and reduce Days Sales Outstanding (DSO).
8. **Cashless (or 'less cash') society:** a real time mechanism to debit bank accounts is a powerful infrastructural capability with the potential to drive further reductions in cash and cheque usage. RTP protocols may also empower machine to machine payments in the Internet of Things (IoT).



Ecommerce in Europe is booming! Faced by competition from both traditional brick-and-mortar shops and global ecommerce giants, it is crucial for European online merchants to ensure that the entire checkout process is convenient and secure. If adopted by all players in the payments value-chain, RTP has the possibility to be a game changer."

Pascal König, Ecommerce Europe

As well as being a potentially exciting C2B and B2B collection method for merchants, RTP is significant as a base infrastructure for fintechs to build on top of. For example, digital wallets become more useful if movements between the wallet and bank account are instant, low cost and frictionless. Wallets that are currently linked through cards can be expected to connect directly to bank accounts as a funding source.

RTP GAPS TO PROMISE

While RTP shows great promise there are a number of concerns from merchants around the practical utility of the payment instrument. The following issues will need to be addressed for RTP to gain consumer and merchant acceptance. Whether RTP exceeds or undershoots expectations is in the hands of regulators, banks, merchants, marketplaces and fintechs.

1. **Strong Customer Authentication (SCA):** customer experience is an overriding consideration in the digital world and merchants have concerns about users being forced through two-factor authentication requirements for every transaction. The most painful experience would be for a user to first log into their bank and then have to go through additional two-factor authentication to release the payment. Merchants seek a frictionless, risk based approach that enables smooth checkout and minimizes abandoned carts.
2. **Mobile Experience:** mobile commerce is a fast growing segment of ecommerce that is particularly sensitive to the checkout experience given the small screen size and variable internet connection speeds. RTP needs to be optimized for mobile commerce through integration with banking mobile apps, fingerprint or One Time Password (OTP) solutions.
3. **Recurring payments:** related to the issue of SCA is the ability for RTP to process recurring payments like monthly subscriptions, which can be fixed or variable amounts. Merchants are looking for a seamless customer experience and risk based approach, with only the first transaction subject to SCA.
4. **Confirmation:** RTP schemes must provide merchants with an unequivocal confirmation for each successful payment so that they can release goods or services in the expectation of being paid. An acknowledgement by the bank that they have received the RTP is not sufficient.
5. **Authorization/earmarking:** in several merchant use cases card authorizations serve a useful purpose, e.g. in the travel segment and sharing economy where a service is booked but the final payment amount is unknown. When RTP is delivered through the Open Banking model there is potential to check the customer's account balance, but this does not fulfill the purpose of earmarking or holding funds in cases where the actual collection will take place later.
6. **Credit:** RTP may be used to debit a bank account with an overdraft/line of credit attached, but this may not be the preferred method for consumers to finance purchases. Merchants are interested in the maximum available purchasing power delivered to the checkout, which is comprised of available bank balances plus available credit.
7. **Loyalty:** In the current paradigm merchants are not content that their collections fees are used to fund loyalty with third party organizations through the medium of card rewards. In the new direct to bank world loyalty will be provided by merchants to encourage take up of new payment methods, and the merchants will seek to keep that loyalty within their own ecosystem.
8. **Purchase Insurance:** Existing card schemes have embedded protection for consumers that are not inherent in RTP. This will be an area where banks and/or fintechs may need to offer an unbundled service that is separately billed to the consumer.
9. **Chargebacks/disputes:** Consumers need to be confident that they are protected when they don't receive the goods/service that they have paid for. Card schemes have well developed mechanisms for chargebacks that will have to be replaced by new procedures in the RTP world.
10. **Point of Sale (POS):** RTP has been built with retail ecommerce in mind, with less consideration of how it will apply at the physical POS. While ecommerce is growing fast, POS is still 20-30 times larger in terms of volume. Wallet providers are likely to adopt RTP as a funding method for consumer wallets that can be used at POS and there may be greater take up of light touch methods like Quick Response (QR) codes to accept RTP transactions at the POS.
11. **Business to Business (B2B):** Retail ecommerce values are dwarfed by B2B ecommerce, which is 4-5 times larger. Many businesses have reconciliation issues collecting from other businesses and suffer from late payments. It is challenging to get businesses to accept Direct Debits because the payer wants control. RTP has great potential in B2B, but schemes will need to adapt to commercial realities, like higher payment limits (e.g. UPI in India is currently limited to INR 100k, or around USD 1,500), multiple corporate signers and integration with electronic invoicing processes.
12. **Multi-currency:** With few exceptions, RTP schemes only process local currency transactions. Existing card schemes support a merchant in one country collecting from a payer in another country, albeit at retail rather than wholesale foreign exchange rates. With the growth



in cross border ecommerce, market participants will need to build solutions to eliminate foreign exchange risk (e.g. through a guaranteed FX rates program) and settle RTP collections with merchants in their currency of choice.

13. **Bank readiness:** Banks are built on batch processing and 'store and forward' messaging. Banks have to make significant investments to upgrade general ledgers, payment, credit and fraud systems to connect to real time RTP schemes.
14. **Unbanked populations:** RTP schemes work with bank accounts and do not in themselves address the issue of financial inclusion. India has shown with Aadhaar how identity is the first step in addressing this issue. There is the potential to extend RTP schemes to enable tokenized collections from all types of payment account, including cards and non-bank wallets.

This list of RTP gaps and challenges may seem daunting, but do not be deceived - there is an inexorable trend towards merchants having cost efficient, real time access to bank accounts and this list is actually a roadmap of opportunity for forward thinking fintechs, banks and technology companies.

Mastercard acquired Vocalink to facilitate as many payment flows and payment types as possible to provide choice to consumers, banks, businesses and governments across the world. Vocalink has embedded the RTP capability in its real time infrastructure and Pay by Bank application. We believe that speed, security and convenience of RTP will provide real value to businesses and specifically small and medium sized enterprises."

Paul Stoddard: CEO Vocalink
(a Mastercard company)

AROUND THE WORLD IN RTP

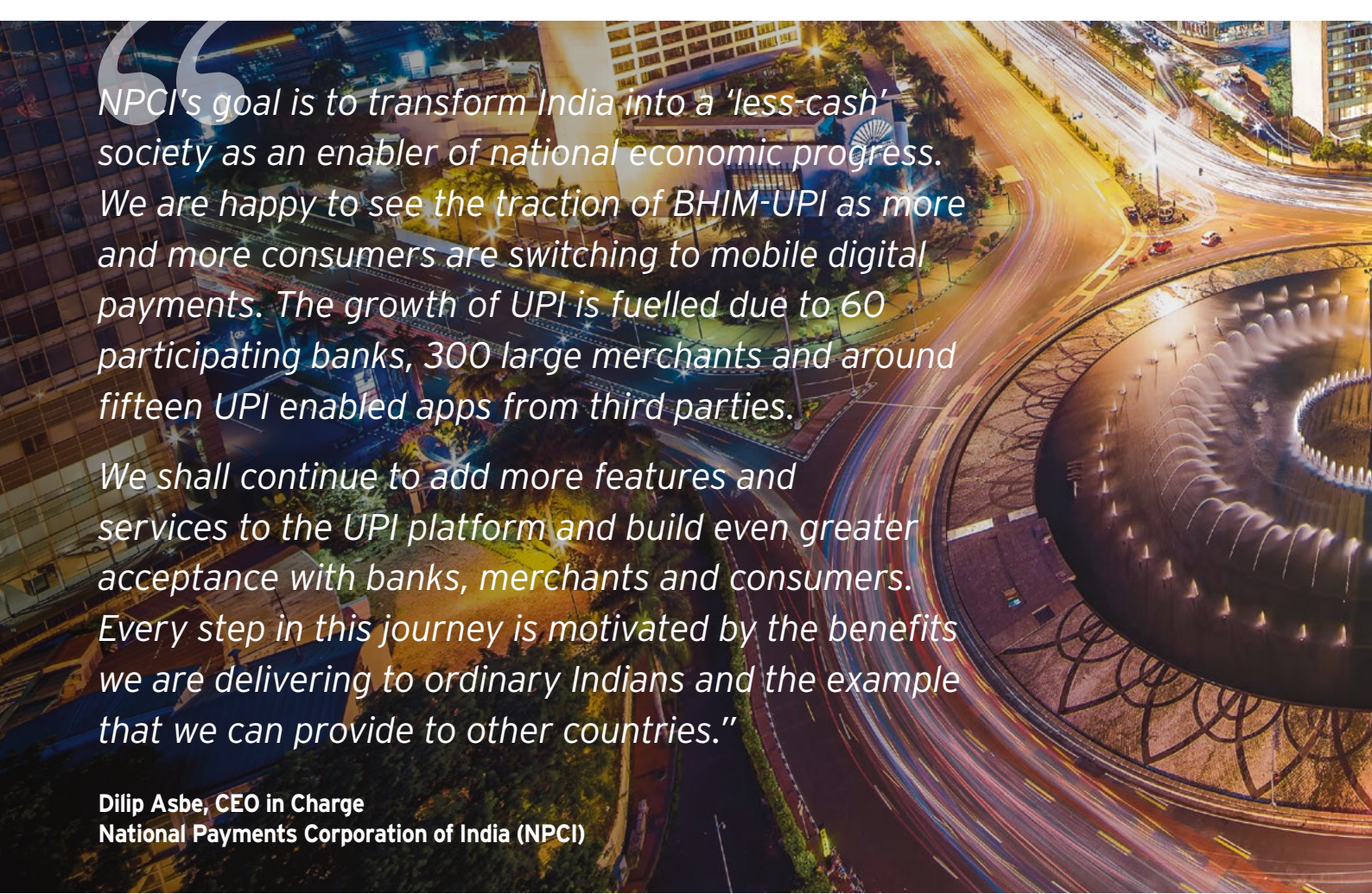
In the same way that we expect each country to have a Real Time Gross Settlement (RTGS) system and Automated Clearing House (ACH), so we will expect that each country will have a real time low value clearing system and, in due course, RTP with tokenization and a range of value added services.

The canonical RTP example is the iDEAL scheme in the Netherlands which captured around 70% of ecommerce payments in the country. iDEAL was created by the Dutch banking community and the SCA 'friction' involved in the payment process has largely been accepted by merchants and consumers. As an indication of how RTP can evolve, iDEAL is now moving into the POS space.

Here are a few of the notable schemes that each give a glimpse of how RTP may evolve. Each of these examples is a vector that points towards what the world of real time collections will look like. Glimpses of the future are unevenly distributed, so we have to know where to look and what to look for.

Asia Pacific

- **China:** Discussions about payment system innovation must begin with China where the two dominant wallet providers have demonstrated what the world might look like when all countries have real time payments and collections. The digital wallet providers are currently connected directly to banks through non-standard, bilateral APIs and host to host connections, which should bring to mind the structure of PSD2. However, China is implementing the Nets Union Clearing Corporation (NUCC) system that will be the new method for wallets to debit and credit consumer bank accounts. NUCC is only available to Chinese regulated wallet providers at this stage.
- **Hong Kong:** The Faster Payment System (FPS) is scheduled for launch in September 2018. It is a multi-currency platform that will support both HKD and RMB. Banks and non-bank payment service providers can participate. Payments can be made through mobile phone numbers or email addresses as a proxy for bank details. FPS will provide real time credit transfers and RTP. To facilitate RTP at the POS, the Hong Kong Monetary Authority (HKMA) is developing a common QR code standard.



NPCI's goal is to transform India into a 'less-cash' society as an enabler of national economic progress. We are happy to see the traction of BHIM-UPI as more and more consumers are switching to mobile digital payments. The growth of UPI is fuelled due to 60 participating banks, 300 large merchants and around fifteen UPI enabled apps from third parties.

We shall continue to add more features and services to the UPI platform and build even greater acceptance with banks, merchants and consumers. Every step in this journey is motivated by the benefits we are delivering to ordinary Indians and the example that we can provide to other countries."

**Dilip Asbe, CEO in Charge
National Payments Corporation of India (NPCI)**

- **Thailand:** PromptPay is Thailand's faster payment system and part of the Bank of Thailand's strategic plan to move to a cashless society. PromptPay launched in 2017 and enables registered individuals to make domestic payments using "Any ID" (National ID, phone number, ewallet ID, or email address). The RTP launch is part of a determined strategy to reduce cheques and automate bill payments.
- **Malaysia:** Malaysia is a showcase of payment system innovation and is making a systematic push from paper to digital payments. The real time Retail Payments Platform (RPP) will be piloted in early 2018, with initial services being instant credits and RTP for ecommerce merchants, with payments approved through mobile banking applications. Tokenization will go live in mid-2018 through a National Addressing Database accessed through banks.
- **India:** The Unified Payment Interface (UPI) is the latest in a slew of payment innovations from India that commenced with the world's largest biometric identity implementation, Aadhaar. UPI is a real time payments and tokenization scheme that enables collections from 60 banks. Volumes and values are growing exponentially and a number of fintech players are building new services on top of the platform. UPI and the other developments in India show how rapidly a country can digitize payments when governments take concerted action.
- **Australia:** The New Payments Platform (NPP) real time clearing system will have an overlay RTP service that will leverage the new PayID tokenization scheme. Australia was traditionally a bilateral clearing market with relatively high adoption of electronic payment methods such as BPay. Australia is also on the verge of implementing an Open Banking model of bank APIs, demonstrating that these developments are not mutually exclusive.

Europe, Middle East and Africa

- **European Union:** The second Payment Services Directive (PSD2) will provide access for fintechs to bank infrastructure to obtain customer information and initiate payments. In contrast with other markets, PSD2 is not built on a clearing system and does not impose API standards on banks. Final technical requirements are expected to be published at the end of 2017 and there may well be a significant degree of fragmentation across the thousands of banks who must comply with PSD2.



*While electronic payments in the form of credit cards, contactless cards and other online means have been prevalent in Hong Kong, the 13 stored value or e-wallet licenses we issued last year have created a new landscape for our retail payments scene. We are excited about our new Faster Payment System, essentially a 24*7 retail RTGS. When it is operational in September 2018, it will bring new functionalities including Request to Pay (RTP) to facilitate payment innovation by banks, e-wallet operators and tech companies."*

Hong Kong Monetary Authority (HKMA)

"ACI is a technology provider to real time payments schemes in many parts of the world - Vocalink, STET, Zelle, TCH and Paynet are a few examples. We see a consensus forming around the need to offer RTP as an additional method of payment in many markets. Online and offline merchants see the opportunity to reduce costs and increase data fidelity."

Paul Thomalla, ACI Worldwide

- **United Kingdom:** In addition to compliance with PSD2, the UK Open Banking project driven by the Competition and Markets Authority (CMA) has mandated nine banks to open standardized APIs from January 2018. The small number of banks involved and the standardization of the APIs make the UK an attractive testbed for merchants and fintechs interested in RTP. Lessons from the UK can be usefully exported to other geographies and may inform future regulatory decision making.
- **Nigeria:** The Nigeria Inter-bank Settlement System (NIBSS) Centralpay Plus system connects to merchant websites and allows consumers to pay merchants in real time using their internet banking credentials. There is a One Time Password (OTP) option based on an underlying electronic mandate where the payer authorizes the transaction through a mobile.

Americas

- **United States of America:** The largest payments market in the world is going through some significant changes including the creation of real time payments. Being the home of the free market, the regulators have not mandated banks to join the real time payments scheme but the Fed has made it clear that it wishes to see a ubiquitous service emerge. RTP is a feature of the new scheme and will pilot in mid-2018.
- **Argentina:** The Debito Inmediato (DEBIN) service in Argentina is undergoing testing between the banks and will pilot in mid-2018. Latin America is a variegated banking market but there are signs in several markets that payment system innovation is moving higher up the regulatory agenda.

Each of these examples is indicative of the surge of interest in RTP on a global basis - many countries are planning their own developments. RTP will be a catalyst for innovation and further iterations and developments are inevitable. Regulators, banks, fintechs and merchants need to see the big picture that these individual developments represent.

"Online payments ultimately originate from bank accounts but for a long time the consumer had to use intermediary instruments to get the payment done. Trustly is excited to leverage Open Banking to enable 400+ million Europeans to make simple, secure payments to merchants direct from their bank accounts."

Oscar Berglund, CEO Trustly

RTP IMPERATIVES

When bank accounts are accessible in real time through clearing systems and/or Open Banking APIs, a powerful new layer has been created in the banking infrastructure. Regulators, merchants, marketplaces, banks and fintechs need to consider their strategic responses.

Direct digital collections from bank accounts in real time represents a profound shift in payments but there is a clear and present danger that they miss the mark from a regulatory and user perspective. The overriding message for all stakeholders is to actively engage and not to treat this topic as a regulatory compliance matter.

1

Regulators/Governments

- Build schemes on open standards, i.e. ISO 20022
- There should be a sensible risk based approach to authentication using a combination of methods, e.g. transaction risk analysis, value limits, trusted beneficiaries, liability sharing models.
- Consider pros and cons of mandatory bank participation.
- Consider pros and cons of a centralized clearing system versus Open Banking (if Open Banking, then drive standardization).
- Make sure that RTP meets the needs of C2B merchants and B2B use cases as well as solving for consumer protection and convenience.
- Consider global best practices, e.g. build RTP and tokenization together.
- Government departments are large users of payments systems - they should be early adopters of RTP to drive consumer acceptance and adoption.
- Enable access by global merchants, i.e. allow RTP collections into non-resident accounts.

2

Merchants and Marketplaces

- Engage with the new RTP schemes to make sure your voice is heard on customer experience and scheme rules.
- Work with banks and fintechs to address the RTP gaps.
- Test your use cases against attributes of the new schemes, e.g. current usage of card authorizations, recurring payments, etc.
- Consider how to reward consumers to use efficient payment methods.
- Multinational merchants should push for standardized interfaces to RTP and other real time payments schemes, e.g. a JSON API implementation of ISO 20022.



The World Wide Web Consortium (W3C) develops open standards to ensure the long-term growth of the Web. W3C's new payment standards streamline the checkout experience and create opportunities to integrate new payment instruments like RTP into Web and mobile commerce. W3C's payment standards create a fast and consistent payment experience across browsers and increase security, for example by supporting tokenization and strong authentication."

Ian Jacobs,
Head of W3C Payments

3

Banks

- Follow a proactive business strategy, not a minimum compliance approach.
- Foster innovation in customer authentication and participate in relevant standards initiatives like W3C web payments and API standards consistent with ISO 20022.
- Involve both the retail bank and the wholesale bank.
- Pursue an aggressive API strategy with three parts: a) external APIs for both retail and wholesale banking, b) internal APIs to create agility and c) the consumption of external APIs to enrich bank services.
- Make credit available through APIs to offer both 'Pay Now' and 'Pay Later' options to customers, e.g. a dedicated digital payment account with a line of credit or installment plans available at checkout.
- Unbundle other services traditionally provided by cards and make available through APIs.
- Take RTP capabilities to the POS and B2B segments.
- Support bulk crediting of incoming RTPs as merchants may not want large numbers of individual small credits on their bank accounts.

4

Fintechs

- Engage with the new schemes to express requirements.
- Drive innovation in customer authentication to build frictionless payment experiences on top of RTP.
- Take RTP to POS and B2B segments.
- Mono-line payments players should seek to diversify revenue sources – geographically and through new lines of business – to hedge against a potential step change in merchant fees.
- Fill in the gaps in RTP to meet merchant and marketplace needs – each one is a significant business opportunity.



The Nordics are advanced digital payments markets where real time payments through schemes like Swish have gained mass market adoption in a short timeframe. Nordea is leaning into the API revolution and was first out in the Nordics with our developer portal, which will help deliver the best in new banking solutions to our 11 million customers. We believe that Open Banking will bring profound changes and we look forward to creating the future ecosystem in collaboration with others.

Jarkko Turunen,
Head of Open Banking, Nordea

PAYMENTS MEGATRENDS

While revolutionary, RTP is part of larger trends that will change the payment space beyond recognition. RTP schemes are revolutionary, but they should be considered as part of larger digital and business model transformations in payments, financial services and the global economy.

- **Hyper-connectivity:** The denizens of the digital world are platforms that connect through multiple API connections to take on new forms and capabilities. Ultimately all banks will open APIs for consumer and corporate banking. The development of RTP as an instrument is driven by regulators with specific aims, so it is limited in scope - there is nothing stopping merchants and banks from connecting to each other through bilateral API connections to overcome these limitations.
- **Real time banking:** Low value and high value clearing systems will move 24*7 and this will change existing concepts like 'end of day' and 'cut off times'. When

domestic clearing systems force banks to upgrade their systems to process in real time, they will then be ready to connect internationally through real time networks.

- **Open competition:** Competition from non-bank entities – regulated or not – is going to be a feature of life. These Over the Top (OTT) providers will seek to replicate the success seen in the telecoms space.
- **Customer relationships:** Whether we look into telecoms, banking or the world of FMCG brands the battleground is, '*who has the customer digital relationship?*' New players may see payments as a means to establish a data relationship with a customer rather than a separate line of business.

These developments mark a shift from batch processing to real time processing which follow developments in other parts of the economy. Ecommerce is global, data rich and real time: it is only natural that the banking systems adapt to this new reality.



CITI NEVER SLEEPS

The sun never sets on many multinationals – as one business day winds down, another swings into action. Companies accustomed to being ‘always on’ *somewhere* are getting used to being always on *everywhere*.

In the same way that Citi provides global access to ACH and RTGS clearings systems, we will provide clients with a single point of access to the new real time payments and collections systems, including RTP and other value added services. Global merchants, marketplaces and fintechs seek access to the new real time systems through harmonized global interfaces.

Citi’s real time payments and collections capabilities are integrated with our established transaction banking and foreign exchange platforms: local bank accounts, global liquidity structures, traditional payments and collections

instruments and reporting and analytics. Citi delivers this ‘multi-domestic’ model in around 100 countries.

As RTP develops, Citi will share lessons between markets, working with regulators, governments and partner financial institutions to deliver payment system innovations that work at national and international levels, and for the individual payment system user, whether consumer or business.

In doing so we enable progress through the inputs from sophisticated clients – merchants, multinationals, marketplaces, non-bank financial institutions, banks, fintechs and governments – all of whom have a vital role to play in the next generation of payment system innovation. We invite our clients to engage with Citi to drive developments, address challenges and benefit from the new possibilities provided by real time payments and collections.



“We see an accelerated convergence of payment methods through rapid digitization. New enablers like real time technologies, regulations such as PSD2 and wider digital transformations like Internet of Things (IoT) vastly increase the scope of electronic payments beyond traditional retail and banking sectors.

Worldline has a division dedicated to digital payment solutions in sectors such as e-ticketing, connected objects, government e-collection and healthcare. Amazing possibilities are open in our rapidly advancing industry!”

Gilles Grapinet, CEO Worldline



Tony McLaughlin

Emerging Payments and Business Development,
Treasury and Trade Solutions, Citi

ABOUT THE AUTHOR

Tony McLaughlin is responsible for Emerging Payments and Business Development in Citi's Treasury and Trade Solutions (TTS) business. Tony is responsible for the TTS Ecommerce proposition and is deeply involved in new methods of payment, Distributed Ledger and Fintech engagements. He joined Citi in 2004 and has been Core Cash Head for Asia Pacific based in Hong Kong and the Global Transaction Services Head for the United Kingdom, spearheading Citi's engagement with large public sector clients and payment aggregators. Tony was responsible for the design and development of ABN AMRO's Third Party Continuous Linked Settlement (CLS) offering, core electronic banking platform and transactional FX solution. At HSBC Holdings, he fulfilled a global strategy role for the Payments and Cash Management business. Before that he was a Senior Product Manager for Barclays Bank with responsibility for electronic collections products including International Direct Debits.

If you would like to find out more about the significant changes happening in the payments and collections market, or to share your own perspectives, please contact your Citi Relationship Manager, or contact the author directly:

tony.mclaughlin@citi.com

citi.com/treasuryandtradesolutions

© 2017 Citibank, N.A. All rights reserved. Citi and Citi and Arc Design are trademarks and service marks of Citigroup Inc. or its affiliates and are used and registered throughout the world. Citibank, N.A., is incorporated with limited liability under the National Bank Act of the U.S.A. and has its head office at 399 Park Avenue, New York, NY 10043, U.S.A. Citibank, N.A., London branch, is registered in the UK at Citigroup Centre, Canada Square, Canary Wharf, London E14 5LB, under No. BR001018, and is authorised and regulated by the Office of the Comptroller of the Currency (USA) and authorised by the Prudential Regulation Authority. Subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. Details about the extent of our regulation by the Prudential Regulation Authority are available from us on request. VAT No. GB 429 6256 29. Ultimately owned by Citigroup Inc., New York, U.S.A.

