

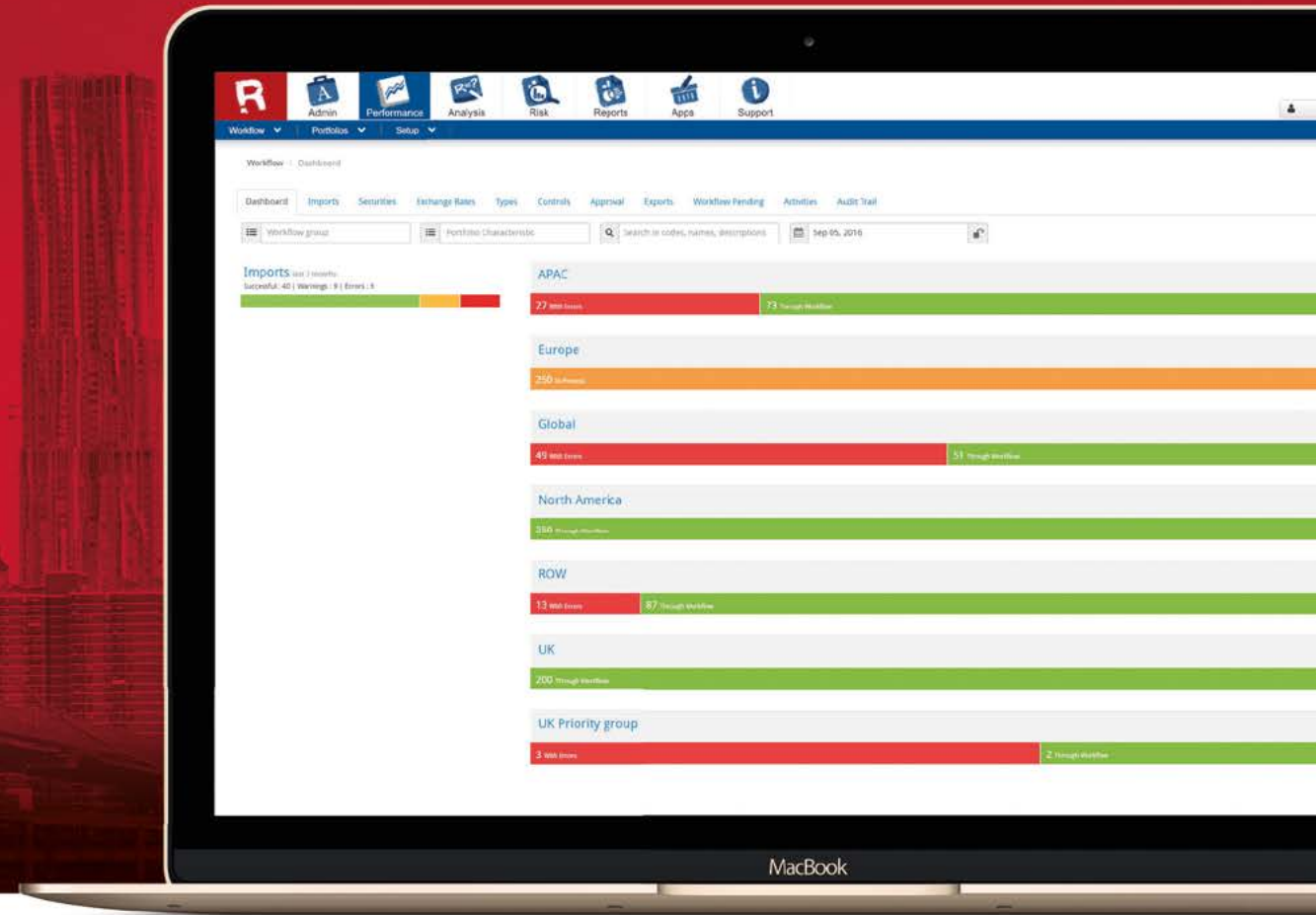
asset servicing times

**Technology Annual
2018/19**

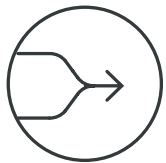


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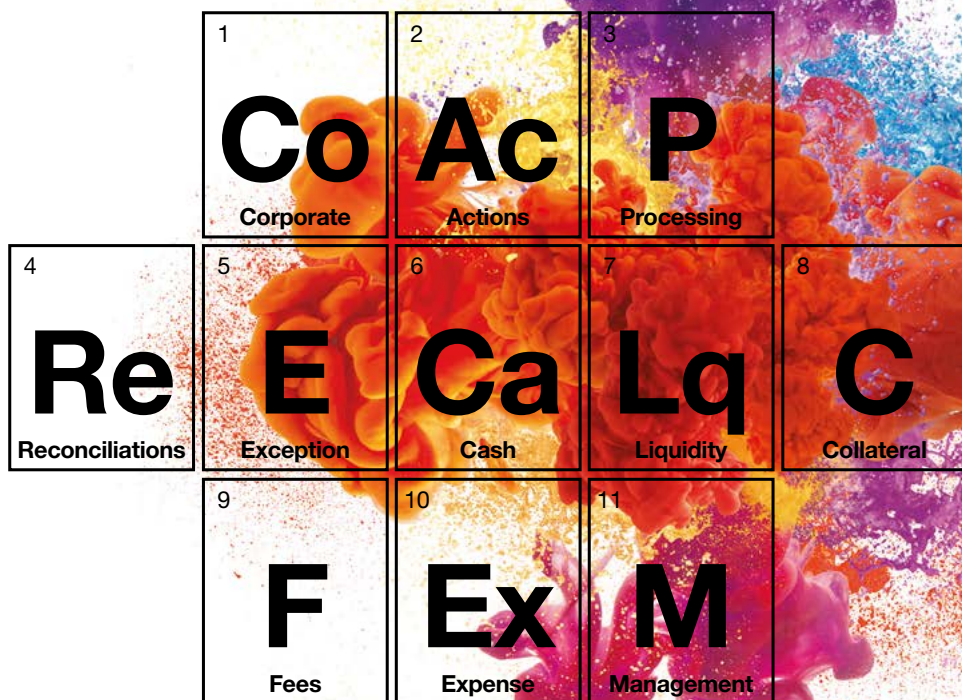
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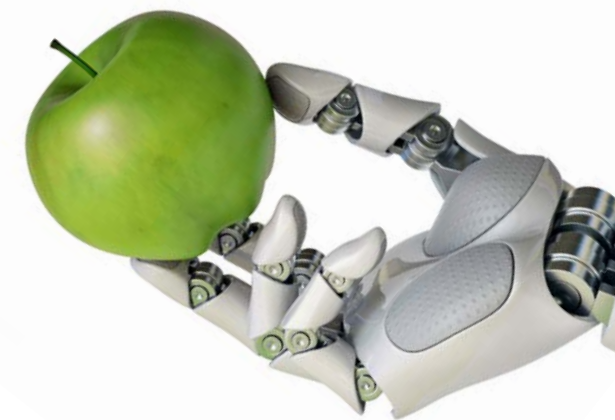
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I, Robot

Even though the level of interest has increased around the likes of artificial intelligence and machine learning, the financial services industry still seems unsure about the complexities surrounding such technological advances.

In this year's Asset Servicing Times Technology Annual, industry participants explore how the introduction of AI and machine learning in the financial services industry has allowed market participants to rethink processes and increase the user experience by extracting client data monitoring behaviour patterns.

Technology has also played a key part in regulation over the years, Philippe Ruault and Sophie Devillers of BNP Paribas explain that as different technologies become robust and used more widely, they become part of the regulators' world.

Find out from Elizabeth Mong of Ardor/Nxt Group the role blockchain is playing in the asset servicing industry and how it is expected to change the industry going forward.

Broadridge's Mark Weller provides exclusive coverage of the firm's new report, Active Fund Management: Supporting the Tide of Change.

Thank you for taking the time to read the Asset Servicing Times Technology Annual.

Becky Butcher
Editor



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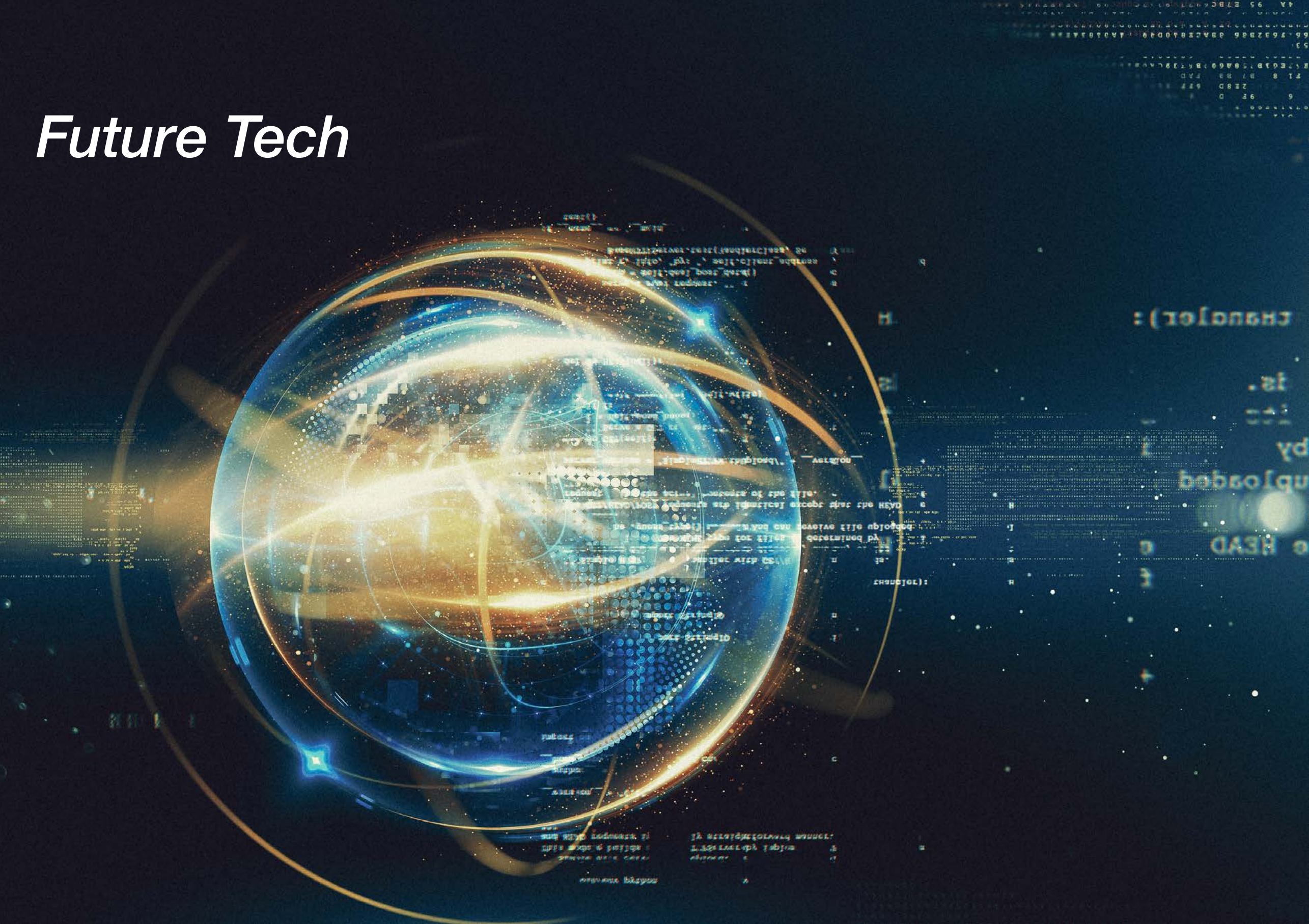
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Future Tech





The robots of dawn

Discussions around AI and robotics technologies are nothing new to the financial services industry, but how are these technologies really transforming the market?

Becky Butcher reports

Even though the level of interest has increased around the likes of artificial intelligence (AI) and machine learning, the financial services industry still seems unsure about the complexities surrounding such technological advances.

The introduction of AI and machine learning in the financial services industry has allowed market participants to rethink processes and increase the user experience by extracting client data monitoring behaviour patterns.

According to Andreas Burner, CIO at SmartStream, the industry is starting to recognise this potential, and has now started talking about potential AI initiatives.

Burner suggests that AI and its various technologies “have the potential to be the magic bullet in the next few years”.

From his own experience at SmartStream, he says that since starting the AI initiative last year within the firm, it has “enabled us to have more practical conversations with our partners and clients. We found numerous use cases where AI technology can significantly change working practices”.

He suggests that another interesting aspect is that “many databases contain historical data for how certain services have been executed for many years”.

“This data now becomes very valuable for data scientists, because it allows programmes to learn business processes automatically, without the need for programming.”

Northern Trust is also exploring various avenues that can incorporate AI and its accompanying technologies into the firm, including robotic process automation to help automate manual, redundant tasks to improve functions such as reconciliations and event processing, providing clients with shorter turnaround times.

Justin Chapman, global head of market advocacy at Northern Trust, explains: “There are countless ways that various AI technologies can help financial services institutions because it covers such a broad array of disciplines. It can help to provide more efficient and more insightful services.”

Northern Trust has also been researching natural language processing, which involves building machines that can ingest and extract insights from a large amount of unstructured data. Machine learning, which allows machines to adapt their processes as they take in new information, has also been on the firm’s radar.

Chapman notes that these technologies can be applied to large datasets to identify patterns and trends, benefitting clients from new insights through improved analytics.

Although various industry participants see AI and robotics as the next ‘magic bullet’ of the industry, Dan Reid, co-founder and CTO of Xceptor, disagrees.

Reid explains: “AI isn’t a panacea. In the same way offshoring was used to reduce cost and increase efficiency, robots have often been deployed to create efficiencies and reduce cost. They can replicate, but don’t improve existing tasks. Most processes are complex though and have lots of unstructured data—this is where the real value and return on investment can be found.”

He suggests: “You need to start with the data, not the technology.”

Rob Palatnick, managing director and chief technology architect at DTCC, also weighs in stating: “First and foremost, we do not believe there are any ‘magic bullets’.”

However, Palatnick explains: “The combination of AI and RPA offers a powerful set of capabilities that, when used together, can build upon the efficiency of the work we do today.”

Henri Waelbroeck, vice president, director of research for portfolio management and trading solutions at FactSet, notes that firms need to “examine current processes,

rally around a desired future state, and chart a path to get there”.

Waelbroeck says: “Merely implementing ‘buzzy’ technologies does not guarantee success. It is critical for firms to build expertise internally while cultivating a network of trusted third-party advisors and partners. With that disclaimer in mind, AI and robotics, as with many innovations, do introduce the possibility of reducing the cost per unit of effectiveness.”

Jerry Norton, head of strategy for CGI’s UK financial services business, says that when it comes to robotics, “there is no magic bullet, it’s just continuous automation”.

Norton adds: “Full AI can be a magic bullet, but we are well away from that point, we need to resolve a number of technologies before claiming this.”

Specifically for the asset servicing industry, Rob Ward, managing director, head of changes and initiatives at RBC Investor & Treasury Services, suggests that AI and robotic process automation “can be an important means to improve accuracy, reduce risk and free up capacity”.

At RBC, Ward suggests that employee experience has improved as the firm shifts its time from repetitive manual tasks to higher value activities.

To ensure the robotic process automation and other types of AI deliver maximum benefit to the industry, Ward explains that RBC believes “it is best to develop our services with robotic process automation first before integrating more AI technologies”.

He adds: “This goes back to basics, as there is generally less value in applying new technology to processes and tasks that haven’t yet been transformed or optimised, which is a key part of an robotic process automation approach.”

The hype

Although a lot of financial services companies are already using AI technologies for the right reason, some companies are seen to be merely jumping on the bandwagon. AI is a complex technology and isn’t something that can be implemented overnight.

According to Burner, difficulties implementing AI and machine learning in the financial technology domain are often caused because implementation requires a close cooperation of highly skilled data scientists and innovative business analysts.

He says: “AI is a complicated technology, it requires several years of experience before somebody is an expert. It is quite difficult to find skilled people and there are only a few companies that understand the challenges to create a working environment for innovation projects.”

“I have seen a few companies that have founded labs, similar to the one we founded for SmartStream that act as think tanks. In my opinion, this is a perfect way to approach the subject.”

However, he does note that on the other side, he has seen companies that have created AI departments as a subdivision of their marketing or sales departments. He adds: “I cannot believe that an initiative without a deep dive will bring sustainable progress.”

Reid also agrees, he says that understanding how you need to transform your business “will guide which intelligent automation tools you need, where and when”.

Waelbroeck suggests that new technologies should be considered tools in a toolkit. For some firms, applications in one area or another may be more readily apparent than others based on factors like in-house expertise, existing technical infrastructure, and even regional idiosyncrasies.

He explains that there are real-world applications for AI in such a key risk area—these include using machines to review reams of data to identify patterns and uncover outliers, to determine which trades may need to be reported to a regulatory body or reporting agency, to flag activity for further review by expert humans, and so on.

He adds: “It’s a matter of identifying pain points in the business and addressing them with the appropriate tool or tools in the kit, one of which is now AI.”

Risk management is an emerging area that is being explored for AI and machine learning application. More generally for the financial services industry that

means things like anti-money laundering measures, fraud detection, customer service, and other front office applications.

Palatnick notes that for DTCC it could mean new capabilities in areas such as central counterparty liquidity assessments and identifying the need for additional margin calls to members.

He also explains that DTCC is seeing the use of machine learning to recognise similar phrases from operator comments about application and system incidents and issues and then recommend solutions from a knowledge database.

He says: “Machine learning can recognise consistent patterns of communications, for example between clients’ systems and those of DTCC, and then raise an alert when an unusual communication pattern is detected.”

Regtech

AI technologies have not just been explored to improve the end user experience, but to also meet requirements for regulations such as the second Markets in Financial Instruments Directive (MiFID II). The real question is how banks can convince regulators that the technology actually works.

Palatnick reveals that regulators have actually shown “a keen interest” in AI having seen what it is already achieving outside of financial markets with services such as Google Translate and voice-assisted services growing popular in consumer industries.

He says: “Currently, regulators are leveraging the expertise which has been gathered from other industries and the world of academia and are applying it to financial services. One area where they have shown a keen interest is in the monitoring and identification of suspicious and fraudulent trading activity.”

Although they have shown an interest, Burner suggests that regulators themselves will have to look into AI technologies. He explains: “I believe it will solve the challenges we do not have the answers for today.”

He notes that a good example is the BCBS-248 regulation and its requirement for cash and liquidity stress testing.

According to Burner, regulators require banks to monitor internal stress, counterparty stress, and market stress. He says: “The monitoring requires a technology that understands the nature of a normal behaving market and can sense abnormalities. This is a perfect example of a machine learning use case and SmartStream is currently implementing a stress monitoring tool to address this.”

However, Waelbroeck suggests it will take a collaborative approach on the part of market participants.

He explains that if institutions can demonstrate reliable data capture and reporting, increased security and transparency, and ultimately greater protection of the end investors, “they will succeed and the promise of enhanced operational efficiency can further motivate the industry”.

The future

With the rate that advancements have moved over the last five years, it is hard to pinpoint exactly how the industry will develop over the next five. However, Ward expects that a wide-range of AI technologies will be implemented in the custody and fund administration sector, with robotic process automation and natural language processing taking the lead.

Ward also reveals that at RBC, the testing and implementation of robotic process automation is in “advanced stages” in the firm’s asset servicing business, suggesting that the use of AI technology will become “a staple of industry technology going forward”.

RBC is not alone in these advancements, various firms in the financial services industry are currently working on these types of initiatives.

Northern Trust’s Chapman notes that “while some specifics are still being researched, there is one certainty, these new technologies will continue to change both market practices and how people and financial services companies interact”.

Chapman said he expects to start seeing efficiencies being realised across the value chain together with enhanced tools to provide our clients with deeper insights to assist them with their decision making.

With firms getting excited about how they can deploy these new technologies, cybersecurity should remain a top priority when implementing them.

Palatnick explains that cybersecurity is fast becoming a “ripe opportunity” for the application of AI and machine learning as these technologies allow firms to monitor massive amounts of data related to network traffic and messages, looking for anomalies and suspicious behaviours in real time.

Burner’s view is that there are currently two communities in the AI domain, one that uses the latest deep-learning technologies, which they apply to various use cases, and the other community that only uses interpretable and transparent AI technology. Both communities are progressing at a high pace, but Burner suggests that in five years, we will see these two communities converging.

He says: “Today, machine learning is a craft that requires a lot of endurance. Five years from now, I believe AI will be easier, accessible and applicable. Also, many applications will have machine learning technologies integrated, and users will demand smart user interfaces that understand their needs and guides them through the user interface accordingly.”

AI and machine learning have been around for decades, but what’s changing is the adoption rate of AI technologies as part of institutions’ digital transformation journeys.

Reid explains: “It is a journey and most institutions are still either framing their needs or just dipping their toes in. There is a long way still to go. The value comes from putting data at the heart of any journey.”

Change is slow to come because of compliance and the need for consistency across systems, according to Waelbroeck, but he concludes that once that door is opened “a torrent of innovation will be released”. **AST**

Becoming the norm

With technology playing a key role in regulation over the years, Philippe Ruault and Sophie Devillers of BNP Paribas discuss how AI and robotics technologies are transforming the financial services industry

Becky Butcher reports

As the industry embarks on the regulation technology journey, how can banks convince regulators that the technology works?

Philippe Ruault: Actually, technology has played a key role in regulation over the years. As different technologies become robust and used more widely, they become part of the regulators' world. When we transitioned from physical paper delivery to fax as legal proof for transactions, the same effort was needed by regulators to update their local rules.

The difference today is the acceleration of the adoption and the speed at which regulators need to change. However, the reality is that regulators will be interested in outcomes, and risk mitigation, rather than the methodology or technology itself.

And does all the hype have a real-world application in such a key risk area?

Ruault: There are already a number of real-world applications of regtech. One example where BNP Paribas is embarking on the regtech journey is in our partnership with Fortia. This partnership is part of our digital transformation programme using new technologies, such as artificial intelligence, advanced machine learning, and business process management.

The programme's ambitions are to improve operational efficiencies, reduce regulatory risk, and enhance staff and client satisfaction for depository and fiduciary services.

BNP Paribas Depository and Fiduciary Services range from the highly-regulated activity of fund depository to un-regulated post-trade investment compliance monitoring on behalf of institutional investors where user requirements evolve fast and regulatory-driven complexity will keep increasing.

How are AI and robotics technologies transforming the financial services industry?

Sophie Devillers: To date, we have seen a huge transformation in the areas of financial risk assessment, industry regulatory compliance—especially anti-money laundering and know-your-customer functions—and cybersecurity.

We have also noticed a marked improvement of the client experience. By using machine learning technologies—artificial intelligence (AI) algorithms and predictive analytics—banks are now able to gain a deeper understanding of the individual client, thereby creating a more customised service and product offering.

On top of these is access to data intelligence, which when applied appropriately can provide insights to gain operational excellence.

Together, are AI and robotics a magic bullet to reduce cost and increase effectiveness?

Devillers: Perhaps 'magic bullet' is a bit misleading as the introduction of AI and robotics into any organisation is not a 'quick and dirty' solution.

For BNP Paribas Securities Services, when we were setting up our AI programme, we identified four global objectives; increased efficiency, client satisfaction, risk reduction and employee satisfaction.

Today, these drivers remain the same and are the benchmarks upon which we measure the success of our digital transformation.

An effective strategy for implementing the various technologies of AI and robotics will be extremely disruptive and will almost certainly have a direct impact on cost and efficiency. However, we have learnt that it pays to be smart in the selection and the prioritisation, of which 'opportunities' get implemented, as they may not necessarily be synonymous with reduced costs and increased efficiencies.

Although a lot of financial services companies are already using AI technologies for the right reasons, do you think some companies are using such technologies to jump on the hype?

Devillers: The science of AI and machine learning is so vast that many firms are having trouble identifying

what AI technology is best suited to their business models, as well as their business strategies. As the groundwork in terms of research and investment is significant and lengthy for any AI programme, it is highly unlikely that some companies are successfully implementing AI technologies, simply to follow a trend.

How do you see the AI technology world developing over the next five years? What kind of things do you expect to see?

Devillers: In the next five years we expect to see robotics processing automation as standard, business as usual in every business model.

We anticipate that there will be a shift in the importance of soft skills versus hard skills. Soft skills are going to be paramount for our workforce to succeed in this new digital arena.

This will be reflected in positions such as data scientists, which are roles that monitor the digital workforce, user experience designers and so on, and they will soon start to appear ever more prominently in our human workforce.

Aside from the current emphasis on compliance and security, we believe that there will be a much stronger focus on assuring the quality of data. Without data, there is no AI. As technology evolves, access to clean datasets will exponentially improve AI and its applications. **AST**

Sophie Devillers
Head of AI
BNP Paribas Securities Services



Philippe Ruault
Head of digital transformation
BNP Paribas Securities Services



Embracing digital innovation

As legacy systems and manual processes present a major issue for financial technology companies, Gene Fernandez of FactSet explains what major changes he expects to see over the next five to 10 years

Becky Butcher reports

What are the major issues around financial technology today?

Legacy IT systems and manual processes present a major issue that is plaguing financial technology companies today. There are tangible benefits to be gained from moving away from legacy systems—streamlined maintenance and support, future-proofing, interoperability with other internal and external systems, scalability, efficiency and speed, and more. Firms who continue to delay upgrades are leaving money on the table in terms of both real dollar and opportunity cost.

Firms need to be willing to embrace digital innovation and identify areas for automation. This new approach to financial software is less constrained by the burdens of physical implementation and allows users and vendors alike to roll with the punches of new regulation, scale up and scale down infrastructure more rapidly, and fold in new processes, tools, technology, or data.

What major changes do you see happening in the next five to 10 years?

In the next five years, we will see an increase in the uptake of various artificial intelligence (AI) and automation technologies. We will continue to watch the march

towards transparency as demanded by both regulatory bodies and an increasingly engaged and educated clientele. I believe we will see further consolidation of vendors, but also increasing openness.

Developments like blockchain technology may aid in this process by serving as a framework for sharing information in a secure and immutable manner.

Another area poised for great change over the next five to ten years is cloud computing. Asset managers are already beginning to migrate certain elements of infrastructure out of more expensive internal data centres, and onto more economical cloud-based offerings.

Developments like this can help to level the playing field for the buy side, affording more firms access to advanced technologies and greater scale at lower costs.

I believe there will be shifts in how clients think about build versus buy, or outsourcing to specialist third parties. This 'best-of-breed' mentality is extending beyond infrastructure and into processes as well, like regulatory compliance and monitoring, performance attribution, and risk modelling.

Clients are turning to firms that specialise in areas such as these, stay current with the latest developments, and offer real-time monitoring and tools that empower practitioners to step in where needed.

If institutions each build their own DLTs, does that defeat the object?

The point of distributed ledger technology is to provide a single, shared, immutable ledger that documents all transactions across all institutions. There are benefits to having a single blockchain in which all institutions participate, having a single, irrefutable source of the truth for the entire industry certainly comes to mind. That said, there does not necessarily need to be a single blockchain to rule them all. At this early stage in the development of distributed ledger technology (DLT), it is beneficial to all market participants that multiple approaches are being taken to explore and implement this new technology.

Further, there will certainly be a case to have private versus public blockchains, as well as multiple overarching blockchains maintained by different organisations. This kind of competition among providers typically yields fruit for technology users. At the same time, I believe firms will pivot their focus on decentralised applications over protocol over time. The growth of the internet exploded when participants standardised on TCP as a protocol. A similar phenomenon is likely to occur with respect to DLT—with the caveat that adhering to different protocols for different workflows presents less of an issue, so complete convergence to a single standard is not a fundamental requirement. I also expect providers to offer decentralised applications that will provide compatibility across protocols where needed, particularly in the medium term.

What role does automation play in asset servicing?

AI is enhancing both the efficiency and effectiveness of most major industries and the asset servicing industry is no exception. Much of what has driven the focus on tech is margin compression, both on the buy side and the sell side. Facing shrinking margins, many firms find themselves asking, 'how much of our cost base can we optimise through new technologies, such as AI?'

As AI and machine learning work their way into the common industry vernacular, and as firms rack up successes leveraging this type of technology, they're likely to find that some of this technology is truly differentiating. When a system learns from its users, it can help its users do their jobs more efficiently, increasing their productivity and, arguably, their job satisfaction.

Trade automation is one such area that has been on the forefront of the application of AI and robotic process automation (RPA) in financial services, largely due to the maturity of electronic trading in certain markets. This is certainly one of the biggest impact sectors for RPA in finance today, if not the biggest. In an environment where firms face trade volume and market complexity growth more rapid than headcount, any tool or technology that can automate straightforward tasks so traders can focus on the more difficult orders in their book will be beneficial.

Implementing RPA and AI into the trading workflow can reduce the burden of mundane tasks on a trader, allowing them to focus on more unique, intellectually challenging, and valuable work for their firms. There are numerous benefits here, including improvements to trade performance (via cost reduction and/or alpha capture), the ability to scale operations faster than headcount, and the development of a body of knowledge and experience with applying disruptive technologies to achieve operational and commercial gains. This is an experience that is beginning to prove invaluable for firms who are applying automation and AI to new areas of the business, including data management, research, and compliance.

What about the human element of these processes?

AI systems in finance allows firms to combine data science with analytical models to extract information from the market, and to feed these observations back into investment decisions to optimise outcomes. The application of AI to commercial processes today also allows firms to focus on automating predictable and potentially repetitive tasks that have well-defined parameters. The goal of this is to efficiently scale operations, allowing human participants to apply human creativity and ingenuity to the problems that truly deserve their attention.

Successful firms will continue to interweave AI, machine learning and human judgment, and will apply this mix to emergent areas such as data management, for fast, accurate, and more efficient access to data in order to support business decisions. The market rewards judgement and creativity around the most complex problem-solving, which is less amenable to machine learning, such as with regulatory compliance management. Firms, which can cover the gaps across complex multi-function or multi-firm, machine-led processes will have an advantage for a while.

Is there a risk of too much reliance on technologies such as AI and machine learning?

Rather than over-reliance, the risk lies more in overestimating one's own understanding and moving too quickly without a well-considered plan. The whole world is becoming aware of the promise and peril of AI

and automation, like factory robots before and simple machines in the first Industrial Revolution. I think it's tough to argue that, despite our many challenges today, the average human's quality of life exceeds that of the average human's quality of life 400 years ago. So the risk from AI and machine learning is not in overreliance, but in failing to apply these new technologies in thoughtful ways that benefit both enterprises and individuals.

Firms need to examine current processes, rally around a desired future state, and chart a path to get there. Merely implementing technologies based on hype does not guarantee success. It is critical for firms to build expertise internally while cultivating a network of trusted third-party advisors and partners. With any relatively new technology, or technology new to a given firm, it's important to start small, but meaningfully, and to take a sufficiently long time horizon to test, gather data, learn, and improve. Rolling out new technology is, and should be, an iterative process for both individual firms and the industry. Fortunately for those implementing and designing new technological strategies, there has been a philosophical and operational shift over the last 20 years that makes decision making more painless. Vendor flexibility and cloud computing have created an environment where you don't need to be locked into 20-year monolithic decisions anymore. This new era of adoption means it's easier to make a decision, implement, and evolve. We've moved from a step-change approach to infrastructure to an ongoing, iterative one, and it's given the industry more opportunities to define, and calibrate, the path forward. **AST**



Gene Fernandez
Chief technology and product officer
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Technology alone is not enough

SIX's Nino Ciganovic discusses how industry participants can find value in post-trade service with new technologies and collaborations

In the face of tighter economic and regulatory conditions, post-trade professionals face greater pressure to keep one eye on growth, and the other on a swath of ensuing technological and competitive developments. Research that SIX conducted earlier this year validated these challenges. Some 67 percent of industry executives believe that if the post-trade function is to continue creating value beyond being 'simply operational', they must build new services and revenue opportunities by 2027.

The post-trade function is familiar to innovating its way out of issues. However, the difference today is innovative technologies become tomorrow's commodities much quicker. This results in a continuous hunt to find value, a factor compounded by a lack of understanding around just how important post-trade services are to the securities value chain. The following information, however, provides an overview of where the value lies in this function, and where the opportunities exist.

Evolving the industry with new technologies

Previously, correspondent and transaction banking models have served the industry well. However, with increasingly demanding clients and heavier oversight from regulators, cracks are appearing in these models. Innovation can solve many of these challenges; survey

respondents agree—63 percent highlighted that robotic process automation (RPA) and artificial intelligence (AI) are technologies that have a strong potential to overcome the aforementioned challenges. Examples of it are already starting to make headlines in the industry press, however, the news is focused on the trading and execution side rather than post-trade services.

Friendly fintechs

When it comes to meeting change with speed, financial technologies really have the edge over traditional players. Our research reveals that the collaboration with fintechs presents another large opportunity in the post-trade space, with over a third of respondents (37 percent) suggesting their organisations are highly likely to turn to 'the new kids on the block' for at least one post-trade service by 2027.

The strategic importance of fintech investment is not being overlooked, with many large financial institutions beginning to make acquisition or partnership plays over smaller, more innovative businesses. By partnering with fintechs, traditional post-trade businesses will be able to react to client needs faster and approach challenges from a fresh perspective without the burden of legacy systems and culture.

The right balance

Just under half (43 percent) of respondents said that collaboration with fintechs was essential to remaining at the forefront of the industry.

But hiring the right talent was also classed as another critical aspect. More than half said they needed to hire from a fresher pool of talent in order to create new and more innovative opportunities.

It is not only the collaboration with fintechs that are changing the makeup of firms—a recent report from Ernst & Young suggested that future talent could be internal entrepreneurs as opposed to those who excel at in-house developments.

This is likely to have an implication for talent acquisition at all levels meaning that some companies need to begin re-assessing the value of internal employees as well as those externally. It is a challenging time for the post-trade function right now.

However, with innovations such as RPA and AI becoming better recognised and understood in the industry, the landscape is looking much more reassured. Despite this, it is important for the industry to remember that

technology alone is not enough to achieve sustained progress. A fundamental shift in skills and an attitude towards collaboration is needed to do this.

About the research: In September and October 2017, the study surveyed 60 decision makers at financial institutions in the US, the UK, Germany and Switzerland.

Some 30 respondents came from asset management firms, while 30 came from more traditional banks (including custodian banks). **AST**

Nino Ciganovic
Head global relationship and network
management, member of the
management committee, securities
and exchanges
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Asset Management Tech

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Feeling flexible

As reporting and analysis demands grow in both volume and complexity, Statpro discusses how technology can help asset service providers offer comprehensive data management with flexible analytics at scale

What are the challenges facing asset service providers today?

Asset servicing has become a crucial part of the industry, but it is a scale industry offering a largely commoditised service. It now needs to move forward. One way it can do this is to invest in technology that enables it to serve the demand from asset managers for data management and data quality, through to bespoke analytics and flexible data extraction. This may seem counterintuitive when margin pressures are very real, but by doing so, asset service providers can extend their capabilities into the more value-added elements of the middle office and thereby improve their margins by offering their clients more value.

An Ernst & Young (EY) report, 'New opportunities for asset servicing', addresses this issue: "Considerable margin pressure as revenues have plateaued, despite rising securities markets, is driving companies to revisit their operating models. The need to reduce costs to protect margin is increasingly important and on the agenda of most major players. This is evidenced mainly through technology rationalisation, organisational efficiency and innovative new technologies."

The demand from clients is there too. Asset managers continue to explore outsourcing opportunities as their needs become more complex. This is leading to complexities in data and a need to manage this better and provide more in-depth analysis and reporting. Asset managers are demanding more from their outsourcing partners as they look to enhance their oversight and reporting to their stakeholders.

Another key factor influencing both asset managers and asset service providers is the impact of regulation. Currently, amongst the top 20 asset service providers, regulations are seen as more of a risk than an opportunity, with nearly 75 percent seeing the impact of regulations as the greatest risk facing the asset servicing industry. This may come from the possibility that regulators may turn their attention to asset service providers themselves as the industry continues its growth and success with outsourced services.

Maintaining services and in-house expertise to keep up with the changing regulatory environment is costing the industry billions of dollars, with asset service providers struggling to provide complete solutions for a wide range of regulations.

Technology is the final and possibly the biggest challenge we will address in this article. It has become a challenge over time as technology solutions have been brought in piece by piece. This has resulted in many asset service providers having large, overly complex and expensive technology environments that are difficult and inefficient to maintain. The industry has grown up with specialised third-party software providers each delivering a siloed solution that wasn't designed to integrate or be part of a wider data management strategy. This creates challenges when it comes to moving data around the business efficiently.

The data management effort behind this complex technology stack is huge and impacts service levels when it comes to reporting and providing a joined-up service. Servicers say their biggest challenge is integrating the ever-growing volume of complex data.

And as new investment products continue to evolve, this challenge isn't going away, with ever more granular data being created that needs to be analysed and distributed to a growing number of stakeholders.

It will be the ability to manage this technology and data management challenge through new and innovative solutions that will differentiate successful and leading service providers from the rest.

What are the opportunities for asset service providers?

Outsourcing continues. Where there are challenges, there are opportunities for those who address them in the right way. Smaller managers continue to outsource many aspects of back and middle office functions as they don't have the capacity to add these internally.

Larger managers have some of the biggest challenges that we highlighted above, so their need to focus on core areas of the business is high.

This is leading to outsourcing beyond basic administration and creating opportunity for services such as regulatory risk reporting, daily performance measurement and data management across all asset classes and in-depth analytics and information distribution.

The EY report is explicit about this. It says: "Asset owners acting as managers are increasingly outsourcing middle and back office functions, opening up tremendous revenue potential for asset servicers."

It continues: "They will need a platform able to support risk modeling and an integrated view of risk-weighted performance across their multi-asset portfolios."

This ability to provide a multi-asset solution, bringing together things like performance and risk in a single view is key to capture this opportunity.

Expansion into enhanced middle office services

Although the middle office is a volumes game, it is increasingly about being able to harness sophisticated and sometimes bespoke analytics and being able to support that on a global platform.

A common, but critical element of these enhanced middle office services is the ability to provide highly configurable solutions.

Asset managers are used to customising various elements of their portfolio analytics and data management suite.

While this is not desirable from a service providers view, it is what the client wants and is essential in capturing the growth opportunity.

Unlike the back office, the middle office is all about being able to finesse data and send it to where it needs to go in the format required at a moment's notice.

Another key part of offering a tailored and controllable service to asset managers is having the right technology that can be scaled up and down as and when required.

Basically, this is the extra bandwidth that is offered by cloud-native applications, which keeps costs under control without losing capacity.

Yet the flipside of cost control is the massive value that can be added if asset service providers know they can scale up when data volumes threaten to overwhelm everyday systems.

Technology is the strategy

Differentiation through best in class technology can be achieved in many ways, but in terms of key drivers for growth, data integration, and the presentation of aggregated and normalised data to clients are priorities. Multiple business models are being created, such as online self-service platforms with configurable dashboards and analytics. Web application programming interface (API)-driven solutions such as asset servicer data lakes that asset managers can subscribe to, or publishing content directly into client data warehouses are also growth areas. The key takeaway here is that service providers with the ability to bring multiple sources of data together, allow for customisable and in-depth analysis, and then provide flexible digital distribution through innovative technology and business models will become the industry leaders. Technology has moved on from monolithic 'must calculate everything' systems that wasted valuable time as analysts waited for processing to complete, only to find data errors that required the whole process to begin again. We've already touched on the cost efficiency of cloud-native applications that can automatically scale when demand increases, such as at month end for example. The difference in capital expenditure and maintenance costs between cloud and on-premise data centre hardware has been well documented, but being able to rent processing power by the minute means no large upfront investments in hardware that may be massively underutilised for 90 percent of the time.

Asset servicers who can build themselves a good reputation for being able to offer integrated platforms with all the features and functions required, the ability to crunch any number of data sets with any number of analytics models, and being able to present them on an easily-understandable and configurable front end, will hold great appeal to asset managers going forward.

StatPro and asset service providers

StatPro has over 40 direct relationships with asset service providers of all sizes across all global regions. StatPro has spent many years understanding the services being provided and the growth in value add middle office outsourcing, such as daily transaction-

based performance, advanced risk analysis and complex regulatory compliance reporting. StatPro also has over 280 asset managers as clients and understands their middle office process and requirements.

The right technology for innovation

StatPro has invested tens of millions of dollars over several years in its cloud-native platform, StatPro Revolution. The design principle behind the platform is to make the process of performance measurement, portfolio analytics and risk management simple. By delivering the platform as a cloud service, StatPro can provide accelerated functional development compared to legacy on-premise systems. This provides an evolving product that is designed to support the growing functional demands of asset managers. Three key elements of the platform directly address some of the challenges raised in this paper:

- Data quality: the technology to efficiently manage large data sets through visual workflow, control and exception management.
- Analytics: the technology to provide multi-asset class performance, risk and compliance analytics supporting a variety of industry standard models in a single platform.
- Digital distribution: the technology to allow for flexible distribution of data supporting various business models including configurable web interfaces and Web APIs.

Supporting these are some award-winning innovations such as auto-scalability within the cloud allowing the platform to scale to hundreds of calculation servers in just a few seconds, and intelligent workflow automation that allows for efficient management of data controls and error correction. These technologies are combined with industry leading functionality in the field of performance measurement and risk analytics. It's the combination of this industry expertise and ground-breaking technology that results in a solution that supports growth while increasing asset manager comfort and satisfaction levels with their providers. **AST**

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Product innovation and regulatory requirements are driving fee models— are you ready?

Mark Weller of Broadridge provides exclusive coverage of the firm's new report 'Active Fund Management: Supporting the Tide of Change'

The Asset Management industry is in a period of seismic change. Long bull markets, low volatility and technological advancements have resulted in dramatic growth in low cost, passive funds.

Indeed, in 2017, the passive fund industry grew four and a half times faster than the active management industry.

This growth has applied pressure to actively managed fund costs and has resulted in an overall fall in fee income across the industry.

To a certain degree, the growth in index funds reflects investors' growing awareness of the negative impact of fees on long-term investment returns and their resulting desire for value and clarity around what they are paying for.

In today's post the second Markets in Financial Instruments Directive (MiFID II) and packaged retail and insurance-based investment products (PRIIPs) world, this desire is mirrored across distribution channels.

Regulators, shareholders, and end-investors alike are calling for change, and increasingly asset managers are taking a step away from the well-worn paths of tradition.

Change is in motion. Following the UK Financial Conduct Authority's (FCA) 2017 review of the UK's £7 trillion investment sector, new measures introduced by UK regulator and due to be in place by September 2019, aim to ensure asset managers act in the best interest of investors. Managers will need to ensure that they can provide open and transparent evidence of funds' value-for-money.

But there is more to this picture than MiFID II, PRIIPs and some FCA pronouncements. European Market Infrastructure Regulation (EMIR), The Alternative Investment Fund Managers Directive and the ongoing European Securities and Markets Authority directives are also contributing to the pressure for fund managers to review their modus operandi, to bring costs down for the investor, to make those costs more transparent, and ultimately to improve value for investors. The industry has responded by aggressive cost management initiatives and outsourcing. It is clear though that it isn't enough. Leading firms are now looking at how they can align their products to cater to investors' desire for lower cost products with the allure of excess and non-correlated returns. Delivering against this new paradigm will require firms to rethink their core portfolio management technology and revenue and expense management solutions.

Challenging the industry's pricing principle

With the index-fund market, including exchange-traded funds, continuing to attract a large share of the investor pie, mainstream active managers are looking for ways to better align investor appetites for low-cost Beta with managers' interests in providing higher value and premium fee products.

According to a growing number of active fund managers, there is no better way to do this than by challenging the industry's most fundamental pricing principle—the traditional flat-rate management fee.

The world's largest pension fund, Japan's Government Pension Investment Fund (JGPI), is one of the vanguards of this movement. JGPI is shifting from an asset under management (AUM) to performance-based remuneration system for the external, active fund managers it employs.

Last October, Fidelity International, the £301 billion assets under management asset manager, unveiled a new 'fulcrum fee' on its retail funds that will charge less when investments underperform. Earlier this year, Fidelity revealed it is also mulling over introducing 'time-based' loyalty discounts for clients who stay invested for longer.

Orbis Investments demonstrated a distinctive approach. It charges no management fees, but half of its funds' benchmark-plus gains are paid into a reserve, from which it takes its fee. When the funds underperform the index, the reserve pays a refund to investors.

Last year, Baillie Gifford cut management fees on 20 of its active funds. And in March this year, J.P. Morgan Asset Management announced it was cutting the charges on its UK funds and switching from a fixed expense model to a variable one. The US asset manager said this would mean that fees fall proportionately as the fund's assets rise, meaning investors can benefit from its economies of scale. Other high-profile names have introduced or announced funds with performance fees of various types, including both newer management houses such as Woodford Investment Management in the UK, and long-established global brands such as AllianceBernstein and Allianz Global Investors.

The impact of regulatory changes for the fund management industry

So, what do some of these changes mean for fund managers, their processes, systems, and technology infrastructure?

PRIIPs and MiFID II have introduced significant methodologies on price transparency. Asset managers can no longer provide just an ongoing costs figure.

Instead, they must now publish the total cost of ownership of their funds, including transaction or trading costs and other charges.

Firms must now be able to accurately calculate, break-down, analyse and publish the details of their trading costs, fees, and charges, at any given time.

MiFID II's mandate for defined payments for research has also introduced an additional fee complexity for fund managers.

Some firms choose to use the system of research payment accounts, approved by European regulators, to continue charging the cost of research to its funds.

Most large firms, however, followed BlackRock's lead and decided to absorb the costs against their own profits.

Looking forward to 2019, funds will be required to publish an annual statement setting out a description of the assessment of value.

As value is not the same as cost, the assessment will be complex.

Firms must consider the quality of service that investors receive, performance, costs, economies of scale, and how the fund compares to others available in the market.

Discussions continue around what an industry standard template should look like so that every manager can calculate and show costs on the exact same basis—but whatever it looks like, every fund manager must have the reporting, processes and audit trails in place to support these assessments.

The need for a flexible infrastructure and highly configurable, best-of-suite solutions

One of the main findings of the FCA's 2017 asset management market study was that institutional

investors such as pension funds and insurers found it difficult to get the necessary cost information to make effective decisions.

This is unsurprising as most asset management firms struggle to understand their own costs at a portfolio or fund level.

As product line-ups, fund structures, investor bases, and geographies expand, and variations in fee schedules and structures continue to evolve, active fund managers must look beyond the shop window.

They must consider which solutions they will need to ensure they have the flexibility to respond to these innovative structures and fee schedules.

At a technology infrastructure level, a high degree of flexibility will be required to support these changing requirements and ensure regulatory compliance.

Many firms have built up complex and integrated technology environments that are difficult to adapt.

Simply adding more software and people to cope with these changing conditions often exacerbates the problem—adding more cost, complexity, and risk.

Some firms end up with multiple finance systems, trading platforms and data warehouses that they must reconcile at an ever-increasing cost.

In this quest to become more nimble and cost-effective, heads of technology and operations are looking to consolidate their technology infrastructure with highly configurable, best-of-suite solutions.

The good news is that with the right fund products, and the right systems and processes to support them, active management is proving that it is still competitive and can continue to be an essential destination for investors capital. **AST**

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Streamlining the collateral management process

Jenny Nilsson of triResolve reflects on how market participants have evolved to meet their regulatory obligations and how operational excellence is quick and easy to achieve with triResolve Margin

Since the introduction of the uncleared margin rules in September 2016, collateral management has been thrust into the regulatory spotlight and become a hot topic for firms with over-the-counter derivatives portfolios.

While regulation has certainly changed the way firms view and manage their collateral management obligations, challenges persist. Deadlines, while essential to achieve change, often cause firms to make hasty decisions in a bid to become quickly compliant. As is often the case, for many market participants no (or limited) extra resources were provided to help them meet their uncleared margin obligations. As a result, many firms overlooked the opportunity that the regulation presented to review their existing processes and consider the use of new technologies to optimise their margin workflows.

Fast-forward 18 months and those that did opt to overhaul their traditional margin processes are reaping many operational benefits and experiencing new levels of automation. With no pressure of an impending deadline, those stuck using manual, fragmented processes should take the time to reevaluate their approach and ensure their collateral management workflows are both cost and operationally efficient.

A typically manual and fragmented process

No matter how operationally efficient the market participant, inefficiency persists in a fragmented process. Collateral management by default comprises

many different parts, which traditionally relied on multiple tools ranging from excel spreadsheets to email to installed software.

The calculation and issuance of margin calls alone is dependent on the collation of data from multiple sources and communication via email, and in some cases even fax. Tedious and insecure, this approach typically requires users to send each margin call individually.

Calls may be slow to calculate, slow to send and require many manual touch points; vastly increasing the risk of user error. Although upfront costs are minimal, it's highly probable that firms may experience incomplete margin calls and failed payments, plus the increased operational costs required to rectify errors and unsecured exposures.

There are then interdependencies to consider. Operationally efficient firms remain dependent on the efficiency and timeliness of their counterparty. Margin call response times vary, and even the best relationships incur delays and require frequent chasing.

Even if outgoing margin calls are issued first thing in the morning, receiving incoming calls, or replies to your own calls, may take place over the course of the entire day—and often only after manual follow-ups. To meet their obligations, a user is somewhat beholden to checking their email throughout the day. This is one of the core problems with a manual margin call process.

Delays to an outgoing margin call or receipt of a late incoming call can have knock-on impacts on collateral funding decisions, adding further unwanted complexity and costs. These are just a few of the many issues that firms with manual processes will be facing. Too much time is spent on the operational process and not enough focus is given to higher priority tasks demanded by regulators, such as timely dispute resolution.

Bringing down the communication barrier

The first step in streamlining margin workflows came with the launch of MarginSphere, an electronic margin messaging service created by AcadiaSoft. The service introduced new levels of efficiency for margin communications.

Developed with the support of major firms, MarginSphere allows users to replace their traditional email message exchange with a real-time margin message. This provides not only time savings but a more secure message transfer and improved transparency in the margin call lifecycle.

Reinventing the collateral management process

Electronic messaging on its own cannot completely streamline the margin process. For firms to achieve the real transformative change they need to adopt a solution that considers the entire margin workflow; including margin call calculation and validation, messaging with

counterparties, call issuance/reply, booking of collateral, pledge acceptance, and settlement instruction.

triResolve Margin, an extension of triResolve Portfolio Reconciliation, is best placed to provide the market with the operational efficiency it so desperately needs. triResolve Portfolio Reconciliation has over 2,100 groups working together to regularly reconcile 85 percent of all collateralised over-the-counter (OTC) derivatives and corresponding collateral balances. If a market participant needs to verify the trade information underlying a margin call and resolve disputes, they use triResolve. By leveraging triResolve Portfolio Reconciliation, triResolve Margin is unique in its ability to automate the collateral management process. Firms simply select their auto-rules, and triResolve Margin provides the required level of straight-through processing (STP), highlighting any exceptions. By removing manual processes, collateral managers can focus on reducing counterparty credit risk and more accurate collateralisation—delivering peace of mind that their firm is protected from counterparty defaults.

Controlled automation

Although automation is this year's buzzword, technology should not force firms to choose between manual or automated processes. Instead, clients should be given the flexibility to choose a workflow which helps them confidently fulfil their regulatory and operational objectives.

Some firms see value in continuing to perform manual tasks, but the right technology should enable them to eliminate cumbersome repetitive tasks which are better suited to automation. In the instance of collateral management, automation can help firms to move away from manual processing and focus their efforts on higher value activities that help reduce risk.

triResolve Margin can fully automate the collateral process, without requiring a complex retro-fit to suit a firm's existing processes. Users simply select from a suite of predetermined auto-rules and automate the areas that best suit them in seconds. There is the option to implement a completely automated end-to-end workflow or to configure each collateral agreement differently. Thus, allowing the client to select the exact level of automation with which they are comfortable.

A collaborative approach

At triResolve Margin, we recognise that for some clients, complete automation of the margin call workflow can be daunting. To deliver peace of mind, we typically onboard clients by mirroring their traditional setup and when they are comfortable with the system, work with them to introduce automation. We often review the margin activity of our clients versus their dealer counterparts over a period of several weeks. In doing so, we can identify trends and implement the most effective workflow solutions to suit all parties. Client managers with vast industry experience advise on the implementation of auto-rules, including:

- Auto-send outgoing margin call
- Auto-agree incoming margin call
- Auto-dispute incoming margin call
- Auto-pledge collateral for incoming margin call
- Auto-accept proposed collateral from the counterparty

triResolve Margin can deliver complete straight-through-processing, or facilitate a hybrid approach whereby some workflow steps such as the margin call agreement remain in the hands of the user. Regardless of the

approach, triResolve Margin consistently highlights the exceptions and provides the analytics and dispute resolution tools required to quickly resolve discrepancies.

This collaborative method allows firms to move towards an automated process in a phased approach and allows triResolve Margin to evolve with clients circumstances to deliver continued benefit. We are not simply a software, and users have the support of dedicated client managers 24/5.

In the spotlight: Efficiency by numbers

triResolve Margin has over 110 clients globally, including 40-plus buy-side firms. Using auto-rules, a large asset manager recently achieved the following results in their first two weeks:

- 83 percent of margin calls being sent automatically
- 71 percent of collateral proposed by their counterparty was automatically verified and accepted
- Under 60 seconds to complete outgoing margin calls (including delivery of margin call, agreement and collateral pledge by counterparty, and final acceptance/verification of proposed collateral)
- 73 percent of margin activity was automated across outgoing/incoming calls

The asset manager is expected to soon fully utilise triResolve Margin's auto-rules, enabling them to automatically issue all margin calls before 7am.

Case study: Major asset manager

Discover why a major asset manager adopted triResolve Margin to streamline their collateral process

Client type: Major international asset manager with assets in excess of \$350 billion.

Existing collateral support: In-house spreadsheet-based solution for calculation of margin. Emails for the exchange of margin calls and triResolve for dispute resolution.

Collateral profile: In-scope for variation margin (VM) requirements. Trading OTC derivatives in all major markets across several hundred funds, with several thousand collateral agreements.

Problem: The company's internal tools provided limited collateral management capability. This created daily challenges to manage data feeds from multiple trades and market systems, and data quality issues were frequent.

The process was time-consuming and required a high-level of user input and diligence. As a result, the organisation had an overreliance on counterparty calculated margin amounts and reporting and felt they were not fulfilling their own risk management objectives. They needed to update their processes. However, faced with a significant increase in collateral agreements due to the un-cleared margin rules, any new solution needed to be fast to implement, scalable and facilitate STP.

Solution: Following an RFP process, triResolve Margin was selected as the solution that best suited their needs. Not only was it deemed to meet all functional requirements, it fitted with the company strategy of adopting web-based solutions.

Key stakeholders identified a number of key advantages in triResolve Margin. The main drivers included its ability to proactively support the un-cleared margin rules, rather than being a retro-fitted product, and unlike other offerings, it provided a seamless way to manage margin call disputes.

It also offered out of the box access to AcadiaSoft's MarginSphere messaging service, which in turn would enable automated connectivity to their broker counterparties.

Due to the large volume of collateral agreements, onboarding was phased by a combination of fund and broker.

The first phase, in excess of 600 collateral agreements, was live within two weeks. The entire onboarding process was managed by the triResolve service management team who took

responsibility for the key tasks of collateral agreement set-up and counterparty connectivity and approval in MarginSphere.

Subsequent phases delivered automated margin connectivity for all funds and corresponding dealers, which equated to several thousand collateral agreements.

In a matter of weeks, they were able to decommission their old manual processes and achieve unprecedented levels of STP.

Bringing it all together

For many firms, the un-cleared margin regulation has been a positive driver for operational change.

Those that are trying to tailor legacy processes to meet their regulatory obligations are missing a huge opportunity to streamline their collateral management workflow.

With triResolve and triResolve Margin, firms can focus their attention on managing counterparty credit risk and ensure regulatory compliance by automating the process and highlighting the exceptions in one place, on one platform. We know the regulations, we understand the risks and we know how to manage them—quickly, simply and efficiently.

To find out more about how triResolve can streamline the collateral management process, or to book a demo, contact info@trioptima.com. **AST**

Jenny Nilsson
Head of product marketing
triResolve



A clearer picture

Intraday liquidity risk has been a focus for regulators since the start of the financial crisis. Peter Hainz of SmartStream discusses how the banking industry is currently faring with the implementation of the Basel Committee's monitoring tools for intraday liquidity management

The regulatory picture

Published in April this year, the 14th progress report on the adoption of the Basel regulatory framework sets out the adoption status of Basel III standards for each Basel Committee on Banking Supervision (BCBS) member jurisdiction as of the end of March this year. The report, among other matters, considers how states are progressing with the introduction of the monitoring tools for intraday liquidity management, which the BCBS has recommended supervisors to implement.

The BCBS review found that a number of countries have reached the fourth stage of implementation—stage four is reached when the final intraday rule is in force, and the domestic legal and regulatory framework has been published and is put into practice by banks.

Europe

In the EU, France, Germany, Italy, the Netherlands, Spain, Sweden, the UK, as well as Belgium and Luxembourg have all achieved stage four of implementation. EU regulation (article 86 (1) of the CRD) sets out that institutions shall have robust strategies, policies, processes and systems for the identification, measurement, management and monitoring of intraday liquidity risk.

Looking outside the EU, Swiss Financial Market Supervisory Authority started intraday liquidity monitoring of Switzerland's five largest banks on 1 January 2015. The rule setting out the requirement to monitor intraday liquidity was published in Russia in December 2015 and has been in force there since January 2016. Implementation in Turkey commenced in January 2017.

The Middle East and Africa

BCBS 248 intraday rules are in force in Saudi Arabia, South Africa and India. In Saudi Arabia, the final rule was published in June 2016 and came into operation on 1st January 2017. In South Africa, amended requirements were incorporated into regulations and came into play on 1 July 2016. The rulings came into effect in India on 3 November 2014.

Asia and the Pacific

Australia and Singapore have introduced and implemented BCBS 248, while local licensed banks in Hong Kong began monthly reporting of intraday liquidity positions at the end of October 2015. The final rule is also in operation in Indonesia, where regulation was issued in December 2015 and came into force in January 2016. In contrast, China has not published a draft regulation. Intraday policy, however, is under development. Japan is listed too, as not having published a draft law, regulation or other official documents. A final intraday draft rule is under development in South Korea.

The Americas

Regulation regarding liquidity management has been in force in Brazil since January 2013. Canada and Argentina have finalised and published local legal and regulatory framework but adoption by their banks is still underway. Mexico has an intraday draft under development, with publication expected later in 2018.

Interestingly, the 14th progress report on the adoption of the Basel regulatory framework notes the United States

as a country where the draft intraday regulation is not published. Industry participants which have undergone liquidity reviews have, however, provided feedback that The Federal Reserve System has a strong focus on intraday monitoring.

Regulatory interest in the quality of banks' technology

Answering the demands of the new regulatory regime has put banks' IT systems in the spotlight. Financial authorities are now interested in the quality of the technology financial institutions use to meet their intraday liquidity monitoring and management responsibilities.

Take the case of the UK, for example. In February this year, the Prudential Regulatory Authority (PRA) published its Statement of Policy Pillar 2 Liquidity.

In relation to the overall assessment of intraday liquidity risk, where an add-on is applied to mitigate intraday liquidity risk, the PRA stated it would take into account a firm's mean maximum net debits, its stress testing framework, relevant market characteristics but, importantly, also the quality of the firm's operations, process, technology and policy. Clearly, the UK regulator is keen to know how good banks' IT systems are and how 'real-time' their monitoring and management of intraday liquidity truly is.

Overhauling technology to meet regulatory demands brings challenges but banks are realising that having the appropriate IT systems can bring advantages, beyond just an ability to satisfy regulators.

Macroeconomics

Financial institutions must now respond to speedily unfolding, sometimes unpredictable geopolitical events—often caused by Twitter messages. Emerging markets are currently subject to greater fluctuation, too. With ultra-low US interest rates, quantitative easing and a relatively weak dollar since the start of the financial crisis, borrowers have piled into dollar-denominated debt. Increasing US interest rates have led to more volatile emerging markets as countries are hit hard, finding that their dollar-denominated debt is suddenly not so cheap.

In the low-interest rate environment, banks held cash buffers. With the Federal Reserve increasing rates and facing markets shaped by often unpredictable geopolitical and macroeconomic events, banks are having to rethink the way they manage cash and liquidity. They want greater visibility into the funds they hold, giving them both more flexibility to respond to events and the ability to manage their money more profitably.

Technology challenges

Achieving clear visibility of cash and liquidity is more easily said than done. At many financial institutions—especially tier two and three banks—cash management remains a manual, end-of-day activity. There is no way to track actual positions without real-time automation and so poor management of funds leads to missed opportunities and increased costs. As one senior manager remarked to the author, 'I am flying blind without real-time cash and liquidity data, I need a real-time view on account and currencies'. To make matters worse, banks have inherited a slew of legacy systems—the result of successive rounds of mergers—further obscuring the understanding they have of their cash and liquidity situation.

To get around these weaknesses, firms must consolidate existing siloed infrastructures into one automated enterprise-wide solution. Ideally, such a cash and liquidity monitoring and management platform should provide a unified, global view across all currencies and accounts. Only with this type of single system in place can the institution, with all its subsidiaries, ensure that liquidity buffers and limits are set correctly. The technology chosen should also be able to work with different message types, from SWIFT through to Saudi Arabian Riyal Interbank Express (SARIE).

Systems must meet other requirements, too, as a brief overview reveals.

The back office

Banks' back offices are eager to move away from the use of end-of-day data. If there is, for example, a big payment in the afternoon, banks do not have visibility of what happened in the morning with yesterday's end-of-day-

Intraday Liquidity

data. Real-time automated cash and liquidity monitoring and management solve this problem. They want systems that allow them to gather and reconcile high quality, real-time data, which can then be channelled into functions such as cash sweeping, account forecasting, exception management and the central control of payments—activities vital for ensuring the efficient management of intraday liquidity.

Financial institutions are keen to establish increased control over and visibility into the payment process in order to resolve issues and to ensure that payments are released on time. This is also in keeping with regulatory objectives, for example, BCBS 144, which states that “a bank should have a robust capability to manage the timing of its liquidity outflows in line with its intraday objectives”. Consequences of the above are that firms looking to enhance their payment scheduling capabilities to throttle payments based on intraday liquidity usage.

The middle office

Banks and supervisors should also consider the impact of a bank’s intraday liquidity requirements in stress conditions. As guidance, four possible (but non-exhaustive) stress scenarios have been identified by BCBS 248—their own financial stress, counterparty stress, a customer bank’s stress and market-wide credit or liquidity stress. Risk management and analytics required to support these tests are generally provided by the middle office.

The front office

In the past, cash and liquidity monitoring and management fell, primarily, to the back and middle office. Today, front offices (for example, FX and MM Treasury desk) increasingly ask for a real-time cash ladder view—a cash and liquidity forecast per currency, based on real-time data.

Another issue in the front office concerns the use of longs to cover shorts. All too frequently, one entity within a bank goes to the market to borrow when the necessary funds are, in fact, actually available in another part of the organisation but invisible because of the lack of

enterprise-wide transparency. This shortcoming results in extra and unnecessary costs.

Finally, it is important for the front office to be able to prove to regulators that money can be moved rapidly, should that be necessary.

Regulators and technology

Interestingly, there also is an increasing demand amongst supervisors to enhance the quality of their technology. This includes, for example, using artificial intelligence in order to detect anomalies automatically in the vast quantities of reporting data, which financial authorities must gather.

Conclusion

BCBS 248 was published in 2013 but fast forward to the present and banks have gone beyond simply seeing intraday liquidity risk as a regulatory play. Financial institutions are realising that a clear and accurate view of intraday liquidity also allows a more agile response to the shifting tides of macroeconomic events and promotes banks’ ability to survive in today’s highly competitive, rapidly evolving commercial environment.

In order to achieve the necessary visibility, banks must create an accurate, real-time, holistic view of all money movements, that can provide not only the back and middle office with a clear picture of cash and liquidity but the front office, too. **AST**

Peter Hainz
Global presales programme manager,
cash and liquidity
SmartStream



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The snowball effect

Elizabeth Mong of Ardor/Nxt Group explains her definition of blockchain and the role it can play in the asset servicing industry

Becky Butcher reports

How would you describe blockchain to those in the industry still grappling with the meaning and its significance?

For those still trying to understand blockchain and how it could be relevant to them, I try to relate it by exemplifying how it could actually work in an instance and that they can apply it to their own needs.

I've heard many describe the blockchain as a type of database but that sells it short and doesn't describe the features that would convince someone that they need more.

But, most people relate immediately to the protection of user data and fraud protection. Other immediate uses are transparency and permanency of records, whether these are asset transfers or voting records or any other feature of our blockchain platform.

Visualising how blockchain features can solve their problems and make their lives easier is the way people can understand it best.

What role can blockchain play in asset servicing?

One immediate role that blockchain can play in asset servicing is the movement of cash flow from and between assets. This can be more immediate than typical bank transfers and more reliable when it is across borders.

The payments feature of blockchain can be useful when buying and selling assets.

The immutability and transparency of blockchain records can provide a guaranteed safeguarding from the vantage point of asset custodians and owners. Security of record keeping protect the interests of both the custodian and the asset owner.

Asset custodians who use blockchain records for asset performance analytics, tax reporting and payment tracking add an increased level of trustworthiness to their services and reputations.

To what extent would you agree that blockchain is the most disruptive change the industry has seen in decades?

It has been some decades since the introduction of the internet and the world wide web. Meanwhile, the quick and wide adoption of the world wide web has exposed weaknesses—mainly with security, privacy and fraud. The disruptive contribution of blockchain will be the solutions it offers for these problems and more.

It will be most disruptive in the finance and asset servicing industries as agents and providers who use blockchain records will set themselves apart and above their peers with regard to the safekeeping of data and the security of payments and transfers of assets and funds.

Do you think we are going to see a complete overhaul of the transfer agency model as we know it today?

Eventually, there will be a complete overhaul as asset service agencies adopt the use of blockchain technology. The landscape of the industry will change quickly as those not using the technology will be reduced in number, size of operations and perception of value. Many will realise the need to adapt and incorporate the features of blockchain or lose business.

There will also be changes within agencies as job requirements will change as more tech skills will be needed to navigate blockchain integration and contract writing. The trustless nature of the blockchain will eliminate the need for many intermediate steps of guarantee and trust

built into current systems. Trustlessness eliminates the need for so many middle-men and the jobs situation will likely be affected and restructured to adapt.

At this year's ALFI conference, one panellist said: "If you don't innovate in technology you will fall by the wayside". Do you think the same could be said for embracing blockchain?

It is important that we don't force a blockchain solution to situations where it isn't warranted. Having said that, there are huge opportunities for innovation within the asset servicing and asset management industries.

One innovative idea is the actual issuance of assets on a blockchain that can be easily done by a person or agency within minutes. This is a working feature, tested for several years, on the blockchains I represent—Ardor and Nxt. In fact, I just wrote an article with a video demonstration of the creation of a singleton asset representing a piece of original art.

Assets can be created to represent shares in a company or shares in ownership of tangible goods. Smart contracts can be created using more features on blockchain. An example would be to set up voting rights within a corporation based on how many assets are owned by an account (owner).

Blockchain innovation and ideas for applications and use cases is very exciting. The possibilities for how this technology will improve our world and positively advance our future are endless.

The last five years have seen blockchain technology gain considerable recognition from within the mainstream financial services sector. Where do you see blockchain's position in financial services in the next five years?

In the near future, we will begin to see the projects that have been developing behind the scenes begin to roll out. This will cause excitement and invite more projects to develop on blockchain technology. I think the snowball effect could be measurably more significant than the adoption and participation in the dotcom boom. Let's see! **AST**



Blockchain: from the drawing board to industry practice

Although much of blockchain's potential remains theoretical, Justin Chapman and Michael Buzza of Northern Trust discuss how the industry can make the shift from ideas on the drawing board to actual industry practice on a large scale

For the last five years or so, blockchain has been the darling of the financial trade media and industry forums. The hype is easy to understand—the idea of creating secure, automated, tamper-proof, and instantaneously updated records of transactions across a network of market participants leads to dreams of solving for many of the industry's market practice woes. But much of blockchain's potential remains theoretical. How do we make the shift from ideas on the drawing board to actual industry practice on a large scale?

It's important to consider what some see as the inherent challenge of a solution that would require broad market adoption. While it is unlikely that the industry will see a common blockchain standard in the very near term, the excuse of a lack of interoperability shouldn't be a drag on innovation. The interchangeable plugs and pipes will become apparent over time as innovation is driven by key organisations in this space.

Australia is a compelling example of how leadership in innovation can be an effective approach: it is becoming an exemplar in terms of market infrastructure innovation with efforts to re-imagine the post-trade environment

using blockchain technology being well underway. Simultaneously, the Reserve Bank of Australia is one of several central banks that have explored the benefits of issuing a digitised fiat currency. These efforts are supported by a progressive regulator with its own innovation lab and efforts to coordinate initiatives and contribute to the development of global standards. All of this helps expedite the process of gaining buy-in from market participants and getting solutions into practice more efficiently.

Finally, it's worth remembering that some components of the financial services industry are relatively new to this kind of technology-driven innovation, and getting ideas out of the lab and into practice can take time. In our industry, the stakes are high and the tolerance for error is vanishingly narrow, so all parties are understandably exercising due care before subjecting markets to the risks associated with major change.

Realising near-term benefits

So, we believe that macro-scale adoption of blockchain-based innovation will and should take time to evolve. But

that doesn't mean we can't see practical solutions in the near term.

Narrower, more focused efforts will help realise the value of blockchain technology in shorter timeframes.

This forms part of Northern Trust's approach, demonstrated with our launch of the industry's first commercial application of blockchain technology for private equity funds.

We ultimately decided to focus on private equity because blockchain's attributes matched well with the pitfalls and pain points of current market practice:

- Private equity partnerships involve a diverse number of participants: general partners, limited partners, attorneys, administrators, regulators, and so on. All of whom need to share information. A private blockchain network creates an ecosystem where that sharing can take place digitally, with each party accessing the data they need.
- Current practices for fund documents, capital calls, and so on are manual and slow, requiring faxes, countersignatures, and manual reconciliations. By its very nature, blockchain allows these transactions to be conducted digitally and instantaneously updated across all users for better transparency and efficiency.
- Private blockchains create a closed and secure environment with improved ability to validate activity and authenticate the identity of participants (anti-money laundering/know-your-customer) while also securing information from outside access.
- We were able to engage with regulators and weave regulatory requirements into the solution—making regulators a user on the private blockchain so that they have the option of real-time access to necessary data.
- A real-time audit function was also enabled by the use of blockchain technology. The ability for an auditor to have a look-through on activity as and when it happens makes the traditional sample-based retrospective audit redundant in this environment.

We're continuing to explore these types of targeted opportunities at Northern Trust. They are a practical means of rapidly deploying solutions while making innovation digestible enough that all parties can learn, evolve, and expand in terms of both capabilities and reach over time.

Working through to tangible value

Looking to the future, the industry will continue to see blockchain take root in various forms, but maximising the value and speed to market of blockchain—or any new technology—requires a focused effort on a few key areas:

Education: While the market as a whole is much better educated than it was three years ago, there is still an untenable amount of confusion around the technology in many corners of the market. Continued efforts to improve peoples' understanding of what blockchain is, how it works, and how it can be employed separately and apart from cryptocurrency will do much to facilitate better understanding and new ideas around how and where blockchain can deliver value. Blockchain was originally devised as a means of eliminating the need for central clearing agents by enabling instantaneous peer-to-peer transactions. But as blockchain gained visibility, the traditional banks quickly started researching ways to adapt the technology to improve market practice rather than replace it.

Regulatory engagement and collaboration: As an industry, we must work with our regulatory colleagues to ensure the appropriate frameworks are in place as our environment evolves. An area Northern Trust continues to shape industry change via its leadership positions within the market, including chairs of both the Association of Financial Markets for Europe (AFME) fintech and innovation working group and AFME AITask Force and vice-chair of the AFME post-trade board. We believe that as a technology, blockchain itself should not be regulated, but the outcomes it facilitates certainly will be. We've seen progressive regulators around the world take an active role in researching and experimenting with blockchain. They are actively engaging with financial service firms, financial technology startups, and more established 'big tech' firms like IBM and Microsoft to

contribute to our understanding of blockchain's potential. Many are also providing environments for new ideas to thrive through industry consultation exercises and sandboxes where new ideas can be tested.

Last month, 12 global regulators, led by the UK's Financial Conduct Authority, announced the launch of the Global Financial Innovation Network (GFIN), a multi-jurisdictional 'sandbox' to facilitate experimentation with emerging technologies like blockchain and AI. As these efforts grow in reach and scale, we can expect the rate of innovation and market adoption to increase in turn.

Selectivity and focus: Over the last several years, blockchain has been proposed as the solution for seemingly every industry challenge. But like any technology, it has its limitations. To get meaningful value from blockchain in the near term, we believe the industry must focus on use cases that align closely with the technology's most valuable attributes:

- Blockchain has the potential to deliver meaningful transparency to practices which are today opaque, or at best, translucent, such as alternative assets, bank debt, and private placement securities
- Given its origins as the technology underlying bitcoin, it's uniquely suited to allow central banks and governments to digitise their fiat currencies – an idea many governments including Australia, Norway, Singapore, Sweden, and Switzerland are actively exploring

- The challenges of both scale and security given current technology make blockchain well suited to private ecosystems. Building from Northern Trust's Private Equity example already in play, the industry might explore similar solutions for other alternative asset classes like hedge funds and real estate, as well as other commingled vehicles
- The automatic and instantaneous updating of records make blockchain a candidate solution for situations where current processes are manual and trust between counterparties is an issue

Patience pays dividends

The industry is turning the corner on the blockchain, and we will see it increasingly put to practical use over the next several years.

In the final analysis, we believe that blockchain will have a measurable positive impact on the industry.

More importantly, blockchain is far from the last major change we will see in the coming years. We are already seeing industry application of artificial intelligence, and further innovations lie just beyond the horizon.

So beyond the benefit blockchain itself delivers, it will teach us valuable lessons that make it easier for us to turn the 'next big thing' into tangible value for our clients and the industry. **AST**

Justin Chapman
Global head of market advocacy and innovation research
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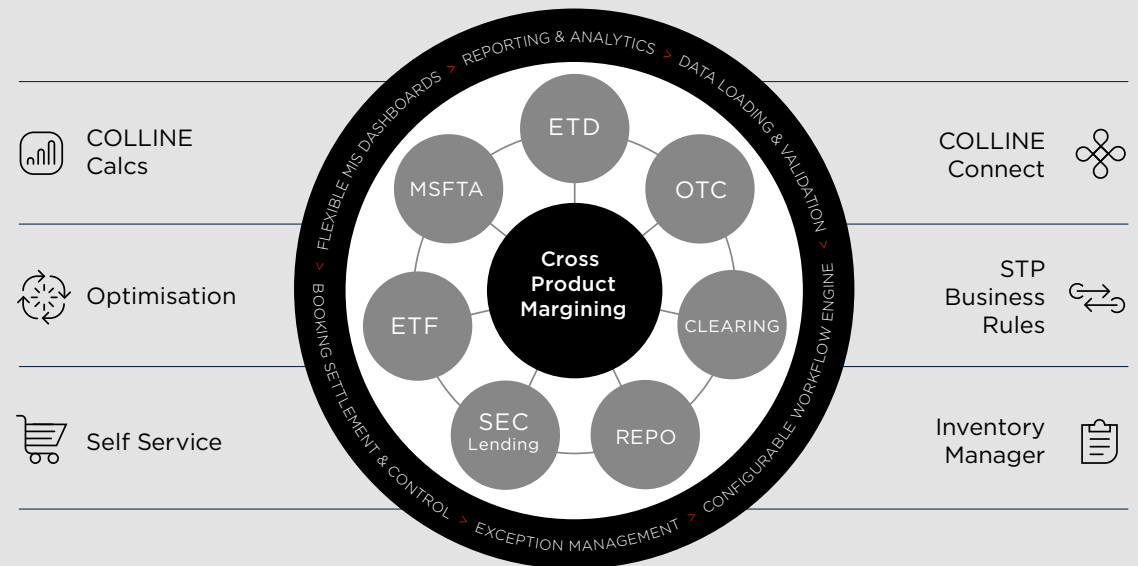
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