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Migrating an OMS is a . . .

NIGHTMARE

Sseoms competitors are stepping into the breach left by Bloomberg's move to sunset the sell-side focused suite of services. This could be a chance for a new premier provider to snap up some business, while leaving others to reevaluate their standing in the space.

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WatersTechnology (ISSN 1068-5863) is published monthly (12 times a year) by Infopro Digital Risk Limited. Printed in the UK by Stephens & George Print Group, Dowlais, Merthyr Tydfil, Wales.

A growing 'List'

At the beginning of February, *WatersTechnology* broke the news that Ion Group had acquired Dash Financial. Initially, though, that wasn't the story we were chasing. Rather, we first heard that Ion had acquired an Italian company called List S.p.A, a trading platform provider that mainly caters to the fixed-income market, owned by private equity firm TA Associates.

At the time, no one could confirm Ion–List, but then a few alerted us to Ion–Dash. After reporting the latter deal, we continued to look into the former. Then, in mid-March, a couple of Italian media outlets wrote that a deal had been made, but provided no details or confirmation from any of the companies involved. So we did some more digging, and you can read our findings on page 20.

As we wrote about Ion's acquisitions of Fidessa and Broadway Technology, these integrations were not straightforward. Ion has built an impressive empire in the fixed-income world through acquisition—similar to what SS&C Technologies has done through M&A in the trading technology space.

But here's what I find incredibly odd: While SS&C likes to get out there and talk about the acquisitions it has made and explain its strategy for these acquisitions, Ion—and this is just my opinion—seems to have an aversion to talking publicly about the deals it makes. It's not just that Ion executives decline to discuss acquisitions with us; they don't appear to talk about them to any other news outlets.

Here's why this matters: We spoke with a few List employees, and some of them were "shocked" when they read those first Italian media reports that Ion had acquired List. If you are "shocked" that your company has been acquired, chances are you are going to try to find information about the company that is acquiring your firm. Those people might see that there was an exodus of Fidessa employees in the year after that Ion deal, or that the competition regulator in Europe forced Ion to split up Broadway. Why not try and get ahead of these headlines? This brings me to my main point: If you care about long-term innovation, would you not want to make sure that talented technologists at the acquired firm feel secure that they will get to work on cool, cutting-edge projects in the future?

Again, Ion is not obligated to talk to *WatersTechnology*, but why not put its vision for the future of these companies—and how it hopes to help them to innovate—out there into the public sphere? It's my experience that technologists want to talk about the cool shit they're working on. At the very least, it seems to me that internal communication could be improved if List employees are reading about the details of an acquisition in various media outlets. wt

Anthony Malakian
Editor-in-Chief

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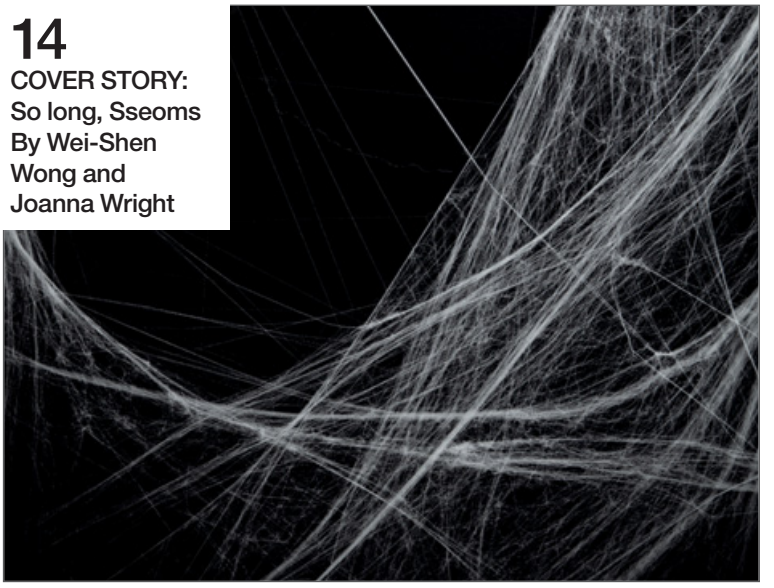
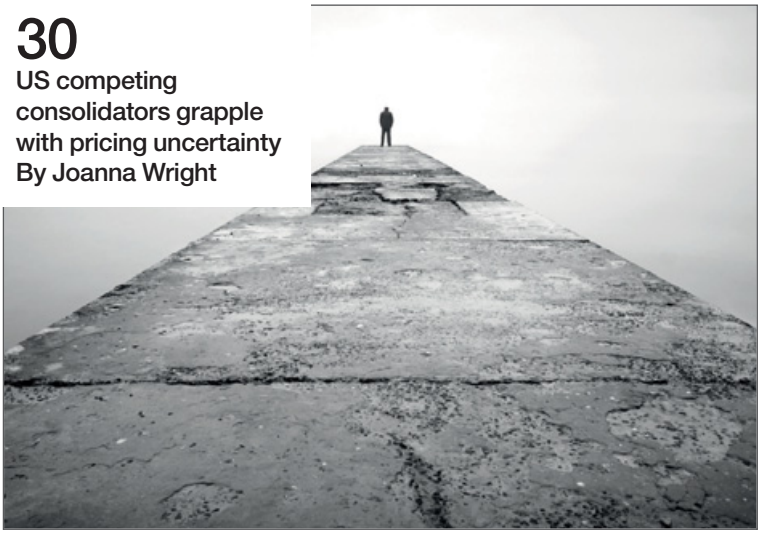
Contents





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Broadridge's LTX bond trading platform faces uphill battle

Entering a saturated market of electronic trading technology this summer, the new AI-powered platform must clear several hurdles before it can declare success. By Rebecca Natale

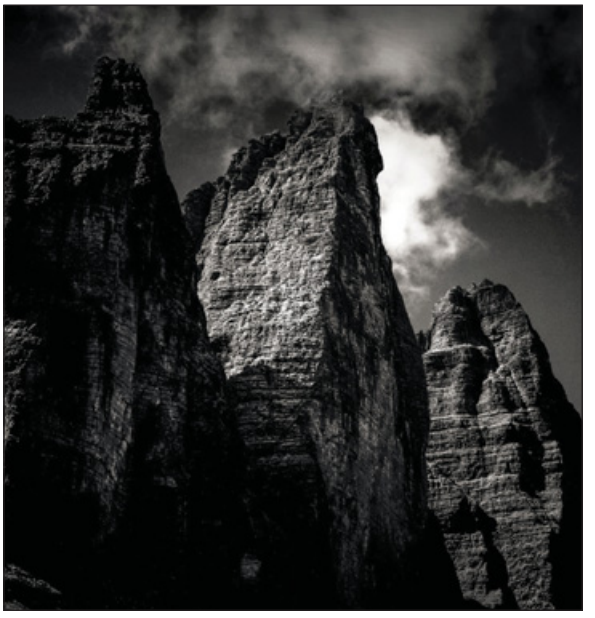
A new corporate bond trading platform backed by Broadridge, dubbed LTX, is gearing up for an official launch in June, marking the three-year point since the project's inception. During Broadridge's fiscal year Q2 2021 earnings call on February 2, chief executive Tim Gokey said that the platform was "live in a soft launch with select clients", and the firm was receiving "positive feedback."

Gokey said this summer's full launch will include "more than 10 dealers and 35 buy-side clients." LTX chief executive Jim Toffey tells *WatersTechnology* that as many as 40 customers are already onboarded to the service, with another 80 in the pipeline ahead of the official roll-out.

LTX hopes it can offer an innovative trading solution that speeds up fixed income's arduous, decades-long digital makeover. But others are skeptical of the upcoming release and say it is entering a saturated market for electronic bond trading platforms, one that perhaps not even Toffey, co-founder and former head of fixed income giant Tradeweb, can conquer.

LTX's central premise is that broker-dealers stand to gain better execution and price improvement by aggregating liquidity across multiple buyers. It offers an AI-powered trading platform that targets "natural" buyers and sellers for each security and gives respondents the chance to bid or offer their desired amounts through its proprietary, patented trading protocol, RFX, as an alternative to the widely used request-for-quote (RFQ) protocol.

Toffey says that back when Tradeweb began using RFQ for the first time, the idea was to take the way Treasury bonds were traded then—over the telephone—and make it electronic. "It wasn't about creating a marketplace. It wasn't about aggregating liquidity. There were a lot of things that I wasn't trying to do. I was just trying to … electronify a phone call. And because of that, there are a lot of shortcomings in the way RFQ works today," he says.



> "When a dealer says I want to use LTX to help my business grow, they sign one piece of paper, and we unlock all the data that dealer's bought and sold with every single customer—thousands of customers over the last X years—to create the analytics. There is no other vendor on the planet that has access to that data but us"
> **Jim Toffey, LTX**

For example, if a customer wants to sell 10 million bonds, but the dealer only wants to buy 5 million, that's not an option. With RFQ, buyers have to buy what the seller is selling, Toffey says. And while RFQs were a significant improvement on simple phone calls, they carried over one of the phone's frustrations—would-be buyers could only guess what other buyers would bid for the same securities, allowing for little to no price improvement.

To remedy this, LTX will begin showing trade participants all the customers—identified not by name, but by bid amounts—that a dealer invites to a trade, allowing those participants to assess the pricing, liquidity, and interest of a bond in real time.

However, one senior executive in the voice trading space who is familiar with LTX doubts there is room for it in the market: "What you're seeing is basically that MarketAxess, Tradeweb, Bloomberg, and now, I would argue, Trumid are the four electronic trading brands that people care about. Everything else is going to get sold for parts. And you're seeing that all over the place, it's not just credit. You don't need 40,000 flavors of vanilla."

The executive adds that most notional volume is still traded using voice, years after fintechs began seeking to replace it, and says perhaps that's solely because traders prefer it that way.

"So, if LTX is solving a problem that doesn't really exist, it's providing a solution that nobody's asking for," the executive says. But he acknowledges that he could be wrong about LTX's prospects: "That being said, nobody knew they'd need Google Search; nobody knew they needed an iPhone."

Much like Trumid, founded in 2014, and its fast and somewhat surprising rise to rank among the industry's stalwarts, LTX could flourish. Trumid's secret ingredients, in the executive's view, are threefold: a strong management team, good technology, and connectivity to the marketplace.

Kevin McPartland, head of market structure and technology research at consultancy Greenwich Associates, says LTX has some unique ideas that are made even more interesting by its access to Broadridge's fixed income data.

The "natural" counterparties that LTX seeks out to complete trades are targeted using Broadridge's years-long stockpile of banks' post-trade fixed income data, which comprises records of many of the largest banks' daily trades with each of their customers. Toffey says LTX would only access this data with a respective broker's permission, but, if given, the dataset could provide brokers with the key to knowing exactly who they should put a trade in front of.

McPartland, who notes that the adoption of emerging technologies has been slow in fixed income, believes that what has been adopted has improved not only trading processes, but also market transparency and liquidity overall. He says LTX may prove to be another example of this.

"I'd say that the evolution has been slow because old habits die hard, not because the old ways were better," he says. "The old ways might have helped some people and some firms make more money, but in terms of execution quality and liquidity, it is quite hard to debate that the current market isn't considerably better than it once was."

Kevin McPartland
Greenwich Associates

Entrenched habits

A second fixed income specialist who offers consulting services says that a platform like LTX is great in theory but that doesn't always translate into what gets used and liked. Traders, especially in the insular fixed income community, are creatures of habit, and LTX—and other platforms that purport to upend well-established workflows—are likely to encounter some level of resistance.

"The tech, and all the tentacles and connections, and all the inner workings will probably be rock solid," the specialist says. "But even when you have great tech, you might not implement it correctly. So could LTX face some problems? Yes, but the bones of it are good. But I think Jim is going to have a hard time. And this is what happened with Benchmark."

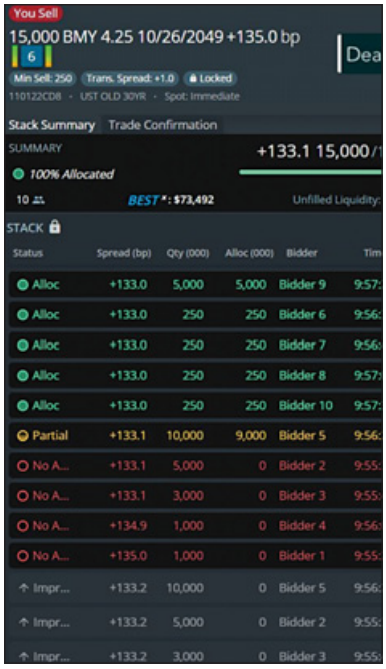
In 2009, shortly after leaving Tradeweb, Toffey had founded a new company called Benchmark Solutions, a bond pricing data provider. After four years, the business closed down after losing its backing from private equity firm Warburg Pincus. Its technology has since found a home at Bloomberg.

A former employee of Benchmark Solutions said one of its downfalls was a lack of consistent, aggressive client outreach, which they view as necessary for getting a new company off the ground.

Toffey says it's true the company struggled to gain customers, but that was because the business was too narrow as a service offering. He adds that LTX potentially has a game-changer this time around in the form of its Broadridge-derived dataset.

"When a dealer says I want to use LTX to help my business grow, they sign one piece of paper, and we unlock all the data that dealer's bought and sold with every single customer—thousands of customers over the last X years—to create the analytics. There is no other vendor on the planet that has access to that data but us," Toffey says. Again, though, the broker would have to sign off on LTX using Broadridge's data.

While Toffey and the rest of the team at LTX have been building out the product's network effect prior to its official launch, he volunteers that a metric for gauging success will be whether at least 100 buy-side and sell-side shops are actively using the platform by the end of 2021. In terms of volume, the company is targeting 1-2% in market share, also by the end of the year.



A completed RFX session, courtesy of Broadridge

Fully acknowledging that there's a raft of rival offerings already out there, Toffey says he's less concerned with competing with the likes of Tradeweb, MarketAxess, and Bloomberg, and much more keen to solve what he views as an elusive fixed income riddle: how to electronify the 70% of the corporate bond market that still doesn't trade electronically today.

"The other thing that happens when you launch something new is everybody says, 'Well, I would never do all my business that way.' But the reality is, I'm not trying to do all your business that way," he says. "I'm very happy with 1–2% because I know 1–2% will lead to 2-4%, which will then lead to 5-7%. It happens incrementally."

That's what happened for Toffey at Tradeweb, but didn't happen at Benchmark Solutions. Soon enough, LTX may find itself in the position of tie-breaker. wt

Jumping ship: Concerns raised over LSEG's Docklands datacenter move

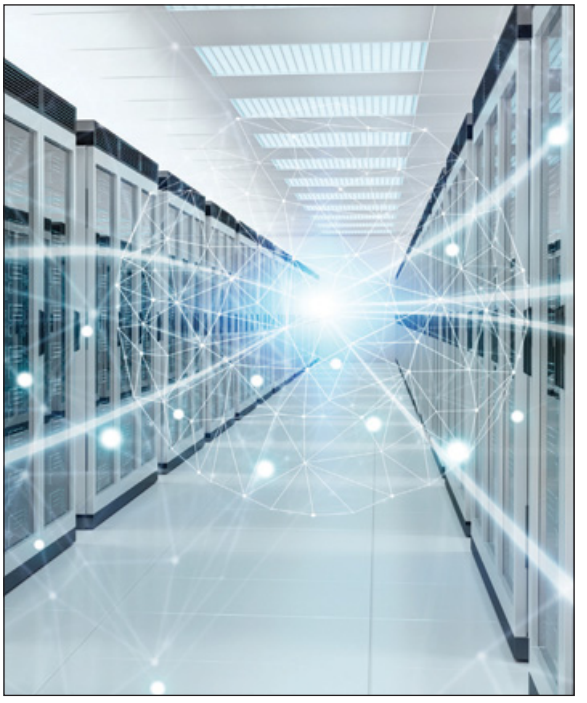
Market participants are split on the news of the LSEG migration in 2022, with some calling it "frustrating," while others say the current location is unfit to house the exchange's growth plans. By Josephine Gallagher

Firms that co-locate inside the datacenters of some of Europe's largest exchanges are looking at a potentially busy period of datacenter migrations ahead—whether they know it's coming or not.

Euronext is looking to move its datacenters from Basildon, outside London, to Bergamo, Italy. In a note to shareholders, Euronext said the group will analyze the feasibility of transferring its datacenter to Italy by 2024, when its contract with the provider in Basildon expires.

Additionally, sources tell *WatersTechnology* that the Swiss Stock Exchange (Six) could also be looking at a datacenter move as an option to consolidate its own assets along with Bolsas y Mercados Españoles (BME), which the former acquired in June 2020. A Six spokesperson says it is too early for the exchange to talk about moving either of its datacenters, and that a decision has not yet been made. However, they did confirm that Six is looking at how to integrate its platforms across the two groups.

The latest to confirm a datacenter rethink is London Stock Exchange Group (LSEG), which is moving its primary datacenter out of the City of London to the Docklands area next year. An LSEG spokesperson has confirmed the move with *WatersTechnology* saying that the exchange is "consulting with customers to support them through this process," but declined to provide specifics around the migration. The move was first mentioned in an A-Team blog post in October 2020, but had not yet been confirmed by LSEG.



LSEG operates its own primary datacenter near Liverpool Street, but sources say the move to the Telehouse facility on the Isle of Dogs will allow the company to more easily scale up to meet client demand. One executive at a low-latency service provider that has been briefed on the project says the migration is intended to occur as a "big bang" switchover, meaning the old and new sites will not operate in parallel, but that once all the hardware and connectivity has been set up at the new site, the switchover will occur overnight, in the second half of 2022, and the old datacenter will be closed.

Additionally, LSEG will provide access to the new site later this year to allow clients—including network carriers, market makers, brokers, and other third parties—to begin preparing for the switch, says the source. While the two sites are only five miles (8 kilometers) apart, it may still cost some firms a sizable amount of money to migrate, according to several sources spoken to for this story.

Market-makers and brokers—which have businesses dependent on low-latency market data—co-locate within exchanges' datacenters to be close to their matching engines. These firms will need to build or work with third parties to develop duplicated hardware setups at the old and new sites, including rented space and connectivity. The same will apply to third parties that provide low-latency solutions or co-location services, as their business model involves buying up racks within a datacenter and renting them to individual clients.

"There's a significant capital expense component to this," the executive says. "There's a lot of money you have to spend on new switches, new servers, and you have to basically build out a mirror footprint of what you currently have in place, and you have to have both of them in place and running so that you're ready for when that switch occurs."

Further muddying the waters is LSEG's acquisition of Refinitiv, which houses its datacenter in the Docklands Technical Center. Sources say it would make sense to host both LSEG and Refinitiv in one location. The exchange spokesperson could not offer any information on whether it plans to also upgrade these sites or migrate the Refinitiv datacenter to the new LSEG's primary site.

The spokesperson also says that customers of the exchange were notified of the move at the end of last year. However, several sources spoken to for this piece, who work with the exchange operator, say they were not made aware of LSEG's migration plan.

Moving pieces

While LSEG's move is definite, Euronext is still on the fence, and Six, according to the spokesperson, is still analyzing its datacenter strategy after the BME acquisition. But if all these shifts do end up playing out—in addition to the confusion over the Refinitiv piece—it could create awkward timeframes for many market participants, with each project triggering separate migration-related expenses.

Stephane Leroy, chief revenue officer and co-founder of QuantHouse, a market data, and algorithmic trading solutions provider, says this will put intense pressure on third parties, like network carriers, to juggle the multiple migrations over the next few years.

"Depending on what type of datacenter is selected, and the type of carriers who will provide the different connectivity, and so on, they could face a bottleneck because if they are used to dealing with a certain number of clients at the same time—or a certain workload, on average, per month—and you have the entire worldwide financial community asking them for the same service during the same time window—that's very difficult," Leroy adds.

Similarly, one head of product at a large broker-dealer says timing is the main issue when it comes to the LSEG migration. While setting up space, switches, and connectivity within a datacenter isn't a new concept for a large sell-side firm, they say there still needs to be enough notice given to all the carriers and third parties to prepare.

"I would say it's a year-long job, really, with the carriers starting off," they say. "You hope they have received six months' notice by that time and they were able to [start making preparations], but probably from start to finish, a year is about as quick as you could do it."

> "There's a significant capital expense component to this. There's a lot of money you have to spend on new switches, new servers, and you have to basically build out a mirror footprint of what you currently have in place, and you have to have both of them in place and running so that you're ready for when that switch occurs." **Senior executive**

And these migrations require the allocation of time and resources so as to avoid any service disruption to clients. And there are still Covid-related challenges in place, such as remote work and social-distancing mandates.

A datacenter migration for a major exchange can be especially disruptive because of the varying moving pieces involved.

"It's a frustrating situation for everyone when exchanges change their infrastructure, unless there's a great improvement," says Alina Karpichenko, head of low-latency connectivity and infrastructure at Avelacom. "Changes can be expensive and complex, and can cause problems for market participants and exchanges."

Aerial view of London's Isle of Dogs

On top of the hardware costs, firms will also have to coordinate with partnering data vendors and other third parties to avoid any disruption to trading and datafeeds. Additionally, systems will need to be fully configured and tested long in advance of the cutoff deadline.

"Moving to another datacenter that's already set up isn't free," says Virginie O'Shea, founder, and CEO of Firebrand Research, which specializes in capital market research and advisory services. "There's an amount of duplication that goes on there, and it's not without risk as well, in terms of setup—especially this year, given that we still have remote working going on."

So it is that LSEG will have to go about explaining to market participants the need for this move at this time. The executive at the low-latency provider familiar with the move says the LSEG's decision was driven by a need to modernize its datacenter, which today sits within an old facility with limited space to scale operations.

The product head at the brokerage firm also says another likely issue with the current site is access to a reliable power supply. In evaluating the new site, they say, LSEG would have likely considered several key costs: the location, the building itself, the cost/complexity of constructing a datacenter within it, and the building's power distribution and cooling system.

But the move can be even simpler than that. Today, the exchange group's primary datacenter is located around Liverpool Street, in the heart of the City, one of the most expensive real estate locations in London.

"It's some of the most valuable, underdeveloped real estate in the city," explains the broker. "So, if you are sitting on an asset that's worth a few hundred million pounds—and maybe a bit more than that—you might want to move it." wt

Standard Chartered, Bloomberg build electronic workflow for KTBs

The workflow shortens the time it takes for investors to trade Korean Treasury bonds, and can be tweaked to suit other emerging bond markets. By Wei-Shen Wong

Standard Chartered and Bloomberg have introduced an electronic trading workflow for Korean Treasury bonds (KTBs). The tool allows investors to access global and domestic sources of liquidity for those bonds on the Bloomberg Terminal.

Investors can stage, monitor, trade, process, and allocate KTB orders through a fully-electronic workflow via Bloomberg's electronic trading offering. This process was previously cumbersome and challenging due to the setup, capture, and conveyance of investment registration certificates (IRCs) that Korea's regulators require.

According to Korea's Financial Supervisory Service, foreign investors need the IRC to trade locally listed stocks or other securities, and the IRC must be quoted whenever a trade is placed.

Standard Chartered is one of the largest international primary dealers in Korea Treasury bonds, which allows it to participate as an underwriter and market-maker in the secondary market. KTBs are the largest issued in volume among other Korean-issued government bonds. As of 2019, it made up 60.7% of total issued government bonds valued at 101.7 trillion won ($90 billion).

Sharad Desai, global head of sales and structuring for financial markets at Standard Chartered, says the process of trading KTBs is not as simple as dealing with US Treasuries or G-10 bonds.

"If you're an asset manager sitting somewhere in the West, and you want to invest in Korea, there is quite a significant process that needs to occur before you're set up to actually access that market," he tells *WatersTechnology*.

> "If you're an asset manager sitting somewhere in the West, and you want to invest in Korea, there is quite a significant process that needs to occur before you're set up to actually access that market."
>
> **Sharad Desai, Standard Chartered**

Take, for example, an asset manager that has a strategy across 15 different sub-accounts. For best-execution purposes, they would need to ask for pricing to multiple dealers for the different bonds they were looking to source. They will need to say which of the 15 sub-accounts they were looking to put those bonds into.

"Now each sub-fund has to have, for every trade, an IRC number associated with it. So if you're an asset manager, putting all of this together and then shooting it out independently to 15 different people with these IRCs—with all of them needing to check if those IRCs are registered—it is quite a challenge," Desai says. "If you have multiple sub-accounts who are dealing in this market, you're almost forced to reduce the number of participants you go out to get pricing from."

The electronic workflow streamlines the process for trading KTBs. Desai says clients can send a request-for-quote (RFQ) to Standard Chartered and get a price back in seconds since all the underlying IRC data is already embedded into the RFQ process.

"You would have to ensure that when you create all of those sub-account IRC numbers, they are cross-referenced with whichever dealer you're dealing with. Here, that data is pre-loaded. We are in a position where all of this can be done electronically without having to

constantly have a back-and-forth with your provider. You're probably saving at least a 10- to 15-minute execution window. Obviously that depends on the number of sub-accounts you're dealing with. This is massively beneficial to large global investors who typically would be dealing across 50, 60, 70 different sub-accounts," he explains.

This workflow also removes potential human errors in an individual trade transaction between a client and a trader. "We're able to perform automated pre-trade IRC checks. And this is the key here," Desai says. "The whole point is before you trade, you need to confirm those IRCs. Before the trade happens, we've checked the IRCs, and even before the price is returned to the client for the RFQ, we can also book the allocations on the post-trade basis when the trade is executed, and then seamlessly report the trade."

For its part, Bloomberg engaged with clients on both the buy side and sell side to understand the market demand for improving the KTB trading workflow. William Oberuch, global head of emerging market trading at Bloomberg, says KTBs are especially important to investors managing emerging market fixed-income portfolios, as the indices they track are typically weighted toward Korean and Chinese government bonds.

"When developing a new workflow, it's important to understand the needs of the end-user. Standard Chartered is one of the leading primary dealers in KTBs and played an important role in helping us define the key requirements for the workflow," Oberuch says. "We then made enhancements to our solution so it fulfilled Standard Chartered's needs, and can be deployed to support any other dealer."

Standard Chartered is a major primary dealer in KTBs

The electronic way

Bonds have long been a laggard in the move to electronic trading, mainly due to the opaque market structure and the extent to which traders prefer dealing over voice and chat—but that is slowly changing. As the Covid-19 pandemic forced many people to work from home, the major electronic bond platforms, including Bloomberg, MarketAxess, and Tradeweb, have all seen an increase in electronic trading and demand for solutions that support efficient electronic workflows and straight-through processing (STP).

> "Access to data and information to help inform decision-making around trades can still be improved, and we're focused on incorporating the breadth of our data and pricing into the trading workflow to provide greater pre-trade transparency."
> **William Oberuch, Bloomberg**

Oberuch says this trend is unlikely to be affected even if people start to return to their offices, which will also vary between the types of firms. "Access to data and information to help inform decision-making around trades can still be improved, and we're focused on incorporating the breadth of our data and pricing into the trading workflow to provide greater pre-trade transparency," he says.

In the fourth quarter of last year, Bloomberg added new functionality and tools to its portfolio trading solution to support "RFQ to many" for both the buy side and sell side. Bloomberg's BVAL pricing tool, which firms use to mark their end-of-day books, and as an intraday price source, is incorporated into portfolio trading tools for RFQ, as well as execution tools for electronic trading.

Oberuch says another tool gaining traction is Bloomberg's Rule Builder, which allows traders to break down incoming order flow for fixed income, foreign exchange (FX) and exchange-traded funds (ETFs), into discrete "high-touch" and "low-touch" functions and create rules to facilitate fully automated trading on Bloomberg venues. Bloomberg also plans to release a Basket Builder tool to provide clients trading a basket of securities with pre-trade intelligence through liquidity scores and other analytics.

Desai says Standard Chartered is looking to use its technology as a differentiator and extend the solution built for Korea to the rest of its presence across Asia, the Middle East, and Africa, where it can tweak the solution and adapt it to local requirements.

"The less homogenous and more illiquid a government bond market is, the greater the chances that it would remain bespoke, and trades will continue to be negotiated [via voice] or Bloomberg chat," Desai says. "We have, however, seen an uptick in electronic trading volumes on the back of the situation we found ourselves in with Covid-19 in 2020, which has definitely accelerated the shift to electronic trading, as all these various platforms [allow traders to] execute their trades working from home."

Within Asia, Desai says Korea, China, India, and Malaysia are the most liquid bond markets, whereas markets like Vietnam and Sri Lanka are less liquid. "It's inevitable that the electronification or digitization of the bond markets will follow the most liquid markets, which is really where we are. We will work with all of the other countries in terms of liquidity and increased utilization. All have some form of digitization, but not to the same extent as the liquidity would suggest in some of the bigger markets."

Aside from Bloomberg, Standard Chartered also works with Tradeweb and MarketAxess to provide liquidity to clients. Desai says the bank constantly has open conversations with all its providers on adding electronic trading workflows. "As we've shown with our partnership with Bloomberg, this is something we're very good at doing," he says. "And frankly, it's something we will look at from a partnership perspective with other providers as well." wt

Linedata looks to modularize OMS, analytics offerings

After releasing its cloud-native AMP and data analytics platforms in 2020, Linedata is looking to readjust its OMS strategy as it embraces microservices. By Anthony Malakian

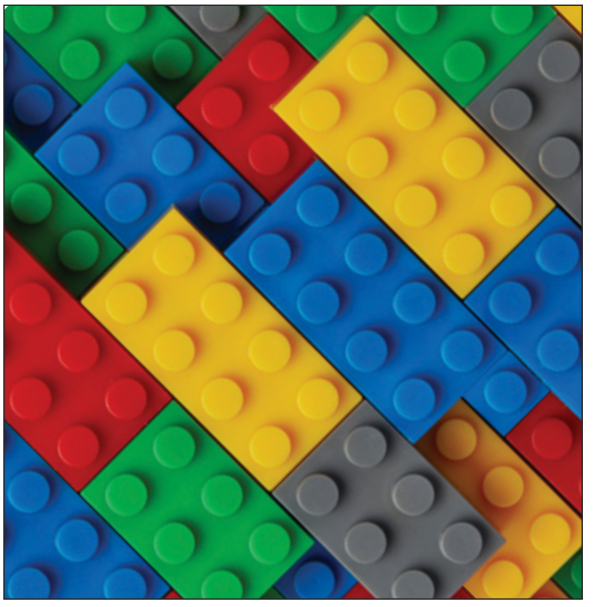
Timing is everything, or so it is said. As the coronavirus started to spread globally like wildfire at the start of 2020, Linedata had just started to launch its first wave of cloud-based and cloud-enabled offerings. By October, the French company was ready to announce its new asset management platform (AMP) that leverages cloud technology. As most traders and portfolio managers started working from home, it proved fortuitous timing for the trading platform and data analytics provider.

While Linedata has joined the growing list of order management system (OMS) providers pushing their products to the cloud, this process has set the foundation for the next build—modularity.

Platform modularity, which incorporates the technologies and tactics of microservices and containerization, takes each OMS function and makes it discrete. So in the case of Linedata's Longview OMS, which can now run on AMP via the cloud, the system is broken down to different functions, such as order generation, trade blotters, model management, pre- and post-trade compliance, investment decisioning, or electronic trading—all those functions and features that, when aggregated, make up an OMS.

"Forget what the market used to call a collection of features as a product—forget that," says Gary Brackenridge, global head of asset management for Linedata.

"If we can now show up and provide the technology features, and if it's mostly OMS-y, PMS-y [portfolio management] related, fine. We still use the names Longview and what have you—maybe we'll keep [the names]; maybe we won't over time, I don't know—but the rest of the story becomes very interesting. We've spent a lot of money over the last few years acquiring services organizations; we have spent a lot of money and time launching a data business, as well as a machine learning-based analytics business that's purely focused on operations. The collection of those capabilities is now the interesting offer to a client."



> "We've spent a lot of money over the last few years acquiring services organizations; we have spent a lot of money and time launching a data business, as well as a machine learning-based analytics business that's purely focused on operations. The collection of those capabilities is now the interesting offer to a client." **Gary Brackenridge, Linedata**

By modularizing its systems, Linedata can provide continuous integration and continuous delivery. As such, once developed, new features can be delivered globally, instantly. It also allows them to target upgrades by the individual user, strategy, asset class, or geography.

"It's not some big upgrade; it's not some years-long release cycle; it's not giant and impactful—but it allows that little piece of goodness to come right away," Brackenridge says. "With our clients, their strategies are literally evolving by the minute. So if it doesn't work, fine, turn [the module] back off; turn a different one on; reconfigure it. That dynamism and flexibility moves us away from the world of, 'We bought an OMS! It's got 7,000 features!,' to, 'I need 12 new features today; tomorrow I'll turn off three; the next day I'll turn off another two and add four different switches,' kind of setup."

Increased pressure on asset managers

The OMS space has been going through a period of considerable consolidation, most notably with State Street acquiring Charles River Development, and SS&C Technologies nabbing Eze Software. An OMS is incredibly sticky. It serves as the heart of most asset manager's trading operations because it connects into the portfolio

management, execution management, risk and analytics systems, depending on how it's configured.

At the same time, though, asset managers are under increasing pressure to deliver alpha, forcing them to consider their trading technology setups, says Brad Bailey, research director for Celent's capital markets vertical.

"It's a competitive business—every part of the buy-side value chain is under pressure," he says. "It's tougher and tougher for all types of asset managers due to the fee compression that exists, the competitive nature of the industry, the consolidation of assets, the competition with passive and lower-cost strategies, and increased regulatory pressures—all of these factors add together and asset managers need to figure out how to do things cheaper and better."

To help buy-side firms answer these challenges, vendors have to adopt new strategies. The days of closed-off systems are fading due to the growing demand for cloud, APIs, and open-source tools and datafeeds. It's led to the likes of Goldman Sachs (Marquee) and BlackRock (Aladdin) to embrace the cloud so as to drive greater interoperability with emerging data and analytics providers, which buy-side firms are clamoring to tap into to find unique insights to outperform passive strategies and better manage risk. It's also behind State Street's interop drive with its Alpha platform, and SS&C Advent's cloud-native strategy.

"The opportunity is that people need more efficiency, more technology, and more services," Bailey says. "The challenge is that there's a lot of consolidation in the buy-side OMS space and their core clients are under a lot of pressure."

"The opportunity is that people need more efficiency, more technology, and more services. The challenge is that there's a lot of consolidation in the buy-side OMS space and their core clients are under a lot of pressure." **Brad Bailey, Celent**

A family affair

Compared to other OMS providers in the space, Linedata has a unique setup. It is publicly listed on Euronext Paris, which accounts for 37% of its capital ownership, with the rest being mostly controlled by a family trust led by Anvaraly Jiva, the company's founder. While Linedata has been relatively acquisitive itself, the deals are not exactly eye-catching in the way that SS&C, Ion Group, and State Street have grabbed headlines. It's also that independence through family ownership that has allowed it to carve out a niche in the consolidating buy-side OMS space.

Over the past five years, the vendor has experienced financial highs and lows. From 2015 through 2019, its net income fell year-on-year, but at the same time it became more profitable and efficient, as earnings before interest, taxes, depreciation, and amortization (Ebitda) grew from 2017 through 2019, as did recurring revenue. At the same time, it has grown its workforce from about 1,000 people four years ago to more than 1,300 today. Meanwhile, Linedata Services stock price dropped from a high of almost €38 ($45) near the start of 2019 down to just below €19 at the start of Q1 2020. It has since rebounded to €35.50 as of March 23.

Furthermore, in 2020, while revenues dropped 5%, net income grew 16%, and Ebitda went up 3.8%. As the company wrote in its earnings report, "This increase [in Ebitda] reflects both reductions in expenses related to the pandemic, such as travel freezes and event cancellations, and operational cost reductions, particularly in certain support functions."

So the question becomes, is that expense reduction sustainable into 2022?

WatersTechnology spoke with Brackenridge two weeks before the company released its financial report on February 17, 2021, but he believes that these moves toward modularization will ultimately help the company retain current clients and add new ones that have experienced disruption as the result of M&A in recent years. While modularizing the product base is at the forefront of the company's plans, it's the work it has made on the data and analytics business that will prove a true differentiator, he says.

Internally, Linedata has built a data hub, which, like AMP, it started to roll out at the beginning of 2020. Natively built with direct API integrations, the hub is where users and internal staff will now go to collect data from various vendors and data types. At the same time, its analytics service incorporates machine learning to analyze operational performance, identifying patterns to help users identify operational issues and make suggestions for improvements.

That's live today, but the next step is to expand the use of ML for other OMS-related processes. Cloud was the ground floor, the entry point that every vendor must get to. Modularization was the next level, allowing the company to be more flexible to the changing needs of asset managers. After that comes intelligence-driven, machine-learning algorithms.

Brackenridge says that today most systems across the industry are transaction-oriented—they manage orders, book trades, create NAVs, etcetera. But by creating an intelligence layer through the use of machine learning, it will help the company to truly capitalize on the cloud and module moves.

"We are underway and have started taking that level of intelligence by function or module and shoving it into these systems so that when you go to rebalance a portfolio, it will tell you, 'Here's a better way to do it.' Or, 'Don't do it this way.' Or, 'If you do it this way, your outcomes may not be what you want.' That level of intelligence is coming, and we'll be releasing things all through 2021." wt

Magnetic tape seeks new life at banks in a cloud-based world

IBM, which recently set a new world record for tape storage, says a many of its financial services clients use the medium as its cheaper and safer than digital storage options. Others are skeptical. By Hamad Ali

First invented to record audio in the 1920s and used for storing computer data since the 1950s, the term "magnetic tape" has not been used very often within the capital markets. Bank executives, technology vendors, and their PR firms throw around industry buzz words such as "cloud," "NoSQL databases," and "data lakes". But the quaint-sounding tape, is often neglected in discussions about critical financial infrastructure technologies, despite still being widely used to store data by many financial institutions.

"There is probably nothing glamorous talking about tape," says Rick Rhodes, principal consultant at Capco. Yet, he says, "100 percent" of his financial clients use tape for some type of data storage.

There might not be anything "glamorous" about tape, but according to Mark Lantz, manager of Advanced Tape Technologies at IBM Research, the technology has been going through a "renaissance." He made the observation while speaking last month at a live online presentation from Zurich, where IBM announced a new world record for a single tape cartridge to be able to hold 580 terabytes (TB) with an areal density of 317 gigabits per square inch. Aerial density is a measure of the amount of data that can be stored on a given unit of physical space on storage media. The aerial density scaling of hard-disk drives (HDD), its closest competitor, has slowed down in recent years to scaling at less than 8% combined annual growth rate, according to Lantz.

Shawn Brume, global hyper-growth storage offering manager at IBM, tells *WatersTechnology* that many of IBM's financial institution clients use tape for storage. "I think there is only one major bank in the world that is not using tape, and we work with all of them on developing new infrastructures," he says. "As far as financial institutions around the world, you have to include insurance and mutual funds, and we work with all of those on tape."

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> **Shawn Brume, IBM**

A key factor in the longevity of tape as a medium of storage is cost, especially as it is frequently used for archiving large quantities of data. In terms of a price comparison, Brume says using HDDs to store data costs around eight times more than tape. Other estimates peg the cost difference at 4x. Alex Krovina, group chief technology officer at interdealer broker Tradition—who acknowledges tape's capacity and price benefit, but who also has reservations about the technology—says that the off-the-shelf, per-TB cost of tape can be up to 15x better than HDD at your local electronics store.

Snagging points

Krovina notes that a potential downside of tape is that if a user ever wants to get critical data off the device onto a different mechanism—whether hard drives or cloud—it takes time. First, there's a physical component to retrieving and replaying tape, because you can only move as fast as the tape itself, unlike dragging and dropping a file from one drive to another. Additionally, during those transfer times, the data won't be available for use.

"I definitely know that if you choose different storage mechanisms, you're going to have different SLAs [service-level agreements] on data re-provision. … Because the tape is slow to restore, if they give you an SLA of half-a-day or whatever [to access the data], it's likely that it's offline, [and] that needs to be brought [back] online, connected, indexed quickly, and then restored," he says.

Scott Fitzpatrick, global head TraditionDATA, the data arm of Tradition, and CEO of Tradition SEF, adds that the consistent improvement

of computing power means that companies can process much larger chunks of data in a much more compressed timeframe. Therefore, as companies beef up their data analytics capabilities, they want closer and quicker access to their data.

"So the increase in computing power has probably forced the movement of what was data that was historically kept off-site on tapes to new virtual environments or the cloud—or more immediately accessible places—because you now have the ability to actually process that amount of data. Whereas, in the past, you didn't [want immediate access]—it was almost the opposite model where you found the efficiency was in only keeping the data that you had the capability to process, and everything else [was kept] out the way," he says.

Frank Desmond, director of data advisory for FXD Data, says that while there is still demand for tape-based storage "in certain cases," he sees those cases as diminishing, not only because of the need to access data quickly, but also because firms want to be able to move data more freely across jurisdictions.

"As the data value proposition has changed dramatically over the last four or five years, it's more likely that more data will need to be readily accessible across multiple jurisdictions," he says. "So it's kind of one of those things where there will always be a case for tape storage, but if your business is data, and you have a high reliance on data, then tape becomes more anachronistic."

> "It's more likely that more data will need to be readily accessible across multiple jurisdictions ... There will always be a case for tape storage, but if your business is data, and you have a high reliance on data, then tape becomes more anachronistic."
> **Frank Desmond, FXD Data**

What's old is new again

Even before the need to quickly access data, tape storage had become largely a back-up tool. The type of data that is usually kept on tape is often the second or third backup copy of a data, or data that must be stored but does not need to be frequently accessed. "Your production data—the data that is required to be seen very quickly or is frequently accessed—is not the data prime copy that is going to be on tape—that is going to go to flash," Brume says. "And really, that is how the industry in banking is changing dramatically. They are looking at moving everything into the flash tier, processing data in flash, and then if it [the data] goes cold and not accessed, it goes right back to tape in a lot of instances. That is what we call flash-to-tape."

Frank Desmond
FXD Data

Capco's Rhodes cites an example of one financial client he worked with to help implement the requirements of the Fundamental Review of the Trading Book (FRTB). While performing risk calculations, the firm was generating a lot of data that was not of immediate interest. "You do not want to keep that data around, obviously. But you want to be able to get back to it so that when a regulator comes in looking at your numbers and says, 'Show me how you did in Q4 last year,' the data is there and accessible to you."

It is the sort of data that might not be useful for day-to-day trading but is still important to keep in storage in case a trade needs to be reconstructed following a regulatory inquiry, for example. The data stored in a tape library is usually not kept on-site by financial firms, even large banks. Rhodes says it is his experience that almost all of them keep it outsourced to a third-party storage and records management facility, such as Iron Mountain. He says most of them would not keep it on-site at their own datacenter, both for space reasons, and for "separating the physical risk. If you were to lose the datacenter, you do not want to lose the tape."

Which brings up the idea of cloud computing, which is cheap and offers fast data retrieval. Financial services firms were relatively slow to embrace public cloud for storing and analyzing data, but they are slowly changing their tune on the subject. As such, cloud is often pitted as the future, and tape will go the way of carbon paper. And for a while, tape was falling out of favor, before making a comeback.

IBM's Brume says that this is not a "Highlander" situation where there can be only one; rather, most firms are using tape, in addition to cloud and HDD. He also notes that the major cloud providers are still relying on tape for their own back-up purposes.

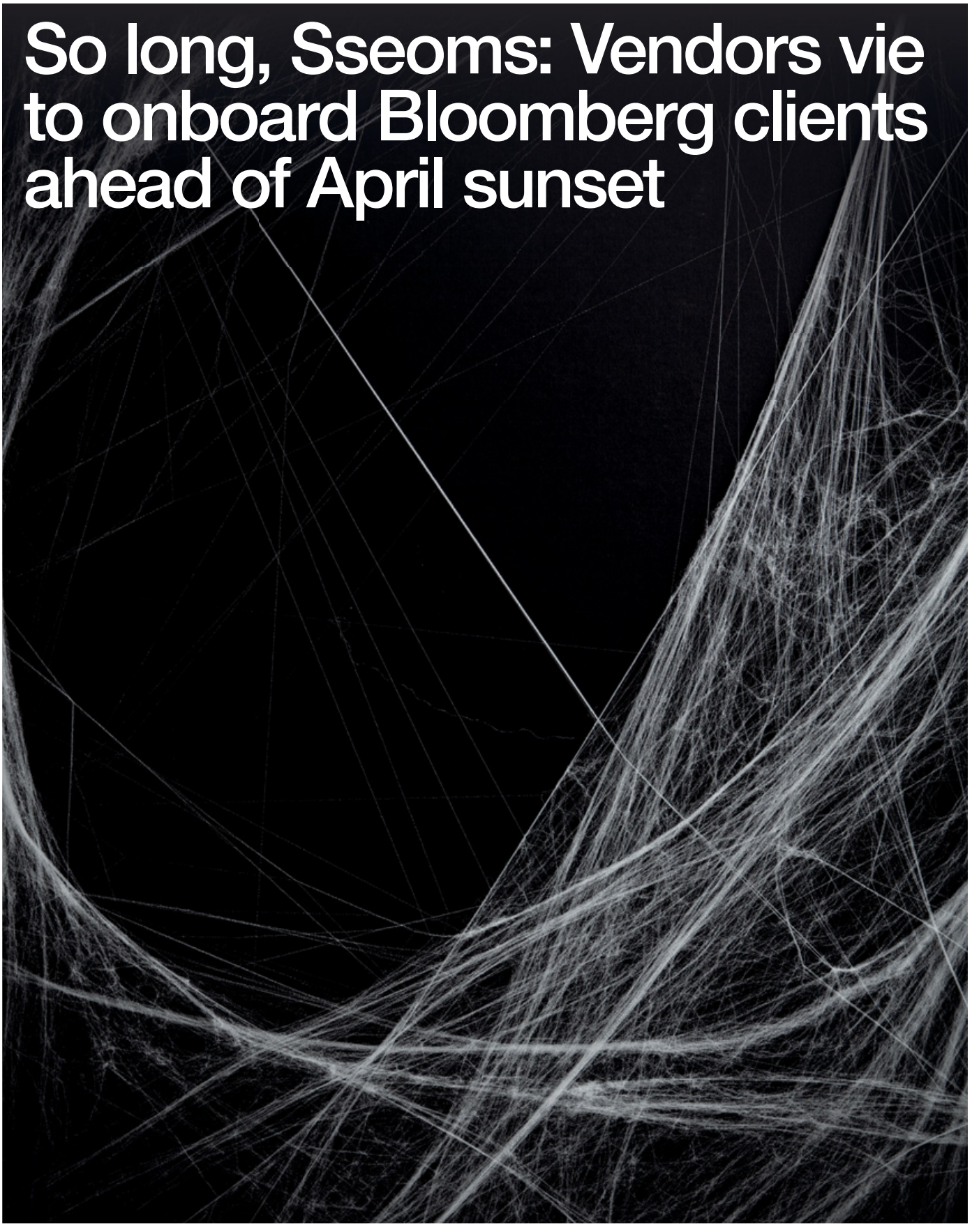
"My cloud brethren are out there and they don't talk about what they are doing in the background, because their goal is just to make it to where you have to deal with it. But the truth is, many cloud providers are deploying tape, and they are deploying it in scales that haven't been seen in a long time since tape was the only storage mechanism. … We are seeing that surge globally of interest in tape, and deployment of tape at hyper scales," Brume says.

He continues: "So if I am a financial institution, I don't go, 'Take all our data that we have on tape, and just move it to the cloud, and completely get rid of tape.' Now, that does happen on occasion. But most of them look at it as another offsite storage of their data, and a different medium."

Additionally, another reason that financial firms still rely on tape is because cloud providers—unless it is specifically written into the terms and conditions agreement—do not guarantee that a client's data will be immediately available, he says.

"The cloud providers do not provide [immediate access] unless you go in and work [that into] the SLA with them, Brume says. "They don't provide the guarantee that your data is going to be there; they just store your data for you at an inexpensive price and give you access to it." wt

So long, Sseoms: Vendors vie to onboard Bloomberg clients ahead of April sunset



Sseoms competitors are stepping into the breach left by Bloomberg's move to sunset the sell-side focused suite of services. This could be a chance for a new premier provider to snap up some business, while leaving others to reevaluate their standing in the space. By Wei-Shen Wong and Joanna Wright

It was 2019, and Rajiv Kedia felt as if the stars were aligning.

The principal and associate founder and global head of sell-side technology at US-based FlexTrade Systems, a provider of multi-asset execution (EMSs) and order management systems (OMSs), had ambitions to expand the business globally, having just appointed two new London-based heads of sell-side OMS business development for Europe, the Middle East, and Africa (Emea).

At the same time, coincidentally, Ion Group acquired sell-side trading platform provider Fidessa. And then a domino fell: Bloomberg announced it was exiting its equities Sell-Side Execution and Order Management Solutions (Sseoms) and know-your-customer (KYC) businesses. Was this a chance for FlexTrade to take a few steps up the sell-side OMS ladder?

"As we were gearing to ramp up operations from the US—growing the team globally, increasing functionality to make sure it addressed client needs from a global perspective—the marketplace changed considerably," Kedia recalls. "The biggest player in the market, Fidessa, was taken over by Ion Trading, and suddenly a lot of their clients started looking at the company very differently. We started getting a lot more phone calls and enquiries. And then immediately after that, Sseoms decided to exit the market. It was like, when it rains it pours!"

Waters Technology broke the news in 2019 that Sseoms was to cease operations in April 2021. Since then, the small universe of competitors that supply OMSs to the broker community have, to a greater or lesser extent, scrambled to win clients from Sseoms, with some even using the sunsetting of the OMS as an impetus to beef up their own teams and offerings.

Like FlexTrade, these businesses see this as a unique opportunity. Migrating from an OMS is a costly and risky affair. Many heads of technology would rather swallow the known costs of staying with something they don't like, rather than risk their careers and involve their firm in an implementation project that could take up to two years to complete.

"The order management system is a critical piece of software and migrating it is a nightmare," says the CTO at a tier-2 bank with operations in the US and Europe.

"What do you gain from migrating? What's the benefit? There are a million new things out there, but if you have something that's working—maybe it's not sexy and maybe it's a bit boring, but it's working—to move off of that and go through the whole hassle is usually not worth it. You have to move all the data, all the accounts, and there's a lot of transfer of information and migration—it's a huge project. You're not going to do it to save 10%; the payoff from the engineering time to do the move for a 10% cost savings is not going to happen. So you make the switch when you have to make the switch."

With that said, for those Sseoms clients that didn't prioritize looking for a new OMS home, very soon—in late April—they will come to a rude awakening that Sseoms is gone, and they have nowhere to go.

Impetus for improvement

Itiviti has noticeably been the most public about its plans to capitalize on Bloomberg's exit from Sseoms. Robert Mackay, CEO at the Swedish trading and technology provider, told *Waters Technology* back in May 2019 that it was looking to fill at least 79 new roles to handle anticipated growth. The company—which is also known for its Fix global connectivity platform, Nyfix—has since filled all 79 positions, which included product and partnership strategy leaders, as well as implementation and sales roles.

It is now on another hiring spree to support its growth and investments in its Fix and fixed-income trading technology. It will be adding more than 200 research and development, quality assurance, and client service positions within the next two years.

Ofir Gefen
Itiviti

For the 79 roles it has filled, quite a few came from senior posts within Bloomberg's Sseoms unit. These include Linda Middleditch, now head of product strategy at Itiviti; various heads of product and product managers, including Alex Brown, Shelley Magee, and Shantanu Goyal; implementation engineer Alex Bloomfield and implementation consultant Naing Ye Thu; project manager Kevin Jackson; and senior salespeople Frederic Villain and Greg Cooper.

Ofir Gefen, Itiviti's head of sales and revenue for Emea and Apac, says the vendor felt it needed to enhance its tools and functionality to provide clients with more than what they had previously with Sseoms.

Clients migrating from Sseoms will, in many cases, pay more for their new OMSs. Sseoms was relatively cheap, as it offered less customization and fewer features than its competitors—a "plain vanilla OMS," as one competitor describes it—but customers benefitted from pre-existing integrations with Bloomberg, as the majority would also have Bloomberg Professional licenses.

The situation showed Itiviti that there were areas where it could offer more to its clients than Sseoms had, Gefen says. "Part of the conversation with clients was, not only did they want to migrate, but clearly, we were also coming at a higher price point, so they wanted to get more out of the tools," he says.

Itiviti's research and development team, which Gefen says makes up 40% of its workforce, had to race against tight implementation timelines to deliver changes to the workflows in the OMS.

A complex product

While Bloomberg is shedding Sseoms, this decision, along with exiting its KYC business, is aimed at streamlining its product offering. The information giant

> "Part of the conversation with clients was, not only did they want to migrate, but clearly, we were also coming at a higher price point, so they wanted to get more out of the tools." **Ofir Gefen, Itiviti**

does not have plans to exit any other business lines, such as its multi-asset, sell-side focused Trade Order Management Solutions (Toms) unit or its Asset and Investment Management (Aim) buy-side OMS.

But Bloomberg has also not said why it decided to abandon Sseoms, and declined to comment specifically on its decision. However, competitors say it makes sense: Bloomberg's core business, after all, is data provision and the Terminal, and running a sell-side OMS is difficult and human resource-intensive. Also, says Medan Gabbay, chief revenue officer at Quod Financial, a global multi-asset OMS/EMS provider, Bloomberg's Sseoms client base was "primarily brokers with very simplistic flow."

Medan Gabbay
Quod Financial

While Sseoms' 150-strong client base included large banks, such as Commerzbank and DZ Bank, it serviced mostly tier-2 and smaller broker-dealers, many of which are seeking a way out of the equities trading business as consolidation and declining commissions bite. Even large firms are exiting equities trading, with Commerzbank deciding in February to shutter its equity trading and research unit, following Deutsche Bank's exit from its global equities business in 2019.

Gabbay says one of the reasons Bloomberg left the business was due to the complexity of the product. Running an OMS may seem relatively simple, but delivering data, connectivity, algos, and automation to the product requires a varied and costly multi-year strategy, he says.

"Every customer has a unique configuration. EMSX (Bloomberg's multi-asset execution management system) is a totally standard product across all clients. Every sell-side order management [platform] is slightly unique in what it's integrating with, how it's integrating, and the messaging it needs to generate. So, there was a huge technical and human cost to Bloomberg for delivering Sseoms," he says.

Sseoms had an edge, however, in that it belonged to Bloomberg, and its clients could benefit from the vendor's data and relationships with exchanges, says InfoReach's CEO Allen Zaydlin.

"Bloomberg delivers a lot of useful built-in infrastructure: market data, security master, licensing, connectivity. Many clients lived very comfortably with Sseoms, but now they have to go to a third party and license it. Many of them don't understand they are no longer in Bloomberg, and now this is reportable to Sedol, [the stock exchange daily official list] that [goes] to the London Stock Exchange. [They don't understand] that these [services] have a cost, and it's quite steep," he says. "They didn't realize that once you are no longer using Sseoms, you have to buy the master license from Bloomberg or other sources, and that can cost you as much as the full Sseoms product did in the first place."

Other vendors say their clients are paying more now than when they were at Sseoms. That said, they are getting more functionality for that higher price. Emmanuel Faure, head of Asia-Pacific sales at Horizon Software, says Horizon brought in one client that's paying more than what they used to with Sseoms because the client wanted to extend its capabilities. For example, it wanted to leverage Horizon's algo framework, which gives it the ability to do more than the "plain-vanilla OMS" it had before.

Heart transplant

Migrating clients from one OMS to another can be an arduous process, which is why clients don't often switch providers. This is also why Bloomberg exiting Sseoms provides an exciting opportunity for competitors to scoop up new business.

Vendors say the complexity and duration of a migration depends on the client, and the transition can take anything from a few weeks to two years for vast and complex operations. The bigger the client, the more customer positions need to be ported, and the more connections built for inbound clients and outbound order flow. Traders at the various firms develop their own workflows over the years, and customizing to those workflows and building new configurations can drain resources. Then the traders require training, and compliance reporting needs completing.

It's such an expensive and difficult process that it can partly account for why Bloomberg didn't have a higher-profile client base. Quod's Gabbay says there is a reason many clients stuck with a product like Fidessa, which cost them $1 million to $4 million a year, on top of which they still had to pay for Bloomberg data, when they could have moved to Sseoms, which cost more in the order of $100,000 to $300,000.

"The pain of change is so excruciating and so threatening to a business that there was very little chance in the near term of Sseoms taking many significant customers on board," he says.

He says a migration is like a heart operation: Just as there is a lot of risk to the human body in detaching it from arteries and veins, there is risk to the business in detaching its OMS. "If the OMS fails, your business cannot continue. You have built so many business processes around the central organ—the OMS—that making the decision to change and detach those is very expensive," he says.

Nick Halvorsen, director of operations at Chicago-based InfoReach, which offers a multi-asset OMS, says he is currently untangling a client from Sseoms. "They have relied on it for a long time; it was an inexpensive solution, with their Bloomberg relationship. They got very comfortable there. And there are a lot of moving parts for these clients to be able to keep doing business. For some, the cost of moving to a new OMS might have been prohibitive, but they couldn't operate without one."

Twisting in the wind

This is one reason why, vendors say, up until very recently they were still getting interest from firms that have yet to find a new OMS provider—mere weeks before Bloomberg pulls the plug on Sseoms.

Itiviti's Gefen says the company was still fielding prospective client requests from firms in the fourth quarter of 2020.

"We told them, 'if you're not going to close this by around October, we're not going to take on the project.' We had a couple that came back to us in November, December, and I said, 'look, as much as I'd love to take your money, there's no way we'll have you ready by that timeframe,'" Gefen says.

Kedia says FlexTrade also saw some last-minute requests. "One reason is analysis paralysis—they have been waiting to make a decision, and they must have looked at the clock and said, 'Sseoms is going away in April.' And now they are scrambling and want everything quickly," he says.

FlexTrade anticipated this, he adds. "We had a team ready to deal with such clients. We have several installations going on right now but, even with just two months to go [from when Kedia spoke to *Waters Technology*] to the official deadline, there are some still making decisions. So we are coming up with a two- to three-week installation plan to get them live and ready before the hammer falls," he says.

Meanwhile, InfoReach's Halvorsen says these clients may have spent so long with Bloomberg—Sseoms has been around for about 20 years—that they were ignorant of the vendor universe outside it and took too long in trying to understand the market.

"I do get the feeling many were kind of slow in this process, like they thought it might not really happen, as if Sseoms wasn't going to sunset. And we were telling them, Bloomberg are serious, they want to close this thing down in April and end of the month is the goal for everybody. Bloomberg has been very accommodating in making sure all these people land in their new homes before they sunset Sseoms, but they do intend to be taken seriously that it's shutting down," he says.

The difficulty for clients still looking for a vendor is that some vendors are selective about who they take on. This is partly because they prefer larger firms, partly because they want to stick to what they do best, and partly because, in the short term, they don't want to risk their reputations by overextending their capabilities. With so many clients looking for a new home all at once, and migrations taking as long as they do, few firms have the resources to onboard everyone before the last bell rings.

FlexTrade was afraid of over-promising and under-delivering, so it handled only clients it was sure it could onboard without straining capabilities, Kedia says. "Word travels fast in our industry, and we wanted to ensure effective implementations. Therefore, we have been focused on those clients that partnered early, and are committed to investing in technology and their business as a whole. This naturally selected for larger, more global investment banks and broker-dealers."

FlexTrade also turned away smaller customers that were just looking for the lowest priced option, he adds. "That is not really the kind of clientele we normally cater to. We tend to focus on those clients solving for growth in volumes, asset classes or pivoting into more complex businesses. Sseoms had a very decent number of smaller, cost-focused clients on their platform but, while a number of them reached out to us, they were qualified out during our sales process. There is a certain price point below which it doesn't really make good business sense for us."

Horizon, too, turned away Sseoms' customers, as their needs didn't match its solutions, Faure says.

"Every client is potentially a good client. We had to ensure that what they were looking to do was in line with what we were able to offer. For example, if someone wanted something that was completely out of scope—and I wouldn't even say it's the size of the client, but just the type of market and the type of trading—sometimes we have to say, 'Sorry, we are not the right fit,'" he says.

> "If the OMS fails, your business cannot continue. You have built so many business processes around the central organ—the OMS—that making the decision to change and detach those is very expensive."
> **Medan Gabbay, Quod Financial**

For example, Faure says a potential client (not from the Sseoms client base) asked Horizon to add phone execution capabilities. "As of today, it's not something we're offering," he says.

"Sometimes it's important to stick to your guns and to be clear on what you can do, and not promise everything just to do a deal. If you want to be relevant and you want to be good at what you do, you need to be focused. And that's what Horizon has been trying to do. We are developing, enhancing, and expanding

the coverage per product and per market, but we stick to our core business," he says.

Who went where?

So who has gone where? Quod's Gabbay says most of Sseoms' clients have simplistic order flow and no need for a sophisticated OMS. Many are exiting equities anyway, he says. And some Sseoms users have simply opted for Bloomberg's EMSX for routing orders, though they would still need an OMS to manage order and trade flows.

"The clients Sseoms took are the people who didn't really have significant OMS needs. I've seen a lot move just to EMSX for routing orders because the functionality in the sell-side order-management cycle is quite complex. And certainly, what we do, which extends all the way through machine learning and data intelligence and execution management, algos, etc.—none of that was present in Sseoms," he says.

Some have defaulted to either cheaper or free alternatives offered by small regional or local OMSs. A managing director at an institutional trading firm says he observed other brokers going to smaller regional or local single-market OMS providers that service, for example, only the Hong Kong market.

Quod, which hired Ling Lee from Bloomberg as its director of product management in July 2019, won DZ Bank, the second-largest bank in Germany by asset size. Gabbay says Quod took the "more advanced" customers, clients that value automation, transaction cost analysis, and smart order routing.

"It also means they're more tolerant to change and more invested in how they can make use of technology to benefit their customers," he says. Quod took on "fewer than 10" Sseoms clients and those implementation projects took between six and eight months. "Anyone that says they can change your OMS in less than that is not telling the truth," he says.

FlexTrade, too, went for Sseoms' large and mid-sized clients, including China-based institutional broker TF International, but Kedia notes that even smaller broker-dealers are going multi-asset, and want to be able to do some kind of programmatic trading and have some amount of global coverage, he adds.

Nasser Khodri, FIS's sell-side group president for capital markets, says his company has been engaged in helping Sseoms clients. In some cases, these were already clients of FIS, using other solutions for risk management, back-office tools, banking, and/or payments.

> "We have several installations going on right now but, even with just two months to go to the official deadline, there are some still making decisions."
> **Rajiv Kedia, FlexTrade**

Rajiv Kedia
FlexTrade Systems

FIS has completed 23 migrations onto its OMS, Valdi, with three more to go. "Clients were asking whether we could help them with the April deadline, sometimes leveraging existing relationships and infrastructure to accelerate delivery," Khodri says.

These clients range from big, tier-1 banks to smaller firms spread out across Europe, the US, and Asia, he adds.

Horizon's Faure says the firm took on fewer than 10 Sseoms clients, while Itiviti has onboarded "roughly 10" former Sseoms clients. Itiviti's Gefen says these migrations were mainly in Europe and Asia, as that is where its OMS is the most mature. He adds that Itiviti has completed two implementations, and expects the rest to be finished before the end of March.

Itiviti's client wins include the cash equities desk at investment firm SMBC Nikko London Capital Markets; DZ Privatbank, the private bank arm of DZ Bank, which it is supporting in multiple asset classes; Philippine stockbroker Salisbury BKT Securities; and US equity brokerage Atlantic Equities.

Other vendors would not say how many clients they have migrated over from Sseoms. Fidessa did not respond to requests for comment.

Any time a platform such as an EMS or an OMS is sunset, it presents unique opportunities and challenges to both the trading firms and the competing vendors, similar to what's been happening in the reg reporting space with the exits of CME Group and Deutsche Börse. Some client firms will go for the cheapest solution they can find to keep business running, while others may opt to rethink their trading architecture completely, and use the end of the service as a reason to futureproof their systems and access additional capabilities. For the vendors, this represents an opportunity to be in the top spot of OMS provision, and create a sticky offering that can lead to a relationship that lasts decades, because end-users are not quick to switch out these systems once they're installed.

"In order to make a change of OMS, you'd need a game-changing situation," says the bank CTO. "I guess that Bloomberg leaving the space qualifies."

Trading firms do not want to have to undergo OMS transition projects, so right now is a period of extensive change for the industry. Following the April sunset of Sseoms, there will be winners and losers—the latter of which may be forced to make similar decisions to Bloomberg, which will lead to new opportunities for the winners. It's the circle of life played out in the sell-side OMS space. wt

S-s-s-see ya, Sseoms

Not only are OMSs pains to rip and replace, but, as Anthony Malakian explains, senior technologists risk losing their jobs if the project goes awry—which isn't exactly unheard of.

Bloomberg is sunsetting its equities Sell-Side Execution and Order Management Solutions (Sseoms, pronounced C-ahms) business by the end of April. As you can read on page 14, Wei-Shen Wong and Joanna Wright spoke with a bunch of people about who is winning the business of those 150-or-so clients that will lose their order management system (OMS) in a few weeks.

What's so interesting about a story like this is that it really shows how much of a weed OMSs truly are—they snake through an organization, and ripping them out is a "nightmare," as one bank CTO told us.

When you look at the dollars and sense (word play!) of these migration projects, it's my understanding that tech execs tend to want nothing to do with them. The CTO said you are not going to switch out an OMS to save 10% on expenses, so you make the switch because you absolutely have to—i.e., your business has changed, and you need an OMS that has wider/deeper coverage and capabilities, or, as was the case with Bloomberg, you don't have a choice.

After the story was published, I was talking with a different bank senior technologist, and I brought up these comments. They agreed with what was being said. I then asked, "Is another reason that CTOs don't rip and replace their OMS because they worry about the headaches caused and that they will lose their jobs if it doesn't work out? Is it a, 'you don't lose your job going with IBM' kind of thing?"

Senior technologist: "The business has to be the one to push for a change—tech can't be the one clamoring to try this new system that you've been researching. If it goes bad, it can't all land on you and it's been my experience that people will

go with the safest pick [meaning name value] when push comes to shove."

Me: "Is it also because it's rare for a CTO to stay 10 years in that role at the same company, so why lead such a disruptive project when you might not even be there to see the results?"

Senior technologist: "I think it's more that traders don't like change—even if the new system is better and comes in at cost, with an OMS there will always be problems that arise and everyone wants customization."

It would seem to me that a CTO (or CIO, or head of tech, or whatever) is intentionally putting their head in a guillotine when changing out an OMS. And to that last point by the CTO, I don't often speak with actual traders who aren't already in my circle of contacts, so I don't know what their true needs are.

It would seem like Sseoms was a fairly basic system, but by the fact that it connected to the larger Bloomberg universe meant it had value. The technologists at the sell-side firms that were using Sseoms are likely in for a year-plus of traders asking why they *don't* have this, or how they *need* that. It doesn't sound like an enviable situation.

And those requests and complaints will then flow on down to those vendors that are trying to win over those 150-ish Sseoms users. The other side of that, though, is the fact that these systems are sticky. What's becoming clear to me is that firms absolutely do not want to endure an OMS migration—so it's better to stay with the devil you know. While a vendor wants a bank to want to be a customer, it's important to have income coming in, which can help the vendor to expand staff and capabilities. Additionally, a diverse set of users means that they can potentially think of unique tools for one client that can then be fed downstream to others.

That is why I found it incredibly interesting that some of the vendors that Shen and Jo spoke to for the story said that they simply turned away customers because their price tag demands were too low or their customization needs were too much.

Rajiv Kedia, the founder of FlexTrade Systems, had this to say when it comes to overpromising and under-delivering: "Bad news travels fast, and we didn't want to bite off more than we could chew. So we have been working with larger clients as compared to smaller clients," and the story is littered with similar examples of vendors having to make tough decisions about how many customers they could responsibly bring on.

So it is that a sell-side-specific equities OMS was no longer a good fit for Bloomberg, which has created an incredible opportunity for the likes of FlexTrade, Itiviti, Quod Financial, Horizon Software, FIS, Fidessa, and several others. What will be more interesting, though, is to see how this space continues to evolve. As we've written about previously, Fidessa has experienced a lot of turnover and attrition since Ion Group acquired it, and Sseoms will be done by the end of April—those are some big names right there. wt

Mystery surrounds rumored Ion acquisition of Italian trading platform provider List

While it would appear that Ion has acquired the Pisa-based vendor, details are murky. If the deal has gone through, though, it could mean contractual changes will occur in the near future for List users. By Josephine Gallagher and Joanna Wright

This month, two different reports in the Italian media indicated that Ion Group had acquired Pisa-based trading platform provider List S.p.A from its previous owner, TA Associates. While Ion acquiring a trading technology provider is hardly shocking news, the details around this particular deal are murky.

Beyond those two reports—which do not quote sources from any of the three entities saying that the deal has officially gone through—the only other piece of evidence that exists is a sentence in a financial statement, courtesy of the Italian Business Register. It says that Ion had bought the entirety of List's shares from List Mid Sarl (its only shareholder), which is controlled by the TA Associates fund, and that in doing so, Ion "extinguished" 100% of List S.p.A's debt, which now sits within Ion's books. It also states that the acquisition happened last March.

And therein lies the mystery: Is it possible that Ion became the primary owner of List a full year ago without anyone outside of List, Ion, and TA knowing?

Rumors of the Ion-List pairing first surfaced at the start of this past February, when *Waters Technology* broke the news that Ion had acquired Dash Financial. Six different industry executives had said they heard rumors of a deal, but they weren't sure if it had been finalized. Another source with knowledge of the talks between the three companies said that the deal is "signed, sealed, and delivered," but they could not provide any additional detail or documentation. Furthermore, an employee at List said that that they were "shocked" when they read the reports in the Italian press of a merger and that "nothing has been communicated" downstream to the rest of the staff at List.

Finally, on TA Associate's website, List is listed as a "past" investment.

List, Ion, and TA Associates did not return repeated requests for additional information.

Reunited?

A merger between Ion and List would actually make a lot of sense. First, the two have a long history together (*see "Deep Italian roots" on p. 22*). Second, List has struggled to gain acceptance outside of Italy, while Ion has not been as successful selling in Italy, says Frederic Ponzo, managing partner at consultancy GreySpark Partners.

"List has failed to gain any major foothold in the UK—they have some nice pockets of business in places like Canada and Israel, but by and large they are still mainly domestic," he says. "They are by far the dominant player in Italy, which is also by far the biggest bond market in Europe."

> "List has failed to gain any major foothold in the UK—they have some nice pockets of business in places like Canada and Israel, but by and large they are still mainly domestic. They are by far the dominant player in Italy."
> **Frederic Ponzo, GreySpark**

And for Ion, List would help to "entrench Ion's dominance on fixed-income trading," as the Pisa vendor is mainly used for fixed-income trading, though they do also have equities clients. "[This deal would] give Ion the Italian market," Ponzo says. "Ion know that with Fidessa and Marketview, they own the rest of Europe, and they will consolidate their dominant position."

A second consultant says that as fixed income becomes more and more electronic, what's interesting with List is they have specific connectivity and

trading solutions that help with the industry's push toward automation.

"List certainly seems to cross many of the things that Ion already has, but that doesn't mean that they have all of these pieces, and it's not easy to put a lot of these specific pieces together and build off of them—the connectivity, the clients, the flows, the geography," noting that in 2019, List bolstered its tech stack with the acquisition of IT Software, as well as its subsidiaries The Technancial Company and Exocet. "I'm sure that there are clients who think it's better to manage one vendor than multiple vendors."

Contractual concerns

If a deal between the two companies has indeed gone ahead, though, it could mean that List customers will have to adhere to new contractual demands set by the Dublin-based company.

Ion is known to try and lock users into longer-term contracts than most of their competitors. A September 2020 credit opinion analysis published by Moody's Investors Service, noted that Ion Trading Technologies, the trading tech arm of Ion Group, likes to sign users to long-term, five-year contracts that are "non-cancellable, are auto-renewed on the same terms and adjusted for inflation, which provided good protection to the total contract value over time."

To look at another recent Ion acquisition, after the company acquired Fidessa, the latter changed its contractual practices, according to multiple sources. For example, Fidessa's standard contract ran for 24 months, with 12-month rolling periods, meaning a client could cancel at any time within 90 days of the two-year mark, but past that, the contract automatically rolled over for another year, and so on, noted employees who were still at the company.

Deep Italian roots

Italy's presence in the bond market dates back to before the Renaissance, when military contractors hired by the medieval city-states of Tuscany—Florence, Pisa, and Siena—raised money with war bonds. Several sources noted that the market in the country has remained quite insular throughout the intervening centuries.

"Italian is still the mother tongue of most bond traders if you are walking around the trading floors in London," says Frederic Ponzo, managing partner at consultancy GreySpark Partners.

An executive at a vendor that provides fixed-income data echoes this sentiment, saying, "almost every bond trader, every head of bonds, every fixed income guy in London is Italian," adding that there are regional rivalries between people from Pisa, Florence, Siena, and Livorno. "This goes back centuries."

Ion looking to corner the Italian market makes sense from a business perspective, but Ion and List also have history together.

It is industry lore that Ion was born out of List, with multiple sources saying that when Andrea Pignataro founded Ion in 1999, he essentially bought the license to distribute the List product outside of Italy. For about a decade, he had exclusivity outside the country, while List had dominated the Italian market. "And List, in a very well-behaved manner, stuck to their obligations and have remained a true Italian company," says a source with knowledge of the List–Ion history.

At the same time, Ion grew by acquisition and with funding from investors such as TA Associates and the Carlyle Group into what it is now, while List grew to dominate the Italian market.

Ion has retained its Italian character despite global expansion and being headquartered in Dublin, says the founder of a competing trading platform provider. "If you look at their structure, their employee base, and their focus, they are very Italian," they say. "They do plant up companies or customers in a number of locations, but really their whole structure is very Italian-oriented."

List, Ion, and TA Associates did not return repeated requests for additional information.

Per Ion's restyling, by the end of 2019, contracts were changed and offered on fixed three-, five- and seven-year terms, with discounts offered for signing for longer timeframes. Additionally, if a client signed a three-year deal, they were tied in for three years, but if no cancelation was made within 90 days of the three-year mark, the contract automatically renewed for three additional years.

Another key change was that payment needed to be made annually in advance, as opposed to a quarterly model that was used prior to the acquisition. In addition, Fidessa's liability was subject to a cap, and any invoices issued in accordance with the contract must be paid without any "fees despite" mechanism—a term Ion uses—meaning "if you sign for seven years and the service goes down the toilet over time, then you can't withhold payment as a means of protest or recompense," said an ex-Fidessa employee in 2019 who worked in sales.

Ion did not respond to a request for comment to see if this is still how Fidessa negotiates its contracts.

> "If I'm Andrea Pignataro, I'd be getting all of List's customers to sign new five-year deals. I'd be holding a gun to their head and saying that they'll lose their access to the technology if they don't sign this new five-year contract with them."
> CEO at competing vendor

Looking at a possible Ion–List pairing, the founder of a trading platform provider that competes with both companies tells *WatersTechnology* that they expect Ion to rework contracts with List's clients soon, if that hasn't already started to happen.

"If I'm [Ion CEO] Andrea Pignataro, I'd be getting all of List's customers to sign new five-year deals. I'd be holding a gun to their head and saying that they'll lose their access to the technology if they don't sign this new five-year contract with them," they say. "They would then have new long-term agreements with the clients; they know what their revenue stream looks like and can model cashflow around that; and they can start to work out how they can consolidate and minimize cost. But the first task is to ensure you have a source of revenue to pay off the cost of the acquisition, and then figure out how to cut costs and make it pay off sooner."

An executive at a fixed income data provider echoes the founder's point, adding that after Ion's acquisitions over the last five years, they are hearing that fixed-income participants are "frustrated" as to the way that Ion structures contracts.

"In order for you to make that transition [to a new platform] you have to rip out the piping and plumbing you have across all of your businesses, and that is not a small effort—it's not like switching cellphone providers; it's a minimum 18-month project," the executive says. "So for you to do that, you have to be really motivated." wt

With additional reporting by Rebecca Natale and Anthony Malakian

GameStop post-mortem: Alt data world confronts eroding barrier between online and real life

After Redditors staged an epic short squeeze against a handful of hedge funds, some in the industry are left wondering whether today's models and data techniques are prepared for a world where online often equals real life. By Rebecca Natale

"While I do not think that anyone could have anticipated these events, I've learned much from them, and I'm taking steps to protect our investors from anything like this happening in the future," said Gabriel Plotkin, Melvin Capital CEO.

Plotkin testified as part of last month's congressional hearing, the first in a series of ongoing hearings addressing the now legendary tale of GameStop, Reddit, Robinhood, and a handful of hedge funds, one of which is Melvin. In a story layered with memes, irony, and—at times—sheer absurdity, are many smaller stories prompting debates and re-thinks of nearly all corners of the US financial system, from settlement times, to risk, to short-selling, to the power of alternative data.

Waters Technology spoke with an array of data users and providers to understand two key things: Could someone have anticipated this? And how will they prepare for the next time? Because almost certainly, agreed most sources, there will be a next time.

Blind spot

In January, day traders on Reddit—a site with 52 million daily active users, more than 100,000 communities, and 50 billion-plus monthly views—initiated a short squeeze of epic proportions primarily against hedge funds Melvin Capital and Citron Research, which were shorting the stock of video game retailer GameStop. The play bubbled up on the subreddit r/WallStreetBets (which hit 1 million subscribers last year, and is now up to more than 9 million) over several months prior to GameStop's all-time high on January 28.

Since then, its stock price has receded and rose again in waves, though not nearly close to its $483 peak. On the day of publication of this story, it had once again surpassed $150 on the New York Stock Exchange. For contrast, GameStop was trading around $4 per share last summer. Prominent names in the alt data space, like Thinknum and Eagle Alpha, have said they've noticed increased demand for Reddit-related datasets, *Business Insider* recently wrote.

But this case begs the question from these providers, and the hundreds like them, of why they weren't providing this type of data in the first place, or at least monitoring it. The global alt data

market, valued at $1.64 billion in 2020 and projected to reach $17.35 billion by 2027, has become a lucrative business with vast room left to grow, according to a report by US-based consulting firm Grandview Research. Constituting those figures are data sources spanning credit and debit card transactions, email receipts, foot traffic records, mobile app usage, satellite and weather data, social and sentiment data, web-scraped data, and web traffic.

The latter three—while distinct from one another—fall into a similar, internet-centric vein. Social and sentiment data—particularly after more than a year of social distancing and limited in-person interactions—is largely derived from online activity, through social media giants like Facebook and Twitter, which many of these alt data companies have longer histories of monitoring than, say, Reddit. For that, there are several valid reasons.

Since its founding in 2005, Reddit had done a good job of relegating itself to some of the more niche and even darker corners of the internet, though certainly not to the extent that other similar internet forums like 4chan and Something Awful have. With its more traditional bulletin board-style layout, it lies somewhere in the middle of those forums and the continually evolving, major platforms, though in numbers and in relevance, it's closer to the big players.

Reddit users coalesce around thousands of communities, or subreddits, which are organized by conversation topics. Several of these communities are aimed at creating and spreading images with the intent to make them go viral, lending credence to Reddit's longstanding reputation as a meme factory.

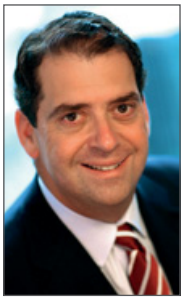
For example, one meme known as Pepe the Frog—an anthropomorphic frog with many variations—originated in a 2005 comic strip, but grew to mainstream popularity through the likes of 4chan, Tumblr, and Reddit, before it devolved into a symbol of the alt-right and white nationalism, and the Anti-Defamation League added it to its list of general hate symbols. (Reddit has not banned the meme from its platform.)

On top of sitting upon a meme treasure trove—or landmine, depending on who you ask—Reddit "dialects" proliferate the site, an exact number of which is nearly impossible to pin down. For one, there's memespeak, an example of which can be found in the word "thick"—written as "thicc"—or "dogs" which, on the internet, becomes "doggos." Now that the world is more than a decade into the rise of social media, this language has a relatively long history, and given its ability to morph and spread like wildfire, no one is totally and completely fluent, especially not anyone who goes outside very often. That's a huge problem for the machine-learning models used in alt-data scouting.

> "One of the challenges when you remove all these frictions, and you create kind of this lottery ticket thinking, is: What information are these folks trading on? And I think that's an area of concern because it appears to be no information or disinformation." Kathleen DeRose, NYU

For another instance, many of Reddit's 130,000-plus communities are hyper-focused, or industry-specific, bringing in a slew of jargon, some recognizable and some not. While r/WallStreetBets contains much language and information that is decipherable to financial experts, it's also home to lingo like "diamond hands," which refers to holding a valuable stock over a long period, "paper hands," which refers to closing out a position the moment the market shifts, and "tendies," which has a rich, 4chan-derived history, but for time and sanity's sake, is short for chicken tenders but used to describe the amount of payoff, or gains, from an investment.

So what's a little financial machine-learning model—trained on its millions of reliable and straightforward data points, like regulatory filings, earnings calls transcripts, or anonymized credit card transactions—supposed to make of all that? And what does it mean for trading firms hoping to find early trading signals ahead of the pack, or mitigate their risk, or react when another group stages a coordinated attack against them?



Bob Sloan
S3 Partners

Information vs. data vs. data and information in tandem

"I think the world is figuring out that there's a huge difference between information and data," says Bob Sloan, managing partner at S3 Partners, a data and research company that provides real-time short interest analytics to hedge funds and financial institutions. "Information is things that are mass consumed, and data are the things that actually get the signal in the noise. But what happens is that we consume a lot of information. And we don't necessarily know how to use data."

He recalls a story published by the *Washington Post* in December, in which a Harvard researcher used Amazon reviews of scented candles containing phrases like "no scent," "no smell," and "can't smell" to identify potentially unidentified cases of Covid-19, a side effect of which is loss of smell. The researcher found that the number of scented candle reviews containing these terms nearly tripled from January to November, rising from about 2% to 6%.

"That's using data in a mass of information," Sloan says. But that's no easy task.

If we take away anything from the GameStop saga, it's that the nature of valuable information, and thereby data—from where it lives to how it's deemed accurate and relevant—is changing. Alt data signals have long been referred to as needles in haystacks, but as data providers and users begin—or are forced—to consider uncharted, nuanced territory such as Reddit—and other forms of social media like YouTube—as tantamount to protecting their clients' and their own investments, the stack reaches the size of mountains and oceans, all while the needles remain specks.

Other than the platforms used and assets at stake, it's impossible to separate the retail and institutional investor in this story. Under normal circumstances, though, another huge factor separates the two: access to high-quality, timely data and information. In this case, the information was readily available to both, if they were looking, though the retail investor had the edge—they were the ones disseminating the information, encouraging fellow investors to join suit.

> "There's a series of a huge macroeconomic and political changes that have crowbarred the sanity of the financial markets and turned them into, broadly speaking, a circus for a variety of reasons."
> **Lex Sokolin, ConsenSys**

On one hand, it's a huge win for the democratization of data, and it challenges the power dynamics that have for so long colored the divide between those that run the country's financial system and those that are merely affected by it. But like most things that involve technology and human nature, there is—often unintended—a dark side, exacerbated by an exploding barrier between America's rich and poor.

Speaking as part of a virtual panel hosted by the CFA Society of New York on March 24, Lex Sokolin, global fintech co-head of ConsenSys, a blockchain software company, described an environment that, over the last 20 years, he feels has allowed unaddressed, much larger issues than GameStop, Robbinhood, and Reddit to fester and lead the financial system exactly where it found itself on January 28—dumbfounded.

"There's a series of a huge macroeconomic and political changes that have crowbarred the sanity of the financial markets and turned them into, broadly speaking, a circus for a variety of reasons. It's not that Gen Z is cheap and only has 20 bucks to invest and therefore, Robinhood. But it's the fact that Elon Musk has defeated Warren Buffet in being relevant. It's the fact that the Federal Reserve has printed $6 trillion of assets and that interest rates are at zero. There's nothing to invest in for the normal person. It's the fact that being an expert and having knowledge has been debased, and is worthless, and whatever you feel is what matters. And it's the fact that student debt per person has never been worse, and on average, Americans are broke. And so the only equity worth buying is a lottery ticket. Nothing else is worth buying," he said.

Kathleen DeRose
NYU Stern School of Business

Kathleen DeRose, a clinical associate professor at NYU's Stern School of Business, echoed Sokolin on the same panel, drawing an analogy between today's political polarization and the information markets that serve as the lifeblood of social media giants.

"One of the challenges when you remove all these frictions, and you create kind of this lottery ticket thinking, is: What information are these folks trading on? And I think that's an area of concern because it appears to be no information or disinformation," she said. As an example, she offered yesterday's generation of Democrats and Republicans, who shared once, at least in the mainstream, an overlapping middle ground on many hot-button issues. Social media has largely influenced the erosion of that space, she said. "Should that same phenomenon happen in information markets that are financial markets, I think that's something that could potentially be very negative."

Scraping by

Neil Bond, former head trader at Ardevora Asset Management who left the business in April 2020, has been a critic of web-scraping technologies, telling *WatersTechnology* in July 2019 that Ardevora had piloted a project using web-scraped data, but ended up dropping it as it took too much work and didn't add much value to the firm's alpha generation.

"Knowing when these weird events are happening is useful to traders and there was no missing out when the prices started to move," he says. "We were all talking about it, but really, we were thinking how ridiculous a situation it was."

Today he acknowledges there are a number of young and in-the-works technologies allegedly trying to separate the credible and non-credible information—or "low-quality" versus "high-quality"—on social media sites and online forums, which would ease some of the workload borne by firms' internal data scientists.

Some major companies, like Bloomberg and Liquidnet's acquired business Otas Technologies, try to serve these functions already. The Bloomberg Terminal's media heat signals have given traders like Bond trading ideas and early warning signals by using its newsfeed and setting up alerts for names contained in the firms' portfolios. A column of the news feed would be devoted to metrics such as positive and negative words associated with media coverage and the number of people reading a relevant news story. At Ardevora, Bond and his traders also used Otas, a provider of analytics to the buy side before its incorporation into Liquidnet's new investment analytics division, in a similar fashion to understand sudden price movements of their holdings and to set up stop-loss triggers.

"How do web-scraping tools arrive? And what is good news and bad news? And what's a good news source and a bad news source? Reuters and Bloomberg journalists will get a higher rating than a Reddit forum, obviously," Bond says. "But I think they will become more and more important because of the fact that [Redditors] have been able to move these share prices so dramatically. So they'll be given a higher weighting, but I think that will just be temporary."

If that's true, and if any added emphasis is only temporary, the financial system could very well find itself back to a position like the one it occupied on January 28. To draw upon an old adage, once you see a bandwagon—or once Reuters and Bloomberg are writing about it—it's already too late.

Keeping score

Joe Gits, CEO and co-founder of Social Market Analytics, built his data company around Twitter, of which it is a licensed partner.

"That was our very first database," Gits says. "We have scored pretty much everyone that's ever tweeted about an individual security." Social Market Analytics scores those tweets based on nine different metrics, such as how often the account is retweeted, how often other users respond to it, and how accurate it is when it's referencing a particular asset. It does this for all US equities, futures, cryptocurrencies, and foreign exchange (FX).

> "Cancer is bad. Curing cancer is not bad. You've got to make sure your NLP knows the context of the conversation." **Joe Gits, Social Market Analytics**

Founded in 2011, Social Market Analytics analyzes non-traditional and traditional data—such as Edgar filings—to derive market intelligence for asset managers and hedge funds. Currently, the company is beta-testing a new, Reddit-specific data product in response to multiple requests by hedge fund clients since January. Gits says he had thought about incorporating Reddit in the past, but had other products to prioritize first.

"We're going to start with WallStreetBets. We've got a couple other [threads] we're looking at. We have to rank the commentators. Some of our natural language processing (NLP) is going to have be a little bit different. There's a lot more—believe it or not—slang on Reddit than there is on Twitter. So there is some development work—there is a good amount of development work associated with it," Gits says.

Now that Reddit rocketed to priority status for Gits and his company, scoring criteria for Reddit will be generated on the same metrics it uses for tweets. The first objective of the scoring process is to pinpoint how influential certain posters are, followed by their accuracy. In some instances, they will find posters who are not particularly influential in terms of engagement from other users, but are uncannily accurate when talking about certain stocks; even if they have zero engagement, those users will rank higher than other high "influencers."

> "How do web-scraping tools arrive? And what is good news and bad news? And what's a good news source and a bad news source?" **Neil Bond, formerly Ardevora Asset Management**

"We'll bucket it by account, and then we'll bucket it by security. So this is a conversation on Tesla. This is a conversation on Sarepta. And those conversations are different. Sarapeta is a drug company, so you've got to be able to handle that differently. Cancer is bad. Curing cancer is not bad. You've got to make sure your NLP knows the context of the conversation," Gits says.

Luckily for Social Market Analytics, it has trained its model on 10 years of Twitter data, and Gits says its topic model has gotten good at picking up things like sarcasm, slang, and nuance. For example, if a client is monitoring Tesla's stock, the model will suggest they also look into Twitter conversations centered on Elon Musk and SpaceX, but wouldn't offer the same suggestion for a conversation about electricity pioneer Nikola Tesla. By contrast, the separate model the company uses to parse and analyze Edgar filings would not serve as a decent primer for taking on the world of Reddit.

Neil Bond formerly Ardevora Asset Management

Risky business

This saga has implications far beyond data scientists, machine-learning and NLP models, alternative data providers, and alpha. In the long term, how this plays out in the risk arena may be even more important than others.

Twenty-two days before Reddit broke the market and the internet, a mob in support of former president Donald Trump descended on the US Capitol, stormed the building, and sent members of Congress, who were assembled to count the November election's electoral votes and certify then-President-elect Joe Biden's win, into hiding for hours. Five people died while more than 100 were injured. Despite a slew of indications—on sites like Reddit, Twitter, Facebook, and 4chan—that some attendees were planning violence, the 1,200 Capitol police on duty that day had little more than the short metal barricades one would find at a concert standing between them and a mob, armed with chemical irritants, lead pipes, and tactical gear. An unprepared assembly of law enforcement was quickly overpowered.

The common thread that January 6 and January 28 share is this one: Those in charge of finding these early warnings were either looking in the wrong places, or shrugging off what they thought

> "From voting booths, to supply chains, to financial markets—there's market structure. So what we're really saying is we don't understand the impact of this market structure." **Bob Sloan, S3 Partners**

was nonsense online talk. This isn't to say that what goes viral on social media is gospel—it is not. But it can have a real-world impact, often frequently and swiftly.

The role of risk officers and compliance specialists is to anticipate and prepare for the worst. These professionals know, probably better than most, what can happen without at least some catastrophizing. In late February of last year, as Covid-19 was spreading across continents, Miranda Morad, MarketAxess general counsel for the Asian and European regions, was getting antsy. Having just come back to the UK from Canada, she attended a large meeting where she refused to shake anyone's hand for the first time.

"I was the only person doing it, and they were all laughing at me. So I then said I'm not going to into the office—I'm not going to take the risk. And it was a while before reality struck," she said after winning a Women in Technology and Data (Witad) award. "It takes a while before people hear you. The natural instinct is it's not that bad. It's not going to happen. It's unimaginable."

While this January and the pandemic-plagued year before it felt foreign and ghastly, Chris White, CEO of bond pricing platform BondCliq, asks whether humans have ever really understood the world around them.

"I think that chaos has been the norm. I think what you're seeing is communication changing states, like the way that water goes from ice to liquid to gas. You're seeing it literally change states, in which now the communication that we rely on to interpret the world has moved into a new medium. And actually any time there's ever been meaningful innovation in communication—where all human beings can communicate at the same time—you get a massive shift in culture," White says.

Take, for example, when German theologian Martin Luther translated the Bible, previously only found in Latin, to German in the early 1500s. Thanks to the growth of the printing press at the time, the new text was disseminated quickly among other Germans, allowing them to interpret scripture in their own ways. According to lore, when Luther nailed his 95 Theses to the doors of Catholic churches in Wittenberg, it jumpstarted the Protestant Reformation, a decades-long rejection of the church that resulted in division between Roman Catholicism and several new Christian sects that still exist today.

A time-honored tradition of the human experience, rebellions and reckonings come and go, and certainly for the people who live through them, it can feel like the rug has been pulled out from under them. For everyone who comes after, it's just history.

As topics such as media literacy, digital ethics, artificial intelligence (AI) ethics, and digital curation become urgently needed in an increasingly digital world, some are recognizing that as much as institutions are buyers and sellers of securities, they're fundamentally more like us—buyers and sellers of information.

S3 Partners' Sloan says one operating principle for his firm, and one that he encourages other data providers to adopt, is to focus on the "what" and never the "who." If the names of people and organizations are tied to your data, then your business is about identity. And if your business is about identity, then you're not really in the data business—you're in the information business, he says.

"Who's being exploited?" Sloan asks. "If we look at information as a bid and an ask … there's market structure in everything, right? Everything. From voting booths, to supply chains, to financial markets—there's market structure. So what we're really saying is we don't understand the impact of this market structure." wt

‘Gamestonk’ and other stoopid words

Social media sites are developing their own new language that involves images, video clips, and bastardized words. In theory, learning the language can yield positive returns, but Anthony Malakian wonders if it’s worth the effort—and maybe the alt data market is simply losing its collective mind.

Much has been written about GameStop and the short-squeeze that was birthed on the Reddit forum r/WallStreetBets. While we break a lot of news at *Waters Technology*, for a story like this, we prefer to sit back and sift through the wreckage. That’s what Reb Natale did with her deep-dive that starts on page 24.

I really enjoyed this story (I swear I’m not just pumping up our own work) because it was more of a philosophical discussion about what is data, and what is information, and it looked at information as its own kind of language.

When the GameStop stock really started to take off, the first thing that came to my mind was, how did all of these alternative data providers miss these signals that had been growing since late spring 2020 on the r/WallStreetBets subreddit, which had somewhere in the realm of a million subscribers? And then you start to realize the insanity of conversation that takes place on Reddit—and I’m not talking about the horrifyingly racist, misogynistic, homophobic, (numerous other -phobics), and bat-shit crazy conspiracy threads that can be found on the site, although, Reddit is not as bad as some others.

Reddit has a main language all its own that’s part bastardized English, part modern-day hieroglyphic—otherwise known as memes. Somehow, Reb managed to get the “words” thicc, doggos, and tendies into this magazine, but for a story about GameStop, their definitions are absolutely necessary.

Sure, these words and memes exist on other social media sites that alternative data providers track for sentiment, but Redditors (much less those who use hellscapes like 4chan or Something Awful) have communication systems all their own. And actually, I think social media’s lingua franca is kind of beautiful. At its best, it’s funny and, in its own way, informative. It keeps people with short attention spans engaged. It’s quick and to the point, unlike my columns. And one meme can actually pack in a lot of information if you can decipher its code.

So you have words that are not English, but are based on the English language. You also have memes, which are images with (at times) writing embedded into the image. How do you actually “read” and contextualize these messages on a massive scale if you’re an alt data provider? On top of that, you have gifs—and I don’t give a damn what the creator says, it’s pronounced Gif with a hard G, as opposed to Jif, with a hard J … and if you disagree, I’ll be at your house in a giffy.

But let’s do a thought exercise. It would seem that social media posts, memes, and gifs are becoming more widely accepted as sources of insight, but is it worth the cost to try and find sentiment signals in this ocean of information? It costs a lot to develop tools that can decipher these alternative social media sites, and error rates are quite high. But while Twitter and Facebook are more textual and, thus, more easily tapped into for sentiment, they also skew older (like me) and are arguably less sophisticated—if you just focus on those two sites for social sentiment, is that not ignoring the sites that can provide alpha-driving signals?

Let me do an Andy Rooney bit here: Is this not just getting weird? Alternative data has been called the new market data, so Elon Musk typing “Gamestonk!!” is market data? How stupid is that? And if that’s the case, will there not be an overreaction from the hedge fund community looking to buy these “sources of information” coming from

Reddit—I mean, have hedge funds even realized the ROI on Twitter/Facebook sentiment data yet? And if social media data is the new market data and, thus, Reddit and other fringe sites are the next frontier, doesn’t that go directly against the idea that contextual data is more important than reactionary, scratching-the-surface data? And what happens when you have an entire community of millions creating a false reality about an absolute garbage company like GameStop? Literally, a week before this story blew up in January, I went into an actual GameStop brick-and-mortar … and they managed to completely screw up my order. This is a dinosaur company that does not have good, new ideas—aka, fundamentals.

But then again, what the hell do I know? As I write this, $GME is still hovering above $180. Maybe I’m the sucker. Maybe the memes on Reddit can create a new reality on the New York Stock Exchange. Maybe non-fungible tokens are the way to make millions and not just a way for millionaires to funnel money. Does the proletariat have power in this new world, or are regular folk being given an illusion of control? As Reb wrote, “it’s clear that the line that used to starkly separate real life from online is eroding quickly”—so what does this new reality mean? Is Urban Dictionary a more useful dictionary than Merriam-Webster? Is this a world I want to live in? Is it time to finally leave this cesspool known as New York City and move to the mountains of Wyoming?

Or, maybe this was just a funny hiccup in the long arch of financial history. I don’t have answers. I just don’t understand the difference between data and information anymore, and it would seem more and more, no one does. wt

US competing consolidators grapple with pricing uncertainty as SEC, exchanges battle over new Sip regime

Vendors who want to provide consolidated market data under the SEC's new system can't make plans until they know how they are going to be charged for market data. But the fee schedules are mired in legal action and confusion.
By Joanna Wright

When the US Securities and Exchange Commission (SEC) finalized a rule that made major changes to US equities market infrastructure in December 2020, it opened the door for interested technology vendors to become suppliers of consolidated market data.

The new rules create a system in which, instead of two exchange-run securities information processors (Sips) pumping out bid/ask quotes consolidated from US trading venues to consumers, a decentralized system of entities called competing consolidators will perform that role.

Some technology vendors with experience in market infrastructure have expressed interest in becoming competing consolidators, including MayStreet, McKay Brothers, Activ Financial, NovaSparks and the Miami International Securities Exchange (Miax).

These vendors believe they have unique capabilities and experience they can leverage to become the new Sips. However, although they will be providing an industry service, those services will be operated as commercial solutions rather than as utilities, and that exchange data doesn't come for free. So before they can formulate the business plans that will underpin their bids, they need to know how much the exchanges will charge them for the data they will be using, and how revenues will be distributed.

"Everything revolves around how high the new Sip fees redistributed to the exchanges will be. That is the parameter that will make or break this modernization initiative," says Stephan Tyc, co-founder of McKay Brothers and Quincy Data.

The SEC hopes that competing consolidators will offer customers a range of products that use consolidated data from the exchanges, and in parallel, has also expanded the definition of what that data is. Currently, the Sips include top-of-book quotes. Under the new dispensation, competing consolidators will be able to offer depth-of-book data, auctions, odd lots, and regulatory data.

"We were anticipating that this [legal action] would happen. And I think there is bipartisan support for these proposals. The court action can only slow the process down, but even this is not certain: The SEC decided on an implementation schedule that was quite slow and cautious, which was a very good decision, as it gives them time to fight."
Stephan Tyc, McKay Brothers and Quincy Data

Tyc says the competing consolidators will only be able to determine the price at which they sell these products once they know what the fee schedule under a new plan for governance of the Sips looks like.

"The price will come on top of the fees that the governance committee decides to redistribute to the exchanges. So the competing consolidators must live on the extra margin they make on the price of the Sip, minus the cost of data that is the input needed to create the Sip," he says.

Stephan Tyc
McKay Brothers and Quincy Data

Regulatory uncertainty

So where is this all-important fee schedule?

In January 2020, the SEC published a proposed order that would oblige the Financial Industry Regulatory Authority (Finra) and the exchanges—also referred to as the self-regulatory organizations (SROs)—to draw up a new plan for governance of the Sips. The governance of the Sips, the SEC says, is marked by inherent conflicts of interest, as the exchange groups that sit on the operating committees of the Sips have disproportionate voting power compared to the market participant representatives. The SEC ordered that the new plan would give more voting power to the broker-dealers and investment firms on these committees, among other changes.

The SROs drafted their new plan and filed it with the commission in October 2020. In their notice of filing, they said that once the governance plan was approved, the new operating committee it created could decide on the fees they would charge for data. Those fees would be included in amendments to the approved governance plan.

The approval of this plan is the first key milestone on the road to the creation of competing consolidators. But the SEC did not approve it, or even deny it, but rather decided to send it out for public comment in January 2021—a move that has introduced substantial confusion into the timeline of the Sips' modernization efforts, according to the SROs.

And to compound the uncertainty, Nasdaq and the New York Stock Exchange (NYSE), which administer the two current Sips, have brought court action against the SEC to halt the infrastructure rule, which they see as an existential threat to their businesses. The exchanges and their supporters say the Sips have served the market well for decades, proved resilient during the extreme volatility of the March 2020 financial crisis, and the exchanges have spent considerable resources improving their speed to reduce data latency. Why mess with a good thing? In February, the two exchange groups made parallel filings in the US Court of Appeals for the District of Columbia Circuit to review the SEC's infrastructure plan.

The SROs also want the SEC to stay the infrastructure rule until the new governance plan is approved, saying there's too much confusion over timelines otherwise.

Vendors undeterred

The competing consolidator hopefuls would be forgiven for feeling daunted by all this uncertainty. As consultant Bill Harts tweeted on February 9, "… The incentives for companies to create competing Sips are rapidly eroding. Who's going to commit investment [dollars] to build now when it could be worthless at the end of this suit?"

However, some of these hopefuls tell *WatersTechnology* that they remain unfazed. For one, they say, most observers expected the SROs to take the SEC to court, as various exchanges have warned as much in comment letters, and because they have a history of challenging the SEC successfully in court. These vendors say they have been factoring in the possibility of legal delays.

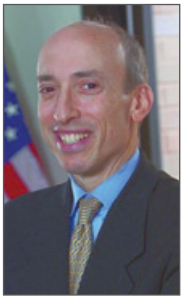
Another reason, they say, is that the SEC has planned a long timeline of implementation of the infrastructure rule—it will take, at the very least, two years to get to the point where competing consolidators are built, vetted, and approved to operate Sips.

And thirdly, these vendors say, they fully expect the infrastructure rule to go ahead because it has wide support outside of the SROs. The idea of competing consolidators has been kicked around in various forums by the industry and the SEC for years; the SEC itself signaled in 2012, under a Democratic administration, that it was considering modernization of the National Market System. The SEC's Trump-era pick, former chairman Jay Clayton, and former director of the Division of Trading and Markets Brett Redfearn, both champions of these rules, have recently left the agency, but there is no reason to think the next chairman, Gary Gensler, won't be just as enthusiastic about adopting it.

"We were anticipating that this [legal action] would happen. And I think there is bipartisan support for these proposals. The court action can only slow the process down, but even this is not certain: The SEC decided on an implementation schedule that was quite slow and cautious, which was a very good decision, as it gives them time to fight" the SROs in court, McKay's Tyc says.

Brett Redfearn

Jay Clayton



Gary Gensler

Tyc says McKay would be a good contender as a competing consolidator because of its experience as a telecoms company, providing extreme low-latency microwave bandwidth for trading firms.

"McKay has the fastest networks between the three centers in New Jersey (Carteret, Mahwah, and Secaucus). So for those people who want the fastest Sip to guarantee their best-execution requirements and do all the other things they need with the mostly timely data, we believe we can produce that, because we can ferry around the data much faster than others. When I say much faster, I mean about one microsecond faster—but that counts," he says.

For NovaSparks, another company that's interested in becoming a competing consolidator, the delays and uncertainty are not a major headache, as what the company would offer as a Sip provider is a solution it is working on anyway, says CEO Luc Burgun.

NovaSparks specializes in field-programmable gate array (FPGA) ticker plant and feed handler appliances for ultra-low latency applications. It plans to introduce an FPGA-based solution for market data consolidation to support the new rule featuring the lowest possible latency. FPGA is firmware, a programmable semiconductor.

NovaSparks has been working on this solution for the past two years. "What we are developing today is something we need regardless of the new Sips. There happens to be a convergence between our roadmap and new Sips roadmap, which is perfect for us. For the time being, we don't have to develop anything specifically for the current and future Sips," Burgun says.

And it's possible to make general estimations of what kinds of services the exchanges will want to charge competing consolidators for.

MayStreet CEO Patrick Flannery did not want to comment directly on the court action, as it is still ongoing. However, he says he expects the exchanges to charge at least an access fee for the data the new Sips will take in.

"They are going to have to pay for cross-connections, and/or other co-location telecoms, and they are going to have to pay, we assume, some sort of access fee to receive the data. It seems unlikely that the exchanges will not consider charging for these sorts of things," Flannery says.

The competing consolidators could be charged based on their market share over a particular period, he adds. "It could be flat fees, which could get quite large, so that would be a problem. The exchanges will probably argue that they want both—they want a fixed fee and revenue share flat fee, because that will be most advantageous. But we will see what the SEC ultimately approves," he says.

MayStreet has a platform that allows firms to manage their market data; this is the core of the business, Flannery says. The competing consolidators will have to be scalable and reliable, he adds.

"We have software today that builds consolidated feeds from a number of sources globally. The consolidation we do in US equities, where we take proprietary feeds and build a comprehensive US equity order book, is very similar [to building a competing consolidator]. The inputs for competing consolidators would be different, but we have a lot of the software and logic and expertise," Flannery says.

Shane Swanson of consultancy Greenwich Associates says MayStreet would be an obvious choice as a contender. "They have a lot of experience; they run the Market Information Data Analytics System (Midas) platform for the SEC. This is well within their ambit," he says.

MayStreet announced in 2019 that it had assumed the role of market data provider for Midas, after acquiring part of the business of the previous provider, Thesys Technologies. Midas helps the SEC monitor and understand market trends.

McKay and NovaSparks, on the other hand, will have an advantage in that they are focused on the low-latency space, Swanson says. "Reading data, passing it along, and publishing it is not a huge step change [for these providers], although there are certainly differences and challenges in being part of a quasi-

regulatory engagement," he says.

Miax, which has also signaled its interest, has an advantage in that it is an exchange, and therefore already compliant with Regulation Systems Compliance and Integrity (Reg SCI), a set of rules that monitor the security and capacity of exchanges, alternative trading systems, and other market infrastructure. Competing consolidators will be subject to the rule.

"Reg SCI is no concern for [Miax] as they are already compliant. I'm not sure that gives them a huge advantage, but it certainly provides them with the comfort of not having to do a huge upgrade to be compliant with Reg SCI," Swanson says.

Waters Technology reached out to Miami Exchange Group and Activ Financial for this article. Miax declined to comment, while Activ did not respond to requests for comment.

What the future holds

Exactly how the Sips will look when they are run by competing consolidators is difficult to say. The SEC hopes that each competing consolidator would offer its own distinct products and services to market participants, in contrast with the Sips, which are quite a uniform product. This, in theory at least, would introduce competition and innovation to the space.

"The idea is interesting in theory, and it's good to hear that vendors are throwing their hats into the ring. I don't know how well it would work in practice—no one does, because it has never been done! But I think it could be workable if the competing consolidators get enough volume to be profitable, because there are some clear benefits to having competition in this space," Swanson says.

> "The new Sip is going to be even worse because they are going to add odd lots, order book, auctions—it's going to be massive. Plus market data volumes are growing, as there are more and more registered stock exchanges."
> **Luc Burgun, NovaSparks**

One point of speculation is how many competing consolidators would be optimal. The SEC says any more than 12 would be unwieldy. Flannery, on the other hand, says, "We do not necessarily need five good solutions, but we do need one good solution.

"Twelve feels like it would be too many given the potential for added complexity, although there are more than 12 equity exchanges, so it could be viable," says Flannery. "To get the benefits of the [competing consolidator] model, the steady state would probably be three, but that is a total guess about products that haven't even been deployed yet."

Luc Burgun
NovaSparks

Running a utility is as much an administrative problem as it is a technology problem, he adds. "You have to onboard customers quickly, report all the details, monitor, set controls—all these aspects of running the service are potentially more substantial than the technology challenges on their own," he says.

McKay's Tyc says competing consolidators already exist, in that banks already consume market data from the exchanges' proprietary feeds, and use it to assemble their own internal Sips. These firms are obliged to create their own centralized books and their own market data, partly because it's just more efficient, and partly because they are required to execute client orders with the best data available.

"So those people who say that many Sips will be created are missing the point: There are already many, many Sips. The difference will be that those Sips, which are difficult to create, will be something you can buy instead of something you have to assemble yourself. It should make things a lot easier for people that do client order execution: They could choose to be self-aggregators and continue doing business as they did before, or they could buy a Sip from a competing consolidator," Tyc says.

One advantage is that because each competing consolidator will be vetted by the SEC, individual banks' compliance departments will not need to approve all

the Sip developments in house, Tyc says. Obtaining those bank approvals can be "a big headache," he adds.

Another advantage of having vendors offering new products is that consumers will have more choice, Swanson says.

"If you could use a competing consolidator, you could say, 'OK, who is faster? Who has technology that is more in line with my own technology?' Maybe they offer a binary protocol, and you use binary, and that is better for your methodology. Maybe you care about price, maybe you care about stability, maybe one vendor is fast but has more failures, and that is or is not OK for you and your needs. So it becomes a vendor relationship, rather than a mandatory one" like the current Sips, he says.

For MayStreet, fee models are an area where competing consolidators could provide innovation. The new Sips will be able to charge what they like, within the constraints of the market, but there should be a clear pricing model, he says.

Currently, Flannery says, there are two Sips that feed two, separate consolidated tapes of exchange data—the Consolidated Tape Association, run by NYSE, and the Unlisted Trading Privileges (UTP) Plan, run by Nasdaq—and users have to pay for two sets of connectivity: cross-connect and co-location fees, as well as access and redistribution fees. And then there are redistribution fees, which he says are capped at just under $1.9 million per month. And then there are display and non-display fees and professional and non-professional licenses.

"We want to get to where there are no distinctions between professional and non-professional, display and non-display. We think it would be optimal for the competing consolidators that offer one feed of consolidated US equity market data, not Tape A, Tape B, Tape C. That could help lower the connection charges, since some of the cross-connects are quite expensive. Having flat, transparent, per-cross-connect fees would make it more of a pay-per-use model," Flannery says.

If billing models were simpler, there would be less need for audit rights, he adds. Getting rid of those would represent another saving, as it costs money to keep track of data usage.

"So where we would like to get to is a much more reasonable fee for cross-connect, and then a small, medium, and large redistribution fee. The really large retail brokers would pay a fraction of what they are currently paying if they are at or near the [redistribution] cap," Flannery says.

> "They are going to have to pay for cross-connections, and/or other co-location telecoms, and they are going to have to pay, we assume, some sort of access fee to receive the data. It seems unlikely that the exchanges will not consider charging for these sorts of things."
> **Patrick Flannery, MayStreet**

Patrick Flannery
MayStreet

Many of these vendors say they will probably partner with others to deliver their Sips as competing consolidators.

Burgun says the current Sips are "une usine a gaz" (literally, a gas factory)—a French expression meaning something overly complex and unwieldy. They aggregate huge amounts of data from over 16 different equities exchanges, extract the top-of-book, and send the feeds out, and they do all that with software, requiring large server farms.

"The new Sip is going to be even worse because they are going to add odd lots, order book, auctions—it's going to be massive. Plus market data volumes are growing, as there are more and more registered stock exchanges," he says. A competing consolidator using an FPGA solution could be faster and more reliable than software, and take up less space.

The FPGA solution could be co-located with a user's direct feed in Secaucus, NJ, for example, and compute the Sip there; it wouldn't have to only be in Mahwah or Carteret, where the NYSE and Nasdaq Sips are located, respectively, Burgun says. "The solution could be replicated anywhere at low cost, and everybody could get access to the Sip and with a pretty good latency profile in comparison with the direct feeds," he says.

However, he adds, NovaSparks would not be able to deliver its FPGA solution alone, and would need to partner with another company for infrastructure and managed services. The company is already looking for such a partner as part of the work in developing its solution.

"I don't believe that a tool solution provider can make it alone," Burgun says.

He says the other competing consolidator contenders have some capabilities in terms of managed services, but, apart from McKay, don't have wireless network capabilities.

"And they don't have strong FPGA tools either, which means that if they do this with software, their aggregation is going to be based on a large PC farm again, and it will be difficult to deploy. For NovaSparks, the ideal would be to partner with a good IT network infrastructure provider and a good managed services provider," Burgun says.

One of the criticisms of the Sips is that the current plans have created a two-tier system in which, in one memorable metaphor, clients who rely on the Sips are driving down a rutted, potholed country road, while those who can afford the exchanges' proprietary feeds are hurtling down a six-lane highway. The validity of this metaphor aside, Burgun says that one possible innovation of the competing consolidator regime could be in creating a third, middle tier.

"Maybe there is a way to create a better Sip that is going to fulfill the needs of those who are fine with a low-end solution because they don't want to pay any more than they do already. In the middle-end segment, you could get access to more market data (order book depth, odd lots) if you paid a bit more."

Unlike the efforts to establish an industry-led consolidated tape in Europe, which ran into a roadblock when no companies volunteered to run the project, the new Sip regime has the distinct advantage of already having companies willing and able to build a solution that meets the SEC's requirements. In this case, the roadblock is the exchanges themselves blocking reform, and the success or failure of the SEC's plans may hinge on the courts' decisions. wt

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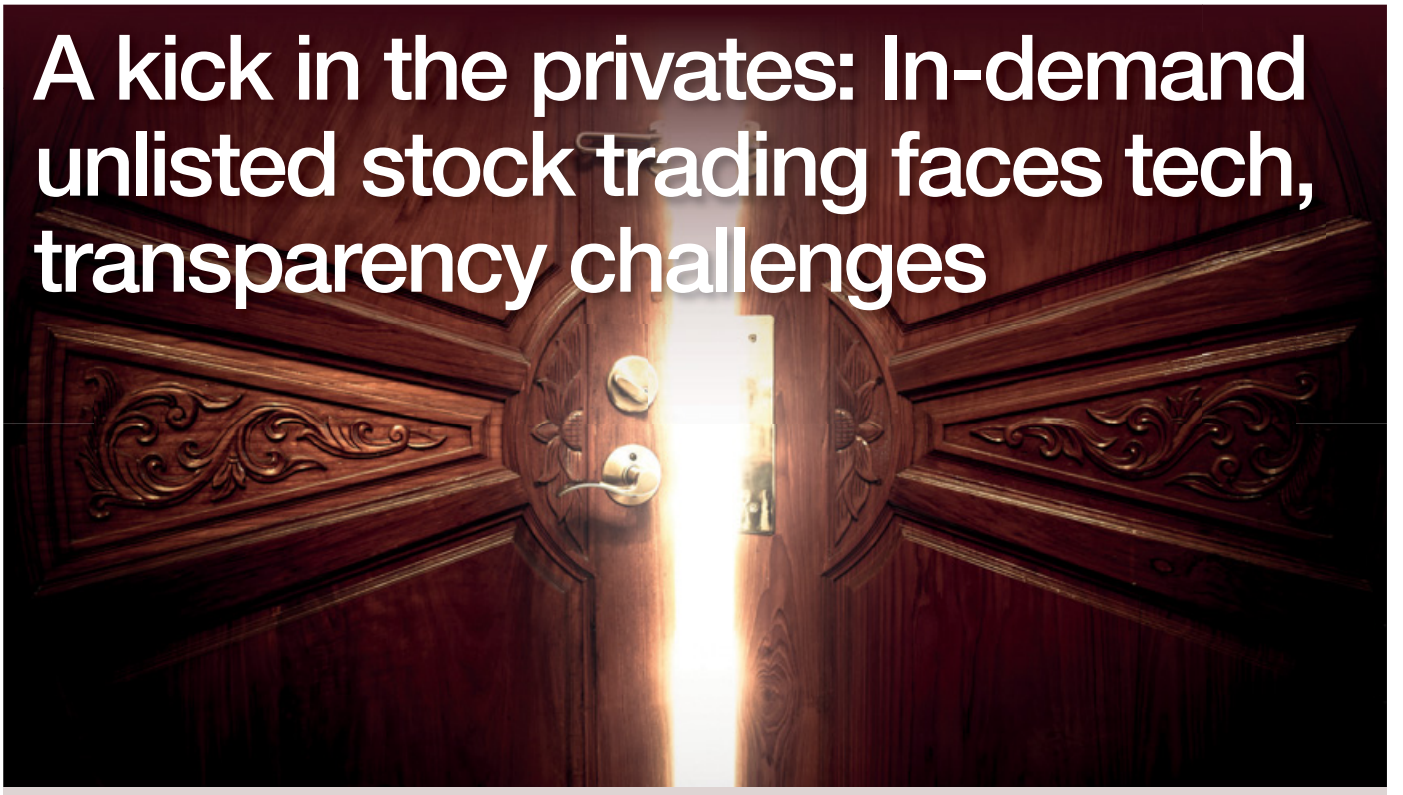
A kick in the privates: In-demand unlisted stock trading faces tech, transparency challenges



Private stocks are opaque, illiquid, behave differently from public markets, and lack the same infrastructure as public marketplaces, creating back-office integration challenges for firms that want to trade these stocks in a more liquid manner. But as interest grows, that's starting to change. By Max Bowie

The news that stock trading app Robinhood may be building a platform to enable ordinary investors to participate in IPOs—potentially including its own upcoming IPO—alongside institutions has heightened existing excitement over the prospect of trading pre-IPO stock in private companies. While this may appeal most to individual investors fed up with volatile stock markets, or dreaming of acquiring stock in the next Apple or Microsoft before it goes public, institutional investors are eyeing the same opportunities.

"Over the last 20 years, public markets have been shrinking, while private markets have been growing. Fewer companies are going public—or are choosing to go public later—so more money is being created in those private markets," says Carlos Domingo, CEO of Securitize, a San Francisco-based company that helps issuers create digital securities. "Normal investors are being left out of where that money is being made. People want to invest in private companies and want secondary markets in private companies."

But the nature of these markets poses a plethora of challenges—structural and technical—to institutional participation. One is that these markets are by nature opaque, so introducing the kind of transparency that investors would likely demand could erode the hidden value that opacity begets.

There are already plenty of options for individual investors to participate in private stock trading, from those like Sharespost, EquiyZen and Forge Global, which allow employees of privately held companies to sell their company stock to investors who recognize that the real growth in a company's value occurs pre-IPO. Still, while an individual can easily link these to a payment app or bank account, large institutions with legacy back-office infrastructures may find it harder to support clearing and settlement—and hence also may find it harder to start trading these markets electronically.

At the same time, though, capital markets firms are investing significant amounts in preparing to become more active in private markets. Last year, CNBC reported that JP Morgan has established a team specifically to address this "burgeoning asset class" and invest in pre-IPO companies, including SpaceX, Uber, and Airbnb. This February, the bank also took an undisclosed stake in Mountain View, Calif.-based Zanbato, a crossing network for institutional-sized block trades in private securities. Also last year, New York-based Serengeti Asset Management invested $550 million into SecFi, a platform that enables employees of private companies to buy and sell stock in the companies they work for. Private markets and platforms that facilitate access to them is one of Serengeti's specialist areas of investment.

Why are these firms pouring money into this? Because there's already a lot of money flowing into the private markets, and they want a slice of the returns.

Let's take one sub-segment of the market: privately held US financial technology providers. S&P Global Market Intelligence recently surveyed private transactions in US financial technology

providers, focusing on venture capital-led activity. Investors spent $17.8 billion on investments in privately held US fintech companies in 2020, $3 billion more than in 2019. While most of these companies operate in the retail investing, insurance technology, and payments sectors, around $1.5 billion of that figure went to B2B fintechs. And S&P expects these numbers to both grow further this year, and expand to encompass other forms of private markets activity.

"I do think crowdfunding and liquid markets for private securities are where this is heading," says Tom Mason, senior research analyst at S&P, who conducted the research.

"The private markets will be a $14 trillion industry within the next two years, and will be a central driver for institutional and retail wealth creation over the coming decades," says Eliot Hodges, CEO of Anduin Transactions, a provider of technology to help private companies and funds automate the process of submitting and capturing company information, to reduce that friction and bridge the gap between the private and public markets.

'Private markets suck'

But—and it's a big but—from an operational perspective, private markets "suck" and are "riddled with friction and opacity at every point in the process," Hodges says.

"This is a highly fragmented space—there is a lot of data, but it's not well collected," he says, adding that up to half of all documentation on privately held companies may contain errors. "A fund administrator's data may not sync with data from customer relationship management (CRM) systems. There is no company that has truly driven this ecosystem and created a full record of the truth."

Hodges says there are three "critical barriers" to private markets functioning and behaving more like public marketplaces—workflow, data, and legal issues, such as common and uncommon terminology used in agreements and negotiations for private share issues and transfers.

What these details create is barriers to entry, hinging on transparency, access, and liquidity, says Domingo. "The private markets are very opaque, very difficult to access. Prices aren't published anywhere," he says.

> "Data in private markets is disparate and difficult to capture. It's like trying to piece together a 10,000-piece jigsaw puzzle."
> **Sara Dillon, FactSet**

That also creates a challenge for data vendors seeking—and expected by clients—to provide data and insight on private markets.

"Data in private markets is disparate and difficult to capture. It's like trying to piece together a 10,000-piece jigsaw puzzle," says Sara Dillon, senior vice president and head of private markets at FactSet, which in addition to providing data on exchange-traded and over-the-counter (OTC) markets, also provides coverage of private companies, private capital, and merger and acquisition activity among privately held companies.

"When trying to evaluate a private vs. a public company, you want the same data; it's just much harder to find [on private markets], because it's not filed in the same way. So vendors have to find a source, or find a way to accurately predict that," says Dillon, who joined FactSet last year to focus on its private markets datasets.

Dillon notes that private markets encompass everything from retail crowdfunding to experienced angel investors and venture capital investment—each with a different purpose and investor profile—and that FactSet has carried data on private companies, private capital, and M&A activity in private markets for "a very long time," and is now building out its coverage of "less traditional" forms of private capital, such as angel investing, crowdfunding, and incubators.

And that's another thing that "sucks" about private markets: Until now, companies have had limited funding options once they reach a certain size. Either they IPO, or they raise venture capital (VC) funding. But, depending on the company, those aren't always suitable.

Alexander Ross, investment director at Illuminate Financial, a venture capital firm focused on fintechs, notes that going public may be good for investors, but may not always be in a company's best interests. "The principal reason for a company going public is its VC backer or owners looking for liquidity. But that's not always what's best for the company itself," Ross says.

Carlos Domingo
Securitize

Carlo di Florio
ACA Compliance

Jason Paltrowitz, director and executive vice president of corporate services at New York-based OTC Markets Group, which operates a public exchange-style market for OTC stock issued by 11,000 companies that are mostly traded publicly on other exchanges (though some remain private), agrees—though, of course, that's OTC Markets' raison d'être.

"We are seeing a lot of instances where a traditional exchange IPO doesn't meet the needs of growth companies or investors. A lot depends on the company itself. We come across companies all the time where the CEO says, 'We have to list on Nasdaq because it sounds sexy.' And sometimes advisors act not in the best interest of their clients, but in the best interests of their wallets," he says. "At the same time, there is a tremendous amount of money in the system that is looking to invest in companies at earlier stages but could not traditionally participate in IPOs. It's a perfect storm."

Now, investors are lining up to pour money into private companies. But it wasn't always like that. In the past, it was harder for private companies to raise funding, while regulators were concerned about allowing investors access to private markets, says Carlo di Florio, partner and global chief services officer at New York-based compliance advisory firm ACA Compliance.

Following rule changes governing "exempt" securities and disclosures by the US Securities and Exchange Commission (SEC), private markets are now growing faster than publicly traded markets, and have a "robust and efficient framework in place to protect investors," says di Florio.

Prior to joining ACA, Florio served as chief risk and strategy officer and executive vice president of shared services at Finra. Before that, he was director of the Office of Compliance

Inspections and Examinations at the SEC, where he was involved in establishing disclosure regulations for private equity firms and hedge funds investing in private markets—disclosures that created "rich data" for the SEC to monitor.

"We are seeing a paradigm shift that will benefit private companies because they can raise more money, and will benefit investors who have been kept out of those markets before, and will ultimately make these markets more liquid and vibrant," he says.

Insight into opacity

Another thing that makes markets more liquid is the availability of data—from price data, to news and research that provides insight on privately held companies. Bethesda, Md.-based MT Newswires recently launched a new service providing coverage of pre-IPO companies, responding to growing interest in gaining exposure to private markets.

MT Newswires previously only focused on publicly traded companies, because those are what its clients can trade on public markets. However, with growing investor interest in private companies going public, CEO Brooks McFeely says broadening its focus to private companies that "should be widely known" represents a natural complement to its coverage of publicly traded companies.

"It's important for our clients who trade the public markets to be able to provide their customers with information on private companies that may be publicly available to trade in the future," McFeely says. "The IPO market is red-hot globally, and special purpose acquisition companies (Spacs) are also gaining traction outside the US. So it was clear that the investment community needed a solution."

As a result, MT Newswires has created a dedicated team of about a dozen journalists—initially covering the US, though the vendor plans to expand the service to Canada, Europe, and ultimately Asia—to monitor and report on pre-IPO companies that have filed an SEC S-1 form registering their intent to go public.

> "How to be a public company is learned over a period of time. Companies that list too early don't have the skillset yet. Raising money from an investor and servicing that investor afterwards are two different skills." **Jason Paltrowitz, OTC Markets**

Jason Paltrowitz
OTC Markets

Gurvinder Singh
Indus Valley Partners

The vendor will take a traditional approach to reporting on pre-IPO companies, focusing on the same metrics it would provide in stories about public companies, such as revenues, margins, growth, and industry comparables, and—specifically for Spacs—company management and its experience, and what industry the Spac is looking at making acquisitions in. It will also apply the same tags to each story about a private company from the library of more than 160 tags applied to its stories on public companies, so that any search would return results for both public and pre-IPO companies.

MT Newswires isn't the only finance-specific news service covering this space. Alpha News Stream, a Marin County, Calif.-based news curator that delivers financial headlines via APIs, also curates content from news sites and blogs covering early round, venture-backed companies as well as public and pre-IPO companies, says founder Frank Cioffi.

"Much of the news private equity players consume is about companies at their earliest stages," Cioffi says. "I expect the demand for keeping abreast of such companies will only grow."

That's where Alpha and MT Newswires differ: In contrast, McFeely says MT Newswires' clients are more focused on publicly traded companies—and therefore on those private companies about to IPO—rather than strictly private equity and VC funding for early stage companies.

"Our clients are not really looking for information on those kinds of companies—they're too early stage, too speculative, and there's not enough information available," he says.

Digital disclosures

Obtaining more information on private companies of any scale is burdensome and time-consuming for potential investors, news providers, and potential vendors, especially since most private companies don't produce anything near the same level of disclosures as public companies, and which often only share that information specifically to potential investors.

These levels of disclosures—from annual and quarterly financial statements, to disclosures of new shareholders or company activity—are often new to private companies and come with a cost and administrative burden that prompts some companies to stay private longer to avoid them.

"How to be a public company is learned over a period of time. Companies that list too early don't have the skillset yet. Raising money from an investor and servicing that investor afterwards are two different skills," says OTC Markets' Paltrowitz, who was at the company when it went through its own IPO.

Decisions like whether a company's founder should remain as CEO, whether a company needs a board, or needs extra resources, like employing an accounting firm to take care of timely filings, are all things that must be bootstrapped, and where companies must put systems in place to address.

There's also the issue of determining what and how much data is appropriate to disclose: Should it be the same as the requirements for publicly listed companies, or should each venue set and manage its own requirements?

"A company will have to supply the kind of information required by investors," says Jeff Le Sage, founding partner at Liquid Stock, which acts as a primary investor, allowing companies and employees to exercise stock options and private shares as capital for financing. "I'm not proposing more government regulation, but I do believe investors will start to demand more information—and then it's a question of how much information companies are willing to disclose. It won't be a one-size-fits-all approach."

Anduin's proposition is to automate and speed up that disclosure process,

making it easier for firms to generate and share data, and lowering the barrier to fundraising for companies who feared the burden of information disclosure.

"It starts with getting an LP's data out of Excel. A lot of the processes that underpin those companies today are in Excel, powered by humans and email. Excel is a powerful tool, but it was never intended for managing a GP/LP relationship," Hodges says. "If you can digitize the documents, so LPs don't have to fill out the same information more than once for different parties, then you can unlock and automate downstream processes, such as know-your-customer (KYC) and capital calls, portfolio reporting, and compliance reporting."

Then there's the issue of what to do with that data once it becomes available—and in many cases, investment firms receiving the data just put it right back into Excel. Gurvinder Singh, CEO of New York-based trading, risk, reporting, and data management solutions provider Indus Valley Partners, agrees that digitization is key to allowing firms to react to "the allure of private markets."

The main issue is that because these assets lack standards and are not yet traded digitally, firms are running funds of private stocks in spreadsheets, Singh says, which simply can't support a fund with a target of growing from $5 billion to $30 billion. Also, necessary functions such as valuation and risk management can't be relied on to work at that scale in spreadsheets.

"The fundamental technical hurdle is that the terms and conditions (T&Cs) of one deal and another are completely different, and there is no way to digitize and track how those T&Cs are changing, so you won't be able to risk manage those positions. Do you keep doing it manually in spreadsheets? You need a flexible platform where you can model deals and covenants," Singh says. "You need the flexibility to pull in data from multiple sources, and to perform lineage, governance, and analytics so you can trade, manage risk and reporting, and allow investment managers to get out of spreadsheets."

So, over the past three years, the vendor created a platform dubbed IVP for Private Funds, which consolidates this data into an integrated managed service workflow, order management system, and data hub, which is now used by between 15 and 20 clients.

The new stock markets

These efforts support the full digitization of private securities, which Securitize has secured licenses to do, and works with private companies to issue some of their stock as digital securities. But to gain liquidity, those securities require a place to trade. Frustrated with opaque existing marketplaces that support private trading but don't supply exchange-like levels of information such as trade data—how many shares traded, and at what price—Domingo decided to build his own marketplace. Securitize Markets obtained a license to operate in November, and since then it has been implementing a technology platform and hiring staff.

Another company starting its own platform for accessing private markets is InvestX Capital, a Vancouver-based company that has spent the past seven years acquiring holdings in large private companies and creating a marketplace for that slice of stock among broker-dealers, who can then offer the stock to their investor clients. Now, the firm has released a technology platform, dubbed Gem, which automates parts of the process by which these firms trade and settle these securities.

"The late-stage venture asset class is a $2 trillion market, and a lot of that is executives and employees sitting on their stock," says InvestX CEO Marcus New. But interest in these companies specifically is growing because 2020 saw many of these pre-IPO giants doubling their set IPO price—some on their first day of trading—once they decide to go public, including several healthcare and pharmaceutical companies, as well as Airbnb and cloud operator Snowflake.

Marcus New
InvestX

"So far, these late-stage, private equity-funded companies have only been available to a small group of large investors," New adds. "These private companies have been staying private longer—and that small group of investors have been the beneficiaries."

Broker participants can access Gem's price discovery platform, which operates in a private environment for its participants, and includes a Level-2 screen similar to what traders would be familiar with for on-exchange trading, as well as an auction mechanism.

But while transparency and liquidity are big challenges, New says the biggest problem for broker-dealers is integrating any trading in private securities into their existing records systems in a compliant manner. "Most sell-side firms are trying to figure out how to get into this market. They see this as a massive asset class," he says.

To do this, InvestX developed a proprietary Fix-based protocol that integrates with firms' existing back-office systems and fits their normal processes "like a glove," New says. "Gem helps brokers electronify all those back-office processes. We standardize them, so everything works for the dealer," New says.

InvestX identified that one of the hurdles to adoption would be the ability to integrate a new type of trading into firms' existing processes—particularly the ability to risk manage and settle trades using their existing middle- and back-office setups.

S&P's Mason also notes the importance of this aspect of trading, and warns that—in addition to front-office differences—back-office elements that are commonly understood in the public markets may be more challenging for private securities, and make it harder to migrate them to electronic trading. "The custody and settlement aspects will definitely be a hurdle," he says.

Enter the big guns

The Depository Trust and Clearing Corp. (DTCC), the largest US provider of post-trade processing infrastructure, is already working on an initiative to overcome this hurdle, which will apply tokenization to private stocks beyond just pre-IPO giants.

DTCC has already developed a prototype of the new service, dubbed Project Whitney, which is running on the Public Ethereum blockchain network—though with an off-chain stock record—and has since added support for Hyperledger Fabric and R3 Corda blockchains. Its core comprises an Amazon Web Services (AWS) quantum ledger database to provide an immutable stock record, a compliance rules engine to capture and apply any rules surrounding an issuance—for example, if the issuer prohibits transferring that security within 12 months—as well as issuer security masters and investor registries, and API connectivity. Once tokens are "minted" on the network, ownership and trades can be managed across peer-to-peer transactions via digital wallets, or organized secondary markets conducted on an alternative trading system (ATS).

"Project Whitney originated a couple of years ago, when we started to look at the future of markets and digital transformation, and the tokenization and digitization of assets, and this spurred us to look at the private markets space," says Jennifer Peve, managing director of business innovation at DTCC. "With companies staying private longer, those companies are generating more value pre-IPO, which is incentivizing institutional investors to increase the capital they allocate to those markets."

But with regulators concerned about broker-dealers' ability to meet SEC custody and control requirements on a public blockchain, Whitney needed smart contract keys and private keys to ensure controls, and the rules engine provides "proactive compliance" in the form of a pass/fail indicator that determines whether a transaction can go ahead. Whitney also helps issuers and others fulfill KYC and anti-money laundering (AML) requirements by knowing who owns their stock.

John Wu
Ava Labs

Jennifer Peve
DTCC

"The platform can democratize access to early-stage companies and provide compliance and risk management around that," Peve says. "For example, verification of regulatory and product-specific suitability requirements for all asset transfers such as where an investor resides, or the security lock-up period. Today, compliance controls are reactive by nature, manual, and as a result, costly from an operations perspective. In addition, compliance and suitability rules are bespoke and issue-specific, with no central catalog or repository."

DTCC began development in January 2020, completed the prototype in March 2020, released a case study in May, and engaged in client outreach with stakeholder groups—including broker-dealers, transfer agents, custodians and ATSs—about how they could use it, and what it would need to integrate with. Peve says DTCC is now having discussions on the next steps required to move Whitney forward.

DTCC isn't the only organization that believes blockchain can provide a solution to the challenges of private markets. For John Wu, president of Ava Labs, an open-source development framework for creating financial apps and blockchains, this challenge was a big factor in his decision to get involved in blockchain.

"I was a tech investor. I ran public and private companies. And between 2010 and 2017, I noticed that companies were staying private longer, and the amount of money invested in private markets was growing," Wu says.

But as he tried to build a portfolio of investments in private companies, he realized there was "a big tech gap" between the current private markets and an efficient system for both investors and issuers. Wu envisaged that giving private shares a digital asset "wrapper" would enable them to be traded on an ATS, while using the blockchain for clearing and settlement could drastically reduce settlement times.

"Currently, private markets participants have to wait between 30 and 60 days to settle. We can take that settlement process down to a day or two, and then you have a system very similar to what people are used to in the public markets," he says.

A private-public hybrid future

Making private stocks tradable in a way that's familiar to those who trade publicly listed equities will require technology from the front office to the back office to be reshaped to mirror that similarity. Technology and integration challenges aside, a key requirement is gaining more transparency into private companies, Wu says—though he notes that ramping up disclosure requirements (and costs) would negate one of the advantages of staying private.

Ironically, increasing transparency and access would also negate the opacity and exclusivity that make investing in private stocks appealing and profitable.

However, New still believes that automation will ultimately drive down the cost of participating in the private equity markets as it creates more participation, liquidity, and transparency, and force existing options for participants—such as employee stockholders looking to cash out their private stock—to become more competitive. "We believe the market is over-inflated for a reason—because it is not automated … and because it's lucrative for others to keep it that way," he says.

What New is suggesting is that those who have led the way in opening up private markets to new investors want to increase participation without increasing transparency or lowering costs—in short, to keep those markets exclusive and illiquid, and protect their positions as gatekeepers to private stocks.

The problem is that without those going hand-in-hand with more information and easier access—the prerequisites for the creation of true secondary markets and the participation of institutional investors—these markets will remain largely private and underdeveloped, hindering companies' ability to raise funds beyond VCs and IPOs, and missing out on billions of dollars of potential investment. Still, those potential billions are a huge incentive to everyone—from Anduin to DTCC and more—to create more transparent and accessible markets for private securities. wt

Human Capital

State Street names senior alternatives head for Emea

State Street has appointed Vincent Georgel-O'Reilly as regional segment head for alternatives in Europe, the Middle East and Africa (Emea).

In this new role, O'Reilly will cover hedge funds and private markets, with responsibility for the investment services' strategic direction, product structuring, sales and operations in Emea. He reports to Paul Fleming, global head of alternatives, and Joerg Ambrosius, CEO of Emea.

During his 14 years at State Street, O'Reilly held a number of senior positions including global head of the financial institutions group. Prior to joining State Street, he held positions at Aéroport de Paris Management, Rothschild Nomura JV, and Axa IM.

BestEx Research appoints client services MDs

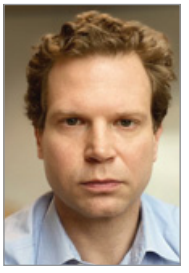
Algorithmic execution provider BestEx Research has appointed Dave Conner and John King as managing directors of client services.

Conner has more than 25 years of experience in institutional electronic trading, and has held various leadership roles, including head of electronic sales at PaineWebber. He will be based in New York and Stamford, Connecticut.

King spent 12 years as a founding employee and director of sales at Liquidnet. He helped launch Liquidnet in Canada and later contributed to the growth of multi-asset financial technology firms 360 Trading Networks and Dash Financial Technologies. King will be based in Chicago.

Conner and King will report to CEO Hitesh Mittal.

Karen Tierney



Vincent Georgel-O'Reilly

Dave Conner

Andy Moniz

Alpima hires Karen Tierney as chief product officer

Alpima, a Software-as-a-Service-based platform for investment management and product design, has appointed Karen Tierney as chief product officer.

Tierney joins Alpima from DWS, where she managed the 2020 Ibor transition initiative for the global alternatives businesses, and supported environmental, social and governance regulatory initiatives for alternatives.

Northern Trust Front Office Solutions makes two key hires

Northern Trust Front Office Solutions has hired Nichole Mann as head of operations administration and Nora Tiller as head of client solutions.

Mann will take charge of operational data governance, data quality and process oversight, policy development, and data analysis. Prior to joining Northern Trust, she worked at several US-based hedge funds. She formerly served as a vice president at Morgan Stanley, focusing on credit derivatives and structured credit products.

Tiller joins from Georgetown University, where she was director of investment operations for the university endowment. She previously served as managing director of financial accounting and compliance at Red Cross Investments, and as manager of finance and administration at Howard Hughes Medical Institute.

Acadian taps Andy Moniz as director of responsible investing

Acadian Asset Management has hired Andy Moniz in London as director of responsible investing. Moniz will lead Acadian's global environmental, social and governance (ESG) efforts and oversee the firm's ESG strategies, related research initiatives, and active ownership tactics, in addition to serving as the chair for its Responsible Investing Committee.

Moniz joins from Putnam Investments, where he was director of applied data science investments with responsibility for creating systematic ESG stock-selection strategies.

He reports to Acadian's director of equity strategies, Ryan Taliaferro.

Macrobond hires sales leaders for Americas, UK growth

Economic and financial data analytics provider Macrobond Financial has hired John Leffler as vice president for the Americas and Chris Seaman as UK regional managing director.

Leffler will aim to expand Macrobond's business in Canada, the US, and South America. Seaman will oversee existing and new business in the UK, Europe, the Middle East and North Africa.

Leffler joins Macrobond from Donnelley Financial Solutions, where he was vice president and global head of venue sales. Before that, he spent 17 years at FactSet Research Systems in multiple senior roles.

Seaman was previously global head of sales at trading and logistics firm Benteler Trading International.

SS&C HIRES HEAD OF AUTOMATION SOLUTIONS

Gautam Moorjani has joined SS&C Technologies to lead its intelligent automation solutions group, a new unit focused on technologies such as workflow management, machine learning, natural language processing, and robotic process automation.

Moorjani joins from PwC, where he was principal and leader for intelligent automation in the financial services advisory practice. Prior to that, he spent time implementing solutions for financial services clients at Markit, JP Morgan, and Argo Data Resource.

Gautam Moorjani

Moorjani reports to SS&C's senior vice president and general manager, Mike Sleightholme.

BTON taps former Bloomberg trading solutions CEO, Tierney

Independent dealing desk technology provider BTON Financial has hired Bloomberg's former global CEO of trading solutions, Ray Tierney, as non-executive director.

Tierney will help expand BTON's US footprint and boost take-up of its technology among the global investment management community.

At Bloomberg, Tierney oversaw more than 600 employees across three business units, as well as all aspects of the firm's OMS business. Before that, he served as global head of trading and execution for Morgan Stanley Investment Management.

Cecilia Chan joins Broctagon as head of Asia FX liquidity

Sell-side veteran Cecilia Chan has joined liquidity and brokerage technology provider Broctagon Fintech Group as executive director. Her appointment comes shortly after Broctagon obtained its new Money Broking Licence from the Labuan International Business and Financial Centre.

Chan will head Broctagon Prime Markets, the group's newly established Asia liquidity division.

She has held a range of institutional positions in Asia over a career spanning 20 years. She was head of dealing for Phillip Futures, vice president of membership and international coverage at the Singapore Exchange, and most recently senior manager of exchange and regulatory relations at Hang Seng Indexes in Hong Kong.

SmartStream hires global head of business development

SmartStream Technologies has hired Neil Sheppard as global head of business development for transaction lifecycle management corporate actions solutions and services.

Ray Tierney

Sheppard will focus on boosting the firm's asset servicing presence. He has more than 30 years of experience in fintech, most recently as managing director at FIS' XSP, where he handled the SunGard acquisition in 2012.

Prior to FIS, he was product and business development director at Magenta One, and managed global corporate action departments at Dresdner Kleinwort Wasserstein, ABN Amro Equities, and Citibank.

Tradeweb Markets adds Murray Roos to board of directors

Tradeweb Markets, a global operator of electronic marketplaces for rates, credit, equities, and money markets, has announced the appointment of Murray Roos to its board of directors. Roos succeeds Debra Walton, who is stepping down from the board.

Roos is group head of capital markets at London Stock Exchange Group, and a member of the group's executive committee. Prior to joining LSEG in 2020, Roos was global co-head of equities at Citigroup and previously led the bank's multi-asset structuring group. He joined Citi in 2015 from Deutsche Bank, where he held a number of management and trading roles. Prior to that, he was a trader at UBS.

Gresham beefs up UK, Europe team with Harvey Colborne hire

Gresham Technologies has appointed Harvey Colborne to lead business development and sales across its UK and Ireland operations.

Colborne brings experience of both the buy side and sell side, specializing in post-trade and data technology. He previously held roles at JP Morgan, Schroders, and BNY Mellon, as well as at Interactive Data and IHS Markit.

LiquidityBook hires Kumar as senior Fix specialist

LiquidityBook, a Software-as-a-Service-based provider of order, portfolio, and execution management solutions, has hired Sumit Kumar in London as senior Fix specialist.

Kumar spent the past four years at Refinitiv, initially as a Fix connectivity specialist before rising to positions including director and global head of Fix onboarding for the Redi EMS. wt

Max Bowie

A new kind of public–private partnership

As markets for trading stock in privately-held companies become more prevalent and exchange-like, and potentially attract more investors, Max questions what impact this will have on fully-fledged exchanges and their offerings.

There is growing demand from investors—both individual and institutional—to bring exchange-style trading to privately-held stocks and open up these opaque markets to a broader base of participants beyond venture capitalists and the few brokers and "accredited investors" in a position to take advantage of private companies' pre-IPO growth stages.

This means new marketplaces and market structures to handle the trading and settlement of privately-held securities in a manner similar to what investors are accustomed to in the public markets (*see page 36*).

Hand in hand with this, investors will expect greater levels of information disclosure and new trading, risk management, and analytics tools for the distinct nuances of private markets. Simply put, they will expect private market operators to behave more like exchanges, and offer exchange-style datasets and value-add tools.

There are also potential longer-term implications for exchanges: since most smaller listed companies remain thinly traded with a low market capitalization, if a company can access liquidity and raise funding while remaining private, why go public at all? To be sure, many will still pursue a traditional IPO, but others may decide not to, shrinking the number of listed companies on public exchanges.

In the short term, this could impact exchange listing revenues. But longer term, if exchanges list fewer companies, while others trade elsewhere, then their marketplaces are less representative of the market overall. And if that happens, then participation on those exchanges may be less valuable to investors. And exchanges' market data becomes also less representative of the overall market, meaning that exchanges may find it harder to justify prices for data and access services, which—as listing and transaction revenues have declined in recent years—have been the cash cows for exchanges.

> Most likely, exchanges will simply start buying up private marketplaces.

This could perhaps force exchanges to create new, value-add services for investors, or to make their IPO processes more attractive to private companies, or risk a bifurcation of trading venues where one class of equities lists on exchanges, while others remain private but trade in a similar manner.

But most likely, exchanges will simply start buying up private marketplaces. They could migrate that trading to already familiar exchange systems, potentially increasing participation, and could also co-mingle public and private data to create more valuable datasets.

There is already precedent for this. Nasdaq, for example, operates two markets for growth stocks: Nasdaq Private Market—incorporating SecondMarket, which Nasdaq acquired in 2015—for unlisted companies, and Nasdaq First North, a regulated "micro exchange" where companies essentially go through a "mini-IPO" that affords them the same benefits as listed companies, and can act as a stepping stone to a full exchange listing.

Adam Kostyal, head of listings for the Nordic countries at Nasdaq, says this approach gives companies credibility and access that they would not otherwise be able to achieve, while its regulated status offers protections for companies and investors.

Exchanges could use those acquisitions as "junior" markets with different operating models or as "feeder" marketplaces for full IPOs on their main markets. In fact, Kostyal says around 10 companies each year migrate from First North to Nasdaq's main Stockholm exchange.

I wouldn't be surprised to see other exchange operators snapping up players like OTC Markets Group and some of the startup private marketplaces (if they were open to it, that is). Cboe and Miami International Holdings, operator of the MIAX options exchange, have both been on acquisition sprees. Cboe recently snapped up the Chi-X Europe and Asia assets, and has been assembling a suite of niche-but-impressive data and analytics tools to complement its existing volatility products, while MIAX recently acquired both the Bermuda Stock Exchange and the Minneapolis Grain Exchange, and has been vocal about diversifying and creating new products. And, since it already has skin in the game, and an alternative data vehicle, Quandl, why not Nasdaq also?

Things could be about to get very interesting for stock markets, public or private. wt

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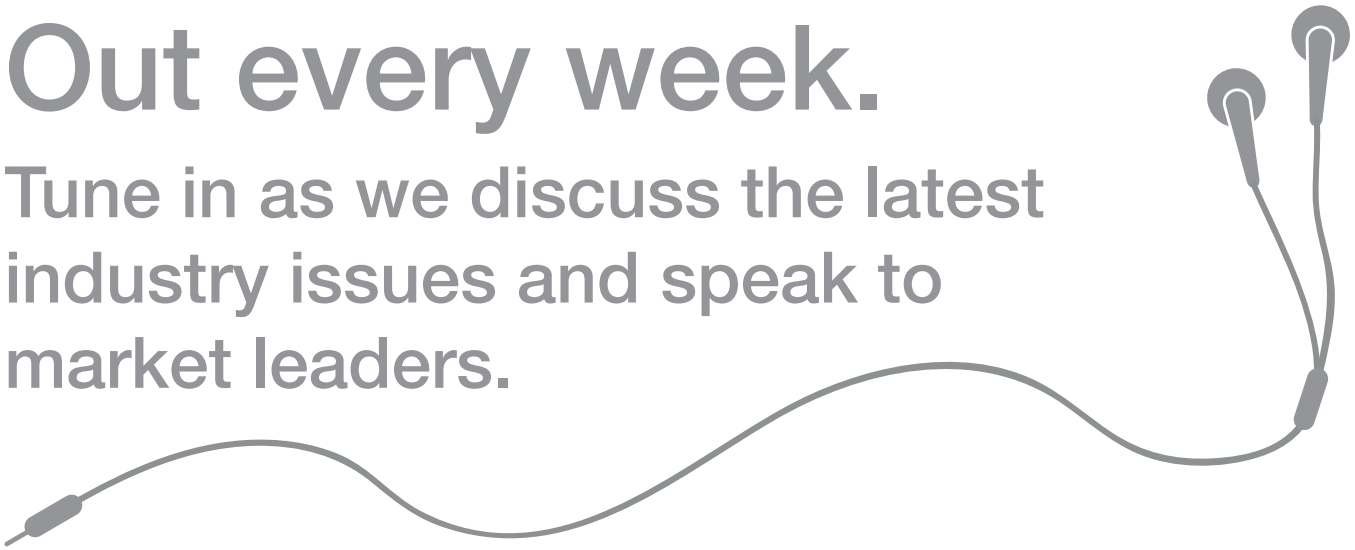

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