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From burst to bust

After years of initial resistance, the capital markets have come to depend heavily on the compute capacity of the public cloud. But increasing market volumes are rapidly outpacing the cloud capacity that organizations thought would be sufficient for years to come, causing firms to be more critical about how they assess cloud services and providers.

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The talent gap

A little more than a decade, ago, I met a PR contact at a bar on Stone Street in Manhattan's Financial District. It was autumn. I was wearing a hoodie, jeans, and sneakers. He was dressed to the nines in a perfectly tailored black suit, sporting a tie, cufflinks, and a handkerchief.

When I arrived, he said, "Glad to see you dressed up for me."

"We're at a shitty bar on Stone Street—what the fuck were you expecting?" I responded.

We laughed. A little later, we got back on the subject of clothing.

"If you dress professionally, professional people will treat you professionally, and they might open up to you more," he said.

"Buddy, I'll let my charming disposition and questions speak for me. Who the fuck cares what I look like, so long as I write a good story?" was my retort.

To be fair, he was right—first impressions matter. But if you don't respect me at the start of a conversation because of the way I dress, hopefully you will after I open my foul mouth. And if you still don't, I have only two words for you. At the end of the day, though, hopefully I'll win you over with my talent.

The point that I'm trying to convey is that Wall Street likes clones. Dress well, offer a firm handshake, maintain eye contact. Exude confidence, if not outright hubris. And not for nothing, if you look at the senior ranks of most trading firms, the most coveted jobs are held by old, white men.

The meek shall not inherit that plot of Earth in lower Manhattan, my friend. Too often, if you don't mold yourself within the cookie-cutter boundaries that Wall Street firms have constructed, you're stuck on the outskirts. And I suspect it's a major reason why innovation in capital markets technology has lagged behind the more "Silicon-Valley-esque" sectors.

Sure, corporate bureaucracy, regulation, and market-structure complexities are hindrances that are especially prevalent in financial services, but if you intentionally shrink the pool of talent available in favor of old-school norms, you eventually hit a ceiling.

Rebecca Natale recently interviewed chief information security officers from HSBC and Bank of America who had set up programs at their respective organizations to identify and help improve the work experiences for people who are neurodiverse. Sometimes these individuals get weeded out of the capital markets because of rigid structures that have been in place for decades. But as you'll read on page 4, while there's some altruism there, there's also ROI.

The point is this: If you set arbitrary parameters from which you seek talent, you're limiting your options. It's simple math … and at the end of the day, money. wt

Anthony Malakian
Editor-in-Chief

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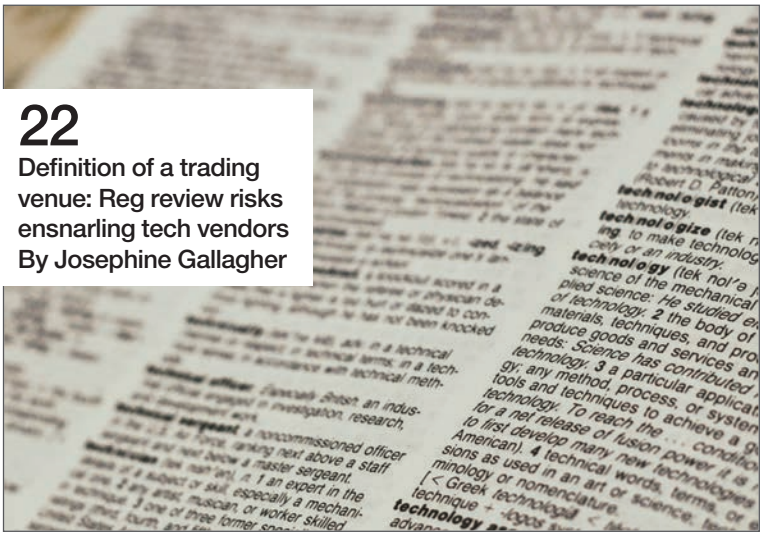

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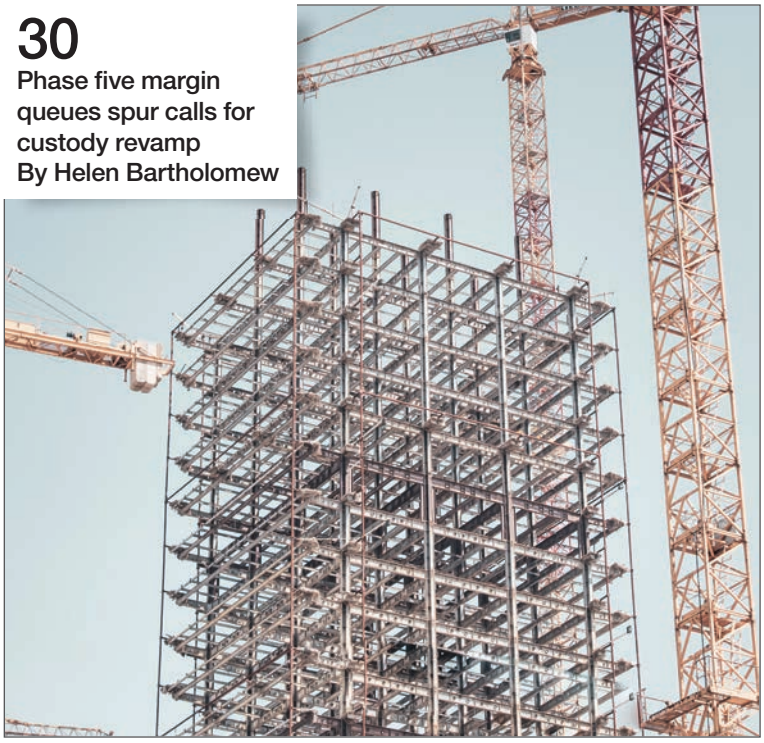

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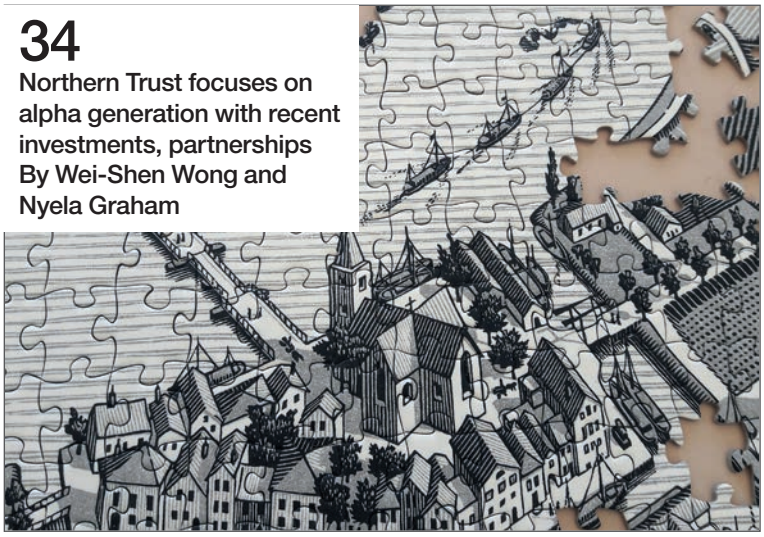

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BofA and HSBC: at the intersection of cybersecurity and neurodiversity

Closing the growing gap between adequate enterprise cybersecurity protection and available resources is fraught with obstacles, so two major banks are pursuing an unconventional approach. By Rebecca Natale

Though it's tough to tell, Jonathan Scott-Lee typically avoids eye contact. On Zoom, he strategically positions the window containing his emails near his computer camera, giving the illusion that we're looking at each other. If we were in person, he tells me, he probably wouldn't look at my eyes. Instead, he'd analyze my nose, my cheek muscles, and my hand gestures. From this information, Scott-Lee would be able to glean whether my mannerisms and micro expressions match what I'm saying.

He can do this not because it's innate, but because he's actively learned about body language and interpreting it, a skill that comes more naturally to neurotypical individuals. Scott-Lee, the Asia-Pacific chief information security officer and ambassador for neurodiversity at HSBC, is neurodivergent—a term used to describe someone with a variation in their brain that affects sociability, learning, attention, or mood. In 2013, Scott-Lee found out he had attention deficit hyperactivity disorder, and earlier this year, he received an Asperger's diagnosis.

Neurodiversity and neurodivergence are umbrella terms for a wide range of atypical brain functions, including autism and Asperger's, ADHD, dyslexia, obsessive compulsive disorder, Tourette syndrome, and several others. Scott-Lee is part of a growing group of bankers advocating for neurodiverse individuals within financial institutions, not just for awareness and accommodations—though that's part of it—but to apply their skillsets to difficult technology roles, particularly in cybersecurity.

> "One of our suspicions is that people within cybersecurity are more neurodiverse than not. ... [But] financial institutions use a lot of standardized testing to filter people out, so we suspect that cybersecurity talent is getting filtered out before they even come in to interview."
> **Jonathan Scott-Lee, HSBC**

"Cybersecurity is one of those disciplines where you have to be deeply technically skilled, and you have to know the whole stack, end to end, from the software level right down to the hardware level in order to do it properly. There are very few people who have the patience to really do that, so one of our suspicions is that people within cybersecurity are more neurodiverse than not," Lee-Scott says.

According to a recent survey conducted by the International Information System Security Certification Consortium (ISC2), the non-profit organization that issues the widely sought-after Certified Information Systems Security Professional (CISSP) qualification to cybersecurity professionals around the world, the global shortage of cyber defense talent reached roughly 3.5 million this year—about 400,000 more than last year.

Bank of America and HSBC are two institutions that have become vocal in neurodiversity issues and are developing suitable hiring strategies and training programs for current and future talent, both beginning in cybersecurity, but now also extending to areas such as artificial intelligence, algo writing, software testing, and general innovation.

Issues that seem small and inconsequential to neurotypical people could change a neurodivergent person's entire

job. Take, for example, one of HSBC's senior members, one of two leaders of the steering committee that oversees the bank's young neurodiversity program and whom Scott-Lee reports to in his ambassador capacity. Part of this member's job, Scott-Lee says, is reviewing an internal dashboard once a month that tracks outages using the colors red, green, and amber to stay on top of resilience risk. As luck would have it, the person responsible for the dashboard happened to have red-green color blindness. So the bank added letters that corresponded to each color.

It wasn't until December 2018 that Craig Froelich, Bank of America's CISO, first heard the term. At an all-hands meeting, one of the last large, in-person events held by the team before Covid-19, a woman on his team—BofA's "all-star" cryptographer, as he describes her today—approached Froelich and asked if he could send her his talking points and written materials in advance of the next meeting. Though they had known each other for roughly 10 years, she explained then that she's neurodivergent, which makes it difficult for her to follow auditory and visual stimuli at the same time.

Froelich set out to research neurodiversity, and at a follow-up all-hands, he implored others who might be neurodiverse to speak up as well so the bank could serve them better. In those early days, about a dozen more employees on Froelich's 3,000-person team shared their own conditions with him, with several more doing the same since then.

A man on Froelich's team was one of the first to follow suit—a US military veteran who has dyslexia. At the time, he was an individual contributor to BofA's information security team and a member of the military reserves. Froelich says the man shared some suggestions that could make his work environment easier for him, and the bank accommodated them. Six months later, he fully retired from the military to become a business information security officer for the bank while using his spare time to learn reverse malware engineering through an intensive, six-week training program that BofA offers.

> "I think we hold more information security patents than any other financial services company. ... And I honestly think the reason why we have so much innovation that takes place is because we've got this really broad tapestry of individuals that are thinking about these hard problems from all different angles."
> **Craig Froelich, Bank of America**

BofA has developed a twofold strategy: better serving their existing neurodiverse employees and recruiting more of them. And it has enlisted the help of Neurodiversity in the Workplace, an organization connecting neurodivergent job seekers to high-level careers for which they are qualified but could otherwise not access. Froelich credits this program with a dramatic spurt over the last few years in the number of patents filed by BofA's information security team and approved.

"Oftentimes, when the threat is at your doorstep, you've got to create new things that have never been done before. And the way I understand whether or not we are doing well at that is tracking the number of patents that we have filed for and been granted," Froelich says.

The information security team at BofA, which spends more than $1 billion on cybersecurity annually, had filed 178 patents in 2021 as of September 30. In all of 2020, it filed 172. In 2019, there were 117. In 2018, before the initiative began, it filed 82. This year, BofA recorded the most patents granted in the first half of any year in the company's history, with 227 patents granted bank-wide during that timeframe.

"I think we hold more information security patents than any other financial services company. … And I honestly think the reason why we have so much innovation that takes place is because we've got this really broad tapestry of individuals that are thinking about these hard problems from all different angles," Froelich says.

HSBC's Scott-Lee, for example, got his start in banking in technology. Being "very socially awkward," he had little luck in finding a job—he fell into penetration testing, a fancy term for simulated cyber-attacks on your own system. Soon, Deutsche Bank found him, and wanted to hire him to optimize code to shave off milliseconds on electronic trades to get them to market faster. It was highly specialized and "geeky," Scott-Lee says, but he was good at it.

While he has risen through the ranks of cyber roles, he has watched entry-level talent become harder to find and keep.

"Financial institutions use a lot of standardized testing to filter people out, so we suspect that cybersecurity talent is getting filtered out before they even come in to interview," Scott-Lee says. "A lot of neurodiverse cybersecurity talent can find it easier and more comfortable working underground on the dark web, where they don't have to deal with people, governance, and office politics."

HSBC recently began developing a new kind of standardized test for prospective candidates, which will hopefully not filter out applicants who appear to think differently. HSBC's program is quite young—Scott-Lee only became the Apac neurodiversity ambassador earlier this year, but he hopes that a new type of test will be ready six months from now.

As someone with ADHD, planning very far into the future is not a strong suit for Scott-Lee. When asked what goals he hopes the program achieves in a few years' time, he hasn't even thought about it. But he knows there are a lot, and any awareness he can raise today that wasn't there yesterday, is a success in its own right. wt

Examining Digital Asset's DLT strategy (and its broader implications)

Digital Asset has slowly expanded its influence with exchanges in the Asia-Pacific region, and this year has made additional inroads in the US and Europe. By Anthony Malakian

Deutsche Börse (DB) recently chose Digital Asset to build out digital securities capabilities for the exchange's cloud-based D7 post-trade platform. Digital Asset, you may remember, is the company that famously burst onto the scene in 2015 with Blythe Masters as CEO. (She since resigned in December 2018.) It is also the creator of Daml, the smart contract programming language, and the builder of the Australian Securities Exchange's (ASX) new settlement system, dubbed Chess. And it has contracts with the Singapore Exchange (SGX), the Hong Kong Exchanges and Clearing (HKEx), Bursa Malaysia, and Nasdaq, among other financial institutions.

Even if you're a blockchain and distributed-ledger technology (DLT) skeptic, Digital Asset is a serious player when it comes to live capital markets implementations and projects.

Shaul Kfir is a co-founder of Digital Asset and its chief architect. He assumed the position earlier this year after serving as the vendor's CTO since its inception in 2014. Some number of years before that, he was a major in the Israeli Defense Forces. If serving in the military has taught him anything, it's that you must have, what he calls, an adversarial mindset.

"My life was on the line quite a few times in hairy situations depending on technology, so there's an appreciation for critical systems and doing drills for everything you need to drill—you can't wait for the day of," he said. "Here, we're talking about capital markets players opening up their networks more than they're used to doing. We all see now with everything in the cybersecurity space, it's a risky thing and if you're building the technology, you need to have a very, very strong adversarial mindset of, 'everything that can go wrong, will go wrong.'"

I wanted to speak with Kfir because I'm a blockchain skeptic—actually, who gives a shit if I question this new type of technology? I know several respected industry executives who have expressed skepticism about DLT. When we've written about Digital Asset of late, it's usually due to delays with the ASX rollout, or how market participants Down Under are worried about proposed amendments by the exchange for its reporting model for the new platform.

However, that's not a totally fair portrayal. The startup is much more than just the partner building Chess. So I posed some questions to Kfir to better understand Digital Asset's strategy and see why he believes DLT is the way of the future, as opposed to, say, app interoperability tools or architectures built around open APIs. Hopefully, this helps to contextualize why DLT believers are so passionate about this topic.

First, the Deutsche Börse press release read like it came from a company that believes in the idea of Daml and digital securities, but the boundary ended there. The impression I got was that this pairing was about creating a centralized database and using Daml so the exchange can have the ability to issue, settle, and service smart contracts. As it pertains to DLT and wider settlement needs, it looks as if DB is interested in having the ability to future-proof the organization so that it could potentially figure out other ways to utilize the technology, but that's not the core of this project.

Kfir didn't want to speak for the exchange's overall thinking, but he said that Digital Asset's vision is "very similar to the public blockchain vision that you hear, even though I cringe sometimes when I hear the hype there." From his understanding, though, the exchange believes that there's going to be a global economic network where "value"—or trading and commerce—moves digitally just like information moves on the internet.

"Anyone who is running a Daml product, those actually connect into a global mesh network, or a network of networks. Now, many of them don't actually choose to do that connection on Day One, and that's very understandable because of how business works today in all of those markets,"

he said. "You can think of what they are taking, though, even when running centralized, as nodes in a distributed system, but they just choose to ring-fence that right now and not actually connect that into other nodes for things outside of this single application that they're deploying right now."

Fair enough. But it also sounds to me like Digital Asset is more centered around Daml, and less around building pure DLT/blockchain networks. I tell Kfir that the way I see it, Daml is akin to how FDC3 is used by the likes of OpenFin and Cosaic to build their app interoperability environments/browsers/containers/whatever. It's not about creating the pristine DLTs of Bitcoin and Ethereum fame, but more about the programming language that creates smart contracts for finance. OR… maybe I have it confused—maybe Daml is the DLT and I'm not connecting the dots properly. So which is it?

"It's a little of both," he said, to which I exclaimed, "And that's why it's difficult to understand the space!" He laughed and acknowledged the point.

He contends that any company using the Daml network—think trading firms connected to the likes of ASX, HKEx, SGX, Nasdaq, and DB—can create workflows that can connect across markets and have it feel like a local connection, similar to the way your browser "points" to the internet and connects you to the site (application) you want. Or, more specifically, you write on a single platform, even though its connected to multiple networks.

"That's really important because one of the things that people want to get out of any technology today is the speed-to-market for something new. With a lot of the previous integration approaches, if there's a market with 100 different financial companies on that market and you want to change a standard, everyone needs to go and implement that change in the standard," Kfir said. "The promise of things like a blockchain abstraction, of smart contracts, is that if I want to upgrade some workflow, one person needs to implement the changes of schemas and semantics of that workflow, and then everyone can choose to adopt it at their own pace, but the implementation is once."

HKEX is one of the APAC exchanges that uses Digital Asset

Again, though, doesn't this sound an awful lot like the promise of app interoperability? Or of open APIs, which are becoming the darling of financial institutions like Goldman Sachs, State Street, and BlackRock?

"I think the hype around cryptocurrency has just accelerated something that would've happened anyway, it just would've happened slower, potentially," Kfir said. "If you look into the database world, we were already starting to go into things like globally scaled databases within one company, and you saw work on federating multiple databases run by a few different companies. We were already seeing that movement toward integrating, but not just integrating through these message integrations, but integrating more deeply where we agree on the data model and on the semantics of how a business workflow happens—that trend was already starting."

For example, a smart contract is essentially broken down into three parts. It has a shared data schema across multiple companies. Similarly, it has shared semantics around that data schema. And, finally, it has trustless execution and distributed governance.

"Those first two—we agree on what the data structure is and we agree on exactly how that is going to change—that's much more powerful than the way integrations are done today, which is, we're going to agree on some messaging format, but each of us needs to apply that change locally in our own systems," he said. "I think it's just inherently a more powerful, faster way of doing things, and there's less room for confusion and reconciliation. We know we're seeing the exact same thing and interpreting it in the exact same way. I feel it's kind of inevitable that things should move in this direction, even if it came through the back door of how the technology came about."

Kfir said it's "very hard" to explain a vision for a new platform—if a market is established and running fine, why fix something that isn't necessarily broken?

But the markets—equities, fixed income, foreign exchange, and so on—face a fundamental dilemma: The pace of innovation is moving faster every day, and the amount of data available is rapidly expanding. If you're getting bogged down in integration projects or overhauling legacy systems so that you can bring in more data and analyze it, you simply can't build new products and services as quickly as you might like.

In the Asia-Pacific region, for example, there's no way to coordinate a transaction across, say, the ASX and HKEx. If a firm wants to borrow in one market against collateral in another market, there's no way to do that, even if the market participants created that workflow and are connected to both markets.

"ASX says how I'm allowed to use ASX equities; Hong Kong says how I'm allowed to use Hong Kong derivatives. But now as the user, as long as I'm in the confines of those two [markets], I can now create a transaction across those two and create a loan that has less risk because I'm collateralizing that loan with another market," Kfir explained. "There's always risk in upgrading to a new type of system—a new type of technology—but the limitations of the current system are really keeping us back in terms of what we can do. That's where I think people should get interested and excited."

Now—dear reader!—I must confess something: I have no fucking clue as to the validity around the lessening of risk or even the desire/need for this type of transaction. BUT, I think the key takeaway here is that there are so many DLT evangelists because the promise is that in a perfect world, firms will be able to innovate faster than they can today. wt

Ex-UBS Asset Management CDO eyes challenge of data discovery

Suvrat Bansal's startup aims to make it easier to get data into the hands of those who need it, but who may not know it exists, faster. By Max Bowie

There's a knowledge gap at financial firms. A firm may have all the data in the world, but its employees often don't know they have it. And even if they know about it, getting access to it may be hampered by lengthy approval processes that delay access to data. In many cases, this data already exists within their organizations, and is already being paid for, but users seek fresh datasets because they don't know the data already exists.

In short, firms don't know what they know.

This challenge doesn't have a single cause—or solution—but rather, is a multi-faceted problem, comprising commercial issues, organizational structures, and technical obstacles.

"With current data licenses, there is no central way for people to say, 'What data could solve which problems? Are people aware of the data? And if they were, would they use it?" says Suvrat Bansal, former chief data officer at UBS Asset Management, who has founded a startup data company, Stellar Data Labs, aimed at making data more easily discoverable within financial firms. "These things are missing in organizations today. But once we do that, let the floodgates open and let the knowledge begin."

At the core of the problem is that firms are not structured in a way that makes data bought or created and stored in one business line easily visible—or accessible—to potential users in other areas, even if it could have beneficial uses in many parts of an organization.

"If you talk to any organization today, they'll say they're investing a lot in data. But if you ask the same person if it's easier to get to that data, they pause.

Suvrat Bansal
Stellar Data Labs

We're so busy focusing on things like data quality that the data is not reaching the people who need it," Bansal says. "There's a growing distance between data and users. It can take between three weeks and three months for data access to be approved by multiple IT teams. We spend so much time hiring smart people, but then we handicap them by not giving them the data."

The Netflix model

Instead of organizing data by business functions like risk or finance, Bansal's platform organizes data by themes—such as client centricity or sustainability—that cross business areas and functions, and recognizes that people performing different tasks need their data made available in different formats. Some need it in spreadsheets, others might need to integrate it into artificial intelligence- and machine learning-based applications.

Bansal says he took his inspiration from retail marketplaces, such as streaming video service Netflix, where users can search for movies they're aware of, or browse movies sorted and categorized by Netflix, and watch the movie on the same platform. In the same way, data consumers could search for data they don't know exists within their organization, and firms could control who can access data by applying permissioning in the same way Netflix viewers set up parental controls to block certain movies and shows.

Once the platform maps a firm's datasets, it presents the data to users in the format they want to access it, such as in tables or charts for analytics, providing a more suitable tool for viewing data than spreadsheets, which, according to Bansal's research, remain the most widely used way of viewing data outside of data workstations.

"I estimate that 90% of people still analyze data in spreadsheets, while 5% use charts, Tableau, etcetera, and 3% use it in self-service applications, and an emerging 2% is used by AI and ML teams using notebooks," Bansal says. "But a dataset may have 150 million records. You can't do that in a spreadsheet."

Bansal has decided to bootstrap the company with his own money rather than diluting his stake by seeking venture capital investment, he has already signed up three banks—one in Europe, one in the Nordic region, and one of the top five US investment banks—to put his platform to the test.

He says the offering has broader appeal to other industries, and that he hadn't intended to focus initially on large banks, but that its sweet spot is organizations with complex data structures—and that these problems are at their largest and most complex in large financial firms. wt

SFDR pushes fund administrators to rethink ESG offerings

Some fund admins prefer to build ESG products in-house, while others, notably Northern Trust, consider it 'inefficient' from a cost and time perspective. By Nyela Graham

Fund administrators are revamping their environmental, social, and governance offerings to asset managers following the rollout of the EU Sustainable Finance Disclosure Regulation (SFDR) and as demand for more transparency from regulators, corporates, and investors increases.

Fund administrators SEI, SS&C GlobeOp, and IQ-EQ, for instance, are using in-house technology to keep up with new EU regulations and increased disclosure requirements around ESG investing. All three administrators run platforms that incorporate datasets across different asset classes, sectors, and jurisdictions. Northern Trust, though, is instead leaning on its fintech partnerships, and recently took an equity stake in cloud-based analytics platform Equity Data Science to support its Northern Trust Whole Office interoperability strategy, which aims to combine the bank's architecture with partnerships to create access across trading, operational, data, digital, and analytics solutions.

SFDR took effect in March and sets sustainability disclosure obligations for financial market participants and financial advisers in the EU, including information on how sustainability risks are integrated into the investment decision-making process, and how remuneration policies align with the integration of sustainability risks. But it's important to note that fund admins are having to address more than just SFDR—it's just the latest in what will likely be more regulations coming down the pike not just in Europe, but in the Americas and Asia, as well.

SS&C GlobeOp rolled out ESG reporting functionality for asset managers in early September as an extension of SightLine, its web-based data management platform that allows users to aggregate data—such as SS&C's security master data and users' chosen third-party data—and perform analytics and visualization schemes. The addition, which was built with Sustainalytics, includes carbon risk and sensitive sector exposure disclosure reports.

Functionality upgrades aim to keep pace with increased focus on sustainability

GlobeOp managing director Michael Megaw sees ESG reporting solutions as natural extensions for fellow fund administrators' offerings. GlobeOp gives asset managers ESG reporting capability that allows disclosures on the makeup of their portfolios and metrics for scoring those portfolios against Sustainalytics' ESG dataset.

"The platform itself is a tool that allows us to take data from any source, bring it together and create customized reporting for our clients," Megaw says. "It's a trend to make sure you are not just thinking about returns—you're also thinking about the sustainability and governance of the things you invest in."

Like SS&C, SEI provides a tool, the SEI Manager Platform, in which asset managers can view their holdings against other ESG data vendor baselines. SEI's strategy has centered around preparedness, building enough capabilities in-house so that when regulatory winds or investor demands shift—as they often seem to in the world of ESG—the firm doesn't find itself having to overhaul tools that clients rely on, or at the mercy of third-party vendors.

"We don't try to reinvent the wheel," says Jean White, SEI global sales director.

IQ-EQ Compass follows the same vein as SEI and SS&C by doing the heavy lifting itself. Compass provides asset managers with a solution to institute and maintain an ESG strategy by helping to build individualized ESG frameworks.

"There is no one-size-fits-all approach to ESG. Each firm's strategy will be driven by their specific mandate and obligations to stakeholders," says IQ-EQ director Libby Toudouze.

The data is sourced from key performance indicators, and the technology platform is designed to monitor, analyze, and report on ESG metrics at the firm, portfolio, and individual asset level. Toudouze says multiple types of data source are incorporated to allow for flexibility with technology offerings.

Northern Trust, however, has taken a different approach. Its Whole Office interoperability strategy has the company thus far relying on outside technology providers for expertise. Northern Trust Whole Office, which it rolled out last year, is an open architecture, multi-asset-class solution that gives clients access to various technologies and capabilities. Other recently announced partnerships include behavioral analytics and consulting services platform Essentia Analytics, BlackRock's Aladdin system, and Venn, a cloud-based investment analytics platform.

"When we think about Whole Office, we think about this idea of partnering with fintechs that can deliver capabilities that it may take us longer to develop or be more costly to develop," says Paul Fahey, Northern Trust's head of investment data science. "There's so much change that if we were to try to and build everything ourselves, I think it would be inefficient from a cost perspective and inefficient from a time perspective." wt

Anna Service Bureau tools up to track emerging data landscape

Modernization will help numbering agency data hub adapt to new technologies and improve data quality post-Isin review. By Jo Wright and Nyela Graham

The ongoing, two-phase modernization of the Anna Service Bureau (ASB) presents an opportunity to improve the service by adding analytics and adapting to new technologies, says Stephan Dreyer, managing director of the Association of National Numbering Agencies.

"The additional transparency in the data analytics functionality is particularly important in understanding how we can introduce or revise certain processes, and in working with standards bodies such as ISO [the International Organization for Standardization], report back effectively and provide more transparency to the market," Dreyer says. "As we look at upgrading the Anna website over the coming year, we want to introduce more data analytics and transparency on what is happening with the International Securities Identification Number (Isin)."

Financial services firms are adopting emerging technologies such as blockchain, which is transforming how financial instruments are issued, Dreyer says. "That may require looking at capturing new types of data attributes that may be useful or interesting for the market, or even in ESG [environmental, social and governance] investing. That's [where] we're at now, to understand the implications and ensure the ASB framework is adaptable as technology and finance evolves."

Anna co-ordinates the 117 national numbering agencies (NNAs) that distribute information related to ISO standard identifiers, including the Isin, the Classification of Financial Instruments code, and the Financial Instrument Short Name. Anna runs the ASB, a central database that serves as the golden record of these codes, in partnership with Six Financial Services and Cusip Global Services. Operating under a federated model, the NNAs submit new Isins and CFIs to the ASB, as well as updates to existing codes.

Inconsistency in data was one of the problems the upgrade set out to tackle

In addition to serving as a hub for the NNAs, the ASB also offers a free look-up service and subscription data services.

Several factors lay behind the decision to upgrade the ASB infrastructure, says Darren Purcell, senior director for Europe, the Middle East and Africa at Cusip Global Services. Apart from the increased focus on data quality in the wake of the Markets in Financial Instruments Directive, previous problems with the ASB included timeliness of publishing data to the service, missing attributes, and inconsistent data.

"Anna decided that with the increased spotlight on data quality, global distribution and the importance of Isin data, the ASB needed to move to this new technology platform based on cloud, API technology, an updated user interface, and validation in terms of preventative measures," Purcell says. "So, for example, each of the NNAs can test their data to validate it before uploading. This avoids a situation where they are uploading, finding a mistake, and then having to redo it."

The upgrade includes migrating the platform to a cloud-based infrastructure, which Anna says will provide reduced latency and additional security, and a new user interface that features an integrated data quality dashboard.

The look-up and subscription services are also being enhanced. The ASB will provide a service that allows users to extract customized data for a specific portfolio of financial instruments.

"Anna is a large database to which NNA clients and users can connect via a desktop. We also had a bulk distribution solution. But we were missing a more agile way for 'inbetween' users, who don't necessarily want to do the individual look-up but also don't want to download millions of Isin records," Purcell says. "With the API technology, we have created a flexible portfolio solution where you run your list of Isins against the ASB database instead of having to manually type those in or download millions of records."

Marcus Muntener, head of customer and data operations at Six Financial Information, says one major advantage of the upgrade has been the more fluid interaction between the federated NNAs and the service bureau. "The old infrastructure was kind of unidirectional, where NNAs provided the data then the ASB normalized and standardized it, making sure the key elements had been covered. Then the data was distributed to users. The new platform is multidirectional—NNAs enter the data, it can be challenged by any other participant, and it goes back to the responsible NNA," he says.

Anna is implementing the upgrade in two phases. The first was completed in September and included the infrastructure enhancements, such as cloud migration and APIs. The next phase is planned for 2022 and will introduce new data elements resulting from ISO's latest revision of the Isin code. All ISO standards have a revision cycle and the Isin is reviewed every five years. Anna's decision to upgrade the ASB coincided with this routine review. wt

SimCorp expands into managed services

The Danish vendor is in the early stages of moving into accounting services. In later phases, it plans to expand services across the back and front office. By Josephine Gallagher

Investment firms are seeking to outsource more of their back-office functions to buy-side service providers. Investment management solutions provider SimCorp, which has always positioned itself as a pure technology vendor, is now also offering managed services to cater to this transition.

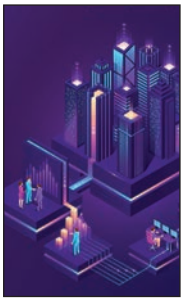
Jochen Mueller, executive vice president and chief commercial officer at SimCorp, says asset managers are demanding more from their third parties in areas like accounting, expecting vendors to take more accountability for processes and outputs.

SimCorp began planning the move to managed services almost two years ago. Mueller says the Copenhagen-based vendor decided to roll out investment-accounting-as-a-service (IAaaS) due to demand from clients seeking to outsource parts of their back office.

Mueller says SimCorp's accounting solution can automate 95–99% of investment accounting functions. But, he adds, the final 1% to 5%, which usually involves oversight of the technology itself, is what clients are asking to outsource.

SimCorp's IAaaS service, which covers all asset classes, will cleanse post-trade data using its Datacare platform, perform data reconciliations, ensure international accounting standards are met, and manage accounting records on behalf of clients.

SimCorp conducted a market survey to evaluate the demand for accounting services. The research got responses from 46 buy-side firms, of which 29 were existing SimCorp Dimension clients, and the other 17 were sales prospects. Sixty percent of respondents had assets under management (AUM) of between $20 billion and $100 billion. The study showed that nearly 57% of respondents currently used managed services within investment operations and accounting, and almost 60% see the move to managed services providers and technology companies increasing.



Buy-side firms are increasingly looking at hybrid outsourcing models

"Clients don't want to consume technology as they did in the past. They want you to take the full set of steps, take the accounting process and provide them with the insurance reports, so now that's what we're doing," Mueller says.

Jay Wolstenholme, research director at consultancy Chartis Research, owned by *WatersTechnology*'s parent company Infopro Digital, says many buy-side firms choose to outsource parts of their businesses that hold little or no competitive advantage if managed internally.

"Buy-side firms are looking to outsource any items that are not competitive or differential to make their front-to-back investment management lifecycle services more efficient and cost-effective, so they're going to take advantage of that outsourcing where beneficial," Wolstenholme says.

The typical candidates for outsourcing their operations to third-party vendors are small- to medium-sized asset managers, with less than $100 billion in AUM, Wolstenholme says, but he adds that larger buy-side firms have also begun to look at hybrid outsourcing models.

"It used to only be the lower AUMs that would want to outsource, but that keeps creeping up because of the appeal of hybrid models. Investment managers are starting to think like the sell side and ask, 'Why should I be a tech firm?'" Wolstenholme says.

In pivoting to managed services, SimCorp joins other large firms already competing in this space, including State Street, Northern Trust, BNP Paribas, and SS&C Technologies. In March, Amundi announced its new business line for front-to-back-office solutions, alongside outsourcing trading.

Rollout

In early October, SimCorp began an outreach program to inform existing clients it would be rolling out the IAaaS services. The firm is in active conversations with several clients to pilot the service and expects to go live by mid-2022.

During the summer, SimCorp also started building out the managed services team across Emea and North America. To date, SimCorp has filled 15 roles, half of which are accountants.

As part of the IAaaS service, the SimCorp accountants will inform clients' legal teams when changes are made to global accounting standards and rules, explain what the updates mean, and advise them on what to do.

SimCorp is also hiring operational experts, such as those responsible for data reconciliation and transaction processing, on to the IAaaS team. The company intends to hire more staff as it builds out the managed services client base. Its target is to onboard at least 10 clients and grow the IAaaS unit to a 100-person team.

"We will hire more as we go. We benchmarked [the SimCorp managed service operating model] compared to market standards, looking at how many accountants we would need. We believe that from the benchmarking, we can be 50% more efficient than the market average, also by creating scale and having that highly automated platform," Mueller says. wt

Bloomberg uses math, not AI, to blend risk management and portfolio construction

The Mac3 GRM risk solution is live for equities users, uses no AI or machine learning, and will be rolled out to more asset classes next. By Rebecca Natale

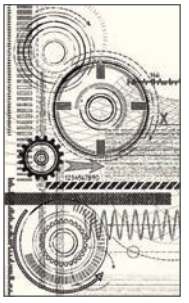
Investment management, the domain of portfolio managers and chief investment officers; and risk management, handled by risk analysts and chief risk officers, are closer to becoming a single, blended function rather than discrete operations, says Antonios Lazanas, head of portfolio and index research at data giant Bloomberg.

There are several reasons for this. One is the Covid-19 pandemic and the hidden correlations it revealed between seemingly separate economic sectors; another is the rising popularity of environmental, social, and governance (ESG) investing correlated with rising atmospheric temperatures. And so Bloomberg is betting that the industry's risk modeling capabilities will have to become more sophisticated.

In response, Bloomberg rolled out its multi-asset class global risk model (Mac3 GRM) solution suite at the end of last year for equities managers. The company now plans to begin serving fixed-income users with the same product over the next six months. By the end of 2022, the aim is to complete the entire Mac3 GRM release with applications in commodities, private equity, and alternatives. Currently, Bloomberg is in the process of moving all of its equities clients onto Mac3.

"Risk managers continue to be worried about the same thing [as portfolio managers]: 'What can happen to my portfolio?'. What's happening is that on the portfolio construction side, things are getting more complicated, which means managers have more sources of returns and risk at their disposal," Lazanas says.

The new suite is the culmination of combining Bloomberg Port with the Barclays Risk Analytics and Index Solutions business that Bloomberg acquired in 2016 and is available to Terminal users and Enterprise users—companies that pay additional fees to run their businesses with Bloomberg's models with ad hoc use of the Terminal—though some features are reserved for Enterprise users only.



Math provides more control and "explainability" than machine learning algos

One such feature is full-term structure of risk, wherein Bloomberg provides different risk customers with different portfolio, or rebalancing, horizons. Enterprise users can utilize timespans including daily, weekly, monthly quarterly, and yearly, but Terminal-only users can opt for weekly and quarterly measurements.

The second option Bloomberg has restricted is an advanced feature in Mac3's tail risk model for handling option-like instruments. The Port tail risk model uses a simulation engine to generate a large number of market scenarios and calculates the portfolio return under each scenario. The worst scenarios are used to estimate a portfolio's tail risk.

This is traditionally an expensive task, Lazanas says, because to get an adequate view of risk, a user needs to account for roughly 30,000 scenarios. This requires efficient calculation methods that rely on some sort of approximation. For very complex derivatives-heavy portfolios, users may opt for portfolio returns valuation using a smaller number of scenarios. Bloomberg makes this "full valuation" tail risk model within their Multi Asset Risk System (Mars).

Mac3 uses no forms of artificial intelligence, including machine learning, in favor of optimization, or mathematical formulas based on statistical analyses, for the best chance at explainability.

"You could use machine learning to create an optimized portfolio approach. We haven't tried that yet because it's more difficult to control machine learning algorithms and what they do—it gives us a little bit of pause. I will not say that we will not go there; we will go there," Lazanas says.

As an example of what optimization looks like in practice, Lazanas describes a pension fund that recently requested help in maximizing its ESG exposure—a hot topic, but much easier said than done. "Here's the situation: If you try to create a portfolio that loads on good ESG companies, by the nature of the ESG companies, you're also loading on other risk factors," Lazanas says.

In equities, good ESG companies are usually larger in size, lower in volatility, and better in quality—these attributes are historically seen in ESG data, Lazanas says. But a manager, perhaps at a hedge fund, may like the prospect of high quality and low volatility, but large size is historically associated with lower returns. At the same time, the manager may be concerned with taking an increase in tracking error, the deviation between price behavior of a portfolio and a given benchmark, or controlling turnover.

"Controlling turnover heuristically is very difficult at the same time as trying to maximize your ESG and minimize tracking error. Once the portfolio construction method becomes very complicated, then it's almost impossible to solve without a complicated mathematical model," Lazanas says. wt

Murky road ahead for consolidated tape plan administrator in the US

The business unit of the new equities data plan could revolutionize pricing and accessibility in the public feeds of NMS data, say hopefuls to the role, but litigation and lack of clarity obscure the path forward. By Jo Wright

The role of administrator of the CT Plan—the blueprint for governance of the new market data system for US equities—could improve market data pricing and accessibility for consumers by easing burdensome licensing, billing and audit functions, vendors say. However, details of many crucial considerations for the role—what its duties will be and how exactly the system it will help to govern looks—are still murky, and will only become clear as implementation of the plan and its associated infrastructure rule is rolled out. Obscuring the path ahead even more is ongoing litigation brought by the large exchanges.

"Regardless of how things shake out, you will need an administrator that can handle complexity," says Manisha Kimmel, chief policy officer at data infrastructure provider MayStreet. Prior to joining the company this past February, she was senior policy advisor for regulatory reporting at the US Securities and Exchange Commission (SEC) from the start of 2019 through 2020.

In early 2020, the SEC put out two separate but related documents in an effort to modernize the public feeds of National Market System (NMS) information. The SEC has long believed that the current NMS data processors—the two Securities Information Processors (Sips) that operate under three plans (UTP, CQ and CTA) and send out bid/ask quotes consolidated from trading venues to consumers—are old-fashioned. The idea of modernizing these feeds gained ground during the term of former chairman Jay Clayton and former director of the division of trading and markets Brett Redfearn, and an SEC document from 2020—the infrastructure rule—put forward a new system of rival Sips called "competing consolidators," which will be run as private businesses in parallel with the current Sips.

The rule also expands the definition of core data distributed by the Sips to include odd lots and auctions. The SEC hopes this will encourage innovation, product differentiation and competitive pricing in the NMS, which it believes is dominated by the large exchanges, or self-regulatory organizations (SROs).

> "The US tape administrator role has interesting potential to put many of these ideas into practice and improve the efficiency of the administrative processes that often frustrate market data users and vendors."
> **Mark Schaedel, DataBP**

The other document from 2020 was an order to these SROs to create a governance plan for the new market data system. Known as the CT Plan, this was approved by the SEC on August 6 this year, firing the starting gun on an aggressive timeline aimed at getting the plan implemented within a year exactly. In short order, the SROs created the plan as a limited liability company; and in early October, the non-SRO voting members that sit on the committee to dilute the exchanges' voting power were chosen. These non-SRO voters include Bill Conti of Goldman Sachs Market Data Services; BlackRock's global head of electronic trading and market structure, Hubert de Jesus; and Tom Jordan, president and CEO of data and management consultancy Jordan & Jordan.

It is this operating committee that must now issue a request for proposal (RFP) to choose the CT Plan administrator. The RFP process, however, may have to be put on hold until early next year. The SROs have been battling the SEC's modernization efforts in court, and asked for the CT Plan to be stayed pending final rulings. The SEC denied their request in September, but in mid-October, judges ordered that the plan be stayed. Sources who have seen the court order say briefs in the case must be filed by mid-November, and proceedings will begin in two to three months' time.

The stay is a victory for the SROs, but it's no guarantee that they will win the final court case—it's merely intended to prevent the rollout of changes that would be difficult to reverse should the SROs prevail. For now, though, the litigation complicates the CT Plan timetable and the infrastructure rule, and it's something that aspiring administrators will be watching in the coming months.

Hats in the ring

But what does the administrator role entail? Judging by what's in the CT Plan, the SEC envisions the administrator as performing on behalf of the LLC day-to-day business functions—tax and financial reports; administering market data contracts with vendors and subscribers; administering fees, including billing and audit; and what the SEC rather vaguely calls "recordkeeping." The administrator must also be independent; it cannot be a company that sells proprietary market data.

The SEC said in approving the CT Plan that it "understands that a number of different types of entities, such as accounting firms, market data administration firms, or consulting firms, would be capable of serving as administrator to the CT Plan and providing the requisite billing, auditing and licensing services."

Kimmel says the administrator role won't exactly be an easy one. It involves

contracting with competing consolidators and subscribers of the data, so it must handle administration at both the Sip and end-user levels, and there could be one or many Sips in this new world. But while not inconsequential, "for firms that are in this business, it's pretty standard stuff," she says.

"Our industry is niche, but there are obviously people who have experience in and around these market data contracts and have been in the market data space for a long time," Kimmel says.

Waters Technology spoke to two firms that have expressed interest in undertaking the RFP: licensing, sales, and e-commerce platform DataBP; and Jordan & Jordan.

Mark Schaedel, strategy advisor to DataBP, says the vendor sees in the administrator role a big opportunity to accelerate its own mission.

"The community of exchanges we are working with is starting to work together on business model innovation opportunities, leveraging our platform to adopt best practice and more convention. The US tape administrator role has interesting potential to put many of these ideas into practice and improve the efficiency of the administrative processes that often frustrate market data users and vendors," Schaedel says.

DataBP was established by a team that built the New York Stock Exchange (Nyse) platform that administers the consolidated tape and the exchange's proprietary data business. The vendor supports global exchange groups with its e-commerce platform, and provides manager services to support clients' market data administrator operations.

Schaedel says that whoever the administrator is, it could improve the market data experience for consumers by automating and applying modern technologies to enable the sharing of information between market data subscribers, vendors, service providers and the administrator.

Market participants have long complained that the data licensing and audit processes are burdensome and consume time and resources; Schaedel says the administrator could mitigate this with regard to the Sips data by facilitating the sharing of the same records. It could use self-service tools and APIs to connect, communicate and standardize the information being exchanged, rather than having all parties rely on a web of emails, forms, files, spreadsheets, and even, he says, faxes.

DataBP already focuses on market data administration within exchanges, which is very different from how it is managed within consumers or even data vendors, Schaedel says. "The tape is really a retail pricing model operating by a wholesale distribution framework overseen by a consortium of contributors. It is quite a unique and nuanced business made more unique by the degree of regulatory oversight. Not everyone will be comfortable with these dynamics, but we have all grown up in this world so we feel like it is what we were meant to do."

Schaedel says some consolidated tape users would prefer an indirect billing model, like the one Nasdaq uses for UTP, which is less complicated to reconcile and manage. "But in some ways, the direct billing model that Nyse uses for Tape A and B better supports some of these correlations," he adds. "Perhaps there is a way to streamline and get the best of both models."

Barry Raskin, managing director at Jordan & Jordan, agrees there is a lot of scope for the administrator to modernize

NMS data distribution. "Technology has changed. The software, the types of data crunching that needs to be done—this has all gone through major improvements over the years, if you think about what people are doing in big data and AI. We can start looking to build a better mousetrap now that we have the opportunity and the toolkit," he says.

Raskin says Jordan & Jordan "checks all the boxes" for the administrator role: collective decades of experience in the market data industry, experience with software and market data reporting, as well as partnerships, and audit. The company has licensing experience, with staff attorneys who can sort through contract language, reporting requirements, and usage rights, he adds.

"We do Misu (multiple installations for single users), indirect bill and quote meter audits on behalf of clients, and we have relationships with the exchanges. We used to say, 'We're located in Hanover Square, we could walk to the exchanges.' Obviously, we aren't doing that right now, but the point is that we have worked very closely with these folks. And we have sat with every major broker-dealer," Raskin says.

Jordan & Jordan also has experience leading RFPs that are analogous to the one that would select the CT Plan administrator. For example, in 2019, the Options Price Reporting Authority (Opra) began a tender process for a tech supplier to manage the Sip that consolidates and distributes options data, and Opra chose J&J to issue the RFP. The consultancy also managed the RFP for the UTP/Tape C Sip back in 2014.

"So we understand fundamentally what needs to be done and what will be asked of us. There is some complexity here—I don't want to say this is a piece of cake! But we are strongly considering throwing our hat in the ring for the administrator role," Raskin says.

J&J recently sold its market data reporting software to market data cost and inventory management software vendor TRG Screen. Sources *Waters Technology* spoke to for this article said TRG Screen might also consider applying to become the CT Plan administrator. However, a spokesperson for the vendor says it does not consider this role to be its "sweet spot."

Some sources believe the administrator role is more likely to go to a large accounting firm, while others say the specialist skills of a DataBP or a J&J would be a better fit.

Schaedel says he isn't sure who the SEC has in mind for the role that would have the knowledge, expertise and the independence to address its concerns around conflict of interest: "[Perhaps] a consulting or accounting firm that might bring the independence, and smart people who can figure out a target operating model and perhaps even implement it. But we wonder how much the new tape plans will need to evolve, given that the role will start with the existing Sips and evolve into a competing consolidator regime."

> "This [uncertainty] currently makes it hard for the administrator to truly know what the scope of their responsibilities will be yet."
> **Manisha Kimmel, MayStreet**

Raskin is of the opinion that no matter who the administrator is, it will almost certainly have to partner to cover all the necessary duties.

"Finding a firm that touches all these bases is kind of tough, and whoever ends up as administrator will need to ensure they have the proper resources available," he says. "For example, if we decide to bid and are chosen, we may need to bolster our staff with additional resources on top of our existing team. Other potential respondents may not have experience of reporting to exchanges, for instance: things like Misu and meter audits."

Quick to pivot

Whoever winds up with the administrator role will have to adapt quickly to an evolving situation. For one thing, it's still unclear what the new market data system will look like.

Kimmel says the existing two Sips—called the exclusive Sips—will continue to operate under the three plans until the CT Plan is fully operational, at which point they will come under the CT Plan and coexist with the competing consolidators. The SROs must file their proposed fees for administering the exclusive Sips under the CT Plan by December. The SROs must also submit a plan amendment by November 5 detailing charges to competing consolidators for data.

So, the potential administrator could know by December what fee structure it would be administering. How the CT Plan stay affects this timeline is not yet clear, however.

"This [uncertainty] currently makes it hard for the administrator to truly know what the scope of their responsibilities will be yet," Kimmel says.

But she adds that developments like the November 5 amendment will provide more insight, and "we will start to understand how complicated or simple this will be compared to the existing world."

Schaedel says there are many questions surrounding the contract structure under the future Sips regime. "It's still not clear from the CT Plan: will we maintain Tape A, B, and C [UTP, CQ, and CTA]? Or is it just one tape? Will the new elements of market depth and odd lots be offered discretely like trades and quotes are offered today, or will it be one package of products? And then do we have one contract for these tape products? And how will the transition to the new contract structure be managed?" he says.

It's also not clear how the administrator will work with the operating committee. Schaedel, for example, says opportunities for the administrator lie in improving data policies, but it's not clear what powers either the administrator or the operating committee will have in this regard.

"The new operating committee has a lot on its plate, so we'll likely need to work through this as we go along. And there's probably a diversity of thought that needs to be accounted for and accommodated," he adds.

But the design of the CT Plan—one plan, one administrator—is a great basis for enabling change, Schaedel adds. "We could start to imagine what the possibilities are and make sure that the new administrator is flexible enough to evolve now that the governance changes will support change," he says. wt

From burst to bust: What happens when cloud runs dry?

After years of initial resistance, the capital markets have come to depend heavily on the compute capacity of the public cloud. But increasing market volumes are rapidly outpacing the cloud capacity that organizations thought would be sufficient for years to come, causing firms to be more critical about how they assess cloud services and providers. By Max Bowie

At its technology conference in June, industry regulator Finra revealed a startling statistic—the amount of information being collected to support the Securities and Exchange Commission (SEC)-mandated Consolidated Audit Trail (Cat) of all US equities quote and trade data was straining the limits of the capacity it had provisioned in Amazon Web Services' (AWS') public cloud to run the Cat.

"The peak volumes of the Cat have exposed some scalability issues in the public cloud. Volumes keep going up. When the Cat was originally contemplated, the original plan stated that peak volumes would be 80 billion market events in a single day," said Finra chief information officer Steve Randich at the conference.

But—partially exacerbated by the market volatility during the Covid-19 pandemic—peak volumes grew much faster than expected. By the time Finra confirmed AWS as its partner for the Cat in 2019, the system was already ingesting more than 100 billion events, and now regularly handles more than 350 billion events per day. "We've just seen half a trillion events, and it keeps going up. It will be 1 trillion before we know it," Randich added.

Not only that, but because Finra needs to perform surveillance over timeframes ranging from days to calendar quarters, it needs to be able to access tens of trillions of market events. Being able to use the cloud to dial capacity up and down when needed for those scheduled tasks has been "huge," Randich said, estimating this has improved Finra's infrastructure efficiency by 40%.

That's the good news. Also good news is that the statistics about market volumes validate Finra's decision to use the public cloud. "Obviously, if we are pushing the scale of [the resources provisioned for the Cat by] AWS, then there is no way we could have done this in a private cloud," he said.

"The bad news is, we're handling volumes that are even challenging AWS. But they are working with us to handle these challenges," Randich said.

> "The bad news is, we're handling volumes that are even challenging AWS. But they are working with us to handle these challenges." Steve Randich, Finra

Addressing this issue has meant holding monthly meetings with Amazon executives to improve scale, as well as continuous internal reviews of whether the Cat's technical elements are operating in the most efficient manner.

"We may need to re-think in some regards how the Cat is being operated in terms of the policies and requirements of it," Randich said.

"For example, we run the Linker three times per day—but with the cost and scalability numbers associated with it, that may not be the best way to go about it. Volumes are going to continue to go up. So we need to find ways to make sure that elastic scale continues to be efficient, and continues to be something that we don't need to worry about." (Linker is a component of the Cat that links related orders to create "ecosystems" of data around a trade.)

Finra was an early adopter of cloud for its compute and storage requirements. In 2014, it began moving its market surveillance functions and Cat forerunner the Order Audit Trail System (Oats) to AWS. Once that was completed in 2016 and deemed a success, Finra decided to move more workflows to the public cloud, which it completed in December 2019.

"Currently, the only applications left in our private datacenters are 'cats and dogs' applications that will die on the vine. About 99.9% of our data and 99% of our technology is all in the public cloud. In 2021, Finra is a public cloud company," said Randich, who prior to joining Finra in 2013, was a CIO at Citi.

Finra declined to comment further for this story beyond what Randich said at the conference. AWS declined to comment specifically on Finra, or on how it helps clients in general address and mitigate capacity issues.

But Michael Borts, CTO of governance and regulatory compliance technology provider ACA Group, who joined the vendor in October after a year as principal of AWS' advisory practice, says, "Amazon is very focused on helping customers save money. They go out of their way to help every customer run as efficiently as possible. They would come in and sit down with a customer and have a strategic conversation about what their governance is like, what data they have, and what data they need, what can be stored, and what is rarely accessed."

Then, Borts adds, a company can identify which applications are subject to spikes, and can decide how to configure applications to achieve the right balance of cloud storage versus cloud compute capacity. For example, instead of persisting a certain data type, a firm could simply stream it in memory, allowing it to weight

applications more heavily to compute capacity instead of memory.

Bursting restrictions

"It's all about 'burstability' … and what happens when you want to expand availability," says Peter Nabicht, president of the Securities Technology Analysis Center (Stac), which works with financial firms and technology providers to develop benchmarks for diverse technology stacks, including cloud.

"For example, if a spike in market volumes requires you to scale up from 12 to 20 servers, and the spike lasts for 20 seconds, but it takes 45 seconds to scale up, then there's no point. But if it takes just five seconds, then people would do it all the time," Nabicht says.

While Finra may be in a unique position as a regulator and the body responsible for collecting data on behalf of the Cat, the challenge it faces is by no means unique: Exchanges and data vendors all capture and aggregate vast quantities of data, while trading and investment firms consume and combine huge amounts of exchange-based quote and trade data with other datasets. And during periods of peak volumes, much of the industry will be experiencing the same sudden demand at exactly the same time.

> "[Throttling] is something we were aware of when we started the migration project, but we didn't fully understand the actual impact it would have on our project timeline until we started to experience the throttling for ourselves." **Trevor Hicks, Wetherby Asset Management**

While some of these market events may be unpredictable, a lot of demand for resources is scheduled and predictable, and can be planned for in advance, which means that when unexpected peak volumes do occur, firms are better placed to handle those spikes, says Christin Brown, global financial services strategy and solutions lead at Google Cloud.

In addition, this also means firms can utilize the cloud's elasticity to dial back capacity between those periods. "You don't want to be permanently over-subscribed. You want to grab that capacity back between spikes," says ACA's Borts.

"Financial institutions are very good at planning ahead. By using cloud, they can manage the bursts gracefully and minimize impacts on those workloads. They know their seasonality, and we work together to achieve the best results balancing their infrastructure elasticity, capacity and costs," says Brown, who joined Google five years ago, and had previously spent 17 years at IBM.

In addition, she says that firms respond differently in these circumstances, noting that algorithmic trading companies actually slow down trading.

"Algorithms tend to not do well in a 'black swan' event, and when algorithms get thrown for a loop, they slow down. While the market is going haywire,

another group slows down. So there is a little bit of a see-saw effect that balances out the demand on the network," she says.

In some cases, firms not subject to those same market events still experience challenges relating to cloud capacity during high-pressure periods of demand.

For instance, San Francisco-based wealth manager Wetherby Asset Management is nearing the end of a project to migrate many of its corporate IT functions to Microsoft's Azure cloud. Originally, the impetus for the move was because the firm felt there were applications that could be run much better in the cloud than on its in-house infrastructure, and to take advantage of being able to pay for services based on usage, rather than on a continuous basis. As fate would have it, Wetherby's timing was fortuitous: With employees scattered over the US during the pandemic, which would have strained its previous setup, availability of services was "fantastic," and meant the firm didn't need to rely on its own VPN.

However, Trevor Hicks, CTO at Wetherby, warns that "bursting restrictions are a real risk of leveraging cloud services," that must be assessed, mitigated, or accepted just like other types of risk. This risk can present itself both directly and indirectly. To illustrate, while planning its Azure migration, Wetherby expected that its processing loads would not generally be subject to spikes, and that any spikes that did occur—given that it uses Azure to support "fairly predictable" internal services—would be "insignificant" compared to what Azure could handle.

"However, what we did not appropriately plan for was the throttling of services during our migration process. We are moving a significant amount of data to the Microsoft cloud, and based on what time of day and how much data we are moving, Microsoft throttles how much speed/resources are available to us. This is something we were aware of when we started the migration project, but we didn't fully understand the actual impact it would have on our project timeline until we started to experience the throttling for ourselves," Hicks says.

As a result, the firm had to extend its project timeline and adjust its migration strategy, extending the six-month project by around 45 days to compensate for delays in data transfer and resulting strategy adjustments, completing the migration around the end of September.

However, bursting restrictions caused by external and completely unrelated issues can also impact firms indirectly.

For example, Hicks describes an incident that occurred unexpectedly in the summer of 2020. "One of our third-party service providers (which leverages AWS) bumped into their bursting limits as a result of a misconfiguration or misuse of their platform by another (unrelated) customer. Although we had nothing to do with this other customer, the services that the third party provides to us were severely degraded and brought our business to a crawl," he says. "Fortunately, we had considered this potential in a previous risk assessment of the third-party provider and had appropriate workarounds available to our employees so they could continue their work."

Safety buffer

Different markets and industries can also indirectly impact firms who may think they're prepared for any eventuality affecting their industry, only to find—similar to Hicks' example—that the culprit lies far beyond their control.

"Different resources are needed for different uses across industries," says Stac's Nabicht. "Other industries have capacity demands that are completely independent of financial services and burst to meet those demands in the same cloud environments. So what happens if there's also a big market spike that takes place at the same time?"

Preparation is key, agrees Jim Nevotti, president of Chicago-based trading and risk software vendor Sterling Trading Tech, whose Sterling Risk Engine is cloud-based. Nevotti says the circumstances created by the Covid-19 outbreak have placed unforeseen stresses on all components of firms' infrastructures, including the cloud.

"Last year saw massive spikes in volumes as a result of Covid, and other factors, such as more stock listings. And if you look at historical trends, the volume of market data never goes down—it's always trending upwards," Nevotti says. "We've taken an approach over the last couple of years to make sure we could handle data spikes and not hit capacity."

Now, Sterling incorporates monitoring of spikes and cloud capacity as part of its ongoing systems testing and stress testing, to include regular benchmarking to ensure it has a "buffer zone" of capacity.

> "If you look at historical trends, the volume of market data never goes down—it's always trending upwards."
> **Jim Nevotti, Sterling Trading Tech**

"There were many industry outages over the past year, and we held up really well because we put in the time and investment beforehand," Nevotti adds.

Google's Brown also stresses the importance of careful planning to maintain a safe operating buffer.

"We do a lot of capacity planning for peaks and troughs, and we can plan ahead and reserve resources for specific customers. We do this on the retail side of the house for the holiday season, for example. For events like the current pandemic, we rely on our buffer to be able to handle it, and we can easily move compute resources around the world, even taking advantage of time differences," she says.

These are the types of capacity planning factors that firms need to take into account when deciding how to best utilize cloud resources, and which cloud provider is right for them. But even with the capacity planning and resilience testing undertaken by cloud companies themselves, the industry needs to change the way it thinks about cloud.

Instead of treating it as an infinite resource, firms need to understand that it's finite and must be planned for and paid for. They must also treat cloud computing suppliers in the same ways as they treat, assess, and test other suppliers for potential risks. As firms place greater reliance on the cloud, it promises to deliver significant benefits, but also becomes a greater area of potential risk for the industry as a whole. wt

Definition of a trading venue: Reg review risks ensnarling tech vendors

Industry participants are divided over the definition of a trading venue and how regulators should revise the regulatory framework. By Josephine Gallagher

What constitutes a trading venue? Which kinds of firms should be regulated as trading venues? The answers to those questions are the subject of much heated debate in Europe, and the review of the Markets in Financial Instruments Directive (Mifid II) could throw fuel on that fire.

Market observers say the European regulator's broad definition of which companies must register as organized trading facilities (OTFs) or multilateral trading facilities (MTFs) pulls into the scope of the regulation hitherto unregulated software providers.

A broad definition of a trading venue could capture a multitude of vendors, including chat applications, front-office systems, systematic internalizers, and connectivity providers, says Stephane Malrait, head of market structure and innovation for financial markets at ING Bank.

"Your chat system is a software that lets you connect to 10 or more banks electronically and negotiate transactions and books electronically. So where do you put the limit?" Malrait asks.

The European Commission (EC) is engaged in a wide-ranging review of Mifid II that began in early 2020. As part of this exercise, the European Securities and Markets Authority (Esma) consults with the market, then produces reports on various aspects of Mifid II. The EC then presents those reports to lawmakers, and they decide if changes should be made into the law.

One aspect of Mifid II that Esma has consulted on is the definition of what makes a firm an OTF or MTF. Esma's final report on the functioning of trading venues under Mifid II, published in March after the consultation period, includes some ideas about how the definition needs to be adjusted.

Mifid II established the concept of OTFs to extend the definition of trading venue to facilities offering trading in non-equities instruments, bringing transparency in traditionally over-the-counter (OTC) asset classes. Registered OTFs include Tradeweb and Icap Securities OTF. MTFs existed before that—they were introduced in the first iteration of Mifid—but were essentially the result of the expansion of the definition of trading venue to include facilities that weren't traditional exchanges.

Esma says in its final report that it understands an OTF or MTF to be "any system that allows third-party trading interests in financial systems to interact,

including information exchange between parties on essential terms of a transaction (price, quantity) with a view to dealing in those financial instruments."

That is enough to require authorization as a trading venue, it says. And the information exchanged does not need to lead to a contractual agreement within the system between parties for the interaction to occur, it adds.

By comparison, under Mifid II, MTFs and OTFs are deemed "multilateral systems where trading interests can interact in the system in a way that results in a contract."

This is an area of ambiguity that Esma's critics say needs resolving.

Heated debate

The issue generally has touched on a longer-running debate over which kinds of firms should be regulated as MTFs and OTFs. Fixed-income venues like Bloomberg and Tradeweb have lobbied the EC and Esma via trade associations like the Electronic Debt Markets Association (Edma) to regulate a cohort of tech vendors—including some providers of workflow tools, price aggregators, and even order and execution management systems (OEMSs)—which these venues say are mimicking trading venues and operating without their relevant licenses. The venues contend that these vendors' activities are invading their territory, but are not being regulated, and thus creates an uneven playing field.

Jennifer Keser, head of regulation and market structure at Tradeweb, says that rather than roping in multiple vendors that support one or two periphery services in the trading lifecycle, the definition should apply to firms that run all or several services that lead to the multilateral interaction of buying and selling interest and ultimate execution of a trade.

"If I am a technology provider that only does one particular thing, perhaps I offer the connectivity, or I allow the pipes for the buyers and sellers to meet and to exchange their buying and selling interests. But [if] I'm in no way part of the execution, then I would say that it's probably a bit heavy-handed to have that type of entity go through the same process as we do because they're not part of every action in a chain of events," she says.

> "At no stage were we looking to provide direct execution ourselves. It would be through partners that are or would be looking to regulated entities, and our part of that is providing the data. I don't see that as a regulated activity, certainly not the way the regulation is written at the moment."
> **Byron Cooper-Fogarty, Neptune**

Bloomberg declined to comment for this story, but in its comment letter to Esma, the company said: "We welcome Esma highlighting concerns about firms operating de-facto multilateral systems without being authorized as trading venues, and hence being subject to the relevant Mifid provisions. A key objective of Mifid was to increase transparency, but there is an enforcement/perimeter issue where software providers are operating systems where multiple third-party interests interact that result in off-venue transactions."

The fixed-income venues believe that the vendors encroaching on their turf include Neptune, a provider of pre-trade bond data; Symphony Sparc, an interest rate and cross-currency swaps workflow platform; Virtu Financial's multi-asset request-for-quote (RFQ) hub; OTCX, an RFQ platform for derivatives; and GMLX, an electronic securities financing platform.

In the opposite corner of the debate are these tech providers, who say their businesses do not meet the criteria to be considered regulated venues under Mifid II, and they, therefore, don't have to register as OTFs or MTFs in Europe.

"We always want to work with regulators, so we want to have a cooperative approach, and make sure that we're part of the dialogue with regulators, so we'll see what approach regulators here in European and the UK take going forward," says Corinna Mitchell, general counsel at Symphony.

Separately in the US, in April, *Waters Technology* reported that Symphony had suspended its Sparc business pending registration talks with US markets regulator the Commodity Futures Trading Commission (CFTC) to obtain a license to become a swaps execution facility (Sef). The CFTC ordered Symphony on September 29 to pay a $100,000 penalty for operating Sparc without registering as a regulated trading venue. Prior to the CFTC order, Symphony's Mitchell could not comment on the registration talks for legal reasons.

Neptune COO Byron Cooper-Fogarty says there was speculation that Neptune would look to build out execution services, and that might be what sparked the concerns of the incumbent venues. Rather, he says, Neptune is partnering with other firms that provide execution services such as its integration with Tora, a fixed-income OEMS provider, in December 2020.

"At no stage were we looking to provide direct execution ourselves. It would be through partners that are or would be looking to regulated entities, and our part of that is providing the data. I don't see that as a regulated activity, certainly not the way the regulation is written at the moment," Cooper-Fogarty says.

Neptune pulls in data from around 30 dealers and streams it to more than 70 buy-side firms.

Cooper-Fogarty says the firm has no interest in becoming a regulated trading venue but would evaluate any new responsibilities if the regulatory frameworks are extended to include vendors like Neptune.

"It's all good saying it's regulated activity, but there are certain obligations that come with that," he says. "So, we'd need to see what those additional obligations are."

A spokesperson for GLMX says the vendor "completes extensive, recurring regulatory reviews in all geographies in which it does business and is fully confident that its structure meets all applicable regulatory requirements."

Similarly, OTCX co-founder and COO Paul Stones say the provider "always makes sure that our service meets all regulatory obligations within the different jurisdictions we operate in and carefully monitors any evolution of such frameworks to remain compliant."

Virtu Financial was unavailable to comment for this article.

A big tent of vendors

It's not just this particular vendor community—the ones that seem like immediate threats to the venues—that would be drawn into trading venue status by an expanded definition. A small universe of providers that even the incumbent venues don't believe should be regulated could be unintentionally affected, even telecommunications providers, Malrait says.

Whether these companies are regulated should be about how they behave, not the tech they offer, he adds.

"I don't think you can put those rules on the basis of the technology you develop because technologies look very similar. It's more about how you run your activity," Malrait says.

One source with close ties to fixed-income trading venues says the Esma guidance extends further than what the venues themselves were lobbying for. In other words, venues argue that the current Mifid II wording of "multilateral systems that interact" and "result in a contract" should be kept and enforced, rather than follow Esma's interpretation, which required a lower threshold to become a trading venue, including "any system that allows third-party trading interests in financial systems to interact."

"When we engaged with [Esma], their view was that it doesn't have to include multilateral execution, even multilateral interaction also needs a venue license. If somebody interacts over a system, and no trade results, that is still a multilateral activity and needs to be regulated as a venue. We were arguing the point below that, so those that are interacting and doing transactional business," the executive says. By the same token, the executive adds, the trading venues were also relieved that Esma's guidance more clearly captured the vendors they believed to be operating as unregulated venues.

Stifling innovation

Whoever they are, vendors that find themselves regulated entities would have some new burdens. It's no small matter to run a regulated venue: It requires operational support, strong governance measures, and capital.

"We're not building a retail platform where people are trading football cards," says Dan Hinxman, head of fixed-income sales for EMEA at TP Icap's Liquidnet, which operates an MTF in fixed income. "These are financial instruments, and you have to meet all the criteria that have been set forth by all the regulators, which take many more considerations, resources, testing, and all

the other pieces that go with it to make sure it's going to pass those tests."

Market participants fear that widening the definition of trading venue to their tech providers will drive up costs and stifle innovation in a time when the fixed-income market is starting to understand the benefits of automation. Three asset managers to which *Waters Technology* spoke for this article said they fear they will face potential downstream costs if a wider spectrum of tech vendors and trading systems were to become regulated.

"For us, it would be a real concern if OMSs are deemed to be venues because they would have to be regulated as such. They would have to have capital buffers, etc., in the same way, that MTFs do, and that would increase the cost of having that OMS," says one head of fixed income at a Europe-based asset manager with over $80 billion in assets under management.

Symphony's Mitchell says being a regulated entity is usually built into the design of a company from the beginning, and is not a natural transition for a tech vendor to make.

"So it is quite challenging for a company that has been set up to be a nimble, growing, innovative business to then become regulated. It's certainly possible to do so, but it does require a ground-up change in the way that the company operates and is structured," she says.

Bilateral vs. multilateral

The debate about what constitutes a trading venue hinges on the distinction between multilateral trading activities, which are regulated, and bilateral, which are not. Multilateral activities involve multiple buyers and sellers coming together to share trading interests and execute trades. Providers of tech that enable counterparties to interact bilaterally (OEMS or RFQ systems, for example) say they should not be considered multilateral because those systems provide for a multitude of bilateral interactions, not a single multilateral interaction.

"This definition in Mifid II is still not clear: What is bilateral versus multilateral? If you're on a chat, normally that is a bilateral negotiation or discussion between two people, and even if you structure or electronify that chat, it's still bilateral," Malrait says.

> "I don't think you can put those rules on the basis of the technology you develop because technologies look very similar. It's more about how you run your activity."
> **Stephane Malrait, ING Bank**

The incumbent venues, on the other hand, say a gray area emerges when tech advancement enables more efficient interaction between one buy-side firm and many sell-side firms using the same platform.

"The people who are doing this without a license say it's not multilateral execution, it's bilateral execution. What's the difference there? It's common sense: You're introducing people who didn't previously know each other, and if they are doing regular trading business, that's multilateral execution," says the source close to the trading venues.

Regulatory approach

Industry firms are also divided on how regulators should revise the regulatory framework. Some say authorities should enforce the rules as they already exist, while others are more in favor of written clarification and guidance.

The source with close ties to the trading venues says regulators like the Financial Conduct Authority (FCA) and UK Treasury could use qualitative and quantitative methods to determine which firms are trading venues. This would be a similar approach to how the authorities are looking at the definition of Systematic Internalizers, as part of the recent Wholesale Markets Review, published in July, which also addresses trading venues. In this case, the executive says qualitative methods would mean evaluating the company's business and conducting individual interviews with the firms.

"I think there's a common-sense approach, which is what we're trying to say. Go in and talk to these venues—you've got the powers; you've got the authority—and if they are introducing counterparties on both sides who didn't previously know each other, and they end up doing lots of transactional business and that business is not on a trading venue somewhere downstream, then they need to get a trading venue license," they say.

Neptune's Cooper-Fogarty agrees that regulators should look at firms on an individual basis rather than have a hard-line definition that could capture a vast group of vendors as the technology evolves. He adds that a black and white definition could create barriers to entry for vendors emerging in the fixed-income market, leaving a small handful of big players to dominate the space.

"I get in some respects the appeal of the hard-and-fast definition so people can know where they stand before they start, but I think it's a far more complex and nuanced market than that. So, I think the supervisory case-by-case basis makes more sense because people are going to offer different things to different clients," he says.

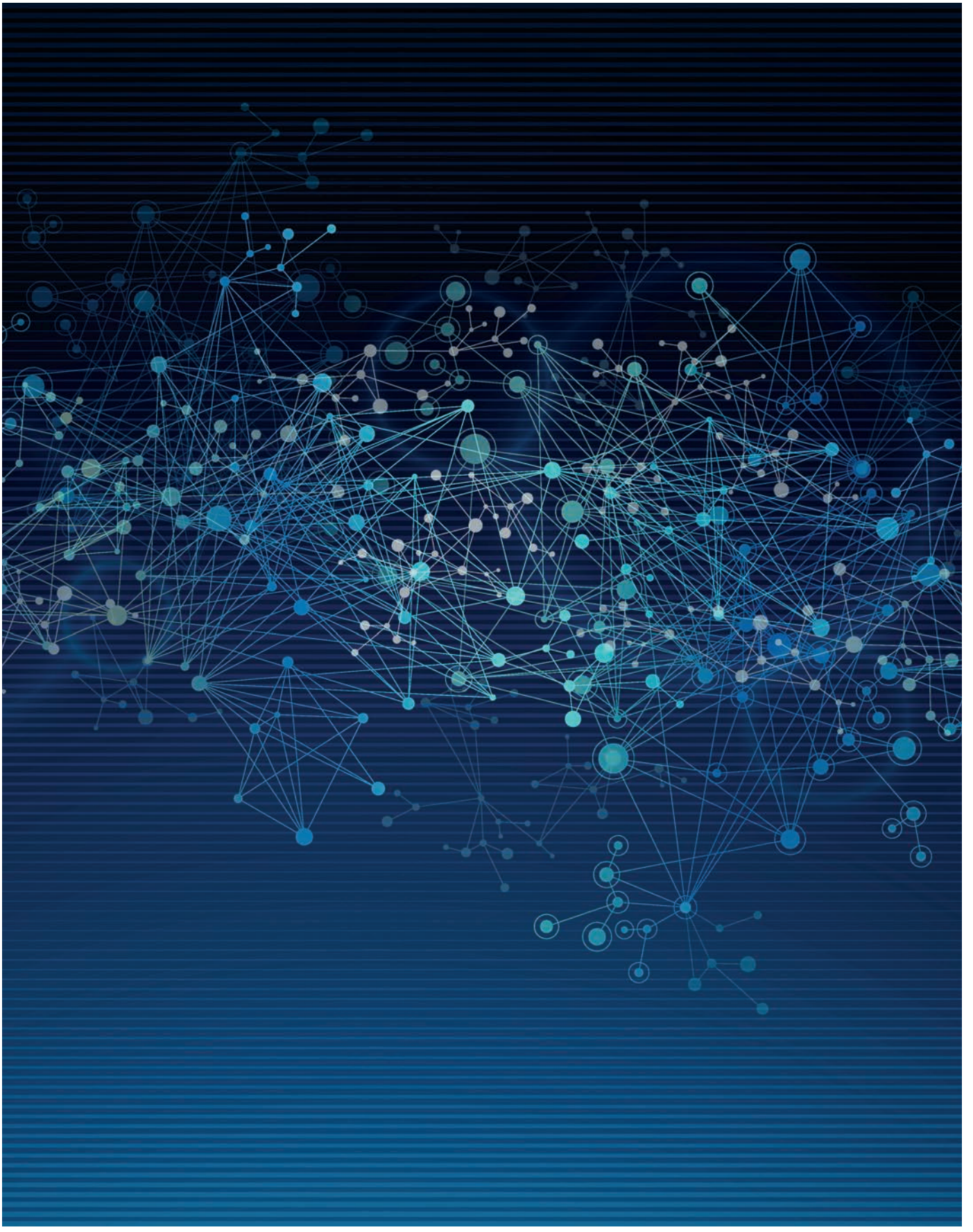
Cooper-Fogarty also says regulators should look at why buy-side and sell-side firms are interested in moving away from electronic trading by leveraging other third-party service providers and trading bilaterally. He attributes this shift to the growing cost of trading on venues like MTFs.

Other participants in the market want to receive more detailed guidance from the regulators on the revised framework. Mitchell says that based on Esma's guidance, she thinks the authorities will go down the route of offering more clarity, which will need to be adaptable to suit the fast-evolving space.

Andrew Mahoney, managing director at EMS provider FlexTrade, says without more prescriptive detail from regulators, some vendors are left in a frustrating position, trying to clarify to clients why their firm does not fit into the definition of an MTF or OTF.

"Clients might have a number of types of questions and ask us why we aren't an MTF, and we go through the process of explaining our architecture and explaining why we're not," he says. "But it would be much easier if we could reference certain paragraphs within the Esma regulation to say, 'This is the reason.'" wt

With additional reporting by Hamad Ali



ASX builds 'DLT-as-a-service' offering to help prep market for Chess replacement

The Australian Securities Exchange's customer Daml sandpit has been up and running since January and has had over 20 firms log on. The next phase—its DLT cloud environment—is currently being rolled out. By Wei-Shen Wong

In January, the Australian Securities Exchange (ASX) launched its customer Daml sandpit, which sits within its distributed ledger technology (DLT) solutions unit.

The sandpit allows individuals and firms to familiarize themselves with the Daml smart contracting language, which is particularly important since it's the language that the ASX's Chess replacement project is based on. Participants in the sandpit can also start coding and developing applications.

Paul Stonham, general manager of DLT solutions at ASX, tells *Waters Technology* that the exchange white-labeled Digital Asset's test application system, Dabl, and presented it as the ASX's Daml sandpit.

In February, Digital Asset rebranded Dabl to Daml Hub to better represent that it is an entrance into the Daml ecosystem. Eric Saraniecki, co-founder and head of strategic initiatives at Digital Asset, says that within the Daml network, anyone can deploy a Daml Hub anywhere in the world.

"And they're all connected to each other, because it's all part of the same network. It's really important for us to find market participants and partners like ASX that will deploy one in their region, and then they will attract people into Daml Hub," he says. (*See 'Building an open network' on p. 28.*)

ASX's Stonham says the Daml sandpit has a good user interface, and there are some test applications that people can reference and learn how to deploy. "They can also work out how to start coding in Daml and get used to that language. I think especially down here in Australia it is quite important for people to get used to this protocol that we're going to be implementing [for Chess]," he says.

He adds that the ASX has had interest from university students and academia to fintech companies and big financial services players such as Broadridge Financial Solutions, as well as international custodians and some of Australia's larger investment institutions logging on to start developing applications.

He says the sandpit is like a graduation ceremony. "So step one, you log on to the sandpit, have a muck around. You can actually write all your code, you can deploy your app, you can test it. And, ultimately, if you're a vendor, you can also invite others and demo your app to potential users or those with vested interest or stakeholders within or outside your organization," he says.

Stonham says ASX's Daml sandpit technically points to a normal database technology instead of a ledger, which is why the second phase will involve spinning up its DLT cloud environment.

Next steps

The second phase of ASX's DLT solutions offering is to get its DLT cloud environment up and running, which will use the same VMware blockchain ledger that the Chess replacement project will be using.

Stonham says this will provide customers with a seamless transition depending on their needs.

"Some will go to the sandpit but also there will be a development environment component of the VMware cloud environment as well. So customers can choose where they want to start, depending on how advanced they are in their knowledge of Daml and the apps they want to build. But really it's just picking up the code and deploying it in other environments. It's reasonably straightforward and simple so no matter where a customer starts, their journey is as smooth as possible to ultimately get to production," he says.

> "I think especially down here in Australia it is quite important for people to get used to this protocol that we're going to be implementing [for Chess]."
> **Paul Stonham, ASX**

Once the DLT cloud environment is live, Stonham says there will be two components to it: the development environment and the production system.

"So we'll say by the end of this year, our cloud environment will actually have two VMware blockchains—a development one, and a production one," he adds.

Ultimately, ASX will be stitching the cloud environment and its on-premises environment, which Chess will be on once it goes live.

"It will be almost like a synthetic virtual single environment. So if I'm a customer with a node, it will be a hybrid cloud, on-prem—the whole DLT ecosystem. We've coined the term that we're really doing DLT-as-a-service. We'll be providing the ledger and managing the nodes, and providing

a lot of generic or common services that customers need," he says.

He equates those services to a phone's GPS system.

"If you think about a phone, there's only one GPS, but 200 different maps make use of that one GPS. We're looking at being able to move data—and obviously, we're running a permissioned private ledger—around between applications and between different databases because ultimately within that one big environment, we can spin up multiple VMware blockchain ledgers depending on what customers want to do and what use cases are available and what the potential regulatory requirements may be for those people who have the applications," he adds.

It is all about offering customers choice, he adds.

"So, if you want something that's quite light, quite cost effective to start up with, you will probably start on the cloud. If you want something that's quite heavy, at the end of the day the Chess application is just going to be an application that sits on the DLT-as-a-service like any other application. But the requirements from Chess is 20 million transactions a day—it's all this throughput, all this storage. So it depends on what your application does, how many users you're going to have, what your transactions are, what your load is," Stonham says.

The on-premises environment and the DLT cloud environment will "synthetically" be a single DLT-as-a-service ecosystem.

"What we're saying is, and predominantly for Australian and New Zealand-based use cases, provided it's legal, anybody can do anything," he says.

ASX is putting the DLT cloud environment "through its paces" before it opens it up to customers later this year, Stonham says.

Adjacent to Chess

Most of the applications being coded or tested in the sandpit are currently within the financial services vertical and are aligned with and adjacent to Chess. Many of these applications are looking to address corporate governance and equity back-office process improvements. So far, over 20 different firms have logged on and are getting to know the Daml smart contract language and coding and testing applications.

For example, Broadridge is looking at off-market transfers, which is the transfer of shares from one party to another. Stonham says this process is particularly manual and paper-based in Australia.

"The pain of transferring shares from my registry to my broking account at the moment involves paperwork and wet signatures. I've got to photocopy my IDs, get them certified, and my registry actually wants me to post all this stuff in," says Stonham.

Broadridge is developing an application that automates a lot of the manual and paper-based processing.

Prakash Neelakantan, vice president of strategy and business development at Broadridge, tells *WatersTechnology* that off-market transfers were one of the problems that came up in a brainstorming exercise that looked at challenges that Broadridge's custom-

Building an open network

Digital Asset is aiming to build a global economic network of connected businesses.

Eric Saraniecki, co-founder and head of strategic initiatives at Digital Asset, says that notion exists for data today. For example, a photo could be copied into 47 different places and stored in different ways.

"We have it for data already, but we don't have it for value. We don't have that same experience for that one stock certificate, or that one bond position, or that one really critical piece of application data. We don't have that same internet experience where all of this stuff is interconnected, shared, and things are freely flowing. We don't have a business-to-business sort of ecosystem of how these interactions take place. In this really antiquated system; everyone has their own technology. There's messaging, and then it's kind of all held together with personnel, reconciliation, error, fraud, and everything else," he says.

Digital Asset designs products that make it possible for people and organizations to build applications for this network. But it is new, so there will be those that don't have a pre-existing architectural understanding of how it all works.

Daml Hub aims to address that. "We think Daml Hub is the easiest way to access the network. And there are two key stakeholders there. There is someone that would deploy an application into this network, so think ASX, Broadridge, or anyone that has this data and wants to connect to other people to the data. And then there are the users of this network—think the buy-side and sell-side firms that are connecting all these different applications and their positions that they're trying to interact with. And both of them have to deploy infrastructure to participate in the network," he says.

To be involved in the network, users need to deploy their own nodes and infrastructure.

"So we wanted to build an experience for these two personas to make it super, super simple to deploy an app in this network, and almost more importantly, it's really simple to become a participant in the network, not a participant in the app, a participant in the network which they can join," says Saraniecki.

The Daml Hub is a product line that takes the technology risk away from both the application developer and the participant interacting with the application.

"We're trying to do as much of the heavy lifting as we can so that those participants really only try to focus on, 'What's the value of my application, and which application do I want to play in?' I don't want anyone to have to try to think through all the difficulties of having infrastructure built in order to do so," he says.

Saraniecki says it doesn't matter how it's deployed—whether it's on the cloud, a ledger, or on-premises.

"For us, all you have to use is Daml Hub, and then all of this stuff is just out of the box, it can be connected. Not that it must be, but that it can be," Saraniecki says. "You have that option later to say, 'I have my own datacenter, but I want my customer in the cloud to connect to my datacenter,' and that's possible. So, when we start to stitch all these things together, a customer can log in to Daml Hub and get a node. And that node can connect to an ASX datacenter and interact with someone who's running a node in the ASX datacenter. And that same node can connect to someone in the US in some other datacenter. And then they can synchronize data across each other for what they want to share."

ASX is Digital Asset's first enterprise Daml Hub licensee within the region. "If I could snap my fingers and have anything in the world, I would be lucky enough to have a partner like ASX in every major region. That would be really great, because they would all be connected together. So if Hong Kong Stock Exchange did that, their customers would have access to ASX customers and it starts to turn into a really interesting network," he says.

ers in Australia and ASX's participants are facing.

"It's a very manual and expensive process across brokers, and [often results in] delays in the timeline, etc.," he says. "Originally, we looked at automating this right on the ledger, but given that [the Chess replacement project] got delayed, we thought we might still solve for it and prepare the ground so that when the new system comes in, we can actually migrate it over. From a customer perspective, they won't see much change; they will still see the same workflows."

Broadridge is building this application in the ASX Daml sandpit. The beauty of Daml, Neelakantan says, is that it can be used with multiple back-end applications.

"It could be with ledgers like what ASX is using for Chess, or what we are using for our repo [platform]. It can also be with traditional databases, and it can work with different ledgers. The solution can be used to deal with contracts and obligations of parties, their workflows, and share information using the appropriate data wherever it is stored," Neelakantan says.

Daml is Broadridge's preferred language, and it gives the vendor a roadmap into the future, says Neelakantan.

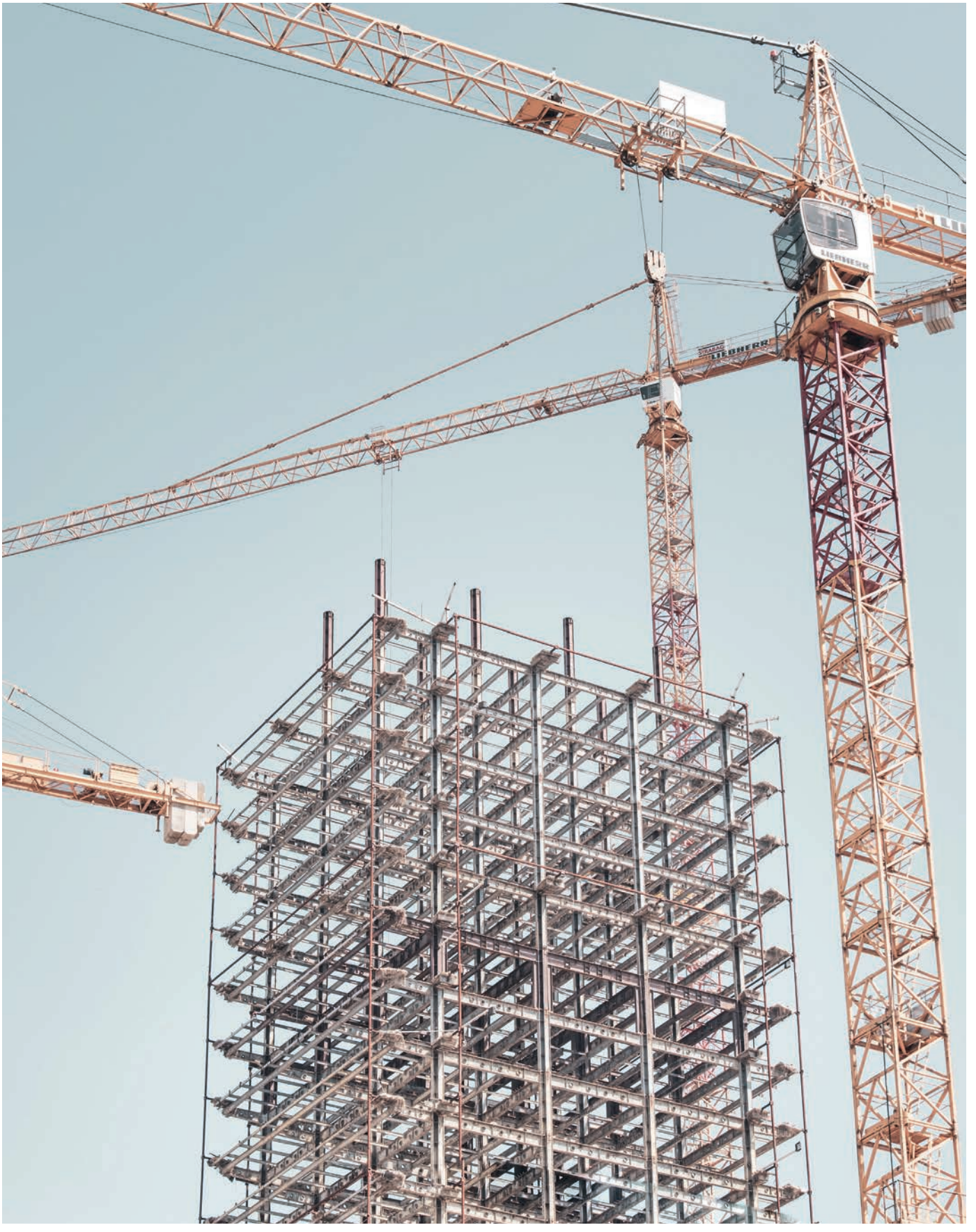
"We can actually build the application quickly within this ASX environment without the need for the new Chess replacement, but integrating with the current environments. [Eventually] we will integrate this with the new environment. But the broker experience and the investor experience will be very similar. We will actually reduce the paper flow and automate the processes and also shrink the timeline for completing the transaction."

Broadridge has already run this application as a pilot, and is now testing it for production use and what it will require from the customer's side to integrate it into the current environment. "In the future, it will be different because once the new Chess is rolled out, integration will be much simpler because it will be directly on the DLT," he says.

Currently, off-market transfers can take as long as a week to complete. Though this application will allow for a speedier transfer, Neelakantan says how much faster is relative.

"Even in the digital version of this process, you'll need both parties to actually confirm. So, if the other side is not responding at all, we can't do anything—you still need both parties," he says. "It saves a lot of time and energy on the broker side and whoever is initiating the transaction. So maybe one party is initiating one investor's issue transfer, and if the other side is already aware and ready, then it will actually speed up and shorten the cycle."

He says once the system is validated with customers, it will take Broadridge four to six months to build out the full service. wt



Phase five margin queues spur calls for custody revamp

Custodians are being urged to update 'antiquated technology' ahead of a three-fold jump in phase six initial margin onboarding. By Helen Bartholomew

The latest wave of initial margin rules for non-cleared derivatives has left market participants at sixes and sevens. Or should that be: at fives and sixes?

Phase five of the rules was marred by lengthy documentation queues as more than 300 mainly buy-siders scrambled to open thousands of custody accounts before the September 1 deadline. Fears are growing that firms caught in phase six, due next September, will face the same chaotic fate.

Many phase five firms were forced to rely on emergency monitoring arrangements and regulatory relief to continue trading.

"If we didn't have that relief, we'd be in a mess," says a margin official at a European bank. "Some of our biggest clients wouldn't be able to trade with us."

One European financial firm caught in the latest wave said it had aimed to repaper around a third of its counterparty relationships ahead of phase five go-live. In the event, it managed only half that target.

Two sources confirmed trading in some counterparty relationships had been paused. In one case, this was due to a dealer saying it would not trade without full documentation in place. In the other this was due to a counterparty nearing the exposure ceiling for relief.

Custody onboarding was cited as the primary pain point, with the new rules bringing new challenges in both volume and complexity. Sources noted a slow pace of client approvals and "antiquated technology" at Euroclear, for example.

Some reported recent improvements at rival custodian Bank of New York Mellon, which has invested heavily in automating account setups since onboarding the first buy-side firm to its tri-party platform in 2018.

In their defense, custodians argued the main cause of the logjam was clients delaying their onboarding arrangements to the last minute. But they acknowledge improvements could be made.

"We [custodians] need to find more and better efficiencies in mobilizing assets and effectively managing the data flow. The only sustainable way forward is through technology," says Staffan Ahlner, global head of collateral at State Street.

The paperwork pile-up has left market participants concerned about the sixth and final wave, when an estimated 800 firms will have to post regulatory initial margin for the first time, comprising more than 10,000 relationships.

"Something needs to be done," says the bank margin official. "The custodians are the blockers and in the next phase there are more people in scope."

Gimme five

Phase five of the non-cleared margin rules applies to firms with more than €50 billion/$50 billion equivalent in average aggregate notional amounts of over-the-counter (OTC) derivatives outstanding.

In-scope firms must post and receive collateral against their trades in segregated custody accounts. The necessary paperwork includes new credit support annexes, custodial account control agreements and eligible collateral schedules—alongside model validation, technical connectivity and testing.

Bottlenecks at custodians bedeviled the first phase of the rules in 2016, when banks were unable to face up to half of their counterparties on day one of the new regime. To ease the operational burden, global rule-makers granted relief in 2019 to firms with bilateral margin exposure of less than €50 million/$50 million, allowing them to trade without documentation.

Many phase five entities took advantage of this relief, which ensured trading didn't grind to a halt in the run-up to the deadline. However, more than 100 accounts were required to sign last-minute margin monitoring agreements, says the bank margin official.

> "We [custodians] need to find more and better efficiencies in mobilizing assets and effectively managing the data flow. The only sustainable way forward is through technology." Staffan Ahlner, State Street

The monitoring agreements are not a regulatory requirement, rather a safeguard for banks to make sure exposure levels don't creep up to the €50 million limit. The agreements are often structured with sub-thresholds. So, for example, if a client hits €20 million in bilateral exposure amounts, the bank may insist that the client puts in place custody documentation. If the client hits €35 million in bilateral exposure, the bank may cease trading with that counterparty.

Although the relief largely staved off a breakdown in trading, many phase five firms still failed to meet repapering targets.

"Phase five entities didn't complete their preparations with everybody they wanted to for September 1, but there hasn't been a cliff edge and firms are continuing to trade with those counterparties they did manage to complete their preparations with," says Tara Kruse,

> "There's still a notable tail of phase five firms completing steps to get fully functional with all their counterparties. We know it takes a lot of work to get ready for initial margin and the queues have been long, so there's some concern over whether there will be an impact for phase six."
> **Tara Kruse, International Swaps and Derivatives Association**

global head of data infrastructure and non-cleared margin at the International Swaps and Derivatives Association (Isda).

"There's still a notable tail of phase five firms completing steps to get fully functional with all their counterparties. We know it takes a lot of work to get ready for initial margin and the queues have been long, so there's some concern over whether there will be an impact for phase six," Kruse adds.

Another complication is the nature of the custody arrangements. In previous phases, a mainly dealer-led cohort widely adopted tri-party services, in which an agent fulfils various collateral requirements, including automated settlement, once transfer amounts are agreed. Buy-side firms in the latest wave took mixed approach, with some opting for the more manual third-party model, which they currently use for variation margin. This approach sees the pledging party select and value collateral for transfer, while the custodian provides settlement into the counterparty's segregated account.

Paper, and more paper

Among the pile of onboarding documents for phase five clients, eligible collateral schedules proved especially time-consuming. The schedules specify the instruments counterparties can post as margin and their associated haircuts. Typically heavily negotiated, the back and forth between counterparties can go on for weeks—or even months.

At Euroclear, clients seeking to make changes to these documents, for example adding or removing a government bond to or from the collateral mix, were pushed to the back of the queue, leading to lengthy delays.

A spokesperson at Euroclear says all pairs for which "appropriate documentation" was received by the May 28 community onboarding deadline had been implemented. "All these accounts were ready to exchange by September 1," says the spokesperson.

Tilman Fechter, head of banking, funding and financing at Clearstream, says the vast majority of delays in onboarding at the Luxembourg-based custodian were due to documentation being submitted after advised cut-off dates. "Clearstream, like many other market participants, will continue to further refine and adapt its processes in the coming months based on lessons learned from phase five, as we've done for the preceding phases," he says.

BNY Mellon, which took the brunt of the phase five burden, opening "thousands of accounts," aimed to accelerate eligible collateral schedule negotiations via its automated "Rule" system. The service allows counterparties to modify schedules online, cutting negotiation time to days or even hours, the firm says.

A one-month extension on the application deadline for clients using Rule ensured the majority gravitated towards the automated tool.

"The Rule service was relatively smooth," says a manager at a US buy-side firm. "It was tricky getting access to the platform, but BNY Mellon did a lot of the heavy lifting."

BNY Mellon has also created standardized templates for account control agreements, which helped to cut onboarding times from months to weeks, users say.

These kinds of automated processes must be more widely adopted to smooth

the path for phase six, according to one technology vendor. "Hopefully, if people understand how difficult this process has been, maybe they'll start to realize that they need an automated solution to deal with it. Eligible collateral schedules are definitely one of the bigger, sticky processes. It starts with the negotiation but it's the amendment process as well," says John Pucciarelli, head of industry and regulatory strategy at Acadia, which onboarded more than 300 parties to its AcadiaPlus initial margin communications platform. The service handled 2,000 regulatory initial margin credit support annexes and 5,000 margin monitoring agreements, Acadia says.

Some have sympathy for dealer-focused custodians such as Euroclear and Clearstream, whose strict entry requirements make it challenging to onboard buy-side firms.

"The custodians will have different motivation levels for how hard they sell to latter phase firms," says Chris Watts, director and co-founder of MarginTonic, a consultancy. "For some, the business model has historically been not to take on smaller buy-side firms. Some have strict onboarding requirements, are dealer-led and if it wasn't for initial margin they probably wouldn't be making a play for the likes of hedge funds who may not meet their credit profile requirements."

Euroclear aimed to smooth phase five onboarding via its "pledgee representative" model, allowing buy-side firms to be sponsored on to the platform by their existing custodians. The sponsor effectively takes on the grunt work required to onboard the client. It would then continue to provide a limited number of custodial services to the client.

Many third-party agents, however, have not offered the arrangement to their clients. Some cite competitive concerns about steering business to rival firms. One custodian, which is still evaluating the model, highlights "operational risk and legal challenges."

At least two third-party agents are understood to have sponsored clients into the tri-party regime in this manner. Euroclear says there were more, but would not confirm numbers. Absent any relaxation in onboarding requirements, wider take-up of this model could be critical for onboarding phase six firms.

"As we go into the latter phases, custodians with stricter onboarding requirements are more reliant on other custodians taking up client onboarding on their behalf," says Watts. "The likelihood is that those custodians will end up taking a far smaller chunk of phase six firms. As a result, and perhaps more importantly, there's also a risk to their dealers' phase six needs if their buy-side clients cannot find a way to onboard."

Prior planning …

Many custodians are already taking action to better prepare for the final wave.

For example, BNY Mellon is overhauling documentation to welcome a new breed of clients in phase six.

"Because we know pension funds, 40 Act funds [i.e., mutual funds and closed-end funds] and other types of entities are going to be part of phase six, we're going to revamp the account control agreement one more time to make it more client-friendly. It's mostly driven by how the regulations apply to new types of in-scope vehicle with different ownership structures," says Ted Leveroni, head of margin services at BNY Mellon.

State Street is modernizing its infrastructure and is planning to roll out API-based onboarding for phase six. The third-party custodian is also launching a new tri-party platform, which it hopes will appeal to buy-side clients.

Ahlner of State Street says custodians can use the retail banking industry as an exemplar for onboarding.

"As the institutional part of the financial industry, we have a lot to learn from the retail world, where you can open an account within minutes. In our world it takes months. There are different challenges and connectivity, but that gap between retail and institutional is huge," he says.

One surprising outcome for phase five was the number of buy-side firms using the full tri-party service; around half of buy-side firms onboarded at BNY Mellon. While the model is typically considered more expensive than third-party segregation due to its broader scope of services, such as collateral allocation, eligibility checks and application of haircuts, Leveroni says this is not always the case. Collateral optimization means savings for users. Plus, clients who take the third-party route will often end up paying extra for bolt-on services from other providers.

"Depending on the number of counterparties a client has, tri-party can cost the same or less than third party. Depending on the entity and counterparty mix you have, we had instances where tri-party was less expensive, even though it comes with so many more bells and whistles," says Leveroni.

Isda's Kruse urges phase six firms to start their custody work as early as possible, given the addition of more counterparties and custodians in jurisdictions that have not yet been roped into the regime and may not have updated their infrastructure. Countries in Asia, for example, are likely to be caught in the phase six dragnet for the first time.

"There's therefore a need for the industry to examine the documentation for those custodians to ensure it's fit for purpose and that all the operational elements still work for regulatory initial margin," says Kruse.

For phase six, it may not be custodians that pose the highest risk of logjam. The final wave of rules will apply to firms with average aggregate notional exposures down to €8 billion/$8 billion, meaning many are unlikely to ever hit €50 million exchange thresholds or segregate collateral in custody accounts.

"Will phase six firms really be using custodians and pledging collateral? Probably not. Even in phase five, many firms will be slow to go over thresholds. Even with our highest exposure we're only around 10% of the exchange threshold so it's going to take some time," says a manager at the phase five European financial.

The manager expects bigger problems around margin monitoring.

Acadia's Pucciarelli agrees: "Our challenge now is to identify who the phase six entities are and get them into initial margin monitoring right away. It's also an opportunity to engage with dealers and firms need to start doing that now. We used to recommend that firms start doing these things in January but phase six is going to be the biggest one yet." wt

Northern Trust focuses on alpha generation with recent investments, partnerships

Northern Trust has invested in three firms this year, which now sit in its investment data science division as part of its Whole Office strategy. By Wei-Shen Wong and Nyela Graham

Marc Mallett contends that when it comes to asset servicing, the industry has largely focused on reducing cost and complexity for users. Where asset servicers have faltered, though, is alpha generation.

"Historically—whether it's Northern Trust or other asset servicers—we've focused on solving the first problem, which is helping clients drive cost and efficiency. But we haven't really focused on investment alpha. We've talked a lot about operational alpha. We don't believe anyone has really solved the alpha challenge at scale, and that's worth focusing on," says Mallet.

To address the alpha-generation needs of asset managers, asset owners, investors, and third-party administrators, the Chicago-based financial services giant formed its Whole Office unit, which is headed by Mallett. The team provides trading solutions, data, analytics tools, and operations services.

Whole Office was established in 2020 after a partnership with BlackRock's Aladdin team. That was followed by a similar pairing with IHS Markit's ThinkFolio unit. But at the same time, Northern Trust is now looking to make strategic investments in, and partnerships with, fintech companies to help accelerate its strategy of providing tools to customers that are more targeted at the front office, rather than simply improving operational efficiency and reducing cost in the middle and back offices.

In February, the firm invested in EDS, a cloud-based analytics platform that

provides decision-support tools to asset managers for idea generation, portfolio construction, and risk management. A month later, it signed an agreement with Venn, Two Sigma's investment and portfolio analytics platform.

The pairing will allow Northern Trust to provide asset allocators with portfolio insights aimed at asset allocation, manager selection and quantitatively driven investment decisions. And then in September, Northern Trust announced an investment in Essentia Analytics, which provides behavioral analytics to improve trader performance.

"We identified a number of components or functional areas that we thought we could support, that were under-supported in the market," Mallet says. "That's where we looked at things like the true investment decision-making process—idea generation, research management, portfolio construction—and then we looked at what we thought was an emerging area, which was behavioral analytics."

Look into the past

Essentia Analytics was founded in 2010 by Clare Flynn Levy with the aim of improving the performance of portfolio managers by analyzing past performance and their trading behaviors. The vendor captures data through nudges focused on trade context, sent in response to a trade; decision points, sent when a pattern resurfaces in a portfolio; and journaling, sent at time intervals that prod fund managers for information throughout the day. The captured data is collected and put into a dataset that can be analyzed later.

Mallet says one of the key features of the Essentia partnership is that it allows Northern Trust to integrate client data with Essentia's platform, eliminating the time, effort, and cost usually involved in adopting Essentia's platform.

"The platform and the solution require a significant amount of historical data in order to produce accurate analytics. For many of our clients, we have that data," he says.

Northern Trust has worked with Essentia to integrate their platforms and streamline the abilities to add value and create analytics and provide that information to Northern Trust's clients.

"When we think about doing this at scale, rather than having Essentia as a service provider going to each one of the asset managers and sourcing that data, Northern Trust can now act as an aggregator on behalf of our clients, and give them ready access to the analytics, without a significant lift on either the client side or Essentia's," he says.

Mallet says clients need to recognize that this partnership with Essentia provides an opportunity to learn more about their investment own processes and identify and engage with patterns. Coupled with the coaching that Essentia can provide, clients can uncover unconscious biases in their decisions and, ultimately, improve.

> "Historically—whether it's Northern Trust or other asset servicers—we've focused on solving the first problem, which is helping clients drive cost and efficiency. But we haven't really focused on investment alpha. We've talked a lot about operational alpha. We don't believe anyone has solved the alpha challenge at scale, and that's worth focusing on." **Marc Mallett, Northern Trust**

"We're saying to our clients, 'You have an opportunity to engage with this analysis and information, and you may learn something about what you're doing today.' We're asking our clients to be open-minded about engaging in this type of activity. Our goal—and we believe that we can meet this—is to make the technical process of integration and onboarding as seamless as possible for our clients," he says.

Northern Trust has completed the integration of some of its systems with Essentia. Mallett declined to reveal which systems have already been integrated, but says he envisions that it will eventually integrate with all of Northern Trust's relevant systems.

"The scope of this is focused in two key areas: historical transactions and positions. And then on an ongoing basis, it will be updated for transactions and positions. We were able to work closely with the Essentia team to understand what they needed specifically in terms of the data content, the formatting of the information, and the timeliness of that data," Mallet says.

For Essentia, the investment from Northern Trust allows it to work on ideas and enhancements in the background. Flynn Levy says the investment will push the need for behavioral analytics the same way risk analytics are used.

"I've always felt that behavioral analytics would end up becoming an industry standard in the same way that risk analytics became an industry standard. It takes time, but eventually, this will be just part of how allocators evaluate managers and how managers evaluate themselves," she says.

Essentia will focus on making the platform scalable, as there is a difference between serving 30 clients, 300 clients and 3,000 clients. The investment will also be used to build on the nudges' functionality.

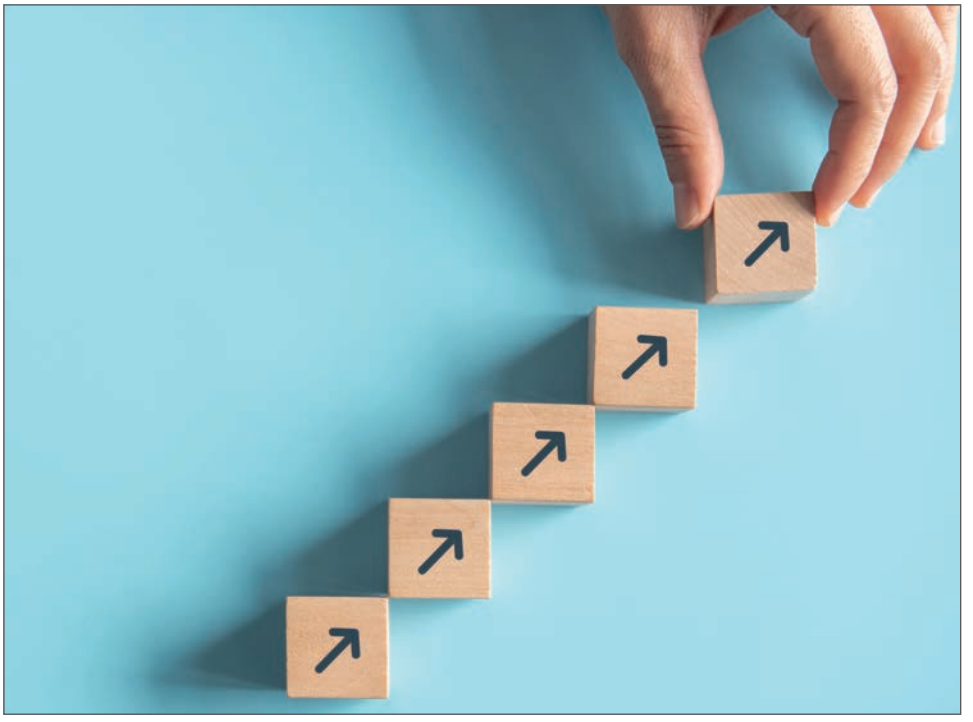
Learning integration

Northern Trust's Mallet says with the addition of Essentia to its investment data science business, there is potential to "marry" and integrate features with other fintech platforms with which the organization has partnered.

For example, fundamental active managers could benefit from EDS supporting their data-to-day investment decision-making process, while Essentia could provide a periodic review of their decisions.

"We believe there are opportunities over time to look at a level of technical integration between the platforms, but we're just getting started with that process. We're confident that there's synergy between what you're going to learn from Essentia and what you're doing every day in Equity Data Science," says Mallet.

Speaking to *Waters Technology* separately about the EDS investment, Paul Fahey, head of investment data science at Northern Trust, says that while the order management system (OMS) is a key component for most portfolio managers, they were spending the majority of their time outside the OMS.



"We're saying to our clients, 'You have an opportunity to engage with this analysis and information, and you may learn something about what you're doing today.' We're asking our clients to be open-minded about engaging in this type of activity. Our goal—and we believe that we can meet this—is to make the technical process of integration and onboarding as seamless as possible for our clients." **Marc Mallett, Northern Trust**

"What we found is that portfolio managers don't spend any time in the OMS. They come up with all of their strategies, their research ideas in Excel, Word documents, OneNote (Microsoft's note-taking program), Teams—it's a mishmash of technologies they're using. There was no one place," he says.

He says EDS will be a "game-changer" thanks to its platform in which portfolio managers and research analysts can "live and spend their entire day" doing portfolio construction, idea generation, and research management.

"It doesn't replace what a portfolio manager does, but it digitizes their process and makes it computable. Once it's computable, you have the ability to scale it, and more importantly, the good ideas then are repeatable," Fahey says.

Looking at the results of "good ideas" and delving into the process of generating those ideas is currently an analog task. "Being analog, it's very difficult to go back and see why the idea was successful and find how it can be repeated," he says.

The EDS platform also enables better collaboration across teams. Since investing in EDS, Fahey says Northern Trust has had multiple conversations with clients where the recurring theme that emerged is the need to collaborate across teams.

One example is when the portfolio manager has to explain their investment decisions around a particular stock, or several stocks, to the investment committee.

"The process of evidencing that was going back, looking at the three-and-a-half-year-old email chain when they first had their conviction with that particular stock, looking at the email exchanges between the portfolio managers and the research analysts, and piecing together—based on all of that history—what their conviction was based on and how they've maintained that over the three-and-a-half-year period," Fahey says.

"That is time-consuming work. That is heavy lifting for research analysts and portfolio managers. … We want them focused on generating alpha and not combing through reams of data to try and piece together a justification or evidence for a decision made," he says.

Diving deeper

For now, Venn by Two Sigma, a portfolio analytics platform that provides support to asset allocators, is the last piece of the puzzle in Northern Trust's investment data science business.

Mallet says this platform could also leverage Essentia's capabilities and provide allocators with insights into their third-party managers that they previously didn't have access to.

"We're looking at the ability to leverage the Essentia capability to dive deeper into how that particular asset manager is managing money for you so that you can assess the same skills that the portfolio manager might look at themselves to understand what they are good at and where they might be able to improve. The allocator can look at those same metrics, that same data, to understand how their third-party manager is performing. Are they really good at research? Are they really good at sizing? Do they suffer from alpha decay? Those are additional metrics that today most allocators wouldn't be able to answer," says Mallet.

He says this information will be another data point beyond a track record, or operational due diligence, that examines the effectiveness of the manager's investment process.

Now that it has made these three investments, Mallett says Northern Trust will focus on best bringing the solutions it has identified to its clients. Beyond that, it will look at other areas that it hasn't previously covered.

"We are now looking at other areas within that value chain or other areas than what we've covered. It's really looking at adjacencies that we haven't covered yet," he says. wt

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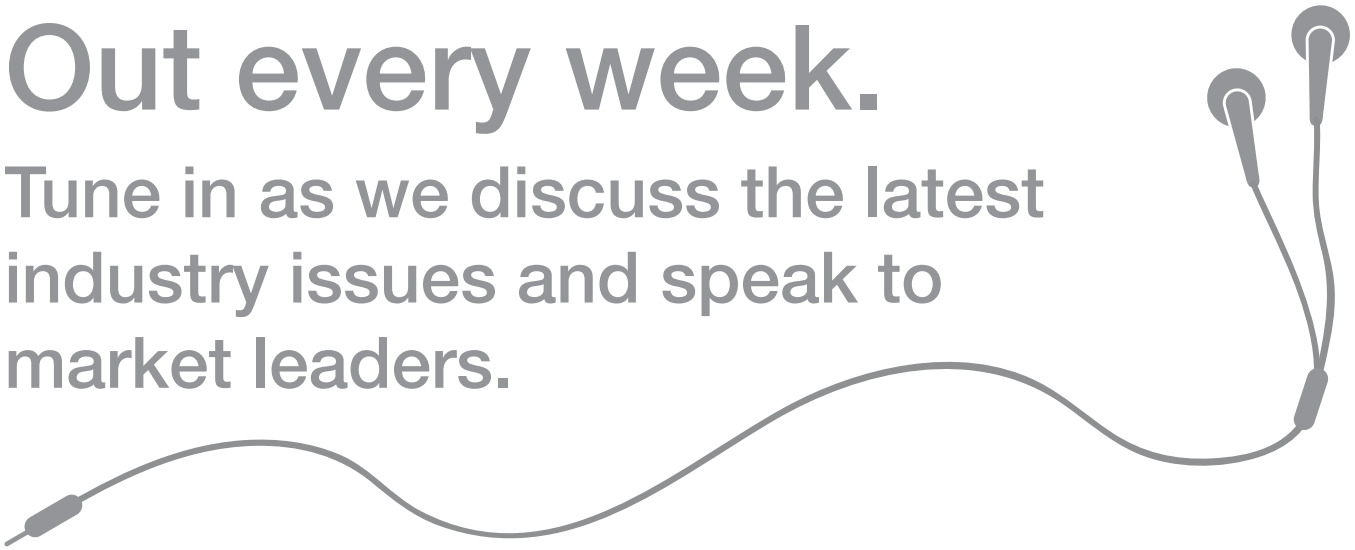

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Human Capital

Broadridge adds Mike Johnson in derivatives clearing role

Broadridge has hired Mike Johnson as vice president and global product manager of derivatives clearing, responsible for the continual enhancement, growth, and quality of Broadridge's global cleared derivatives platform, and leveraging strategic client and industry partnerships.

Johnson formerly served as Bank of America's global head of collateral management and business development.

SteelEye appoints Brian Lynch to lead North America ops

SteelEye, a compliance technology and data analytics firm, has named Brian Lynch president of its new US operations. Working closely with CEO Matt Smith and the management team, Lynch will establish SteelEye's US footprint and lead its expansion in North America.

In 2011, Lynch joined Risk Focus from UBS as CEO. He drove the development of a regulatory-focused software solution that he then spun out to create RegTek Solutions, a regulatory reporting startup, funded by Illuminate Financial and Deutsche Börse. In 2019, Bloomberg acquired RegTek Solutions, and Lynch spent two years integrating his product into Bloomberg's regulatory platform and growing the business before leaving to join SteelEye.

Brian Lynch

Ahsan Raza

Mike Johnson

Calastone makes three strategic hires, including new CFO

Global funds network Calastone has announced three hires to support the next stage of its growth. Ahsan Raza joins as chief financial officer, Varun Atre as head of product, and Paul Elflain as head of distributed market infrastructure sales.

Raza was previously a managing director and co-head of the technology investment banking coverage team for Europe, the Middle East and Africa at Barclays. In his new role, he is responsible for managing all financial and strategic activities of the business.

Atre, who will oversee Calastone's product offering, was previously an associate partner in McKinsey & Company's London office.

Elflain joins the company as head of DMI sales, bringing leadership experience from his previous positions at firms including Linedata, FIS Global, and DTCC Omgeo.

Securitize taps industry veterans for key roles

Securitize, a platform for issuing and trading digital asset securities, has made Brett Redfearn, former director of the Securities and Exchange Commission's division of trading and markets, a senior strategic advisor to CEO Carlos Domingo. He will also serve as chairman of the company's advisory board.

Redfearn previously served in a variety of capital markets leadership roles at JP Morgan and, most recently, Coinbase.

Securitize also announced that Wilfred Daye has been named head of Securitize Capital. Daye will lead the firm's investment and asset management offerings under the banner of this wholly owned subsidiary.

Daye was most recently CEO of Enigma Securities.

Verena Ross approved as new Esma chair

The European Securities and Markets Authority (Esma), the EU's securities markets regulator, has announced that Verena Ross is the organization's new chair. Her appointment was confirmed by the Council of the European Union at its latest meeting in Brussels.

Ross replaces former chair Steven Maijoor and will serve a five-year term, renewable once. She was executive director at Esma from 2011 to 2021, having previously held regulatory and supervisory roles in London.

Gary Paulin to head Northern Trust global strategic solutions

Northern Trust has appointed Gary Paulin as head of global strategic solutions for its asset servicing business. Paulin will lead the development and design of solutions enabling clients to access Northern Trust's global capabilities. He was previously global head of the firm's outsourced trading desk.

Paulin joined Northern Trust in 2016 after the acquisition of Aviate Global, an institutional equity brokerage firm that he co-founded. He reports to Pete Cherecwich, president of corporate and institutional services at Northern Trust.

Tora hires OEMS product chief

Tora, a provider of cloud-based order and execution management and portfolio management systems, has

named Jason LeDell product manager responsible for the OEMS. He will be responsible for developing and deploying OEMS' product strategy to aid Tora's global expansion plans.

LeDell joins Tora from Horizon Asset International, where he was responsible for execution and trade analysis. He is based in Tokyo and reports to global head of product Ovidiu Campean.

Michael Borts joins ACA as CTO

ACA Group, a governance, risk, and compliance advisor in financial services, has hired Michael Borts as chief technology officer. In this role, he will oversee all product development for ACA's ComplianceAlpha regulatory technology platform and technology enablement at the firm.

Borts joins ACA from Amazon Web Services, where he was principal in the advisory practice. He was previously head of digital transformation at Citco Group and head of operations, infrastructure, and information security at Warner Music Group.

Cboe bolsters data and access solutions leadership team

Cboe Global Markets, a provider of global market infrastructure and tradable products, has expanded its data and access solutions leadership team to target further global growth.

Bo Chung, a veteran of the financial services industry, has joined as senior vice president for global sales and index licensing. Chung will be responsible for overseeing the strategic growth and adoption of Cboe's holistic data and access solutions offering.

Prior to joining Cboe, Chung was an independent strategic advisor to select startups in the early and growth stages. Previously, he was managing director and global head of sales and relationship management at S&P Dow Jones Indices.

Additionally, Michael Hollingsworth has been promoted to vice president and global head of risk and market analytics, and Geralyn Endo has been promoted to vice president, global data and access solutions client engagement. Hollingsworth was previously senior director of financial risk analytics. Endo was head of client engagement, data, and access solutions.

STATE STREET NAMES NEW APAC HEADS

State Street has named Tim Helyar head of Australia and Kevin Hardy head of Singapore and South-east Asia, as part of its regional growth plan.

The two newly created roles will report to Asia-Pacific CEO Mostapha Tahiri. Based in Sydney and Singapore, respectively, Helyar and Hardy will help drive the firm's enterprise-wide growth strategy, stewarding client engagement, developing talent, and maintaining strong regulatory relationships in the regions.

Helyar was most recently head of fund services product development for Asia-Pacific at JP Morgan.

Hardy joins State Street from Additiv Asia where he was a general manager.

Kevin Hardy

Larry Neiman

Jerome Kemp

Jagath De Silva to lead Sri Lanka operations at Exactpro

Exactpro, a software testing services provider for financial market infrastructures, has added Jagath De Silva as CEO of its new subsidiary in Sri Lanka. De Silva will spearhead growth in Sri Lanka and tap leading local talent to harness the potential of the new market.

De Silva was a founding member of the quality assurance practice of the Virtusa Corporation, an information technology company. He sits on the advisory committees of the Sri Lanka Association for Software Services Companies Technology forum and the Sri Lanka Institute of Information Technology Business School.

Larry Neiman joins Macrobond as US busdev director

Macrobond Financial, a provider of economic and financial data and analytics, has hired Larry Neiman as director of business development. Neiman, who will be based in New York, will grow Macrobond's business in the US and managing strategic customer relationships in the region.

Neiman joins Macrobond after 21 years at Haver Analytics, a provider of financial and economic data and analytic tools, where he most recently served as a regional account manager.

Baton Systems names Jerome Kemp president

Baton Systems, a post-trade system provider for capital markets, has appointed Jerome Kemp as president. Kemp will lead Baton's growth strategy, leveraging international experience gained in senior leadership positions during his career.

Prior to joining Baton, Kemp was global head of futures, OTC clearing, and FX prime brokerage at Citi, where he built up the cleared derivatives business.

In his new role, Kemp will work closely with Baton founder and CEO Arjun Jayaram. wt

Wei-Shen Wong

Exclusivity versus interoperability

For all the talk of interoperability within the capital markets, Wei-Shen wonders just how far firms are willing to go.

Apple products like the iPhone have an air of exclusivity about them. Some apps, for instance, come only in iOS versions, meaning they're unavailable to Android phone users. Conversely, Google offers many of its apps—YouTube, Google Maps, Google Docs, and more—to iOS users. It's as though iPhone users have a side door into the Android world.

Perhaps this is how some capital markets firms approach interoperability—and maybe, just maybe, it's not necessarily a bad thing.

Apple is known for locking users into its ecosystem, yet its products are still extremely well sought after. In a similar vein, Stephen Pemberton, global head of product management, direct custody and clearing, markets and securities services at HSBC, believes there will always be a space for deep domain experts or specialists in the capital markets arena, even as products "open up" for interoperability purposes.

Although there's a risk that interop will dilute the "exclusivity" of a platform, Pemberton says expertise will prove a differentiator. "Maybe they don't need to be as open as people want them to be… it's just a different business model. But where there's a need to interoperate, to collaborate, it will drive convergence to an extent," he says. Whether "closed off," or not, Pemberton says they will need to be more open-minded about potential partnerships that could benefit clients.

The theme of interoperability is making increasing inroads into capital markets, pushing the boundaries of openness in various ways.

BlackRock, for example, launched Aladdin Studio, a suite of tools focused on integration and collaboration that allows developers and clients to build applications directly on top.

Then there's State Street, which is working on integrating its Alpha trading platform into the Charles River Investment Management System, essentially delivering a front-to-back solution for the buy side. Meanwhile, its Alpha Data Platform offers access to a wide range of third-party data products.

> "Big trading platforms only want to open up so much—going too far might destroy the factors that make them special

And take Goldman Sachs, which is creating an ecosystem centered around its Marquee platform that is more interoperable with its other applications, enabling users to get everything they need around information, risk, and execution in one place.

All of these firms have other systems that could be opened up further. But would that mean those platforms couldn't command their current premiums? Could there be value in certain systems remaining closed off?

Flexible friends

For HSBC, it's all about offering clients maximum flexibility. Its MarketSpace platform, for example, allows clients to access post-trade services and solutions from HSBC and third-party providers.

The platform, which launched in October, has an open architecture that allows clients and third parties to co-create and develop services and solutions. "From a client-centric point of view, we have to create optionality and flexibility for our clients to consume products and services, but we also need to give maximum optionality to those third-party providers and fintechs to deploy their products and services," says Pemberton.

The idea is to create a network ecosystem where HSBC sits at the center and provides clients with choices. It could look like Amazon, he explains, where multiple suppliers list products on the site, but Amazon lists its own-brand products that customers can buy.

"At some point, it'll be almost like a 'network of networks' as we bring more capabilities onto this platform."

But firms like HSBC are likely to choose only those third-party providers that make sense to them. After all, big trading platforms only want to open up so much—going too far might destroy the factors that make them special or unique to their clients in the first place.

Would they be willing potentially to give that up, along with sacrificing some short-term revenue, in the name of creating an interconnected ecosystem? I think not.

Maybe this means capital market participants will get the choice to go with a service provider that gives front-door access to all its partners, or perhaps just a side-door. I believe there's a place for both. wt

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