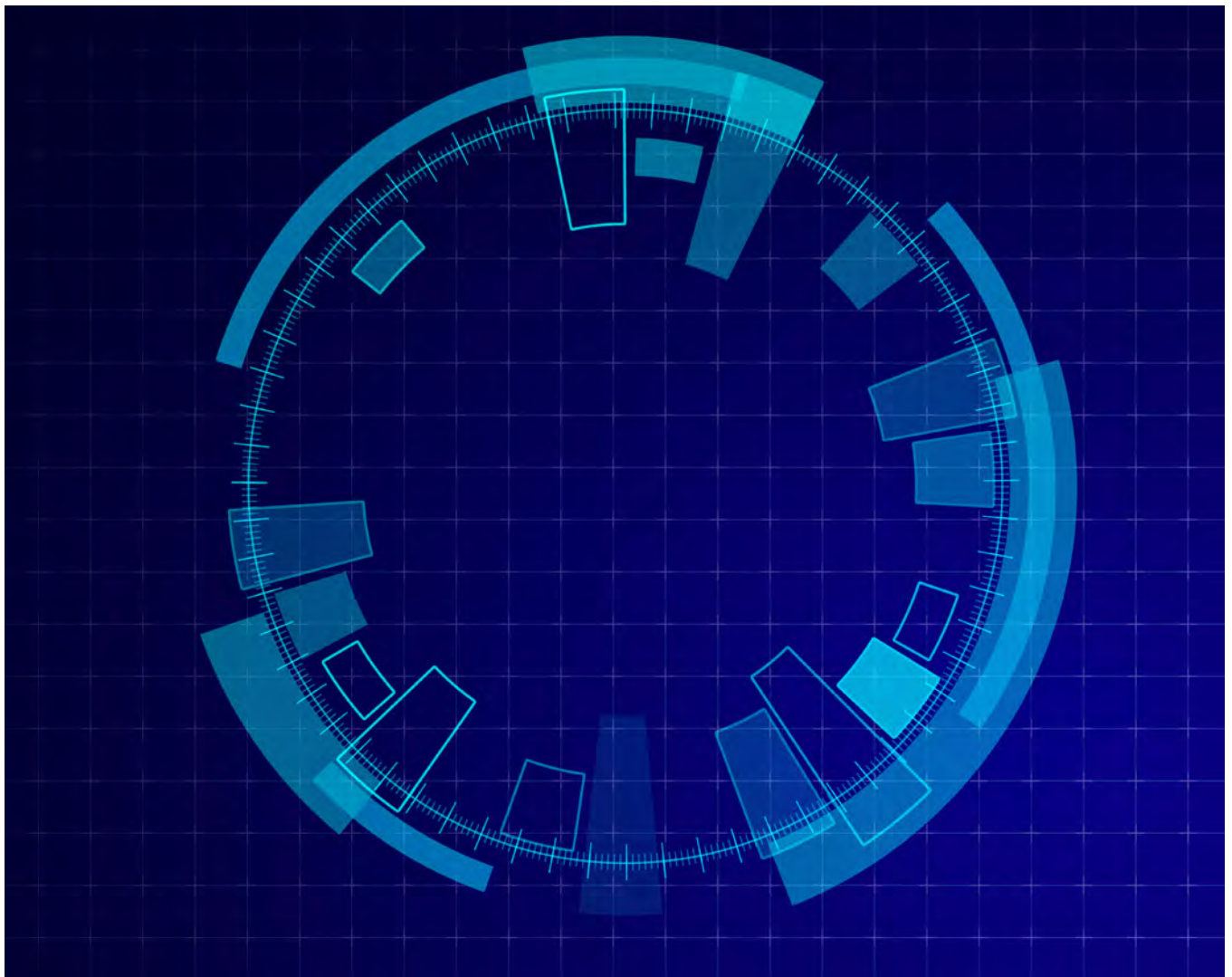


Transforming post-trade operations

Special report

November 2022

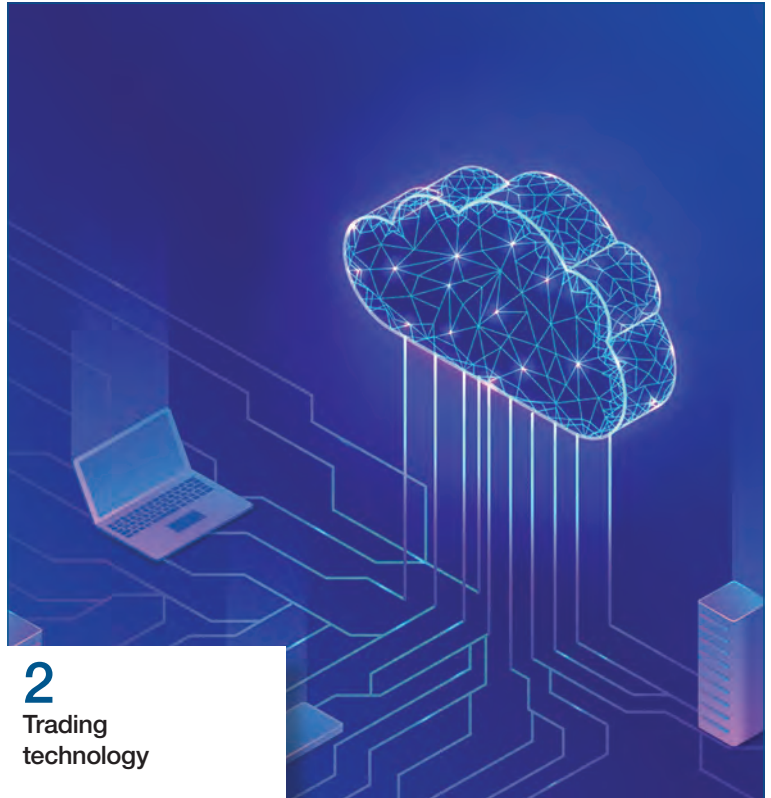


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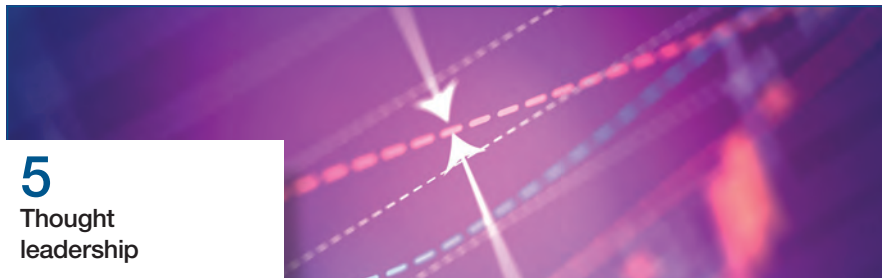
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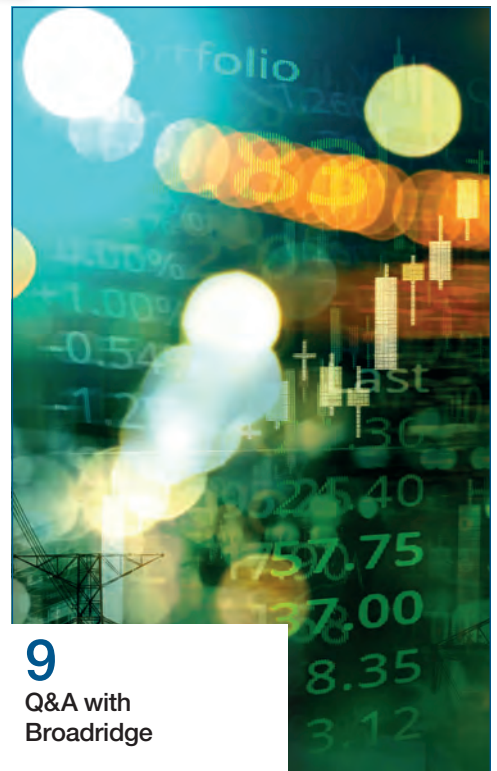
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Cloud and APIs begin to (slowly) permeate the post-trade space

As financial firms turn their attention towards modernizing the back office, how they approach these projects comes under new scrutiny. By [Wei-Shen Wong](#)

Front-office trading platforms are increasingly getting cloud make-overs. The same is true for risk systems sitting in the middle office. The next frontier for cloud evolution would logically be post-trade and the back office. But the back office is an area that is notoriously underfunded and contains a hodgepodge of legacy systems that connect to myriad different applications—whether that’s data coming into the firm, or data moving from the front and middle offices into the back office, and vice versa.

However, as more banks and asset managers embrace the cloud and want tools delivered as a service or as a managed service, more vendors are responding to demand in the post-trade space to help customers figure out where they should focus their attention as they migrate systems to the cloud.

Firms could start, for example, with position management, says Danny Green, head of international post-trade at Broadridge, as this is an area where multiple systems are performing the same function. “In theory, you could deliver a general position management component, and then ultimately switch

it off from all of the multiple systems,” he says. “By doing that, you get to have a global position management capability quite quickly. So instead of replacing the entire system, you start with replacing position management, but everywhere.”

That way, firms can have visibility of global positions in real time, and provide that data via application programming interfaces (APIs) from the back office to the front office. “That would be a function you could deliver as a single component, for example. That then shrinks the overall footprint of your legacy systems and gets you on that journey of slowly replacing them,” Green says.

James Marsden, managing director and head of post-trade business for the Asia-Pacific region at Broadridge, says it’s easier to put something new in the cloud than to migrate a legacy platform to the cloud.

“Sometimes in a legacy platform, the code has grown over 20 or 30 years, and nobody quite knows what it does. But when you implement a new platform, or a new component—like position management, for example—we can implement that as a cloud-enabled component. And it doesn’t have to be everything in one shot,” he says. He recommends finding areas that logically lend themselves to tools that don’t have so much coding drama underneath.

Green says Broadridge has been looking at transaction capture, a middle-office function, since its acquisition of Itiviti. If firms put a layer between the front office and all their post-trade systems by looking first at the middle office, they could improve

how they send trade confirmations to clients, and how they communicate generally with clients, he says.

“We’ve been doing a lot of studies of that kind of front-to-back relationship, and that whole transaction-capture, middle-office piece is another good place to start,” he says.

The key, Green says, is to plan carefully before deciding on any innovation program. “What does the future look like for you? That could include things like data, the use of APIs and other technologies such as cloud and distributed-ledger technology. Once you’ve got the target operating model of what you want to achieve, now let’s work with you to create a road map of how you can achieve that,” he says.

The API play

Many banks’ core systems reside in the back office, making ripping out and replacing those systems a nightmare.

Gurvinder Singh, chief executive at New York-based trading, risk, reporting, and data management solutions provider Indus Valley Partners, says that, where possible, firms should look to lift-and-shift monolithic applications from on-premises to the cloud. From there, the key is to re-architecture applications and services to a microservices model so that they can more easily be transitioned, should the need arise, in the future.

“The next stage [after the lift-and-shift] is to start carving services out that make sense, while preserving legacy monolith cores where there are no functional or performance challenges,” he says. “This is the design pattern that

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“When you implement a new platform, or a new component—like position management, for example—we can implement that as a cloud-enabled component. And it doesn’t have to be everything in one shot.”

James Marsden, Broadridge



has been successfully implemented by many enterprise B2B firms, and is the way to go for all.”

These systems have been built over many decades, with some still running on the Cobol programming language.

“They’re older, they’ve got a lot of logic and nuances that are not as easily migratable to cloud infrastructures,” says Neelesh Prabhu, managing director of architecture and enterprise services in information technology at the Depository Trust & Clearing Corporation (DTCC).

This means that firms approach these modernization efforts incrementally, so there won’t be a big-bang approach to innovation in the space. Prabhu says, though, that it’s relatively straightforward to move systems that sit on the edge of

the IT ecosystem to the cloud.

“That is the web front-ends, and the systems of engagements that banks and larger financial institutions have built. Those are relatively modern as they’ve been built in the last 10 to 15 years, and can be easily adapted to the cloud,” Prabhu says.

This is where APIs come in—provided they’re done right. With APIs, banks are moving small processes/pieces to the cloud, and in doing so, de-risking the programs in question.

“On the front end, there is heavy migration. On data, there is a lot of interest and migration. And on the core systems side, there is migration, but firms are choosing to do it in a way that’s mindful of the risk that moving

some of these systems to the cloud may bring to them,” Prabhu says.

He says APIs provide the ability for firms to connect the logic and the functionality provided by a particular system with other systems, but at the same time, lets the teams hide the internal details of how those functionalities are implemented.

Say there’s a system built on mainframe technology. The first thing to do is build an API layer around that system to create an endpoint for all the other systems connecting to it. Once that’s done, the firm can replace the internal technology with a more modern system.

“It’s the idea of using the API as a construct of encapsulation and the cloud to bring functionality quickly,” he says. But the key to these platform



“What does the future look like for you? That could include things like data, the use of APIs and other technologies such as cloud and distributed-ledger technology. Once you’ve got the target operating model of what you want to achieve, now let’s work with you to create a road map of how you can achieve that.”

Danny Green, Broadridge

conversions is for both the business and technology teams to work together. The design of the API needs to make sense in the business context.

“As these systems talk to each other, it’s not just one connectivity point, but that the structure is built with business understanding that they can stand the test of time,” Prabhu says. “The structure you’re putting in place is foundational to future connectivity points which could exist or come into play.”

Born free

Innovation in the capital markets is often cyclical. Pre-2008, banks were all about building proprietary systems; after the financial crisis, because of a flood of new regulatory demands, banks cut IT staff to the bone and leaned heavily on third-party providers to lower costs and improve margins.

The idea of leaning on a major public cloud provider like Amazon Web Services, Google Cloud, Microsoft Azure or IBM Cloud for key trading and data management needs was dismissed on sight. But slowly, banks—and even asset managers—have begun to consider cloud. New regulations led to firms having to suck in and store increasingly larger amounts of data. At the same time, new datasets became available as, vitally, the ability to store and run compute on massive datasets became more viable as public cloud providers made these ser-

vices more cost-effective and improved time to market on new tools.

This gave birth to the fields of alternative data and software-as-a-service models. More data and the availability of tools to analyze data—and, thus, find previously unforeseen correlations or areas of risk or productivity enhancement—led to firms wanting not only more data, but context wrapped around that data.

This is a major reason why firms want to modernize their post-trade processes: it provides more and better-structured data from which to derive insights, rather than leaning on creaky legacy platforms. It provides the potential to deliver alpha and reduce risk.

As more vendors look to shift their legacy platforms to the cloud, several startups have come to market looking to jump ahead of stalwart vendors because their tools are born in the cloud and utilize new data delivery systems, most notably APIs.

“Cloud creates the infrastructure for allowing the automation of expensive and risky workflows, creating a situation where staff can focus on areas to create value,” says Brad Bailey, head of market intelligence at broker-dealer Clear Street. “APIs are another key tool to facilitate the exchange of information.”

Clear Street launched in 2018 and its mission is “to build better infrastructure to improve market access for all participants.” As a startup, it has its sights set high and there’s no way of knowing whether it will succeed, but if the company can figure out a way to streamline the post-trade space, that could give it a leg up on competitors that are in the process of migrating legacy systems to the cloud.

“Solving the fundamental problems in the post-trade ecosystem requires a native rebuild for core problems to be addressed,” Bailey says.

Then there is RQD, a company that obtained a limited clearing license in 2018. Instead of establishing presences at Equinix datacenters, it decided to go all-in on the cloud. RQD uses Microsoft Azure and other Microsoft technologies, such as SQL Server and .Net.

RQD COO Nicolas Louis says the company had the luxury of starting the process from scratch.

“When you are a clearing firm that’s been around for a long time ... you may have thousands of processes running against your [on-premises] systems every day—whether it’s a margin calculation, updating a position, or building a report for Finra, those systems are working non-stop. So now, people have been saying, ‘You need to maintain these systems, and that’s expensive and hardware can fail. Let’s move to the cloud,’” Louis says.

But this is where firms encounter a challenge because moving features to the cloud is easier said than done. One reason for that is they are moving it bit by bit, taking very specific pieces of their process, isolating it and moving it to the cloud while everything else runs on-premises.

“So you have this hybrid setup, which sounds like a great idea, but all you did was add more points of failure,” Louis says. “For example, you may lose the connection to your cloud, and end up in a worse position, with processes running on different environments but not able to communicate with each other.”

Stability, resilience and the availability of post-trade systems are hugely important. If the lights go out, it could result in duplication of transactions or settlement failures for which firms could be penalized. So they end up running both systems in parallel.

“You have the new environment running in the cloud for a specific need, and you have a shadow back-up environment running on-premises that still needs to be supported,” he says.

The arrival of startups like these, paired with the modernization efforts at established players like Broadridge, DTCC and Indus Valley Partners, shows that there is a shift underway when it comes to cloud and post-trade. As ever, the back office will lag behind the front office, but nevertheless, change is coming. Firms will have to consider what they aim to achieve in their modernization process, and then only look at applying or using technologies such as cloud and APIs to help them get there. Applying the hammer-looking-for-a-nail ideology will not fly. [wt](#)

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Why post-trade still needs more attention

After years of neglect, back-office processes are beginning to garner the attention they deserve. However, the post-trade technology landscape remains fragmented and opportunities are being left uncaptured. By Vijay Mayadas, president, capital markets at Broadridge

Most senior leaders will tell you that technology innovation is synonymous with competitive advantage. The 2022 Broadridge digital transformation and next-generation technology survey of capital market executives recently confirmed this, with industry leaders reporting expectations of increased revenues, improved profitability and better strategic decision-making from digital transformation initiatives.¹ In practice, we are witnessing firms doubling down on their technology investments in a tight race to secure these benefits and capture defensible market share.

At the same time, however, executives recognize that the daunting pace of technological change is exacerbating practical operational and regulatory challenges, putting hurdles in the way of rapid progress on the digitalization front. Furthermore, much of the value-add from innovation over the years has primarily accrued to the front and middle office, leaving back-end capabilities wanting.

There are many reasons for this, including an early strategic focus on reimagining customer experiences, value propositions and retention that most obviously held the promise of expanding revenues and growth through greater differentiation. This is a critical objective for executives faced with rising competition. These highly visible parts of the business have also typically been perceived as offering companies “quicker wins” and “more digestible” project scopes than more ambitious plans to upgrade core technology systems on the back end.

Where this leaves firms today

Although it may seem that neglecting the back office has been a benign trade-off for sell-side firms over the years, this couldn't be further from the truth. Many of the post-trade technology platforms that firms have in place are not built to handle the realities and needs of today's investing community. As global buy-side trading volumes continue to rise, and asset allocations become increasingly diversified across the investment risk spectrum to include less traditional asset exposures, the inadequacy of current systems has become more obvious to market participants. Cracks are starting to form under the pressures of rising complexity.

Even if we ignore increasing asset flows into alternative investments, the magnitude of demands placed on the sell side is clear. For example, \$160.95 trillion was traded electronically in 2021 across nearly 46 billion trades, which represents a 16.9% rise in equity value traded and a 20.4% increase in volumes, according to the World Federation of Exchanges.² Statistics from the Futures Industry Association (FIA) indicate the total volume of exchange-traded derivatives worldwide in 2021 recorded a fourth consecutive year of record-setting activity, jumping 33.7% from the previous year to 62.58 billion contracts.³

Although these figures seem to indicate significant opportunities for sell-side players, they also mask brewing trouble. This has manifested in the rise of settlement failures during times of heightened volume, volatility and market stress. In February, the European Securities and Markets Authority (Esma) published its first *Report on trends, risks and vulnerabilities*

for 2022, which showed that failed settlement instructions as a share of total value across the 30 European Economic Area countries climbed to around 14% for equities and close to 6% for government and corporate bonds at the height of Covid-19-pandemic-induced volatility in March 2020.^{4,5}

This compares to an average range of 5–10% and 2–4% for equities and all bonds traded between 2018 and 2020, respectively.⁶ Equity settlement failures were more frequent in 2021 than before the pandemic, and slightly above the second half of 2020 levels across other asset classes.

Post-trade advantage: Simplicity amid complexity

These single-digit percentage point increases may not seem much, but the volume of transactions being settled globally each day is in the trillions. These increases are only a snapshot of the much larger challenges intensifying on the horizon, with the implementation of new regulations such as the European Union's Central Securities Depositories Regulation Settlement Discipline Regime and the decision by some markets to move towards T+1.

Firms unwilling to enhance their back-end capabilities for the needs of this tomorrow will face an erosion in competitive positioning. Most sell-side firms continue having to manage highly fragmented, complex technology stacks. Silos divided by asset class and geographic region are common. Even as staff shift toward multi-asset coverage, the systems that support their activities remain separate. Many traders use different systems



to manage orders and execute trades as a result, while operational staff wrestle with multiple middle- and back-office infrastructures. This is no longer good enough.

It's time for the industry to embrace the simplicity of global multi-asset post-trade solutions that can empower a consolidated, automated workflow across

asset classes to reduce the cost, complexity and risks of running multiple operations and technology silos. Advances in artificial intelligence, distributed ledger and other next-generation technologies are already raising expectations and separating forward-thinking innovators from the rest. [WT](#)

1. *Broadridge (2022), How leaders are accelerating digital transformation, <https://bit.ly/3VRbp6D>*
2. *World Federation of Exchanges (February 2022), FY 2021 market highlights report, <https://bit.ly/3SjdvR>*
3. *FIA (January 2022), Global futures and options trading hits another record in 2021, <https://bit.ly/3eJpuly>*
4. *Esma (2022), Esma report on trends, risks and vulnerabilities, No. 1, 2022, <https://bit.ly/3F1HkLg>*
5. *Esma (2022), Esma report on trends, risks and vulnerabilities, No. 2, 2022, <https://bit.ly/3gm5pCw>*
6. *Esma (September 2022), Esma report on trends, risks and vulnerabilities, No. 2, 2020, <https://bit.ly/3MJTYR8>*

If it ain't broke, break it: Back-office tech reform may benefit front-office returns

Better data visibility across multiple systems could provide a driver for technological change in the world of post-trade.
By [Wei-Shen Wong](#)

If the post-trade world has a mantra, it would be, “If it ain't broke, don't fix it.” If the data is flowing, trades are settling smoothly, payments are going to the right place, clients are getting the right reports and settlement notifications, then don't mess with it. Don't introduce any more complexity. Don't roll out anything new that might interfere with processes that are running fine.

Behemoth back-office infrastructures are highly fragile and sensitive to change. The “if it ain't broke, don't fix it” approach may keep critical post-trade processes running smoothly, but it fosters stagnation, a false sense of security, and inhibits firms' ability to implement meaningful change elsewhere in their organizations—after all, any enterprise-wide change must not only include the back office; some say it should be driven by it.

“Banks and asset managers are starting to realize that if we can reduce our costs in the middle and back office, that could give the front-office guys some new ways to either cut costs or find additional alpha,” says Nick Gordon, chief executive and co-founder of London-based tech startup Adnitio.

He says the post-trade environment has traditionally been considered a cost center, while the front-office receives greater focus because of its status as a revenue-generator, but this is starting to change.

Gordon was one of the original founders of transaction monitoring and analytics provider Velocimetrics (now known as Beeks Group). Adnitio's middle- and back-office real-time tracking tool is based on Velocimetrics' network monitoring and packet capture and analysis solutions, which were

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“Part of me thinks the industry is still comfortable with the process that has existed for 20 years.”

Mark Wootton, BNP Paribas

originally developed for low-latency and high-frequency trading clients.

Why would latency-monitoring tools be relevant to post-trade processes? Brad Bailey, head of market intelligence at broker-dealer Clear Street, says the post-trade world is beset by barriers to data flows. “If we consider the post-trade ecosystem holistically across functions and firm types, the main choke points often stem from the same fundamental problems: poor or inaccessible data, manual processes and highly fragmented, antiquated technology. From a functional perspective, these issues create choke points around trade processing, allocations, corporate actions, collateral access and movement, and settlement,” he says.

And parts of the industry seem content to leave things that way. In some cases, this is because of the potential cost of making changes. In others, it's the sheer complexity involved in keeping all the disparate systems and processes that comprise a post-trade environment—everything from clearing and settlement to asset servicing, custody and reporting—running smoothly.

One reason for the fragility of these environments is that systems are often woven into many legacy upstream and downstream systems. According to a study conducted by Broadridge Financial

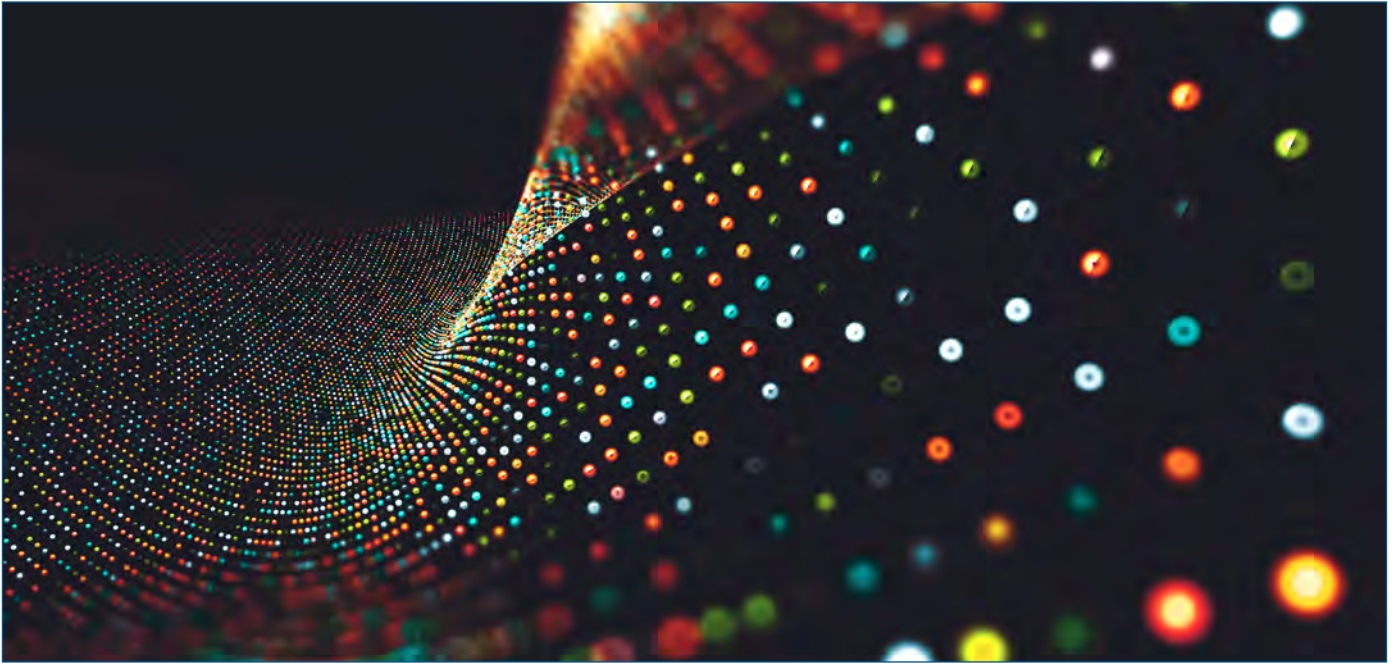
Solutions and Firebrand Research,¹ most sell-side firms have siloed infrastructures across the range of asset classes, often maintaining separate middle- and back-office operations and technologies for equities, fixed income and derivatives.

“Some medium-sized organizations have, on average, nine post-trade solutions. You've got organizations working in silos across asset classes and business lines,” says Danny Green, head of international post-trade at Broadridge. “So what happens when you want to try and increase your levels of efficiency? When you launch an initiative, you've got to impact, on average, nine different ecosystems. Therefore, change becomes difficult to implement, and quite expensive.”

Despite the cost and complexity, firms are beginning to realize that they need to innovate. For example, BNP Paribas is investing in its back-office process, particularly within corporate actions, and Societe Generale is leading a consortium of banks to solve data management issues using privacy-enhancing technologies.

However, that's where firms run into another challenge: all these innovation projects are run separately in disparate business areas, such as corporate actions, which is an area under asset servicing.

Mark Wootton, regional head of local custody and clearing for Asia-Pacific at BNP Paribas, recently described the bank's back-office overhaul to *Waters Technology*, highlighting how all participants play a significant part throughout the lifecycle of one corporate action event. However, while each participant involved understands their own process well, there isn't a consolidated



view of the challenges that everyone else goes through in the same lifecycle.

“Part of me thinks the industry is still comfortable with the process that has existed for 20 years,” Wootton says.

That’s where vendors like Adnitio could help the industry kick-start meaningful change: Gordon set up Adnitio to help banks have visibility of their end-to-end process across the middle and back offices by processing each data event in real time and providing users with a live, up-to-date view of traffic and activity.

“The whole idea behind the company is that you can get all your business data out in real time, tracking it end-to-end with zero impact on your underlying systems. What that means is you don’t have to go through any change management; you’re using existing applications to basically stitch together the lifecycle of your transaction as it moves across your systems from the post-execution point, all the way through all your settlements, funding, process payments, FX, netting, and so on,” Gordon says. “It’s a highly complex space, and [seeing how that data moves across systems] has always been the challenge.”

For example, Adnitio provides dashboards that can show where exactly a trade is stuck. “Say for your number one client, you’ve got a trade that is worth several million and it’s been stuck in clearing and needs to go through a

manual process. Maybe you want to clear that so that they can do another trade because they’re waiting for that liquidity to be released. That’s where it’s all changing,” he says.

Adnitio pre-processes and links data across various systems, collects data using messaging queue tools like Apache Kafka and IBM MQSeries, and also collects data by monitoring APIs within applications with a low impact, which Gordon says is measured in nanoseconds, as well as from databases.

“That’s when the teams are asking to confirm that they’ve got [the data] in their system of record, so that their analysts and quants can act on it. The quants are getting involved in this process to see how they can add value to the trading in the front end,” Gordon says.

Beyond contributing to revenue generation or cost cutting, there’s another reason for firms to strengthen their post-trade processes: regulation. For example, the UK’s Financial Conduct Authority (FCA) has issued its rules and guidance on requirements to strengthen operational resilience in the financial services sector.² Firms have until March 31, 2025, to show the FCA that their critical systems can perform within impact tolerances and that they have made the necessary investments for those systems to operate consistently.

That doesn’t necessarily require firms to switch out a legacy system for a new one, but it may prompt them to better understand how data flows across existing systems, which in turn will enable them to focus any change projects where real problems already exist, rather than create new ones by introducing a completely new architecture. As part of that process, gaining complete visibility of systems could serve as a benchmark for firms to then implement any major change to middle- and back-office systems.

Still, even regulators are having a difficult time changing hearts and minds when it comes to post-trade.

Gordon recalls an end-of-life project he was tasked with 20 years ago. “They said it would only take a year to take this small application out of the bank. Six years later, they still couldn’t take it out, because what they hadn’t realized is that it had been providing data to lots of upstream and downstream process,” he says. “So, until you’ve got your benchmark numbers and know exactly what’s going on, you’re going to struggle.” **wt**

Previously published on [waterstec.com](https://www.waterstec.com)

1. Broadridge and Firebrand Research (2021), The case for a multi-asset post-trade approach: Why the industry needs to be more joined-up across asset classes, <https://bit.ly/3s4gE55>
2. FCA (March 2021), PS21/3 Building operational resilience, <https://bit.ly/3CHg6a9>

Post-trade tech and the back/front office

Vijay Mayadas, president, capital markets at [Broadridge](#), discusses the biggest challenges in the back office and how post-trade technology is transforming the relationship between the front and back office.

What are the current specific operational challenges facing the back office?

Vijay Mayadas: A complex technology footprint is the number one challenge, particularly for larger investment banks that have built up siloed technology stacks over time with multiple vendors and home-grown systems.

As these systems have been built and added to over time, there are different types of data ontologies—ways of describing the same or similar underlying sets of data. Data fragmentation and data complexity are often the root cause as to why it is so difficult to work with and transform a lot of post-trade technology.

Continuous regulatory burdens are another challenge. The Fundamental Review of the Trading Book is one example of the more complex regulations that impact the front office and flow through to the back office. A fragmented silo technology stack makes it more difficult to absorb that kind of change.



Vijay Mayadas
Broadridge

Post-trade covers clearing and settlement, asset servicing, custody and reporting. Which specific areas within these activities have processes that are “easier” to automate, or to innovate?

Vijay Mayadas: Regulatory reporting is a little easier to drive more technological change because it’s a fairly siloed activity. Once you can get the data from your core systems into the right format, reporting off of that data becomes easier.

There is a lot of complex domain expertise and business logic deeply embedded in post-trade systems. It’s a real focus area: how you unlock that with more modular-based, microservices-based technology principles.

I’m seeing innovation using artificial intelligence (AI) and machine learning to predict outcomes, such as the likelihood of a trade failing. We see needle-moving projects in distributed-ledger technology and smart contracts that are creating real benefits for firms very quickly, particularly in clearing and settlement.

An example of this is how we have taken a core trading and settlement process in the repo markets and put it on a smart contract. This simplifies the way clearance and settlement works and creates immediate savings. Robotic process automation is also becoming embedded into asset-servicing technology stacks to manage the long tail of exceptions that require a lot of manual intervention.

The back office has typically been neglected in terms of funding. Is more money being pumped into the back office?

Vijay Mayadas: Yes, we are seeing more focus on how to streamline the back office and modernise technology stacks. All of that is driven by the macro trend of low-touch trading, electrification, margin pressure and demand for new products and new markets.

There’s a much stronger focus on figuring out what the next-generation back office should look like. The focus is on how to decommission existing legacy platforms to enable firms to get higher levels of scale and straight-through-processing benefits.

How does the back office provide data and insights to the front office today?

Vijay Mayadas: Back-office data is increasingly important to the front office because of the increasingly real-time nature of trading. Using back-office data to help the front office make better trading decisions and manage risk and inventory more effectively is a key area of focus.

There’s a lot of variation in terms of exactly what firms are doing to surface back-office data into the front office, but the underlying driver of constraints and opportunity is driven by the technology architecture in place.

How is the back office approaching its technology transformation journey?

Vijay Mayadas: Most firms we’re speaking with are trying to think of the back office holistically, so the entire trade life cycle – front, middle and back. What’s our journey to modernise that entire technology stack? How should the back office fit into that?

It’s about really understanding your target state and designing that journey in a series of very incremental steps with quick wins. Many firms are looking to avoid the big-bang type of technology transformation. Modern technology architecture really gives you the opportunity to make this journey in a more incremental manner.

In what circumstances is the back office using technologies such as cloud, APIs, microservices, AI and machine learning?

Vijay Mayadas: Most firms now build their new components to be



cloud-ready. The cloud specifically is very beneficial if you have processes that require high spikes in computing power, but are not necessarily consistent over the course of the day. The cloud brings a lot of benefits for those sorts of complex activities, such as running a Monte Carlo simulation for a trading strategy.

I'm seeing a lot more adoption of cloud for front-office technology components than in the back office, but it is definitely an area we've invested in, with many of our existing components already cloud-enabled.

How important is interoperability between a firm's front-, middle- and back-office systems and workflows?

Vijay Mayadas: Modular interoperability is very important to help firms communicate better between the front, middle and back office. For example, interoperability helps you introduce new asset classes more efficiently because you're essentially creating a new module for that asset class, which then plugs into your existing stack. You minimise the code changes you must make deeper into the technology stack.

The key is data ontology. A common data ontology that gives you the ability to create APIs is more effective. This then provides the ability to enable real-time and much simpler data interfaces between the different systems.

A lot of operational processes within the back office require specialists. When performing large-scale transformation from legacy systems to new digital technologies, what methods are companies using to refocus their existing specialists to the new value-added tasks?

Vijay Mayadas: Firms are refocusing talent to drive modernization of the back office, by having teams work together in squads. So, you'll have someone who maybe has very deep domain expertise in some part of back-office operations—and then partner them up with someone who is a forward-thinking technologist along with someone from the business. If you can get those squads humming along nicely you can actually get the benefits of technology modernization, deep post-trade domain expertise with a real business focus to create really good outcomes. [wt](#)

Europe could face settlement squeeze with T+1 proposals and CSDR fines

Moves to shorten the settlement cycle in the US could have knock-on implications for other markets, as the European Union grapples with a new penalty regime. By [Josephine Gallagher](#)

For all the talk of “real-time settlement”, it wasn’t until 2014 that Europe moved from a settlement cycle of three business days after the trade date (T+3) to (T+2). And the US only followed suit in 2017.

“We like to think we’re in a fast-paced environment but significant structural changes take time to materialize, because we work in an industry where we can’t just hit the pause button and rewrite everything,” says Sachin Mohindra, executive director of global markets and market solutions at Goldman Sachs. Mohindra has held a range of post-trade roles during his 18 years at the bank. “It’s like we’re on a moving train and we’re trying to service that moving train at the same time,” he says.

Now, five years later, the US markets regulator is pushing for a T+1 settlement cycle. In February, the US Securities and Exchange Commission (SEC) published a proposal that would make amendments to existing rules for broker-dealers, investment advisers and certain clearing agencies, with a view to shortening the standard settlement cycle for most broker-dealer transactions from T+2 to T+1.¹ The comment period for these changes closed on April 11. If adopted as a concrete set of rules, T+1 settlement would come into effect in the US on March 31, 2024.

The SEC’s proposal considers a report published in late 2021 by the Depository Trust & Clearing Corporation (DTCC), the Investment Company Institute and the Securities Industry and Financial Markets Association (Sifma), which made recommendations to implement a T+1 settlement cycle in the US.



In the proposal, the regulator quotes the adage that “time equals risk”—less time between a transaction and its completion reduces risk. Moving to a shorter settlement window would reduce risk in the clearing and settlement process, and increase operational efficiency across the trade lifecycle.² The commission says that moving to T+1 was especially attractive considering two recent episodes of extreme market volatility—during the “meme stock” frenzy and the Covid-19 pandemic—which “highlighted the significance of the settlement cycle to the calculation of financial exposures and exposed potential risks to the stability of the US securities markets.”

Some securities industry participants, however, say that, for T+1 to work, all jurisdictions should make the move at the same time. If one market moves to T+1 before others, a disjointed settlement framework emerges.

These critics are concerned that the move to T+1 could have knock-on effects on other markets, especially considering new regulations in Europe that require investment firms to pay cash penalties for settlement failures. Most notable is the Settlement Discipline Regime, a central piece of the European Commission’s (EC’S) review of the Central Securities Depositories Regulation (CSDR), which came into force on February 1, 2022.³ European investment firms trading US securities will have a shorter time frame—especially factoring in time-zone differences—to allocate and fund securities, fix settlement issues and comply with CSDR’s new penalty rules.

“This is an area that still needs a lot more thought within the US, and it’s a question we’ve posed to Sifma, various trading groups, and the DTCC. [We’ve said] ‘Great, you have figured it all out

in terms of which batches you need to change at the DTCC, what reports need to be updated for your local brokers, but we haven't really thought enough about the international community.' So, a bit more work still needs to be done there," Mohindra tells *WatersTechnology*.

He says some participants might look at the move to T+1 in the US as simply losing a full business day to trade and settle a transaction. But the situation is more complex than that.

In Europe, the settlement time could go from a 12-hour window down to two hours.

"If you go from 12 hours down to two, that equates to something like an 83% reduction in that post-trade processing time," Mohindra says. "I think a lot of people don't appreciate that because everyone thinks going from T+2 to T+1 is a 50% reduction in time, but actually it's an 83% reduction ahead of the settlement date."

Non-US firms also face technical challenges if the SEC's proposed rule amendments are passed. Many investment firms are still dependent on legacy technologies and manual practices for managing their post-trade operations, an area that still struggles to attract much investment from businesses.

"There is still that rump of transactions that require some level of manual processing. For example, your client might be a bit more technically illiterate and is still sending their trade allocations via email, which requires manual translation into your central securities depository [CSD] system," says an industry source with knowledge of the US's T+1 discussions.

Adding to the possible confusion is that, while the US is home to three central securities depositories and one legal structure under the SEC, the EU manages 30 CSDs (31 if you include the UK's Euroclear) and has 27 different legal and tax frameworks for each EU member state.⁴

T+1 in the US would also affect markets in Asia, says the industry source. "In Europe, we have some level of overlap with the US and Asia, but it's a challenge for those in Asia who wake up and the settlement window is already closed and you have no opportunity to fix any issues," they say.

A possible solution is for counterparties on either side of a trade to agree to pre-match trades before settlement. This would require matching instructions on either side to be ready, ensuring both counterparties have their cash and securities secured and systems prepped before the trade is settled. But this setup might not work for the buy side, Mohindra says.

"It's not always the most effective process for an asset manager. You can't have everything pre-allocated and pre-agreed, because sometimes an asset manager reacts to their order being filled throughout the day and then figures out the most optimal way to allocate it. So, sometimes these things must happen in post-trade and can't always happen in pre-trade," he says.

Déjà vu

John Abel, executive director of clearance and settlement product management at the DTCC, says that, in trying to accommodate a T+1 cycle, the industry can learn from the past decade's initiatives to shorten the settlement cycle, as well as the markets that already operate on a T+1 basis, such as US government securities. If the US adopts the proposals, he says, non-US investors will be able to choose from a variety of vendor tools to help them meet the new deadlines for trade allocations, confirmations and affirmations.

"Most of the non-US members also employ custodians, which are very active in the US markets, and they offer their own tools and processes to help non-US investors," he adds.

One head of product at a broker-dealer says that, historically, when one jurisdiction moves, it speeds up the process for other markets to follow suit. If the US moves, it provides impetus for EU firms to align their own systems and practices.

"This has happened before, when Europe moved and then the US moved, and it helped to lay the groundwork for all the other system and operational changes," says the executive.

But Mohindra says industry participants across the European market need to consider why settlement problems happen in the first place before T+1 can become a reality in the region. For example, why does the sell side suffer

from inventory problems that lead to failures? Data from the International Capital Market Association shows that a large majority of settlement fails are because the seller is unable to deliver the sold securities on time, accounting for more than 70% of all fails.⁵

Goldman Sachs, alongside other investment firms, has asked the SEC for a two-year implementation window from when the rule is finalized to when it must be implemented.

In one scenario, Mohindra says, European and Asian asset managers might have to give power of attorney to local brokers or pass on some outsourced function to a third party locally in the US time zone to effect settlement processes on their behalf and prevent failures. Alternatively, if there is enough volume to warrant it, European buy-side firms might decide to set up branches in the US to be responsible for settlement decisions. But much of this is yet to be worked out.

"We're asking for those two years [from when the rule is published] to allow for all these creases to be ironed out in the process," he adds.

An EC official tells *WatersTechnology* that, following its "extensive consultation process" on CSDR, the EC had received no comments or concerns regarding the shortening of the bloc's settlement cycle from T+2 to T+1. However, the EU legislator says it is still monitoring regulatory changes occurring in other jurisdictions, including the US, to see how any changes play out.

"We are following international discussions on this issue closely," the official says. "It should be noted, however, that CSDR currently mandates a maximum of T+2 and, as such, does not prevent industry to use shorter settlement cycles." **WT**

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Bank's corporate actions overhaul 'saves hours,' but industry still seeks elusive silver bullet

Although some market participants are trying to automate corporate actions internally, full straight-through processing is unattainable without end-to-end buy-in from all participants along the event lifecycle. By [Wei-Shen Wong](#)

Corporate actions, a largely manual function, has historically struggled to gain the attention of management, or to innovate. But BNP Paribas' securities services business has decided to invest in the back-office process. In doing so, the bank estimates it has shaved three to four hours off the time it took for its ops team to process corporate action events per day.

"Someone had to put it into a template, review it, validate it with a four-eye check and input it into the system. But all of that has now disappeared," says Mark Wootton, regional head of local custody and clearing for the Asia-Pacific (Apac) region at BNP Paribas.

As part of its strategy to automate corporate actions functions, BNP Paribas has implemented the Australian Securities Exchange's real-time corporate actions straight-through processing (STP) feed. The feed, which ASX launched in June last year, is designed to deliver corporate actions event notifications to investors in an accurate, comprehensive and timely manner.

Prior to using the STP feed, the bank's corporate actions events team had to split the work into different buckets. For instance, companies whose names began with letters A through D would be managed by one corporate actions employee in the ops team, while companies beginning with D through G would be handled by another member of the team, and so on.

“The beauty of having a staff member that is a bot is they can work around the clock.”
Mark Wootton, BNP Paribas

As part of the workflow, employees would log on to both company registry websites and the ASX site to download what is known internally as a “daily diary,” and try to contextualize and summarize large amounts of corporate actions information.

“Take BHP, for example. It's a big mining stock in Australia. If BHP announces a dividend, that will come as a 60–70-page PDF and then the corporate actions team would have to read all the pages and translate that into one message that we can send to our clients,” Wootton says.

Turning that 70-page PDF into meaningful data that clients can decipher can be an exhaustive and time-consuming task. This was the catalyst that prompted BNP Paribas to adopt ASX's STP feed, a decision that Wootton describes as a “no-brainer”.

“It's not just bringing those operational benefits to us, it's also getting vital

information to our clients in a timelier manner,” because whether a client elects to receive cash or stock can affect a company's share price at that time, and impact clients' investment decisions. “The quicker we can get vital information to our clients is also a competitive advantage to us,” he says.

By using the ASX feed, the bank's clients now receive corporate actions information four to six hours earlier than before. Wootton says many clients have welcomed this efficiency because it also means they have more time to relay the information to their own downstream customers.

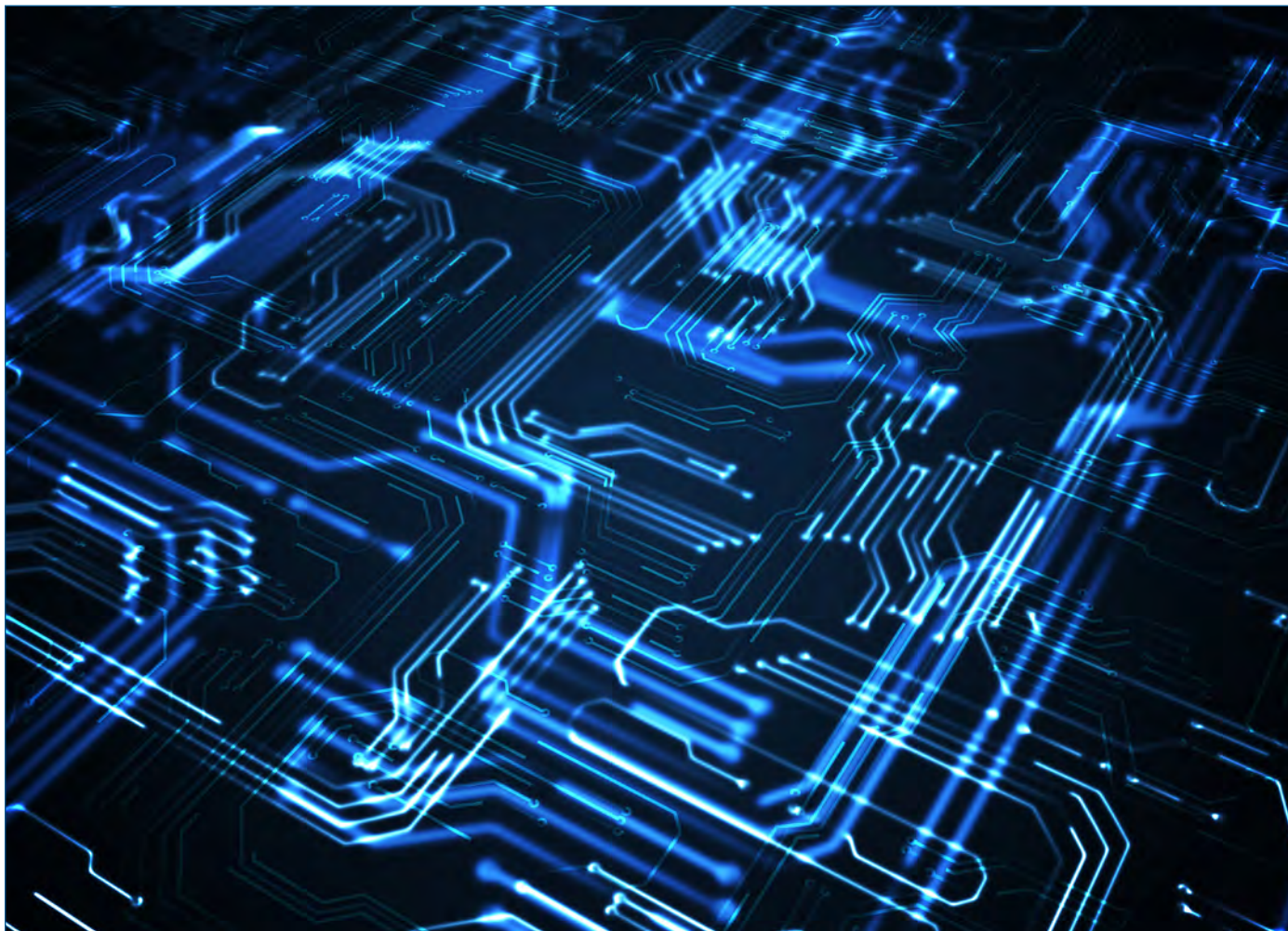
Innovation breeds innovation

In addition to saving time, implementing the ASX STP solution has enabled BNP Paribas to innovate in other parts of the corporate actions process, Wootton says.

As a custodian, after sending the corporate actions information to clients, BNP Paribas needs to collect clients' instructions on the event, reconcile them, and then send that information to the relevant share registry.

“We've fully automated the [corporate actions] reconciliation process using robotic process automation, and the beauty of having a staff member that is a bot is they can work around the clock,” Wootton says.

BNP Paribas has built two bots that fully automate the corporate actions



reconciliation process. The bank's securities services arm has also developed a bot that logs into company registries and sends out automated emails on corporate action events.

In one use-case, the bank has a bot that can log into the website of one of the biggest company registries and elect on events, such as a decision about dividend payouts or a merger vote.

But many challenges remain, especially since some registries still ask to receive corporate action event elections by fax, which is further complicated by the way companies present the information in inconsistent formats on paper.

BNP Paribas looked at implementing a fax bot that could transpose an event election into readable and non-readable fields, but rather than create a workaround, Wootton says, the industry should work to remove the problem altogether.

"We've looked at that a few times, but we would rather push the registries to not use fax, and to either use an API interface, log into their GUI or [implement another] more automated way of doing that. In the modern day we are not fans of fax machines," he says.

Work smarter, not harder

BNP Paribas has also run an internal proof of concept (PoC) with Digital Asset, using smart contracts to automate elections on behalf of its clients.¹ Clients provide custodians with instructions to follow during a corporate action event: for example, in a dividend payment, the client might want certain criteria to be met before it elects to receive a cash payout, versus different criteria that would prompt it to elect a stock payout instead.

By using smart contracts, Wootton says BNP Paribas is trying to develop thresholds or "cutoffs" for when an

instruction should be followed and to provide the client with a pricing feed to support their decisions. "We could use a smart contract to work out, if the price is above 'x', to take stock, and if the price is below 'x' or 'y', to take cash," he adds.

The PoC was run from the bank's Apac presence, but was based on a multi-market approach. While the smart contracts service for client elections was designed for the Apac region, accounting for synergies between the Hong Kong and Singapore markets, in addition to other local markets, the DAML [Digital Asset's smart contract language]-based tech will be adjusted to meet other regional specifications around the globe and incorporate new possible use cases.

"We're also thinking of the next catalog of ideas and iterations, not necessarily all for corporate actions, but also what else can that technology do in our ecosystem," Wootton says.



“Many of those experts have been around for a long time and we’re starting to see attrition. Some of the work has moved offshore, and the experts are relied on only on a need-to-know basis. So, there might come a point where they [market participants] might be forced to make a change because of that.”

Karen Webb, ASX

All custodians want to offer their clients better automation and the best cutoff timeframes possible, Wootton says. The closer BNP Paribas can bring that cutoff to the time the registry needs to process the corporate action election information, the better it will be for clients and consumers of corporate actions data.

“Whether they’re based in Paris or the US, giving clients an extra five to 10 hours still adds value so they can make decisions as late as possible. Important information in our clients’ hands is one benefit, but the second element of which we’re working on, and doing some internal automation around, is streamlining our processing to leave that cut off as late as we physically can for our clients to be able to instruct on what their intention for the event is,” he says.

If it ain’t broke...

Many industry participants believe, or want to believe, that the corporate actions data process is just not that broken, says Barnaby Nelson, chief executive of Toronto-based research, benchmarking and sales enablement advisory firm The ValueExchange. Nelson knows BNP Paribas’ corporate actions firsthand, having served as head of business development and sales for Asia at BNP Paribas between 2008 and 2014.

According to a survey authored by The ValueExchange, there is a clear case for transforming the corporate actions process but many participants that took part expect savings of only 2–3% from automating the processing of corporate actions data.²

Nelson says that the market has evolved to the point where the corporate actions space isn’t setting off any big alarms, and where there are no immediate “fires” to put out. He notes this has led to complacency and a lack of innovation. Many firms in the corporate actions lifecycle also struggle to see the gravity of the potential risks of not innovating and the ultimate benefits of any investment.

Another issue the Australian market faces is despondency around whether a solution like ASX’s real-time STP feed can work. Nelson says that there are strongly divided opinions between those who have used the ASX feed and those that haven’t. The skeptics believe “It’s not that broken, it’s alright, we can manage,” he says, but those that have trialed and tested it have seen a major reduction in inefficiencies.

“They say it has triggered an increase of 80% in their STP, and it’s letting them restructure their data models. It’s weird, this general despondency around the ability to change, but when people have made the change, the size of the change is incredible,” he says.

This feeling of despondency is not unique to Australia. The inefficiencies around corporate actions processing are a global problem that has existed for more than 30 years, Nelson says, and there is no silver bullet.

“There’s a lot of manual work, so it’s more a case of peeling away the problem rather than solving it in one go. So, people must buy into the journey,” he adds.

Karen Webb, senior manager for issuer services, securities and payments at the ASX, says another reason why participants are more reluctant to change is the reliance on corporate actions experts.

Yet, this could change if the pool of corporate action talent continues to shrink. Research from Firebrand Research suggests corporate action specialists are leaving the space, with older specialists moving on to more exciting roles in the industry. And it’s becoming harder to attract younger people to fill these roles.

“Many of those experts have been around for a long time and we’re start-

ing to see attrition. Some of the work has moved offshore, and the experts are relied on only on a need-to-know basis. So, there might come a point where they [market participants] might be forced to make a change because of that,” Webb says.

Industry buy-in


Automating corporate actions fully would also require end-to-end, industry-wide buy-in and investment. Participants—registries, issuers, custodians, brokers and their clients—must identify the business case and the work needed to take on a straight-through process and how to build towards it.

Some ASX customers are automating the corporate actions process today, says Webb, though such an implementation is a long-term commitment, and the exchange needs to convince those participating of the future benefits they could reap. She adds that part of the problem is that everyone along the corporate action lifecycle understands their issues but is not necessarily looking at the bigger picture.

BNP Paribas’ Wootton says all participants play a significant part throughout the lifecycle of one corporate action event.

“Everyone understands intimately their own process but there hasn’t yet been a consolidated view of all the players getting together and understanding the pain points that everyone goes through,” he says.

So while BNP Paribas can enhance its internal processes, it does not solve the overall market issue when dealing with corporate actions.

“Part of me thinks that the industry is still comfortable with the process that has existed for 20 years,” Wootton says. “There are some registries that are further advanced than others, but if one registry doesn’t advance, that means you’ve only got 95% and not 100% of the solution.” 

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