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The Real-time Treasury Evolution: *A Shift to Modernization*

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Joseph is a member of Citi Services' Client Advisory Group. The group is a treasury practitioner-led team that helps Citi clients progress treasury practices and evolve corporate treasury functions to support enterprise growth and transformation. For more information on consulting with Client Advisory Group, please reach out to your Citi representative.

Treasury is the true unsung hero of any business. And you don't have to take our word for it. Just ask any Treasurer.

Humility aside, chief financial officers and treasurers agree that the real value of treasury lies in the function's ability to fund the business and manage financial risks so as to support revenue, optimize cost, manage working capital, and ensure process efficiency. To accomplish its vital mission, Treasury departments are increasingly asking: can innovative, next-gen technologies help us achieve improved results?

The answer is yes. Amongst the powerful new technologies that are being deployed are distributed ledger technology (DLT) and application programming interfaces (API), which hold the potential to revolutionize treasury processes. To be successful, it is pivotal for treasurers to focus on their data and digital strategy, extending their thinking beyond shoring up the basics and boldly prepare to shift to full-fledged modernization.

The road to today: A brief history of next-gen treasury technology

The technologies transforming treasury today are rooted in the recent past. It is worth taking a brief look at how they arrived at our doorstep.

The origins of DLT are closely linked to Bitcoin, which was invented in 2008 and first used as a digital currency in 2009. One of the greatest advantages of DLTs is that they allow information to be stored permanently, securely, and accurately. The history of DLT is short

and, despite all the seeming hype surrounding this technology, adoption has not yet led to a large-scale transformation of the regulated financial system and market infrastructure. That is, until the recent introduction of the regulated liability network (RLN) as a new type of financial infrastructure that uses DLT to create a secure and transparent platform for the exchange of financial value.

RLN has the potential to allow customers' bank deposits (which are liabilities of commercial banks) to be tokenized and exchanged between banks. For the customer, there is no change in the nature of the asset. When the bank tokenizes your deposit, you still have cash in a bank account, and are not left holding a proprietary bank token. Meanwhile, through the RLN, you are able to transfer value across all participating banks and Central Banks.

Unknown to many, APIs as a concept originated as early as the 1940s. An API is a set of rules that enables a software program to "speak" with another software program. It was not until the rise of the digital economy and services such as ride-sharing, which rely on the seamless, real-time connectivity of microservices through smartphones, that APIs became truly mainstream. API's application in the banking industry translates to real-time transmission of data and information.

Real-time treasury (RTT) is the concept of adopting instant payments and real-time information delivered via APIs, as well as enabling real-time liquidity management that accelerates the velocity of existing treasury processes.

It is important to note that even with the advent of these technologies, current regulations, corporate technology, and payment infrastructures are all in need of modernization in order to fulfill the promise of the future. We predict that such modernization will eventually happen – but we need to all work together on a common thread.

Focus on RLN/DLT & RTT/APIs: Delivering a compelling advantage!

Our goal here is to better position Treasury to harness the capabilities of RLN and RTT. Combining the concepts of RLN with RTT may improve treasury operations through real-time velocity and smart programmability of money, thus delivering a compelling advantage.

Treasuries are increasingly expected to deliver on optimized capital structure and financial engineering. The convergence of RLN, tokenization of bank deposit liabilities, and RTT is fast evolving and will have a significant impact on the way companies manage their finances. This puts us at an inflection point: as new technologies pick up steam, and past inertia against change turns into momentum towards treasury modernization. Treasurers need to prepare now and begin making plans on how to adopt these changes – for this is the new financial engineering.

A dose of truth about payments

Let's take a moment and break payments down in simple terms. Payments do not move money. There, we said it! We can talk about all the fancy new alternative payment systems and what not, but banks are where money is created. Payments are ultimately just messaging or clearing. Assuming payments are not supported by credit, cash must be positioned in a bank and available to support a payment. Having idle cash deployed throughout your bank account structures is inefficient. Real-time and instant payments, which are launching throughout the globe, offer a way to address this problem. However, they also introduce risk and inefficiency for both banks and clients. When the bank is effectively closed and treasuries are tucked away at home in bed, instant payments will happen. And that means, they must be supported. In the case of banks, that means idle cash must be available in instant payment clearing systems. For customers, it must be in bank accounts.

As we all know, where the money comes to rest in an account is settlement. Traditional automated liquidity management solutions move money at the end of the day or near the end of the day. If you have good credit, your bank will allow you to overdraw your bank account intra-day and settle before end of the banking day. Of course, not all companies have the credit to be in a position to do that, while at the same time, the ability to utilize bank funds intra-day has a real cost to banks.

Setting aside bank balance sheet constraints for a moment, whether cross-branch or cross-bank, let's discuss the idea of real-time liquidity (RTL). RTL is the ability to move money between accounts, banks, and bank branches at or near real-time without limitation. RTL is an enabling function for a bank's treasury and balance sheet, and its customers. If we accept the premise that USD in a bank never leaves the US, and USD balances held elsewhere around the globe are a series of mirror accounting relationships, the question is – why doesn't USD move in real-time? It's a fair question.

First, banks are subject to balance sheet constraints and the nature of the assets they hold. This is due in large part to banking regulations that intersect across global and regional regulators, impacting each individual jurisdiction that banks operate in. The lack of standardization of rules, cutoff times, and regulations across borders presents challenges that need consideration. Fortunately, this is gradually changing.

The second factor is the underlying technology that banks rely on, which are in varying states of modernization. This points to the importance of DLT and tokenization. The future enabling technology for bank ledgers is likely to be tokenized liabilities. Interconnected, digital ledger-based technology offers considerable advantages, enabling programmable liquidity with constraints that are shared across banks and branches. In this way, liquidity can operate in real-time to match payments. It's important to point out that other technologies can achieve the benefits that DLT provides.

This also begs the question; will some movements of money still need to be slowed because of balance sheet constraints? Of course, they will. Most instant and real-time payments systems have caps when they first launch. As the market matures and flows become better understood, these limits can and will rise.

A fly in the payment ointment: The challenges of real-time payments

We have talked a little about payments and liquidity. In today's world, which runs on cutoff times and an end-of-day basis, information reporting happens via files periodically transmitted between financial institutions and their customers. This all works very well when the world runs predictably and at a measured pace. But what happens when you introduce unpredictability or when the speed of money increases? Things begin to break down. Have you ever wondered why banks want you to let them know when you will send large payments that are not routine? And if you do, the wire sometimes does not go as fast as you would expect? The bank is slowing it down because they must stay in compliance with liquidity regulations that dictate sufficient liquidity to support the movement. It's no different than when the famous character J Wellington Wimpy of Popeye famously says, "I'll gladly pay you Tuesday for a hamburger today."

Similar constraints in transaction flows happen in the stock market. What happens when a particular stock or the entire market declines in value too fast? A circuit breaker is hit, and trading is halted temporarily. Because the stock exchange is a centralized market, it is far easier to manage. As real-time payments are introduced, additional challenges arise. For instance, how does a bank's customer stop payments from going out in a real-time world where the customer does not have sufficient funds in their accounts? Clearly, having some friction in the system serves a purpose. These are just some of the issues the marketplace needs to consider.

Let's draw on another analogy. A pilot friend of mine who flies small planes once told me he had to think one minute ahead of where he was. What he meant was, given the speed of a small plane, he was always thinking about what could happen and where he could put his plane down or what traffic he might need to avoid. This is analogous to a highly manual and simple treasury. If you think about the modern jet, they are much faster and have a good level of support in terms of autopilots and other systems that help the pilots anticipate what's ahead. The treasury of today is similar in that it is semi-automated, but still dependent on human intervention. When military helicopters fly fast and close to the ground at night to avoid radar detection, the onboard computer guidance system does most of the flying. When the autopilot detects an obstacle ahead, it will pull up. Pulling up while traveling at high speed reduces the danger. This is akin to market circuit breakers that stop trading in equity markets when downward velocity is too high. Something similar to this will be needed for payments. Highly intelligent machines will increasingly manage our treasury. Extending the analogy that pilots are still required in jetliners, will Treasury still need people? All of this brings us back to the new financial engineering that we introduced earlier in the paper.

If one thinks about the process of managing treasury, where payments and liquidity run 24x7x365, and at a high velocity, the question becomes, how do I manage cash positions where cutoff times and end-of-day no longer apply? What do I do after I go home at night? Deployment and movement of cash becomes easier with RTL, but overall management becomes more complex. And as we know all too well, humans are innately not good at handling complex routines and high velocity.

Key treasury considerations for a real-time world

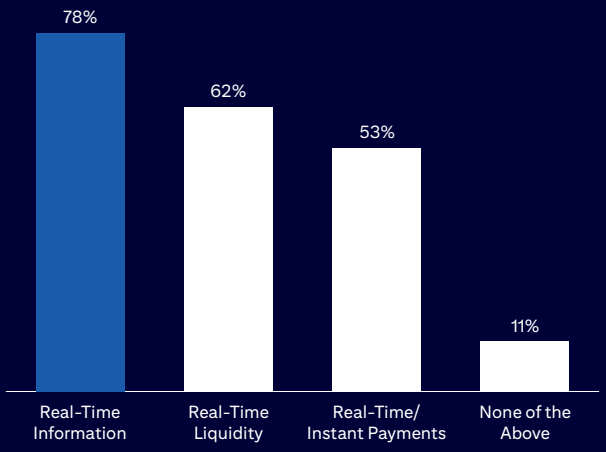
At this point, looking at the treasury fundamentals is important. Companies will need a global bottom-up cash flow forecast by currency where they operate in real-time. Without this, you will have idle cash sitting in bank accounts that may or may not be used. In today's higher interest rate environment and the greater cost of capital, this makes a company even more inefficient. Getting the most of out of a company's cash is vital, and in a real-time world, that means 24x7x365. However, no one wants to work every day. So, cash and FX desks need to think about moving from people dependence to automated process dependence, to intelligent automation.

It must be said that to really harness this aspiration of automation, companies will have to be grounded with strong cornerstones of bank account administration and rationalization, cash flow forecasting, and automation of cash flows on a cross-entity basis with automated accounting. The linchpin to achieving this goal will be data consumption and how firms harness data.

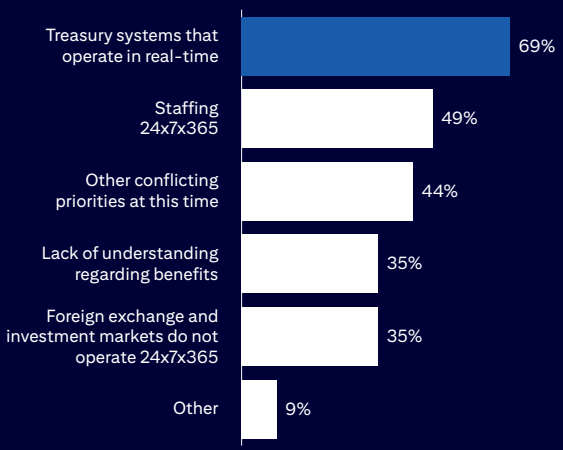
Companies today need to think about their data strategy and business processes. What data do I get from my financial service providers? How old is the data? How do the balances and payments I see from my service provider reconcile to my forecast and estimated cash positions? Who within an organization is processing disbursements? Examples include traditional accounts payable, payroll, non-accounts payable disbursement related to marketplace or other activity, tax disbursements, dividends, etc. In a real-time world, how do actual cash flows match up against forecasted cash flows? This will need to be done at or near real-time. Can users of cash earmark or reserve balances to ensure funding is available? Should cash be thought of and managed like inventory from the largest online retailers? If you are out of inventory, then the payment gets throttled? All of these will be dependent on interconnected systems and coordinated use of real-time data.

Citi surveyed clients globally in 2023 and the responses show that companies are beginning to think about this.

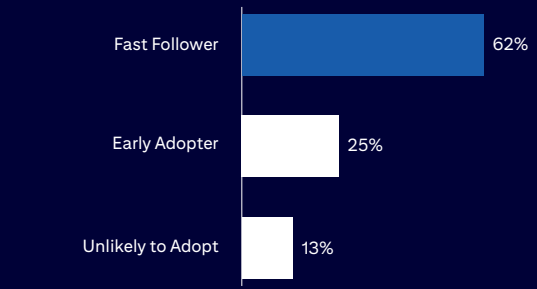
Where will your treasury focus on within the next 3 years?



What challenges do you see associated with real-time treasury with regards to your organization?



Do you see yourself as an early adopter, fast follower, or an unlikely adopter of real-time treasury?



There won't necessarily be a panacea of perfection in the future. Individual markets and currencies will still be subject to controls and constraints. *All companies will have different constraints based on their business model, tax, and legal circumstances.* Money markets and FX markets will need to evolve as well to support an always-on payments and liquidity world.

Beyond banks, companies rely on service providers for accounting, treasury management systems, enterprise resource planning (ERP), billing, forecasting, inventory management, and more. Companies will need to assemble a continuous chain of service providers that can work synchronously in a real-time world. Are they ready? Arguably, no. Where data lies and how it is containerized will also matter. A set of standards is needed that disparate systems can use. Companies need to start thinking about this now and how they invest resources for the future.

There won't necessarily be a panacea of perfection in the future. Individual markets and currencies will still be subject to controls and constraints. All companies will have different constraints based on their business model, tax, and legal circumstances. Money markets and FX markets will need to evolve as well to support an always-on payments and liquidity world. Failing to prepare now will delay adoption in the future and in turn result in higher costs. Today's higher interest rate environment makes a lack of adoption even more costly.

If you agree with these views, now is the time to build a vision for the future of your treasury function, taking the steps needed to meet the needs of your organization today and tomorrow. It is incumbent on you to communicate a shared vision with your service providers too.

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