Deutsche Bank
Global Transaction Banking

Preparing for real-time liquidity

The need for collaboration around the future of liquidity and collateral management

#PositiveImpact

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Introduction

With instant domestic payments, faster cross-border payments and technologies such as open Application Programming Interfaces (APIs) becoming more prevalent, corporate treasuries and financial institutions, and the technology and infrastructure providers that support them, will increasingly operate in "real-time"

Real-time clearing and settlement mechanisms, which will become quite distinct from the familiar territory of cut-off times, end-of-day processing, and periodic updates to intraday liquidity positions, will have a fundamental impact on liquidity and collateral management. For example, the way that banks calculate their intraday liquidity buffers is currently based around end-of-day batch processing, and does not necessarily reflect the different risks associated with real-time flows and dynamic intraday liquidity due to the speed of liquidity changes and associated counterparty exposures. Banks, regulators and infrastructure providers need to prepare for this in their risk and liquidity modelling and forecasting. The issue now is to understand the extent to which the industry is prepared for this shift, and what more needs to be done.

As this report illustrates, collaboration across the industry will be essential to create, shape and realise the next generation of liquidity and collateral management. Such collaboration is ambitious but achievable with the right inspiration, co-ordination and common objectives. To reflect the value of this industry collaboration, we have been pleased to invite a number of leading industry participants, who offer diverse experiences and perspectives, but a commitment to crafting a common vision, to participate in this report. We would like to thank these industry leaders for their time and insights:

- Sandra Laielli, Chair, Liquidity Working Group, Bankers Association for Finance & Trade (BAFT)
- Philip Stewart, Global Head of Cash & Banking, British American Tobacco
- Hays Littlejohn, CEO, EBA CLEARING
- Christian Mnich, Senior Director, Solution Management, Working Capital & Treasury Management, SAP
- Harry Newman, Head of Banking, SWIFT

We look forward to engaging with you further on this important topic.

Vanessa Manning, Head of Liquidity and Investment Solutions,
Global Transaction Banking, Deutsche Bank

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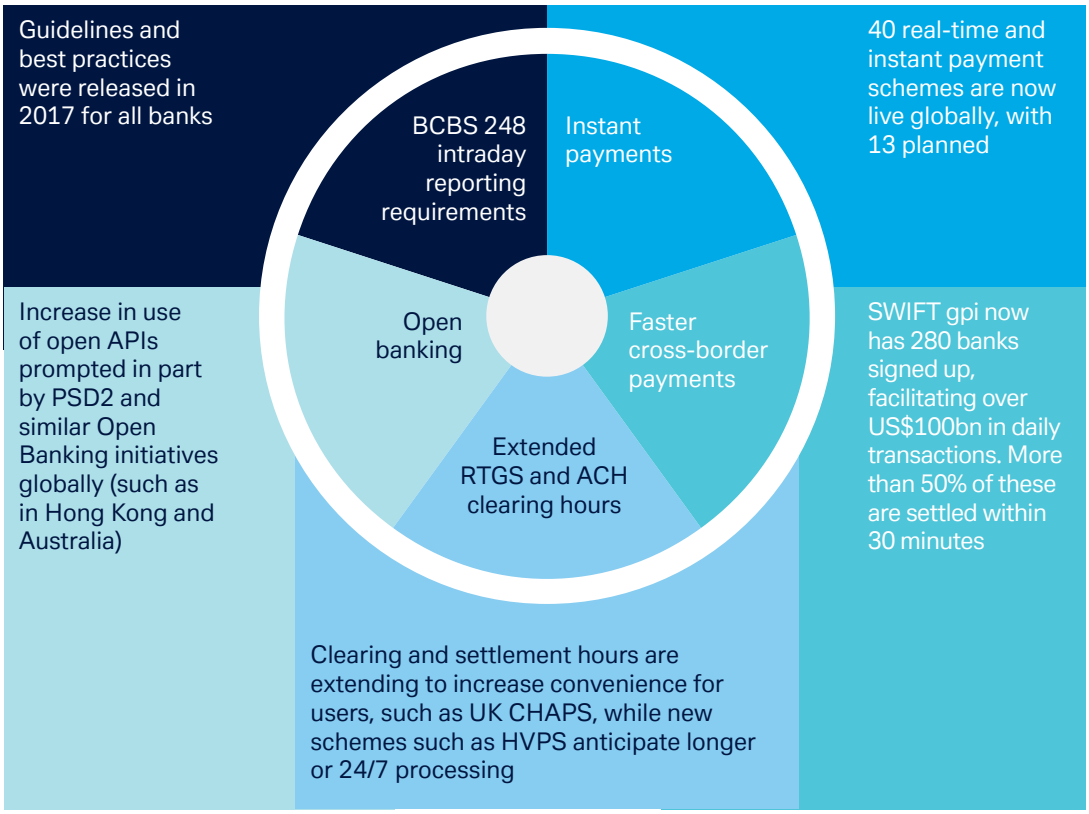
A vision of the real-time treasury

"Real-time treasury" is becoming a familiar concept, and is being driven by the combination of five key factors (see Figure 1)

Figure 1: Factors driving the real-time treasury



Source: Deutsche Bank

However, the progress towards a real-time treasury environment is neither steady nor linear, with each of these issues impacting on industry participants in different ways and to varying degrees.

Real-time and instant domestic payment schemes

Although governments and central banks globally are prioritising real-time payment schemes, the relevance for corporate users, and therefore the impact on intraday liquidity, may seem to be limited. A number of schemes have a value cap on transactions, which limits interest for many treasurers; furthermore, many corporations already have well-established and efficient payment processes, which they are not inclined to change without clear advantages to doing so. The exceptions are those that have large volumes of collections from retail customers.

"For customers that operate in the B2C space, such as retailers, utilities and insurance companies, instant payments are of interest, specifically for collections, and many are focusing on introducing instant payments at point of sale."

Christian Mnich, Senior Director, Solution Management, Working Capital & Treasury Management, SAP

However, the value cap is likely to increase or be eliminated over time. In the UK, the value limit increased from GBP1,000 to GBP25,000 within seven years of introduction, and this is due to rise further to GBP1m.[1] Other schemes, such as in Belgium (launching November 2018)[2] and Netherlands (launching May 2019)[3] have no value cap at all. As real-time payment schemes mature and restrictions are removed, corporate and institutional treasurers and finance managers will increasingly take advantage of the ability that real-time payments and collections offer to support "just in time" supply chains, reduce commercial counterparty risk, enhance working capital and leverage new business models. After all, as we saw with the introduction of the Single Euro Payments Area (SEPA), there has been a stronger uptake of SEPA credit transfers (SCT) for high value payments by treasurers than we might have expected and despite lukewarm initial interest, even though this was not the primary purpose of SCT – an example that we are likely to see repeated as real-time payment schemes evolve.

Faster cross-border payments

It is not only domestic real-time payment schemes that will increasingly impact on liquidity; cross-border payments are also accelerating. SWIFT's global payments innovation (gpi) initiative is now well-established with over 280 banks signed up, and over US$100bn processed via gpi each day.[4]

Corporate clients have responded very positively to the SWIFT gpi proposition, with interest likely to increase further now that SWIFT gpi for Corporates pilot projects have been completed successfully.[5] However, most of the interest and perceived value for corporate treasurers is on the predictability and traceability of incoming and outgoing payments rather than the liquidity implications. However, better predictability and traceability will enable treasurers to position liquidity far more precisely and reduce liquidity buffers.

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Understanding the challenges

What is real-time?

One of the first difficulties when addressing the issue of "real-time" is that SWIFT's Global Market Practice Guidelines have not yet been fully assimilated, particularly given that industry participants need for "real-time" may differ.

"Real-time is a word mentioned often in the context of payments and liquidity management. But the first issue to address is the notion of "real-time". Just as banks have diverse liquidity needs, they may also define "real-time" liquidity in different ways. For some, it could mean providing updated intraday positions through MT941/MT942 messages every thirty minutes or as few as three times a day. There is no common standard. However, as instant payment schemes emerge and expand, real-time liquidity will increasingly be far more dynamic a concept."

Sandra Laielli, Chair, Liquidity Working Group, Bankers Association for Finance & Trade (BAFT)

For many institutions - banks and corporates alike - the demand is not necessarily for "real-time" liquidity, but rather "just-in-time" liquidity, with the ability to forecast flows to meet financial obligations precisely without liquidity spikes or the need for large buffers.

"Ultimately, real-time liquidity issues will impact on both corporates and financial institutions. For corporations, the acceleration of payments has a positive impact on working capital as cash is not tied up for as long, but there is a load on banks providing that capital, which could in turn lead to additional liquidity costs for corporates."

Harry Newman, Head of Banking, SWIFT

Over the next two to three years, definitions and understanding of real-time liquidity is likely to coalesce across the industry; however, this will require a concerted effort to seek co-operation and consensus.

Beyond regulation of intraday liquidity

With the inexorable, if likely bumpy, move towards "real-time", all industry participants need to be prepared for a fundamentally new approach to measuring, monitoring and managing liquidity, particularly intraday. Underpinning this change is the issue that current processes, systems and risk management are structured around an end-of-day, batch processing that will no longer be relevant in a real-time environment.

"For many banks, one of the biggest hurdles in the shift from a static approach to intraday liquidity, to a more dynamic, real-time view is their legacy system environment in which it is often difficult to provide a consolidated, dynamic view of liquidity."

Sandra Laielli, BAFT

The focus on intraday liquidity is not new: managing intraday liquidity and its associated risks is a key element of banks' overall liquidity risk management framework. In particular, banks need the capacity to:

- forecast daily gross liquidity inflows and outflows, including potential net funding shortfalls at different points during the day;
- monitor intraday liquidity positions against expected activities and available resources (e.g. balances, intraday credit capacity and available collateral);
- ensure access to, and mobility of funding to meet intraday requirements, and deal with unexpected disruption.

This obligation is clearly understood by regulators. Since 2017, some systemically relevant banks have been obliged to report on seven intraday liquidity measures under Basel Committee for Banking Supervision (BCBS) 248 guidelines[6], emphasising the importance of intraday liquidity management as an indicator of financial health. As the industry increasingly operates in real-time, however, the question now is whether it is regulators, or banks, that take the next step by realigning liquidity risk policy in line with real-time clearing and settlement.

"Now that banks have 'ticked the boxes' with regards to complying with regulatory reporting requirements, the question is 'what next'? Will regulators make the next step and focus on intraday liquidity and increase respective capital requirements? What will be the main driver for banks to manage their own intraday liquidity more effectively?"

Sandra Laielli, BAFT

Banks will need to continue working closely with regulators to define a clearer framework for real-time liquidity. Today, counterparties have bilateral agreements for the exchange of liquidity, but the question will be how this happens in real-time and in a consistent way. Industry-wide orchestration will be essential to achieve this, guided by banks such as Deutsche Bank that are playing a leading role in this area.

Prioritising real-time liquidity

One of the difficulties currently is that motivation amongst some industry participants is relatively limited. After all, high levels of market liquidity, and relatively limited use of real-time payments so far, may suggest that shifting intraday liquidity and collateral management requirements does not need to be a major issue for banks; however, it is not realistic to assume that these levels will become a new market norm.

"The high levels of market liquidity will not continue indefinitely, and liquidity levels will normalise, at which point intraday liquidity will become a more pressing issue. If the value of real-time payments is small, it is easy to conclude that the liquidity implications are relatively minor. This can build up, however, both as the value and volume of real-time payments rises incrementally, but also in exceptional events. As a result, the issue of real-time liquidity could quickly become significant, particularly outside money market hours; as a result, we are likely to see important conversations develop, particularly amongst financial institutions."

Harry Newman, SWIFT

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Real-time liquidity for financial institutions

Financial institutions' real-time liquidity challenges

Challenges	Focus areas
– Lack of standardised definition of real-time liquidity – Lack of consistency between banks in the analysis and management of real-time liquidity – Obstacles posed by legacy technology infrastructure – Different conditions across currencies	– Collaboration, sharing of expertise and a single voice to regulators e.g. through BAFT – Exploring technology solutions to analyse and manage liquidity – Taking a regional/ global view of liquidity

Market infrastructure providers and clearing systems are working with financial institutions to understand and prepare for a real-time industry environment.

"As the use of real-time payment schemes expands, providing appropriate liquidity management and forecasting tools at an infrastructure level will become more and more important since liquidity needs will become greater and more complex, including during real-time gross settlement system (RTGS) closing hours when active liquidity management will not be possible. While there might still be less use of liquidity at night and over the weekend, payment service providers (PSPs) will not want to set all their available liquidity aside for real-time payment services.

We have tried to build our pan-European instant payment system RT1 to provide enough data to the participants to allow them to build up a picture of payment user behaviour and anticipate their liquidity needs accordingly. These evolved liquidity management tools may also pave the way for PSPs to create similar tools for their corporate customers."

Hays Littlejohn, Chief Executive Officer, EBA CLEARING

Current and future visibility over fragmented liquidity

The first requirement for financial institutions is to achieve visibility over liquidity; however, this can be challenging given that this is likely to be held in different places and in different clearing systems.

"In Europe, there will be more than one real-time payment system, which will make it vital for participants to understand where their counterparts will send their flows, to seek as much reciprocity as possible and to refine their own liquidity forecasting processes."

Hays Littlejohn, EBA CLEARING

An important objective, therefore, is to avoid liquidity becoming fragmented and trapped across a variety of systems, especially for PSPs operating in a multinational context. In this respect, cross-service alignment will become more important as the real-time liquidity conversation continues. For example, EBA CLEARING supports high-value, retail and real-time euro payments at a pan-European level, and payment users need visibility across all three in order to route flows appropriately, and understand their intraday/real-time liquidity needs based on forecasts for each type of flow.

Having established visibility over liquidity, financial institutions then need to be able to forecast flows effectively in order to ringfence the right amount of liquidity for payment processing, Again, tools are emerging to accommodate this.

"The first step is with the credit institutions, who need to know what liquidity to ringfence in order to process payments. In RT1, they can set up liquidity schedules based on forecast flows and set targets around ringfenced liquidity at different times of the day. The system adjusts against these targets automatically so that treasurers do not need to monitor liquidity levels on a 24/7 basis."

Hays Littlejohn, EBA CLEARING

Liquidity forecasting

Although a number of financial institutions now produce intraday liquidity reporting, there continue to be ambiguities and challenges in interpretation and understanding of best practices.

"Regulators typically stipulate regulatory guidelines, but they do not specify how these should be fulfilled. As a consequence this leads to different interpretations and banks seek for various solutions that are not necessarily part of an agreed standard."

Sandra Laielli, BAFT

Liquidity reporting

Although financial institutions now produce mandatory intraday liquidity reporting, there continue to be ambiguities and challenges in interpretation and understanding of best practices.

There have been some important initiatives to encourage and create consensus and standardisation, but the lack of priority given to intraday liquidity is limiting adoption.

"SWIFT has been exploring and supporting its community's real-time liquidity issues for some time, such as through our real-time, intraday liquidity standards and reporting guidelines published in June 2017. With currently high levels of market liquidity, these are not yet used extensively, but this will change as these levels reduce to normal levels."

Harry Newman, SWIFT

Major banks such as Deutsche Bank are also extending intraday liquidity reporting services (see box). These offer particular value to financial institutions that may lack the ability or appetite to invest in large scale technology projects themselves, and/ or that wish to leverage best practices from a leading bank.

Extended intraday liquidity reporting

Deutsche Bank's intraday reporting services for EUR and USD commercial and treasury clearing now cover the bank's full product suite. Built on SWIFT's MT900/910 messaging, but extending beyond core market standards and BCBS 248 reporting requirements, clients benefit from time-stamped transaction confirmations in near real-time with minute-by-minute access to bespoke information on liquidity positions.

Sharing insights

Every bank should be looking at their back office infrastructure to determine what changes they need to make, not only for transaction processing, but to reflect the real-time impact on risk and liquidity. This should include an analysis of:

- use of liquidity reporting e.g. MT900/910 and portal technology to understand and manage volatility throughout the day;
- "time criticality" of flows to avoid spikes and outliers in liquidity levels;
- partner banks' advisory and regulatory experience, and reporting tools, to support local country central bank compliance;
- tools to re-engineer and automate cash flows to manage intraday liquidity and connect in real-time with treasury departments for position management and cash flow forecasting;
- risk "cockpit" technologies to enable real-time oversight and alerts.

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Real-time liquidity for corporates

Corporate treasurers' real-time liquidity challenges

Challenges	Focus areas
– Liquidity may be held in different banks, accounts and currencies – Investment and borrowing solutions are based on daily rather than intraday – Potential for intraday limits and fees – Systems and processes (whether in treasury and/ or shared service centres; SSCs) not necessarily equipped for real-time/ 24/7	– Use of liquidity solutions such as intraday pooling, OBO structures and virtual accounts – Dialogue with partner banks to forecast liquidity requirements and solutions to make better use of liquidity – Explore technologies such as open APIs to manage flows and data more dynamically

For corporations, the shift towards real-time domestic payments and faster cross-border payments will have a positive effect on liquidity by enabling treasurers to shrink their working capital buffer, reduce borrowing requirements and access new investment opportunities. However, this relies on treasurers having the mechanisms in place to centralise their cash dynamically, and forecast cash flow accurately. Intraday limits are rarely a major issue for corporate treasurers today, but as the onus on banks to manage intraday liquidity more proactively increases, intraday limits and costs may become a more significant issue for corporate treasurers in the future.

Centralising liquidity

Many of the tools required to centralise and simplify liquidity management are already available and proven. Intraday cash pooling, for example, is already in use by corporations such as Deutsche Post,[7] while payments and collections on behalf of (OBO), virtual accounts and virtual ledger management solutions have become widespread amongst corporations globally. Corporations such as BAT are working with Deutsche Bank to centralise and simplify liquidity management, an essential step towards achieving their vision of managing liquidity across banks and borders in real-time (see box).

Solution in profile: Centralisation and in-house banking at BAT

We have been engaged in a multi-year, multi-disciplinary project to create a target operating model across the organisation. As part of this, we have undertaken a comprehensive global treasury centralisation and in-house banking project in partnership with Deutsche Bank to maximise visibility and control over liquidity and risk positions, and optimise the operational efficiency of our transaction flows. Key to the success of this initiative has been the use of on-behalf-of (OBO) techniques for both payments and collections, and Deutsche Bank's virtual account and virtual IBAN solutions. This has allowed us to achieve real-time liquidity consolidation into a small number of accounts.

The next logical step is to expand the concept of real-time liquidity across multiple banks, which is not achievable today: transfers are subject to cut off times, and it is difficult to centralise 100% of liquidity. The combination of real-time payments, once the value limit has increased or disappeared, and the use of APIs will be the enablers of this.

Philip Stewart, Global Head of Cash & Banking, British American Tobacco

Investment and funding solutions

A more dynamic approach to intraday liquidity will also lead to more flexible investment and financing solutions to allow treasurers to make the best use of surplus balances and fund working capital liabilities more precisely.

"Markets will need to change to accommodate a real-time view of liquidity. While we don't expect interest to be calculated on a second-by-second basis, there will need to be changes both in how accounts and interest calculations work, and the processes for driving liquidity management. For example, once cash has been received onto an account, we want to consolidate it and maximise value."

Philip Stewart, BAT

Sharing insights

Many corporate treasurers have focused on treasury centralisation and payment efficiency in recent years; the next step is to leverage centralised structures to further rationalise and simplify bank and bank account structures to concentrate liquidity. Having done so, treasurers can then look at how more frequent information updates could allow a more dynamic approach to liquidity management, by:

- reviewing existing cash pooling arrangements to understand the potential for complementary techniques such as virtual accounts and OBO solutions;
- considering the cash flow profile of the business and opportunities to smooth this profile, such as by using more predictable collection methods;
- reviewing cash flow forecasting arrangements and process and/ or technology enhancements that could lead to greater accuracy;
- reviewing bank communications to assess the value of more frequent account updates, including looking at dashboard and "cockpit" solutions from treasury management system (TMS) and enterprise resource planning (ERP) providers to enable real-time oversight and alerts;
- working with partner banks to understand available solutions and advisory services
- evaluating back office systems and processes in treasury and SSCs to understand the impact of real time processing and liquidity management.

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Embracing innovation

Open APIs for dynamic transaction and data management

The use of open APIs offers a fundamentally different approach to exchanging transactions and information to existing web-based, host-to-host or SWIFT-based connectivity. Today, for example, corporate treasurers capture banking data on a daily basis, such as through MT940 (end of day statement messages) or periodically using MT942 (intraday statement messages). With real-time payments and collections potentially affecting account balances minute by minute (including after the current end of day) a mismatch emerges between account activity and treasurers' ability to monitor it. Using APIs, however, treasurers will be able to gain an aggregated, potentially real-time view of balance and transaction information across accounts held with multiple banks. This eliminates the cost, risk and inconvenience of using different proprietary systems, and ensures more timely, dynamic access to data.

"The aim of our API strategy is not simply about connectivity and enabling more efficient transactions, but understanding what data we can collect and how we can use this to deliver greater value to the business through actionable insights and enhanced decision-making."

Philip Stewart, BAT

However, given that open banking using APIs is still a relatively new proposition, there remain inconsistencies in the scope and maturity of solutions that are available.

"Banks are at different stages of maturity in their API development: while many have a basic toolkit, they may not yet have a clear view of how APIs can be used in practice and the value that they can offer. Consequently, we are working with one or two forward-thinking banks on proof of concept and pilot projects to test and learn the best ways to leverage these technologies to meet our transactional and liquidity management objectives."

Philip Stewart, BAT

As these proof of concept and pilot projects evolve, open APIs will offer demonstrable opportunities to provide "just-in-time" liquidity with dynamic position updates and seamless payment initiation.

APIs also help to overcome technology gaps and integrate new solutions and services easily and often invisibly to the end user. For example, obtaining data from different sources for cash flow forecasting poses challenges for many treasury functions today. This becomes far less costly and time-intensive using APIs.

"APIs will play a growing role in achieving intraday or real-time visibility over cash. APIs are already in use for bank connectivity, and we are seeing significant interest from fintechs in bridging their solutions to SAP using APIs. The greatest benefit is likely to be in the use of scalable APIs that are accessible by multiple customers as opposed to setting up a bespoke interface for each one."

Christian Mnich, SAP

Potential for emerging technologies

The real-time liquidity solutions of the future are likely to be based on a combination of proven technologies with new capabilities that offer new perspectives and capabilities in transaction and data processing and analysis. In some cases, current industry participants and their technology vendors will develop these capabilities, while others will be created by financial technology (fintech) companies, either independently or in partnership with existing industry players.

Although the potential value of machine (ML), robotic process automation RPA and artificial intelligence (AI) are regularly discussed, these discussions tend to be generic in nature without a clear proposition to solve particular industry challenges. This is changing as ML and RPA are embedded as components into wider solutions and process flows. For example, these technologies can help to:

- automate, model and alert intraday liquidity and collateral changes.
- improve banks' ability to identify intraday liquidity and collateral pricing patterns, volatility (whether due to business as usual and/ potential fraud) and outlier transactions.
- respond to crises more quickly, whether geopolitical, systemic or institution / client specific stresses, through the deployment of automatic throttles.

Another frequently cited technology, originally linked primarily to cryptocurrencies, is distributed ledger technology (DLT) or blockchain. DLT-based solutions are still at an early stage of development and based around specific use cases at present. However, these technologies offer potential in areas such as collateral management for post-trade settlement and tokenisation of liquidity settlement. DLT could also be instrumental in enabling real-time liquidity exchange between banks, and offers huge opportunity for industry orchestration. We are starting to see interesting projects emerge e.g. from SWIFT[8], Bank of England[9] and European Banking Authority[10] in this area. For example, SWIFT's DLT nostro proof of concept project, in which Deutsche Bank has been a leading participant, has already proven its potential value in improving nostro reconciliation and liquidity management.

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Shaping the industry through collaboration

"The future of transaction banking could be fundamentally different as new technologies and real-time, 24/7 market practices emerge. For example, versatile, real-time integration could transform the concept of digital banking, including 'banking as a service' platforms that deliver a range of information and transaction services in a convenient, real-time way. In this new environment, banks will need to consider their role, whether as platform provider, either directly or with a fintech partner, or as deliverer of services through it."

Philip Stewart, BAT

Although the industry has started on the journey towards real-time – or just-in-time - cash and liquidity management, there is still no map and no common view of what the destination might look like. Addressing this lack of standardisation and defined industry practices, which will differ across industry segments and sizes of organisation, will be essential to create a new real-time liquidity framework.

"Apart from regulatory reporting requirements, there are no standards on how banks should view or manage intraday liquidity, with considerable variations in approach. There are also major differences depending on the profile of bank. For example, a tier one bank with a large group treasury function and activities in multiple self-clearing currencies will have very different challenges and balance sheet impact compared to a small, regional bank."

Sandra Laielli, BAFT

For banks, cross-industry efforts and associations such as BAFT provide forums for discussion, advocacy and collaboration.

"As real-time liquidity becomes an increasingly important issue for banks, there will need to be a standard definition, and a common approach to how it is measured and managed. This is where BAFT can play a major role, both in acting as an advocate with regulators on behalf of the banking community and providing a collaboration forum. Banks can engage through BAFT to share expertise to develop standards and best practices, and discuss how to address challenges, such as the use of fintech to overcome challenges with legacy technology. There will inevitably remain a number of proprietary elements, such as calculating the cost of liquidity and determining a pricing strategy; however, there is a great deal of common ground that can be covered."

Sandra Laielli, BAFT

"One of the distinctive characteristics of the liquidity solutions emerging today, including those offered by SWIFT, is the collaboration and co-design taking place between market participants. Developing solutions individually may solve particular challenges experienced by one participant, but do not address the wider industry issue of resolving friction between participants; however, co-creation and dialogue is leading to very positive outcomes.

This collaboration extends to domestic market infrastructures. Payments pass through multiple systems, and are not always point to point; therefore, it is essential that reference information and transparency is maintained both cross-border and domestically."

Harry Newman, SWIFT

Next steps

To truly modernise the industry, wider industry orchestration will be required, from central banks and regulators through to clearing houses, market information providers, financial institutions and corporations to agree standards, best practices and technology solutions for the exchange of liquidity. This orchestration needs to happen not only at a payments processing level, but at a liquidity level, particularly looking at the risks and demands around intraday liquidity in an industry that will increasingly operate in real-time.

Recent, rapid industry successes such as SWIFT gpi demonstrate that collaboration is both achievable and effective to deliver transformational, industry-wide initiatives.

Today, pioneering industry participants should focus our collaborative efforts on exploring and expanding on the potential for an equivalent initiative for the exchange of liquidity – a Global Liquidity Innovation or GLI initiative. A global liquidity portal that spans the banking community is a compelling and timely proposition, solving many of the challenges, and unlocking the opportunities associated with real-time liquidity. For example, the objectives of SWIFT gpi included predictability of flows, traceability of transactions and transparency of charges. These same objectives would be relevant to the development of a GLI. There are already shoots emerging in the development of this type of solution. For example, EBA Clearing presented a proof of concept of a liquidity dashboard with SWIFT earlier this year. This dashboard provides an overview of a bank's payment capacity and position both in EURO1 and in RT1 based on existing EURO1 and RT1 APIs.

For a 'GLI' approach to be successful, it will require collaboration, open platforms to which users can easily connect, and consensus on how the industry must adapt and reinvent itself to support real-time, 24/7 clearing and settlement, and how liquidity risk management will be transformed.

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