asset servicing times

Technology Annual

2019/20

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Despite the challenges facing the German banking industry, there are bright spots, notably in serving the local and international needs of Mittelstand clients, and in the ability to provide more efficient and better service to retail and corporate clients through online channels. Germany's best bank, Commerzbank, is focusing on both these opportunities.

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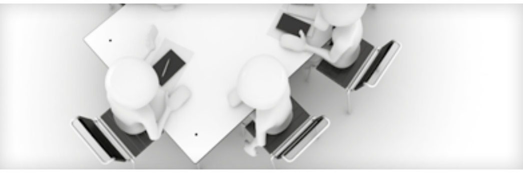

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Talkin' Tech

Advancements in technology, especially artificial intelligence are unprecedented, it's changing the world at a fast and furious pace, from flying drones and driverless cars, automated checkouts and robot dogs.

However, when applied to the context of the back-office, is asset servicing ready to meet the demands and operational challenges of today's world, as well as remaining competitive?

In this year's Asset Servicing Technology Annual, we host a panel discussion that looks at how institutional interest in digital assets is steadily increasing.

With a change in attitude over the last two years and an increase in use cases for digital assets in financial services, large investors are now seriously considering their custody options for all potential digital asset applications.

The technology annual also explores how the implementation of AI is a supplement of existing platforms rather than a radical replacement of legacy systems. Before starting large-scale technology projects, it has been advised that firms clearly define their goals and expected benefits.

As firms continue to keep up with the rate of change, the next five years are set to be very transformative, with new technologies maturing and becoming increasingly accepted by multiple market infrastructures, service providers and of course, clients that connect to them.

Thank you to all our partners, whose sponsorship and help has been instrumental in putting this handbook together. If you have any comments or suggestions for future issues, please don't hesitate to drop us a line.

Becky Bellamy, Editor

Data Insight
Daron Pearce of BNY Mellon on the latest European and North American back-office trends and how data will be the main point of competition for the industry
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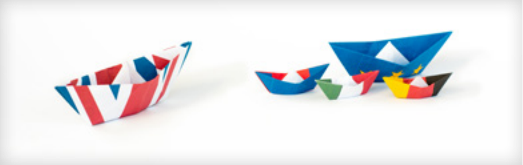

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SmartStream

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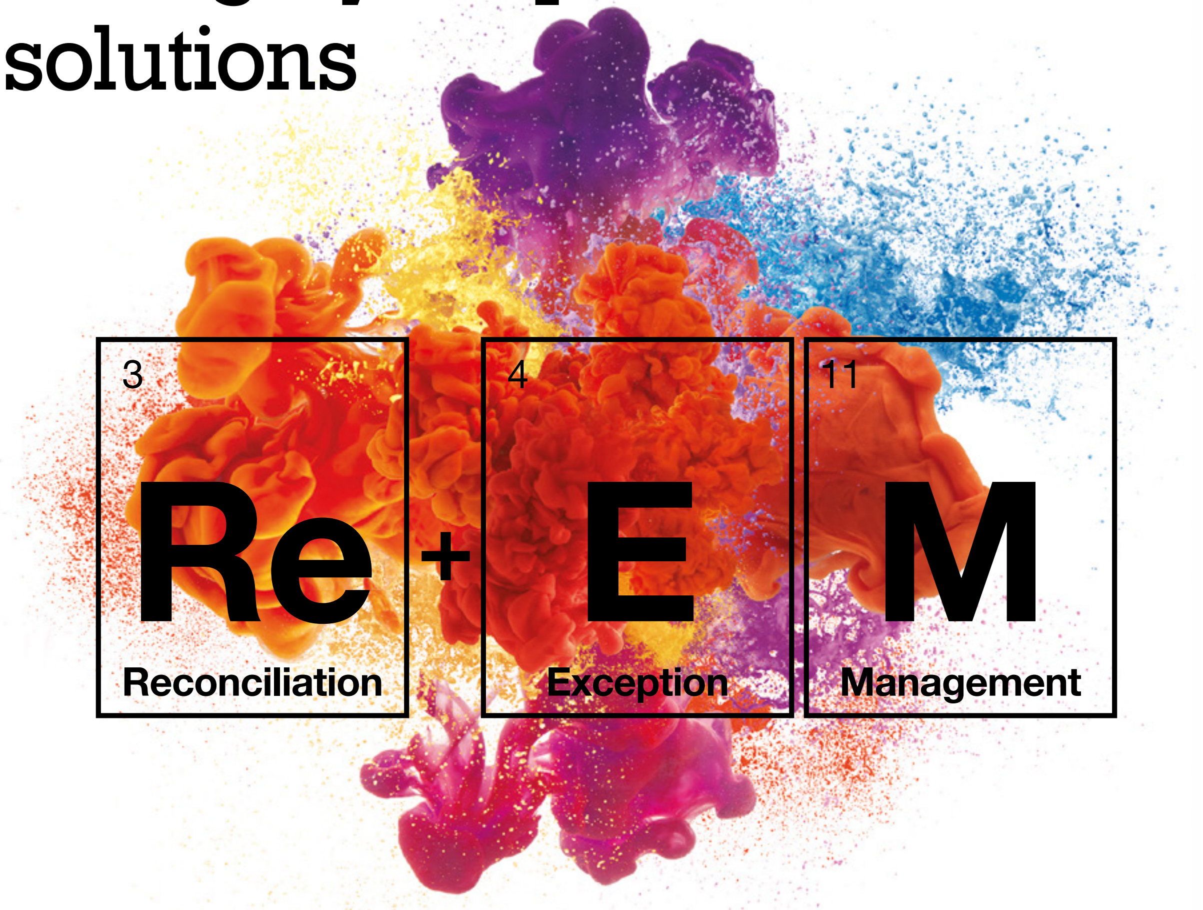
Combining the elements for highly responsive solutions



At SmartStream we believe that starting with a solid foundation of elements is vital when creating new operating models. As a result, it's never been easier for firms to access highly responsive, tailored solutions which can be deployed at speed and with immediate impact.

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Digital custody

With digital assets on the rise, AST looks at how the industry has evolved as well as the challenges and solutions aimed at keeping digital assets safe

Has the appetite to hold digital assets across institutional investors increased in the past few years?

Loic Jeanjean: Institutional interest in digital assets is steadily increasing. The Harvard Management Company (the largest academic endowment in the world) put something between $5 and $10 million into cryptocurrency. In May, a Fidelity survey asked institutional investors including pensions, hedge funds and endowments what they thought about digital assets. Just under half, 47 percent of respondents, reported an "overwhelmingly favourable" opinion of digital assets while 72 percent of respondents said that they prefer to buy investment products that hold digital assets. The study indicated that "institutional investors are finding appeal in digital assets and many are looking to invest more in digital assets over the next five years".

Jubair Patel: Yes, we've seen a change in attitude from institutions over the last two years towards digital assets, as the use cases have evolved from cryptocurrencies and non-securitised utility tokens to the more recognised security tokens that have now emerged. Institutions that were interested in holding traditional cryptocurrencies—such as Bitcoin and Ethereum tokens—were originally held back due to a lack of transparency around ownership, security concerns and a lack of institutional custody. As regulated, listed products such as Bitcoin futures emerged, this gave financial intuitions a low-risk entry point without direct ownership.

Over the last two years, the introduction of digital assets that replicate existing securities contracts, such as tokenised bonds, have demonstrated a legitimate use case exists in financial services, which has driven the largest investors to seriously consider their custody options for all potential digital asset applications.

We believe that this interest is still nascent and that a mature level of demand will only be achieved once regulatory guidance on taxonomy, investor protections and management of transactional risk have been issued.

Alexandre Kech: If you are referring to traditional institutional investors like investment or pension funds

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Global product manager
State Street

Yousaf Hafeez
Head of business development
Radianz at BT

Alexandre Kech
CEO and co-founder
Onchain Custodian

Alexandre Lemarchand
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Loic Jeanjean
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Capco

> ***We would not be investing time and effort into developing our digital asset capabilities if we did not believe it will become an important requirement to service clients in the future***
>
> **Sven Wener, global product manager, State Street**

and their asset managers, the appetite is increasing but before it reaches mainstream interest, there is still a long way to go.

At Consensus, in New York this year, my co-panellists from Ledger, Kingdom Trust and Coinbase Custody, all agreed that there was not a traditional institutional interest in digital assets. It was noted that our customer base was predominately made of institutions and qualified investors who have been active in the crypto industry for many years.

I am referring to entities such as crypto exchanges who no longer want to manage the safekeeping of the assets they do not need for day-to-day trading, this includes specialised crypto or venture capital funds interested in ways to strengthen their operational and technological handling of private keys, projects and blockchain foundations who are looking at being able to focus on the growth of their community rather than on making sure their assets are safe. It also qualified investors in the high net worth individual (HNWI) sector of the market, who just want to invest and not have to worry.

Sven Werner: As a financial intermediary, we have to be client-centric in everything we do. We would not be investing time and effort into developing our digital asset capabilities if we did not believe it will become an important requirement to service clients in the future. In fact, we have positive feedback from alternatives as well as more traditional asset managers to look into the opportunities stemming from digital assets.

Broadly speaking, institutional investors recognise emerging technologies, such as blockchain, as a top opportunity for growth according to our latest Growth Survey, which shows a three-fold increase in appetite compared to the results of last year's survey.

There is obviously a different trajectory whether the digital assets are or are not regulated, whether they fit into the investment guidelines of fund managers and whether the size and liquidity of those assets make them a good investment. So it will take some time before security tokens become mainstream.

What are the primary considerations with the buying/selling/holding and custody of digital assets?

Mark Profeti: The main considerations concern asset safety, and the legal and regulatory framework in which the custody provider operates. The investor must have full confidence that both technically and operationally the custodian can ensure the safety of the digital assets held on their behalf; and that local regulation and legal statutes recognise digital assets within their investor protection and rights frameworks to provide safeguards against counterparty default, theft, fraud, unauthorised use or misappropriation of assets (as would be the case for traditionally issued assets).

Kech: The first obvious consideration is cybersecurity. The technological architecture behind cryptocurrencies and other tokens is made exceptional by unique assets that cannot be forged thanks to cryptography and the blockchain consensus, but this also makes these assets more vulnerable to hacks.

This means users have the critical responsibility of ensuring their private keys are safe. They lose them, they lose their assets. This is where third-party custodians deliver the necessary focus, through reliable

> ***Entities trading crypto assets must be assured that the traded assets are recorded at the fair value when they are purchased and sold, and that appropriate and secure infrastructure exists***
>
> **Yousaf Hafeez, head of development, Radianz at BT**

technology and processes, to ensure customers' assets are safe.

A second consideration is independence and transparency. The crypto market is still very opaque: What is my crypto exchange or fund doing with my holdings? How can I be sure the assets are there and I will be able to withdraw them when needed? Are all coins co-mingled in one hot wallet exposed to hacks? Independent third-party custodians bring the neutrality and transparency that investors need and desire.

Yousaf Hafeez: This is the same as for any other established asset class. Entities trading crypto assets must be assured that the traded assets are recorded at the fair value when they are purchased and sold, and that appropriate and secure infrastructure exists for the safeguarding of such assets.

Alexandre Lemarchand: Proper custody of digital assets is not as easy as locking up gold or paper currency in a bank vault. Since cryptocurrencies like Bitcoin and Ethereum exist completely digitally on a blockchain and are by nature maintained in a decentralised environment, they present an enticing target for hackers. Further, institutions dealing with public and private keys on such a large scale isn't easy. Secure storage of large digital asset funds is complex, and institutions need safe, comprehensive and integrated storage solutions.

Industry reports have shown that some $1.7 billion in cryptocurrency was stolen last year. The threat landscape faced by investors is similar to those facing security professionals in all tech spaces and will only become broader as the industry grows. From social engineering to traditional cyberattack methods like site clones, phishing and SMS hacks, to basic hardware tampering, there are many entry points in this new frontier.

Werner: On the asset servicing side of things, the biggest challenge at the moment is that there are no publicly traded unrestricted security tokens.

There are a number of factors driving this: traditional market infrastructures such as central securities depositories (CSDs) currently do not run blockchain-driven settlement systems, and where they are looking to do so, direct access to the blockchain is either not possible or not necessary. Issuing a security outside a traditional CSD and introducing them for trading to any investor without restrictions faces a number of regulatory barriers. Hence the market is not there yet. But things could obviously change going forward.

Asset safety and appropriate asset segregation across both custodians and market infrastructure have been a cornerstone of regulatory focus in recent years. What is being done in the custodian community to service these alternative and emerging asset classes?

Hafeez: Cryptocurrencies and other digital assets present unique challenges to custodians. What are these challenges? And, does this present the custodian community commercial opportunities as a result of evolving demand for these services.

The key challenge stems from the fact that crypto-assets are a nascent asset class. As such, firms are still developing models and processes required to manage cryptos. As the market matures, this will change particularly as post-trade crypto services start being offered by established providers.

Werner: Asset safety through asset segregation is probably the most important principle for how the custody industry operates today. However, whether this translates easily to digital assets has yet to be seen. Industry associations, such as the International Securities Services Association (ISSA) have started to explore the implications and published various background notes on the subject of how custody and securities settlement could change in light of digital assets. What is clear is that the introduction of blockchain and decentralised networks must not come at the expense of asset safety. This may explain why many banks are experimenting with permissioned networks that provide greater safety over open networks.

Kech: Specialised custody services like Onchain Custodian have emerged in recent years to provide exactly that; asset safety and segregation of assets.

All our resources, both financial and human, are focused on delivering a sound operational and technological environment that will ensure the safety and appropriate segregation required for institutional customers. Our goal is to deliver the peace of mind they need to focus 100 percent on their core business.

We are not only dedicated to delivering absolute safety for digital assets today but are also spending a lot of time and effort on evolving technology. We need to leverage the newest technologies and best practices to always be safer while becoming more and more agile in the way the assets can be transacted.

Profeti: A lot depends on the legal and regulatory frameworks of the jurisdiction where the custodian operates and the underlying legal basis for the custody agreement. There are very few custodians that have launched a custody offering for digital assets, and then only in a limited way. It is fair to say a number of custodians across all regions are analysing the market opportunity and are in various states of maturity with their product strategy, design and launch plans.

Cryptocurrencies and other digital assets present unique challenges to custodians. What are these challenges? And, does this present the custodian community with commercial opportunities?

Werner: As a new class of assets, digital assets are expected to appeal to a broader audience, including those that may be less inclined to invest in traditional assets. However, for anybody working in the digital assets space, the question of how the custody industry can evolve to support digital assets is still unresolved. This includes questions regarding regulatory and market standards.

Tokenisation offers the opportunity for custodian banks to provide a digital solution to a market they do not presently service. This will necessitate a private key storage capability, whether that's for Bitcoin, Ethereum or other blockchains/distributed ledger technologies (DLTs). As such, the question of how those private keys are controlled is a critical question for defining what is custody for digital assets.

Differences in technology between crypto and institutional DLT platforms, as well as the still-evolving regulatory framework, requires a nuanced

> ***We need to leverage the newest technologies and best practices to always be safer while becoming more and more agile in the way the assets can be transacted***
>
> **Alexandre Kech, CEO and co-founder, Onchain Custodian**

answer when defining the custody opportunity, which may need to differ depending on the type of digital asset.

For example, cryptocurrencies have a unique set of regulatory challenges in terms of the obligations and liabilities they present to financial intermediaries. Security tokens on the other hand may have greater appeal given their ability to operate within the existing regulatory framework.

Kech: Beyond cybersecurity, that we already covered in the previous question, one challenge is the lack of standards out there.

There are so many players, blockchains and token protocols which means that integrating them safely and efficiently is a constant challenge. But we are doing it. It is our job to offer a single window access to all these protocols for our customers to be able to hold whatever assets they want.

This single window access to blockchains also applies to value-added service such as staking, lending services, and so on. This clearly constitutes the commercial opportunity custodians like Onchain Custodian is working towards.

Onchain Custodian also actively participates in industry initiatives looking at building standards and best practices for the digital asset industry.

As an active member of Global Digital Finance (GDF) and co-chair of its custody working group, we are working at defining a code of conduct for digital asset custodians.

As part of a GDF Custodian working group sub-committee comprising more than 20 institutions, with the support of SWIFT (the registration authority for the ISO 20022 financial data standard), we are also leading an application programming interface (API) standardisation initiative around withdrawal requests.

The aim is to build a standardised set of open APIs for all providers in the industry to implement for the benefit of their customers. Today, every service provider has its own proprietary set of APIs which does not contribute to interoperability between platforms.

As a representative of the Singapore market, I participate in the ISO TC68/SC8/WG3, an International Organization for Standardization working group looking at digital token identification.

As some tokens bear the same shortcode while representing different assets, and as different codes are used to identify the same cryptocurrency—for example, BTC also referred to as XBT—the group is looking at building a standard to issue unique identifiers for digital tokens to support automation and interoperability.

We are also involved in discussions around securities token classification and identification. We believe it is critical for the industry to collaborate in non-competitive areas for the sustainable growth of the digital asset space.

Lemarchand: Effective cryptocurrency custody solutions should ensure there are no single points of failure within an organisation. Think about the QuadrigaCX case in which $163 million disappeared. While that's now developing into a matter of extreme

> ***For the cryptocurrency industry to truly mature, institutional investors are going to have to get involved***
>
> **Alexandre Lemarchand, vice president of global sales, Ledger Vault**

fraudulence and one bad actor, it showed on a tremendous scale that the danger lies in trusting single points of failure.

For the cryptocurrency industry to truly mature, institutional investors are going to have to get involved. Exchanges, brokers, asset managers, over-the-counter (OTC) traders, custodians and others must enforce institutional-grade controls on all transactions. It's the only way to bring about a new era of stability and trust in this new era of digital asset management.

Profeti: A custodian's understanding of the legal and regulatory frameworks underpinning their service is critical to ensure they are not exposed to unnecessary risks that could result in regulatory breaches, loss of reputation, financial loss. Notwithstanding the technical challenges associated with integrating their existing IT infrastructure with the underlying DLT platforms, they must ensure their products and service withstand close scrutiny from potential clients seeking reassurance that they are not exposing their investments to unnecessary and unmitigated risks.

There is potentially a large commercial opportunity if the aforementioned regulatory challenges can be addressed and consumer and/or market confidence in the safety of digital assets grows.

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> ***The financial industry needs custody solutions that are more holistic in their approach, combining both hot and cold approaches, and encompassing both hardware and software technology solutions***

Loic Jeanjean, head of marketing, Ledger Vault

What is meant by 'hot storage' and 'cold storage' and which is best suited to the institutional investors?

Jeanjean: The distinction between the two of these is that hot wallets are connected to the internet while cold wallets are not. Leaving your crypto on an exchange is an example of hot wallet storage. Naturally, cold wallets are considered safer than hot wallets, as they spend little (or no) time connected to the internet. Hardware wallets of the cold variety are generally considered the best and safest option for storing cryptocurrency. These are typically in USB format and can be temporarily "hot" in that they can be connected to the internet to facilitate a crypto exchange, but primarily remain offline and disconnected with assets fully isolated and inaccessible to hackers.

While USB-based hardware wallets are undeniably the best way for individuals holding cryptocurrency to protect their investment, they are not practically viable for enterprises handling millions of dollars' worth of crypto. In the early stages of institutional investing, asset managers would find themselves securing massive amounts of wealth on hardware wallets with no convenient and efficient way to implement meaningful segregation of duty. The financial industry needs custody solutions that are more holistic in their approach, combining both hot and cold approaches, and encompassing both hardware and software technology solutions.

How are regulators viewing the emergence of these alternative asset classes and how is the service community interacting and responding?

Lemarchand: The world of cryptocurrency is relatively new to regulators. In the US, this new class of digital assets falls under the jurisdiction of multiple regulatory agencies. The US Securities Exchange Commission (SEC) has taken the lead, but only time will tell how regulation in the US will shake out.

Kech: I would respond that the jury is still out. Some regulators are considered friendly by the community because they are open to learn and understand the nature and potential of these new assets.

Others refuse to see these assets from a different perspective than the existing assets classes they know of. It leads to a fragmentation of regulatory opinions across jurisdictions that impacts all players.

The Libra project might help change that. As controversial as Libra may be, regulators and governments cannot ignore blockchain and digital assets anymore. The Libra association gathers so many major global actors. If they stop focusing on Facebook's privacy issues and look at the benefits this and other similar projects can bring, they will hopefully see what we all see in the industry—the potential to exponentially increase payment and liquid investment opportunities for billions and billions of people around the world.

Hafeez: Numerous regulators globally have programmes in place to look at the regulation required but this process is still in its infancy in most of the global jurisdictions. Those who have put initial regulatory frameworks in place are likely to have to significantly amended these as the market evolves.

Jubair Patel: In July, the Financial Conduct Authority outlined a taxonomy for digital assets that separates cryptocurrencies and utility tokens from regulated security tokens (which offer investors the same protection as the financial instruments they represent). The issuance of security tokens would be assessed on a case by case basis; though a precedent for issuance of tokenised bonds has been set by the World Bank, which has issued AUD 150 million worth of development bonds on behalf of the Commonwealth Bank of Australia since August last year.

Specific criteria for any regulatory assessment include scrutinising the features of the underlying DLT technology as well as the custody options available to owners of the digital asset. The Financial Stability Board also summarised a number of regulators' viewpoints on additional criteria, including measuring exposure risk to digital assets, managing settlement risk and clearing of digital asset transactions, and valuation approaches for cryptocurrencies.

The taxonomy and treatment of digital assets varies by jurisdiction, but it is fair to say that regulators see themselves as playing an active role in overseeing trading activity in a DLT environment—especially given the cost-saving potential of regulatory roles being assigned directly in a permissioned blockchain.

Interaction between service providers and regulators is happening—but it is limited in comparison to other regulatory obligations such as the second Markets in Financial Instruments Directive, the Central Securities Depository Regulation and the Securities Financing Transactions Regulation, where industry collaboration is strong and there is also a collective engagement with regulatory authorities via trade associations. As the demand for digital assets grows, we are confident that industry collaboration will increase and collective standards will be defined for all areas of trade lifecycle processing.

What does the digital custody landscape look like in three years' time?

Werner: This is very hard to predict. It is possible that in the future we may see the emergence of distributed financial infrastructures such as Fnality (Utility Settlement Coin), a permissioned cash tokenisation project as a centralised market infrastructure to facilitate securities settlement. This will naturally require connectivity from bank custodians that have to prepare the necessary technological and business solutions. We may also see more security token issuances with specialised providers working to resolve regulatory challenges.

If those changes on the supply side materialise, the demand side is likely to become more digital as well. We could see the launch of digital funds that may either distribute their services through tokenisation or focus their portfolio investments on assets that are structured as digital tokens, however, there are likely a number of issues to be resolved in relation to this possibility.

Jeanjean: As cryptocurrency awareness grows, the digital custody landscape will as well. In three years' time there will be more institutional investors on the scene diversifying their portfolios with digital assets. More regulated custodians will be on the scene supporting serious long-term growth for individual investors, asset managers and family offices.

Hafeez: It is likely that many more institutional investors will be getting involved, driving advancement in post-trade services for cryptos. Indeed, it is possible that

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>
> **Jubair Patel, principal consultant, Capco**

in three years' time we will see a fully developed, or nearly fully developed, post-trade services offering. This will likely stem from much greater clarity on the regulatory environment.

Profeti: We will start to see the emergence of ecosystems that closely resemble the market infrastructure models for traditional assets. The traditional market infrastructures are looking to expand their capabilities to include digital assets and create environments that allow for the trading, settlement and custody of digital assets to function along similar lines to traditional markets.

The opportunity exists for custodians in their own right to offer their custody services exclusively to the emerging trading platforms on behalf of their trading participants. However, whether this is achievable over the next three years is largely dependent on how regulation evolves, and whether it creates arbitrage opportunities due to differences in treatment and behaviour across jurisdictions; or whether there is a concerted effort by regulators to standardise the treatment of digital assets through common set of principles.

Kech: It is very difficult to say. There are many players competing for the same market share with a couple of big ones trying to take it all.

I believe there will be room for dozens of custody services that will differentiate themselves by offering different visions of custody.

Our vision is one of personalised quality services, co-building of the right value-added solutions with customers, and industry collaboration to achieve standardisation for the benefit of all.

> ***Regulators will need to explicitly consider current and emerging technologies used to exchange, transfer and store digital assets safely***

Mark Profeti, principal consaltant, Capco

Are there any clouds on the near horizon for digital custody?

Kech: Regulatory uncertainty remains an area we are watching carefully. Though the situation is clearer in Singapore where we operate, it is not the case everywhere, and we will need to be able to adapt and comply quickly as the situation evolves.

Patel: There are two key risks that early entrants to digital asset custody need to consider: market participation and the underlying infrastructure risk of emerging technology. We expect the demand for digital asset custody to be driven by a mixture of buy-side and sell-side participation—institutional investors will look to digital assets to enable access to more markets, whereas issuers will look to attract larger markets. Custody providers will need to time their offerings and differentiate themselves to make the most of this market emergence while also ensuring regulatory adherence.

New entrants will also need to consider the risk of attack on an unproven underlying infrastructure. While there have been digital custody solutions available for a few years now, institutional entry will undoubtedly attract more sophisticated attacks—and no provider will want to be the first to face an unexpected event.

Overall, how safe is digital custody and how are service providers looking to protect holdings as we all move to a world of digitalisation?

Kech: As I hope my answers to the other questions proved, independent third-party digital asset custody is the safest environment for keeping digital assets, because we are 100 percent dedicated to our core business. Focus is the key, here. Working with specialised service providers like us and others is the only way for traditional institutional players to enter this space and for the industry to remain sustainable in the long run.

Lemarchand: There is no denying that the digital asset world is one that is constantly under attack. We spend significant time and effort to assess the security of our technology along with our industry's. As hackers become more sophisticated, there is no question that our industry will be forced to adapt and create novel technology, which is exactly where our work leads us.

Researchers like us are consistently publishing findings to raise awareness about the security of our industry, and also to lay the groundwork for other security researchers. Our intention is that this work will lead to additional research and improve the overall security of the industry.

Designing security is serious, hard work. Those working in this field spend a lot of time and resources trying to create secure solutions.

Profeti: Regulators will need to explicitly consider current and emerging technologies used to exchange, transfer and store digital assets safely. To build client trust significant focus and effort will need to be placed on ensuring security is built into every layer of the technology solutions to protect against cyberattacks.

The balance will be to enable newer technology adoption and innovation, without putting clients' digital assets at risk.

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A new approach to a traditional business

Commerzbank's Rob Scott argues that the evolving relationship focus of institutional clients—be that banks or non banks—requires a change of tact

The post-trade business is markedly different compared to years gone by. While it still necessitates that banks maintain regulatory robustness and become ever more cost-efficient, there is a greater demand for more personable client relationships, supplemented with state-of-the-art technologies.

Delivering in this new environment is no easy feat: it requires new thinking and approaches to how we as banks govern our client interactions. In this new and increasingly complex environment, digital services, though critical, are only one part of the equation; after all banking remains a business founded on human relationships and trust. So, what exactly has changed?

Changing business

It's simple: banking is no longer product-driven. Gone are the days when a client has a dozen contacts at the correspondent banking partner—each offering an individual service or product with no joined-up thinking. Banks are instead favouring relationships that can better guarantee the exchange of expertise and more integrated thinking. For instance, financial institution clients are not looking for singular custody and clearing products, or isolated products and services that address one part of the value-chain. Instead, they require a more rounded and considered, strategic dialogue in order to solve business challenges front-to-back.

As we move towards becoming digital enterprises, clients' expectations are also changing in line with their own personal digital journeys. As individuals, we are increasingly becoming accustomed to real-time, instant information at the touch of a button or keystroke. The information we access on our personal devices isn't limited by boundaries or geographies, but rather brings together multiple sources, activities and applications. As banks, it is our role to bring pan-bank solutions together for the clients.

We can no longer operate with a singular product approach to their client relationships.

Win by excellence

This is why, as a bank, we are doing things differently. For many years, we have made the client central to how we measure success. But, to build upon this, we have now brought together a senior relationship and banking solutions team under "institutionals", whose purpose is to drive a more strategic agenda with the client. We deliver this to the client through one point of contact—a dedicated relationship manager.

These managers have deep industry knowledge and understanding of all of the banks' products and services, and are fully aligned to achieving the client's business objectives: from ensuring regulatory processes are watertight, reducing costs, or even assisting in the expansion of a regional client's international presence. In short, the relationship manager "delivers the bank to the client".

In practice, the relationship manager's role is to have an open dialogue regarding their specific operational and logistical challenges. Through developing a holistic understanding of the client's business, the relationship manager acts as a client ambassador within the bank—representing the client's requirements through careful and considered liaison with the various internal products groups and stakeholders.

Importantly, the relationship manager is product-agnostic: their primary role is to only match solutions specific to the client's needs. This approach, of course, necessitates a different mindset. The relationship manager must gain an even fuller appreciation of: the client's front-to-back processes; how technologies can bring about efficiency-savings, an enhanced service or better connectivity; the clients' risks and resource consumption. They must also ensure that core investments are sustainable and contribute to the future proofing of the client's business activities.

The net-benefits of developing this bigger picture, though, are clear: we can connect the client to our technological capabilities in a more streamlined, efficient and holistic way—allowing them to achieve superior commercial outcomes and optimise their interactions with us.

Strategic partnerships

This holistic approach to our client also enforces collaboration with third-parties. For example, even if a client executes via another banks trading desk but wishes for us to handle all post-trade activities. Thanks to open-banking principles and application programming interfaces (APIs), our technological capabilities can allow that to happen seamlessly via a single portal.

In securities services, for example, Commerzbank recently entered into a strategic partnership with HSBC Transaction Services GmbH through which our securities settlement business processes are now transferred to a joint venture, with operations scheduled to begin early next year.

The partnership, which allows us to leverage our expertise and HSBC's state-of-the-art domestic securities platform, compliments our wider commitment to simplify and improve processes, while also reducing costs and improving the client experience.

New technologies

The new way of working isn't only underpinned by collaboration with fellow banks; we are also partnering with technology providers to leverage robotic process automation (RPA). We are engaged in a pilot scheme using artificial intelligence (AI) solutions to automate mundane and predictable data processes, thus leading to time efficiencies.

The end result means we can devote more human capacity to our clients, with our energies redeployed to providing meaningful client interaction at the beginning of the working day. Again, ensuring that we are better connected to our clients and allowing for more dedicated and focused time solving or assisting with their day-to-day problems.

For many years, the industry has not been able to deliver a clear view of an organisation's cash positions in real-time, nor has it given transaction data detailing the status of the underlying transaction (whether the transaction has matched, settled, is insufficient or failed).

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In part, this is due to the array of legacy platforms and the complexity of bringing all of these platforms together via a single view. At Commerzbank we are working on building and creating transparent client dashboards which enable clients to manage their business in a more commercial manner, optimising and mobilising their liquidity needs across the globe.

In essence, our goal is to ensure that the "institutional experience" mirrors what's already available in many aspects of the client's retail banking experience, whereby the status of all transactions are clearly visible in real time.

Innovation

We work closely with the group's research and development unit, main-incubator, to look for ways to bring emerging technologies to life—and help us to simplify client processes, as well as reduce complexities and costs in attaining digitalised connectivity and service deliveries.

We are exploring how blockchain technology can be used for the issuance of commercial paper, and several pilots delivered in partnership have demonstrated that this process can now take mere minutes, rather than days—representing a major step towards fully blockchain-based securities trading.

In addition, we have run successful pilots of our own with tokenised assets—and have examined how securities and cash can be mobilised together on the same blockchain.

We are also looking at big data and advanced analytics in using processes to identify patterns of behaviour or correlating data which, in turn, can enable us to provide optimised products and services at the right time to our clients.

The future

Certainly, with technological advancement progressing at such an exponential rate of change, your service partner must understand what is technologically possible and make the necessary investments to deliver on the new expectations in post-trade. It is therefore imperative that banking partners create an environment in which clients can freely operate, interact, communicate and have at their disposal tools to help them make better business decisions. Despite the change, the fundamentals remain the same: a service partner must deliver on this while mobilising and safe-keeping client assets around the globe in a safe, seamless and transparent manner.

The post-trade business, though in many ways steeped in tradition, is fast evolving. In my view, the next five years promise to be very transformative as new technologies mature and become increasingly accepted by multiple market infrastructures, service providers and of course, clients that connect to them.

The next five years promise to be very transformative as new technologies mature and become increasingly accepted by multiple market infrastructures, service providers and of course clients that connect to them

Rob Scott
Institutionals, senior banker
Commerzbank

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Tomorrow’s world

How far has asset servicing come in reaching its full potential in utilising the technologies available to it? Various industry experts explain their thoughts

Jenna Lomax reports

Advancements in technology, especially artificial intelligence (AI) is unprecedented, it’s changing the world at a fast and furious pace, from flying drones and driverless cars, automated checkouts and robot dogs.

But when we apply this to the context of the back-office, is asset servicing truly where it needs to be to meet the demands and operational challenges of today’s world, while remaining competitive in the 21st Century market?

One panellist at this year’s FundForum International Conference in Denmark suggested that other parts of the financial services industry see the asset servicing sector as “dinosaurs” when it discusses technology.

He said: “People want customisation, their own services and we have to adapt–the one size fits all notion is over.”

So what can the back-office really do to tackle this problem, if there even is one, and is the automation in the back-office really seen as Jurassic and out of date? The views certainly differ.

Kevin O’Neill, global head of buy-side at Fenergo, says: “Many traditional asset servicing and asset management firms are challenged with manual and outdated processes, procedures and systems, in addition to poor governance and oversight.”

He adds: “The drive towards digital transformation is led in equal parts by the need to tackle operational challenges, as well as the need to deliver digital client journeys that make for more satisfied customers. As more and more asset management and servicing firms realise the benefits, adoption will gather pace.”

Stephen Bayly, chief information officer at HSBC Securities Services highlights in quantitative terms how asset servicing is currently transforming the financial services industry.

He says: “The current high rates of over 90 percent straight-through processing for mandatory events—which is over 85 percent of overall volumes—tends to highlight that the industry as a whole has done good work in automating asset servicing.”

Building on legacy systems

So is the trend moving toward building on legacy systems or starting again, effectively, from scratch? Are legacy systems in the autumn of their years and to what extent is artificial intelligence and/or machine learning really taking over?

As Paul Ferreira, senior ICT architect at Maitland, highlights: “Large institutions do not have a choice in most cases, but the new standards for robotics and open application programming interfaces allows businesses to create an efficient interface to these legacy platforms.”

Meanwhile, Brian Collings, CEO of Torstone, says the trend has moved from legacy systems more toward cloud-based systems. Collings explains that firms are using technology that has the capacity to support AI, machine learning and new technologies.

He outlines: "A crucial shift is into cloud-based systems that can be upgraded easily without a need for on-premise deployment, and which have a massive capacity for data processing. AI must be trained using very large data sets and so cloud-based technology will become a prerequisite."

However, O'Neill cites that in some cases there are those in the industry who are really in a quandary about what to do.

He suggests: "Some asset management firms are stuck in a tangled web of legacy technology architecture and are making it worse by stacking solutions on top of the legacy plumbing rather than integrating. This creates a domino effect of solutions that don't interact and forms bottlenecks."

Josh Sutton, CEO of Agorai, says that businesses want to maximise the value received from legacy systems before sunsetting them and that is natural.

Sutton adds: "If you've spent millions of dollars implementing a rules-based compliance system, you're going to be loathed to completely retire that system in favour of a machine learning solution that may not be fully tested across all asset classes and jurisdictional regulatory regimes."

"Incrementally deploying the new, AI solution while retiring aspects of the legacy system make perfect sense from a risk management perspective."

Also weighing in is John Mizzi, chief strategy officer for Bond.One, who says the industry is at an "inflection point" right now.

Mizzi explains: "Established asset servicing firms recognise they do not have nimble capabilities to optimally capitalise on emerging technology trends and are now more inclined to look outside to third parties to introduce latest technologies."

AI and robotics

How much are AI and robotics changing the industry, and at what kind of pace? Allen Cohen, digital officer at BNY Mellon asset servicing, cites that the prime focus has been on turning manual processes into automated ones, and this continues apace.

Sutton adds that AI, like the internet, electricity, and steam power before it, "is on a path to ubiquity".

He says: "It's not a question of whether or not businesses will adopt AI, it's about what particular aspects they will use and how they'll go about it. Every industry segment will have leaders that will lead to the adoption of AI-based tools."

Lukas Davidziuk/shutterstock

"Those first movers will reap the lion's share of benefits and force followers and laggards to become AI-enabled purely from a survival perspective. Instead of being forced into this situation, businesses of all sizes should be reviewing their business and data strategies with AI in mind."

Demi Derem, general manager of investor communications solutions at Broadridge, indicates that in a recent Broadridge AI Outlook Survey, where respondents ranked their top motivations or desired outcomes for investing in AI, nearly half of respondents, 46 percent, cited legacy technology as their top challenge.

Derem adds: "Well managed boards make it part of the agenda to discuss investments in innovation. They also monitor the threat of disruptive start-ups, whom some believe are also driving the investment in AI by financial services companies."

Under pressure?

But, considering the aforementioned, do businesses run the risk of overusing technology, just to keep up with the trend–almost for the sake of it?

Ferreira indicates that not making any movements in the technology space will "leave you behind", however, "you do not have to attempt solving all problems now with 'new tech'."

Kirkeby comments: "There will always be a certain level of lip service being paid to emerging trends such as blockchain, AI, machine learning and robotic process automation. But firms need to take the necessary time to assess the business benefits before reacting to hype."

Bayly surmises the pressure is almost a good thing–a catalyst for change. He says: "The deemed pressure, and market hype, acts as a catalyst to start open discussions and experiments to evaluate the art-of-the-possible which would otherwise not take place, however, continued investment is always backed by a solid business case."

Collings mirrors that the industry is aware of what it is doing with taking advantage of technological advancements. He says: "Companies are under pressure to keep up, but not at the cost of being impetuous. They are assessing the viability of legacy systems, which is decreasing by the day, and asking if their technology infrastructure can be improved in such a way that allows them to incorporate AI and ML technology in the future."

The future

So what is earmarked for the future in terms of trends and the changes that we will see from technology, what will it provide custodians and the back-office, specifically?

Mizzi predicts that banks will continue to look more like technology companies, "with an emphasis on recruiting the best and brightest engineers to power the technical engines that will create competitive differentiation among the large financial services firms".

Derem indicates that there is still a "huge shortage" of skills in AI and data science.

He explains that as the tools needed to develop AI improves and the broader workforce learns and adapts to this technology, "we will see an acceleration in adoption".

Although the industry is slowly moving towards AI and blockchain-driven solutions, and with the movement in market infrastructure space in Australia, Hong Kong, Singapore and Switzerland, to name but a few, Bayley says: "We are pretty confident that asset servicing will become even more driven by technology and there is a very high possibility of having industry utilities being created in this space."

Cohen concludes: "We are only at the beginning of the journey for the potential of AI and data analytics. So far, the industry has gained perhaps 5 percent of the potential. The velocity of today's technical innovation is something I've not previously witnessed during my 30 years in this industry."

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The evolution continues

SmartStream's Nick Smith explains that much of the implementation of AI is to supplement existing platforms rather than radical replacements of legacy systems

Jenna Lomax reports

What technology trends are you seeing in asset servicing right now? What role does automation play in asset servicing?

At the top of everybody's agenda and requiring significant investment, is adapting to changes in the regulatory environment in addition to ongoing compliance with the regulatory framework.

In addition to wide-ranging regulations such as the second Markets in Financial Instruments Directive, more localised requirements such as New Zealand's BS11 or the European Banking Authority's regulations around cloud providers all require investments in both time and resources.

Many financial institutions have moved to cloud strategies for hosting their infrastructure as an enabler to flexibility in the delivery of solutions. These cloud strategies improve time to market for new solutions, almost real-time scalability to adapt to growth in the business needs and are very cost effective.

Are you seeing a trend of people building on old legacy systems or are they replacing legacy systems with AI and/or machine learning? What is your company doing?

Despite a lot of claims in the industry, much of the implementation of artificial intelligence (AI)/machine learning is to supplement existing platforms rather than radical replacements of legacy systems. We see a lot of in-house AI teams continuing to search and explore for use cases, which results in a more tactical adoption on the new technologies rather than radical strategic change.

Within SmartStream, we have been employing a number of approaches. We have developed a brand new product that runs completely on AI from start to finish. We have introduced AI to supplement our existing products and we have introduced AI to our managed services clients that will reduce operating costs and therefore pricing, improve efficiency and have a direct impact to the reduction of exceptions that an organisation has to manage.

How is new technology transforming the custody and settlement space?

The entire industry continues to evolve. Whether it is market initiatives, standardisation, or the consolidation of businesses, they all require technology as an enabler to deliver the change for maximum benefit.

SmartStream continues to see the standardisation of processes and the resultant application of technology as being a major driver in the reduction of operating costs, regardless of the specific space within the industry.

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 because they feel a certain pressure to?

Many financial institutions are exploring the possible benefits of AI and there are often internal political pressures to ensure that there is a financial return on such investment. As the industry moves through a learning curve, we will see the application of AI refined. Some processes will benefit significantly from the application of AI, while other processes will benefit just as easily from the use of legacy technology investment.

Data scientists are in high demand, and it is key to ensure that their skills are applied for maximum benefit and return.

Has increased regulation in the last 10 years become a catalyst for the use of more technology in asset servicing?

Without continuing investment in technology, an organisation risks becoming a failed organisation. Attempting to meet ever-evolving regulatory change with the appropriate technology will be both cost-prohibitive and expose an organisation to compliance breaches.

For case studies, we can see many examples of the Financial Conduct Authority's Client Assets Sourcebook (CASS) requirements being breached and the direct impact that has on an organisation—fines, changes to capital adequacy requirements, forced investment in specialist consultancy firms and technology to close gaps in the operating model.

How has technology helped financial institutions comply with regulations?

We continue to see breaches in compliance being driven by the reliance on people rather than technology. Whether it is human error or incorrect interpretation of the regulations that drive the breach, both are serious.

Where financial institutions have developed central repositories of data rather than disparate systems, this level of data management defines the quality and integrity of an institution's regulatory reporting, effectively creating a golden source.

On a regular basis, we encounter financial institutions that have found failures in their regulatory reporting as a result of either including data incorrectly or omitting to include data. Effective technology management will contribute to the elimination of such breaches.

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

While the data scientists in many organisations continue to search for use cases, this will in time evolve into defined strategies delivering significant cost benefits and improvements to the risk and control framework. The groups working on AI will evolve from relatively small specialised teams to mainstream teams leveraging best in class approaches.

SmartStream's strategy is to ensure that AI is embedded in all of our products, including our managed services outsourcing businesses, in order to ensure that our clients obtain full benefit from our extensive investment in these new technologies.

> ***Without continuing investment in technology, an organisation risks becoming a failed organisation***

Nick Smith
Senior vice president of managed services
SmartStream

PFS-PAXUS Global Fund Administration Technology

Kelly Ashe of Pacific Fund Systems discusses what the firm has to offer

Pacific Fund Systems (PFS) is a privately-owned technology company that develops, distributes, supports and now hosts a ‘one-stop-shop’ software solution for the automation of the complete range of back-office fund administration services to investment funds; focusing on an alternatives market that accounts for approximately $7 trillion in assets invested globally.

PFS’ core product is the award-winning PFS-PAXUS system; an established market-leading product that supports wholesale fund administration as well as the administration of all types of open and closed-ended, traditional and alternative funds, including retail funds, hedge funds, and private equity investment vehicles.

PFS-PAXUS is a proven global technology solution for the fund administration industry that enables automation across the full spectrum of fund administration tasks on a single fully integrated platform.

With an extensive range of functionality, combined with advanced reporting abilities and comprehensive regulatory coverage, PFS-PAXUS equips fund administrators with a complete back-office administrative solution for fund accounting, portfolio valuation, fund pricing and shareholder recording keeping on a single, fully integrated system.

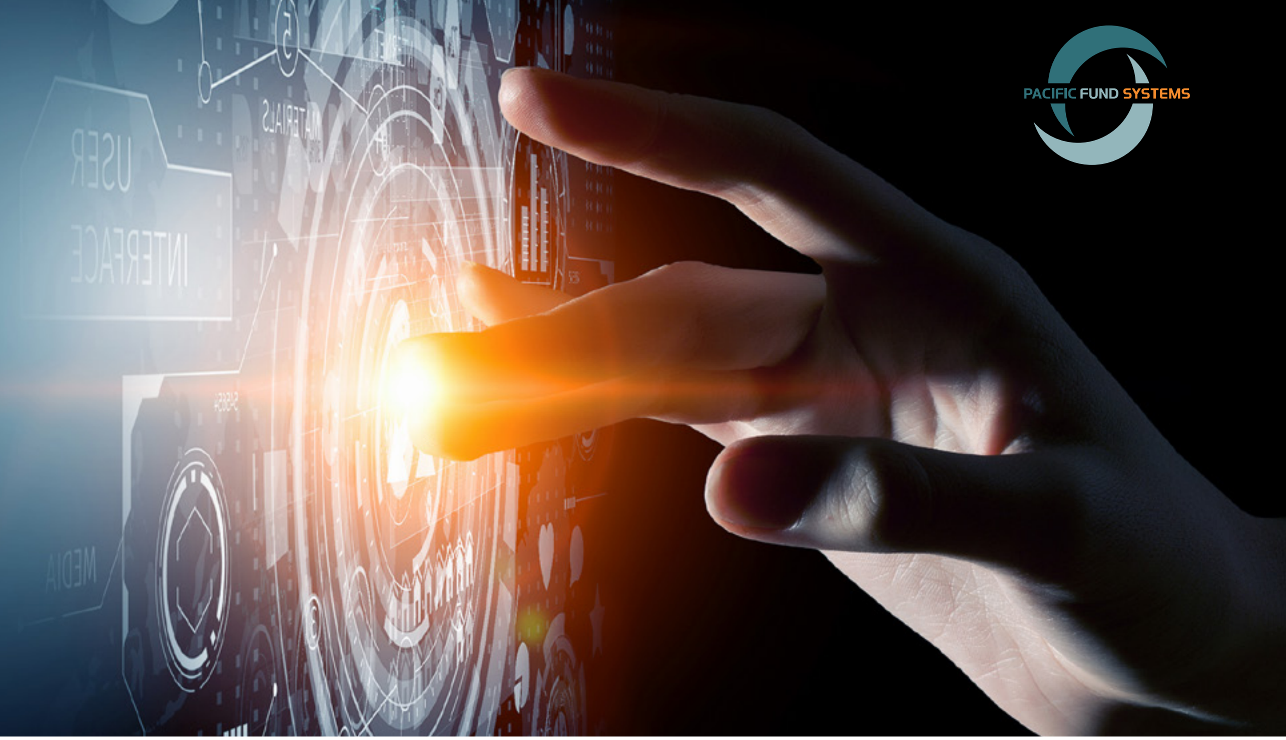
PFS-PAXUS provides a vast range of administrative efficiencies in net asset value (NAV) valuation and calculation, shareholder registration and transfer agency and compliance reporting for funds.

PFS-PAXUS incorporates essential controls to manage operational risk and support compliance with global regulatory requirements, such as the Foreign Account Tax Compliance Act and common reporting standard (CRS) reporting obligations.

For private equity funds PFS-PAXUS fully supports the entire closed-end fund lifecycle, from initial commitment, to draw-downs and right through to final distribution, including equalisation and re-balancing, enabling new investors from subsequent capital closings to commit to and invest into a closed PE vehicle which has existing investors.

All accounting processes are integrated within the PFS-PAXUS general ledger for financial reporting and accounting audit trail.

PFS-PAXUS calculates all partner economic allocations, including re-allocation of management and incentive fees to the general partner, and calculates management fees for multiple classes of investors.



A functionally rich transfer agency module supports the complex partner and commitment structures that exist, and automatically generates all limited partner correspondence, including capital call letters and statements, to each limited partner as required.

PFS-PAXUS provides this all-encompassing solution at the highest levels of functionality and at a highly competitive price point, which is proven to empower our clients to increase profitability while exceeding the expectations of their underlying clients.

PFS-PAXUS offers a truly unique and revolutionary proposition in the niche financial services sector of fund administration, by integrating all of the fund administration processes that are normally performed on multiple systems on to one single 'one-stop-shop' solution with all components of the system consolidated within the multi-currency general ledger.

PFS-PAXUS has been designed from the ground up to automate detailed complex requirements of all fund types and asset classes—from single-asset private vehicles, to fully retail schemes dealing in listed assets with thousands of investors, to myriad alternative investment strategies including hedge funds, fund of funds and private equity vehicles.

PFS-PAXUS introduces a vast range of administrative efficiencies, including tangible and immediate benefits that reduce the risk of error, resulting in faster and more accurate completion of fund valuations and processing of shareholder transactions by its users, offering fund administrators a simplified technical landscape and the ability to administer both simple and complex investment structures while vastly reducing operating costs.

PFS-PAXUS is also complemented by PFS-CONNECT, a cutting-edge web portal software that enables PFS' clients to provide their fund clients and the fund's underlying shareholders with a fully web-enabled reporting and transactional tool, allowing the fund managers and their investors to self-service and access their fund data securely in their own time.

PFS-CONNECT also allows investors and intermediaries to trade funds online and to upload investor anti-money laundering and fund documents, providing clients with the tools for efficient, paperless shareholder transactions saving time, expense and removing the possibility of reinput errors.

PFS-PAXUS is exceptionally quick and simple to deploy and can be implemented in-house on-premise, or on a private or third-party hosted cloud platform.

Sergey Nivens/shutterstock

Alternatively, PFS-PAXUS is also available as a complete software-as-a-service (SaaS) solution with full hosting services included with PFS-CLOUD.

PFS-CLOUD allows PFS clients to benefit from all of the functionality that PFS-PAXUS and PFS-CONNECT have to offer, without any of the IT overheads. PFS-CLOUD provides this at a lower cost and without any of the burdensome IT and business overheads which are inevitable when clients self-host a sophisticated system like PFS-PAXUS.

PFS-CLOUD includes infrastructure management, optimised cybersecurity and real-time backup of data for immediate failover reactivation in the event of a disaster recovery situation. PFS-PAXUS' client base includes some of the world's largest fund administration firms administering thousands of funds around the world.

PFS was formed with one objective in mind—to build an all-encompassing, dedicated fund administration solution to form the backbone of any fund administration service providers' business. PFS-PAXUS provides this all-encompassing solution with the highest levels of functionality and at a highly-competitive price point which is proven to empower our clients to increase profitability while exceeding the expectations of their underlying clients.

Since its incorporation nearly 20 years ago, Pacific Fund Systems has continued to grow year-on-year and offers new and existing clients a long-proven track record of maintaining stable and current software functionality, supporting fund administrators who wish to offer a premium service to fund managers across the globe.

We pride ourselves on having a personal connection with our clients by providing tailored support and advice and aim to always go the extra mile to meet and exceed their exacting demands.

Pacific Fund Systems in numbers:

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- **Over** ***2,000*** **individual users of PFS-PAXUS**
- **More than** ***1,000,000*** **prices processed per week on PFS-PAXUS**
- **Over** ***2,000,000*** **individual shareholder records maintained on PFS-PAXUS**

> ***PFS-CLOUD allows PFS clients to benefit from all of the functionality that PFS-PAXUS and PFS-CONNECT have to offer, without any of the IT overheads***

Kelly Ashe
Head of sales and marketing
Pacific Fund Systems

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Data will hold the key

Daron Pearce of BNY Mellon discusses the latest European and North American back-office trends and how data will be the main point of competition for the industry

What European trends are you seeing that the middle- and back-office should be aware of right now?

There are three big trends, the first of which concerns resiliency and regulators' demand for a higher level of recoverability, turnaround times and critical economic functions. These factors are critical to the health of the financial services environment. You have to be able to demonstrate that we are investing in those areas and developing cyber-secure technology.

In addition, clients are expecting digital outputs from the services we provide. There is an increasing demand for daily available dashboard information on performance, calculations and reporting.

The third trend is data, which has been a hot topic of discussion at FundForum this year. The industry is experiencing an insatiable thirst for data. With our scale, we have enormous amounts of data within our architecture; the mission we are on is to make it more available, then bring insight using that data.

All three of these trends set our priorities, and, as a service provider to the asset management community, we are finding that clients are very much interested in outsourcing middle-office functions to pass on their pressures and avoid costs.

We are seeing an ever-increasing demand for outsourced services, so we have developed a modular model rather than doing giant lift-outs that promise a lot and typically deliver very little.

We categorise and pick out components that we believe we have the scale, expertise and technology to deliver on.

How is ESG driving change in the industry? To what degree is it changing asset servicing?

In the last few months, environmental, social and corporate governance (ESG) has gone from being a secondary conversation to a mainstream topic. Just about every one of our clients, whether they are an asset owner or manager, is looking to demonstrate that they are engaged in the ESG agenda and many have appointed managers focused on ESG. As a service provider to both asset owners and asset managers, we have partnered with Arabesque, who offer an ESG ranking index. Through us, clients can put a portfolio into that system and it will tell them their ESG score. We're proud of being ahead of the curve on that, as it's now front and centre of every client conversation.

What impact are the increased compliance and regulatory hurdles having on you and your clients?

As a systemically important financial institution, we are held to a high standard by our global regulators. We have to comply with the highest standard of all regulations and we must have a very high standard of capital adequacy.

We are a complex organisation, operating actively in 35 countries, so compliance continues to be an ongoing burden that we must maintain. But it's also a hygiene factor—it is hard to differentiate ourselves on compliance and regulation; we simply have to stay on top of it, even though it is a big investment of capital and technology expenditure. While it does feel like a never-ending set of requirements for us, it is an essential part of doing business. It does create some opportunities for us if clients see that a regulatory burden may be too much for them, especially if they are a smaller firm that lacks capital and technology investment.

Do you think the level of regulation in recent years has enabled the industry to have a reset or refresh?

Regulation over the last decade has been a good thing, particularly in the funds industry. The endgame is investor protection, it's not about the regulators trying to cripple asset servicers and prevent the industry from doing good business.

They are just driving standards to ensure that client assets are where they should be, so in the event of a failure, clients can get their assets back. All of the measures we have seen have been for the protection or improved transparency for the people entrusting us with their money.

How is BNY Mellon taking advantage of developments in technological innovations around artificial intelligence (AI), automation and data analytics? How has it aided the asset servicing industry?

From an operational perspective, we have adopted a great number of bots in our core operation centres that run routines which people used to do manually. That has freed up people to bring their energy and intellect to more valuable work, which is terrific. Data is focused around insight and helping asset managers, in particular, to extract more value from the data we carry for them, for example, analysis of how and where their funds are being acquired.

In the US, we have a product that enables clients to really understand what is going on with their buying community: our distribution analytics service. We are building a whole new data capability set, along with products of custody, transfer agency and accounting.

What is your outlook on the asset servicing industry, what do you expect in the next five to 10 years from both a European and an American perspective?

I think we will see fewer players, as I expect further consolidation. To stay relevant to our clients requires massive and continuous investment.

In 10 years' time, I think the industry will be unrecognisable. I don't think we will compete with one another on the same things we compete on today, such as custody, income collection and deadlines.

I think data will be the main point of competition, in terms of data management tools, open architecture, and the quality and reliability of the data itself. The organisations that can create that golden copy of data that is relevant to every person in a client organisation will be the winners.

In terms of the US versus Europe, in my experience, the US is always five to 10 years ahead, especially if you look at what has gone on in the US with the degrees of automation through settlement, the over-the-counter cut off times, and overall commoditisation.

That gets exported from the US to Europe across five years, starting with the UK, then makes its way across another five years to the rest of the continent. That is typically how it goes.

We are actively working on this to expand our footprint so that we can provide regional solutions for our clients, rather than it being fragmented, as we have seen the market in recent years.

We provide services for some countries that are not accessible to our full client base. I think you will see firms like us complete that footprint expansion.

Daron Pearce
CEO of global financial institutions
BNY Mellon Asset Servicing

The Brexit impact

Peter Wood of CoinBurp says Brexit has given fintech companies and the investment community pause for thought, with many risk factors to consider

Brexit is the process that began in 2016, with a referendum on whether or not the UK should remain a member of the European Union.

The process has now become extensively drawn-out, with no obvious resolution in sight. The EU consists of 28 European countries or member states, which is headquartered in Brussels.

The delay of Brexit is caused by divisions on how the UK should leave the EU and what the future relationship should look like. Possible solutions range from revoking Article 50, the piece of legislation that enacted the result of the 2016 referendum and committed the UK to leave, to leaving the EU without a deal, a so-called 'hard Brexit'.

A withdrawal agreement drafted by former Prime Minister Theresa May was defeated three times with MPs voting against it.

There has been a petition to cancel Brexit with millions signing it, marches demanding a second referendum, and marches about the way new Prime Minster Boris Johnson is handling the withdrawal process.

The net result is that many, business owners across all sectors and all parts of the UK are unsure of what the future holds for them and their employees.

Fintech and Brexit

London is perceived as the 'Fintech Capital of Europe'. It has an ever-growing number of start-ups and established companies, all of which have a positive impact on the city. Job creation has increased by 61 percent over the past year according to recruitment firms across London. This growth makes financial technology the fastest growing sector in the London economy.

With such promising statistics, how will Brexit affect growth and positive impact within the current economic state?

The UK's fintech sector has continued to progress since the Brexit vote. The UK has always encouraged innovation, creating a surge of growth, thus increasing investment opportunities for not only local investors but also international investors. This injection of finance aids the growth of fintech companies.

Brexit, however, seems to be limiting UK fintech companies operating with European companies, with factors such as trade and employment becoming valid concerns.

Brexit has given fintech companies and the investment community pause for thought, with many risk factors to consider. This has not hindered growth by any means but still provides uncertainty in Europe whilst negotiations continue in the weeks, months and possibly years ahead. If we start to see a loss of investment and talent from the European region, this can be compensated by potential employees and job seekers from other territories, such as Asia, coming to the UK. London will still remain a global capital of fintech, but that's not to say there may be a decline in growth compared to other regions.

How can fintech companies prepare for the worst?

- Despite the growing fintech sector in London, preparing for the worst is diligent and necessary. One means of preparation will be to build investor and international relationships which if not already done, will be vital for future development. Doing so provides opportunities following the possible disinterest of EU and local investors.

- Any estate agent will tell you property sales are in decline, and the reason for this is due to the uncertainty of the property market following Brexit, so people are staying put. This applies to the job sector where staff are staying in their positions due to employment uncertainty and vice versa, where companies are retaining staff and reducing turnover.

- As mentioned before, the London fintech market is currently in a strong position and is filled with innovative and forward-thinking companies. It goes without saying that for many companies, if not all, service is key as customers are their bread and butter. It would be advisable to improve current services or to create and onboard new services to deliver value to your existing and future clientele. Giving your clients a reason to stay.

- A localised service makes you specialised and focused on what you offer and to whom. If Brexit were to limit or cut off your current European clients, you will need to look to expanding your offerings to accommodate for your 'once was' audience and adapt to change.

The UK remains the most welcoming country for fintech businesses in terms of the regulatory framework, so regardless of how Brexit unfolds, it will maintain a certain competitive edge over its European neighbours.

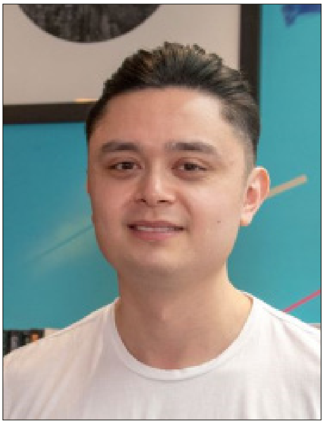
This being said, it would be unwise to ignore the negativity that may surround this exit, so stay diligent and adaptive.

It's clear that Brexit has massive implications for the UK, Europe and the world, unfortunately fintech will also be affected by these monumental decisions that we have charged our government to make.

It's a mark of how far we've come when people expect geopolitical crises, such as Brexit, to provide so-called 'volatile' markets like crypto with a boost.

London will still remain a global capital of fintech, but that's not to say there may be a decline in growth compared to other regions

Peter Wood
CEO
CoinBurp



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The path to operational excellence: revolution or evolution?

As asset managers seek out greater operational efficiencies across their businesses, Ed Gouldstone of Linedata sets out why evolution, rather than a complete systems overhaul, is often the best path for success

With the onslaught of regulation that followed the financial crisis, asset managers have had little bandwidth to focus on upgrading their IT infrastructure. Now that the dust has settled, digital transformation is firmly back on the agenda. Increasingly, fund houses see achieving greater operational efficiencies as a vital way to deliver value for their clients in a period of mounting uncertainty.

However, recognising the need for digital transformation is seldom the problem. Most of the asset managers we consult with, see the drastic efficiency-saving benefits that digitalisation can bring but are unsure of the right approach to take.

The hype surrounding the disruptive technologies that have emerged in recent years—from artificial intelligence (AI) to cloud and distributed ledger technologies (DLT)—may make it seem like firms are confronted with a black and white choice. That is, either they take a revolutionary stance by doing away with their old systems entirely. This means they risk losing aspects which are already working and they continue to patch their existing architecture without experiencing the desired efficiency gains.

In reality, the choice is far less binary. And while disruptive technologies may deliver value over the long-term, they are not the silver bullet they are sometimes purported to be. Industry leaders are therefore prudent not to make sudden wholesale changes without due consideration.

The key to successful digital transformation is not just fixing old systems and achieving base-level operational efficiencies. The goal should be true operational excellence—optimising processes across the entire organisation to deliver sustainable efficiencies and cost control while supporting business growth and revenue-generating improvements.

Standing still is not an option

Achieving greater operational efficiencies has never been more critical for the success of the asset management industry. Fund houses are being squeezed at both ends, facing rising costs and pressure to reduce fees. Recent research by McKinsey found that profits for European and US asset managers fell by 2.4 and 3.3 percent, respectively, last year. Furthermore, the costs of running investment businesses increased by 8 percent in 2017, and Western European asset managers have experienced a 72 percent rise in total costs since the end of 2007.

In this context, automating and streamlining workflow processes is imperative to drive down costs and boost shrinking margins. However, back-end operations are at breaking point. Built-up over many years, and exacerbated by mergers and acquisitions, most firms are trying to soldier on with a patchwork of 'Frankenstein systems' that are rife with issues. Reporting requirements, order management, compliance checks, due diligence and internal accounting are often all run on different platforms. This creates a complex, and not always synthesised, web of IT infrastructure which often faces compatibility problems.

Such fragmentation means that a lot of manual resources must be allocated to keep these disparate systems up and running. Teams of people are doing highly repetitive tasks when automation is key to efficiency.

Furthermore, disconnected IT architecture decreases the ability to extract and aggregate the necessary data to streamline operations, generate reporting, address regulatory compliance and make smarter business decisions. For example, different systems in different regions make it difficult to get an aggregate view of holdings exposure and risk at a global level, increasing data management overheads.

These problems can seem so insurmountable that many firms have resorted to 'workarounds' in order to get the job done, but inevitably these tactical solutions become 'strategic' solutions as other priorities arise. This approach is clearly unsustainable. In addition to creating massive costs, such measures prevent asset managers from achieving the efficiency gains they require to safeguard the future prosperity of their businesses.

Taking an evolutionary approach

To ensure that a digital transformation programme successfully resolves a firm's operational inefficiencies, those driving change must take a strategic approach rooted in achieving the desired short- and long-term results. Critically, this involves developing a plan and roadmap that focuses on simplifying systems architecture and leads to more effective management and use of data.

Asset management firms should start by understanding what is working well, what is not, and should start fixing those parts that are not. The solution, therefore, is two-fold: understanding, either through internal or external auditing, which systems are not adequately supporting operational efficiency and enabling future business growth, and secondly, replacing these with new, modular and flexible solutions that are compatible with the rest of the system.

That was the thinking behind Linedata Optima, an advanced workflow management tool designed specifically to optimise fund administration. It runs off existing core systems—which have been used by fund managers for many years and continue to serve their purpose—and delivers operational excellence by digitising processes and business controls, surfacing data through an application programming interface (APIs), providing unrivalled transparency and interaction and allowing firms to streamline and automate repetitive processes.

This approach stands in contrast to the 'rip and replace' model that is sometimes driven by the narrative surrounding disruptive technologies. The most obvious example of this is the push in some quarters of the industry to onboard DLT systems. These can be very expensive—running into the tens or even hundreds of millions in some cases—for a technology that is untested in asset management applications and may take a decade or more to deliver a return on investment.

Ultimately, before undertaking large-scale technology projects, firms should clearly define their goals and expected benefits and choose a path that lets them test assumptions incrementally. Will this technology work for my business? Will it improve my client and regulatory reporting? Can we reduce turnaround on our net asset value production?

In some cases, a fundamental restructuring of system architecture is necessary to achieve the desired results. Yet even then, organisations should structure their transformation journey in stages to achieve meaningful near-term benefits, measure performance against expectations and adjust course as necessary to achieve their ultimate objectives. Clear, honest internal communication is critical, so members of staff understand why changes are being made and how these will benefit the organisation in the long-term.

Leveraging data for advanced analytics

Data is the lifeblood of every asset management organisation. Regardless of the chosen system architecture path, a sound data strategy lays the foundation to leverage machine learning and data analytics for even more advanced efficiency gains.

It is well known that AI and machine learning's capacity to analyse vast sums of market data can aid better-informed front-office decision-making, but these technologies can also have widespread applications on the operational side.

Indeed, our recent research into industry adoption of AI revealed that a quarter of asset managers identify back-office functions as the area of their business that stands to benefit the most from its application.

A wide array of routine processes, including trade validation, reconciliation and exception management, currently require significant human intervention. However, a large proportion of these activities do not involve complex decision-making and can readily be automated.

An additional application, which we have incorporated into Linedata Analytics Service, is the capacity for machine learning to reduce operational risk and support compliance. This service takes operational data about market transactions and other events that have previously resulted in losses and compliance issues and combines it with broader market data. Using this enhanced dataset, we build a machine learning model that identifies and tests for patterns that indicate when errors are more likely to occur. Delivering these insights to the client's operations team enables them to take preventative action and avoid potentially costly and damaging incidents.

Future-proofing systems

An important consideration is how to future-proof systems architecture, enabling ongoing advancements while readying a firm for the next wave of innovation.

By taking the modular approach discussed, and using technologies that are fully API-integrated, organisations can add and retire applications with relative ease.

On top of this, having a single user interface to bring it together makes a business more flexible. Getting the user interface and user experience right gives managers a more holistic understanding of their business and allows them to maximise operational efficiencies while changing things seamlessly under the hood, therefore minimising business disruption.

Beyond the technology itself, managers should carefully choose the right vendor to support their business as it scales.

Working with a global provider can help firms roll out solutions worldwide as well as bringing a level of local and institutional knowledge to the table concerning evolving regulation, asset classes and cultural practices—a key advantage when firms are pushing into new markets.

Managers want to equip themselves with the right IT systems that allow them to achieve their goals, keeping pace with technological innovation while helping them improve productivity across their businesses. Indeed, with increased emphasis on fees, mounting economic pressures, and continued geopolitical uncertainty, the incentive to boost margins remains strong.

With this in mind, managers that keep a cool head when approaching digital transformation, and can identify the strengths and weaknesses in their operations and then invest in new solutions where needed, will be the ones who bring true operational excellence to their businesses. By achieving that, operational technology no longer forms a barrier to business evolution and growth but becomes the foundation of its success.

Ed Gouldstone
COO Northern Europe, asset management
Linedata

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Dillon Eustace has been reaffirmed as the leading legal adviser to Irish domiciled investment funds by the latest Monterey Insight Ireland Fund Report (2018), a position our firm has held for the last 20 years*. Acting for over 1,100 Irish domiciled funds across all product types, our team uses this unrivalled experience to provide expert guidance on investment funds to both domestic and international clients. [*Based on the Monterey, Lipper and Fitzrovia Ireland Fund reports.]

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The road to IM compliance

Neil Murphy of triResolve discusses what the initial margin landscape changes mean to the market and how in-scope firms for phase 5 and 6 may decide to take an alternative approach to IM compliance

Recent guidance from the Basel Committee on Banking Supervision (BCBS) and the International Organization of Securities Commissions (IOSCO) has changed the regulatory initial margin landscape. As firms are getting ready to meet initial margin (IM) regulations, a potential one-year extension and removal of some documentation requirements may mean a welcome reprieve for some, but there is still a lot of work to be done.

What does the recent guidance from BCBS IOSCO mean to the market?

Although not yet formally legislated across all jurisdictions, it is now anticipated that the final phase of IM implementation will be split in two; phase 5 on 1 September 2020—firms with an aggregate average notional amount (AANA) greater than €50 million/$50 million—and a new phase 6 on 1 September 2021—firms with an AANA greater than €8 billion/$8 billion.

The original phase 5 group of firms has now been split in two, with approximately 30 percent coming into scope in 2020 and 70 percent in 2021, giving smaller firms another year to get ready.

An additional operational burden has also been alleviated for firms as they are not required to have legal documentation and custodial agreements in place ahead of breaching the €50 million/$50 million threshold per counterparty group.

For larger firms who expect to quickly breach the €50 million/$50 million threshold, there is no change. They need to continue preparing for the deadline as planned; selecting an IM calculation method and engine, establishing an IM collateral workflow, defining a reconciliation approach, and putting in place documentation with counterparties and custodians.

However, for smaller firms who are likely to be under the €50 million/$50 million threshold for a long time, or even indefinitely, this presents an opportunity to focus valuable resources on priority tasks, namely calculating and monitoring IM. Allowing them to defer

the documentation challenge until their exposure nears the €50 million threshold if required at all.

What is IM monitoring and what do firms need to consider?

IM monitoring is the requirement for firms to calculate IM exposure on in-scope transactions and monitor this exposure against their fellow in-scope counterparties.

Regulation stipulates that IM can be calculated in one of two ways. Either through a regulatory approved model or through a schedule-based percentage of notional approach. The latter does not really allow for much netting and may be quite expensive, although there are some instances when it may be the preferable method of calculation. To date, the market has adopted the International Swaps and Derivatives Association (ISDA) Standard Initial Margin Model (SIMM) model as it provides a standard way to calculate IM. SIMM requires firms to calculate sensitivities which then need to be fed into the model to calculate IM exposure amounts.

For IM monitoring to be effective, firms need to have the ability to pro-actively monitor IM amounts. 'Local' thresholds must be set, amounts which, when breached, signal a need to prioritise legal documentation. Upon breach of a local threshold, firms must allow sufficient time to establish legal documentation with custodians and counterparties ahead of breaching the regulatory IM threshold.

Is IM monitoring right for my firm?

Whether you expect to be in-scope in either phase 5 or 6, you are required to calculate IM. However, based on the size and composition of your portfolio you may never exceed the €50 million/$50 million threshold.

Hence, you need to consider whether it is necessary to undertake the additional effort, not to mention cost, of implementing a full IM programme, including extensive documentation. A lighter, cheaper option may be more appropriate to begin with, to assist with preparing for compliance without undertaking unnecessary project

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steps. Should your IM exposure increase slowly over time, perhaps you may wish to consider switching from monitoring to margining.

What are the next steps?

Hopefully, by now you have confirmed when you are in-scope. Regardless of your phase, planning should be your key priority. Phase 6 firms should not take this additional time to defer IM projects, instead firms should continue their preparation. Calculation of IM exposure per counterparty relationship is essential since this will help firms estimate time to breach the €50 million threshold and hence to determine whether monitoring is right for them.

How can TriOptima help?

TriOptima offers a holistic IM monitoring solution which starts with the calculation of trade sensitivities and IM exposure, monitors your IM versus your counterparties IM, and alerts you when a threshold is breached. With a single trade file and rapid onboarding, we aim to make IM monitoring effective and easy.

Here is how it works:

- Submit a trade file in any format and we calculate your trade level sensitivities
- We calculate the in-scope trades' IM exposure for each portfolio using both the ISDA SIMM and schedule approach. The ability to use both ISDA SIMM and a scheduled approach may mean lower exposure for a longer period
- We monitor the IM exposure for each relationship in triResolve Margin and compare it to your counterparty
- You set the local threshold and are automatically alerted when this is breached—allowing you to then prioritise the deferred documentation task

Once a local threshold is breached you can easily switch from IM monitoring to IM margining on triResolve Margin:

- IM margin calls are automatically generated and sent via AcadiaSoft's MarginSphere to your counterparties
- Upon agreement of margin call, a fully automated collateral workflow allows you to agree on collateral payment and send details to your chosen custodian or tri-party agent

The TriOptima solution is web-based. We can turn on your access instantly and you pay only for trades and agreements you put through the service.

There are no upfront fees and no implementation, making IM compliance low cost and simple.

> ***Regardless of your phase, planning should be your key priority. Phase 6 firms should not take this additional time to defer IM projects, instead firms should continue their preparation***

Neil Murphy
Business manager
triResolve

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With approximately 1,000 branches, Commerzbank has one of the densest branch networks among German private banks. In total, Commerzbank serves more than 18 million private and small business customers, as well as more than 70,000 corporate clients, multinationals, financial service providers, and institutional clients. In 2018, it generated gross revenues of €8.6 billion with approximately 49,000 employees.

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Commerzbank provides clients with an all-embracing offering for post-trade activities. Those services include OTC client clearing for the clearing of interest rate products at LCH.Clearnet and Eurex Clearing, Trade Repository Reporting in compliance with EMIR reporting requirements, as well as our award-winning custody and direct market access product delivering a client service focused state-of-the-art execution to custody product as well as a standalone custody offering, all provide a fast and economical solution for Germany, Europe and beyond.

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COMING Q1 2020

EquiLend Collateral Trading is designed for funding or financing desks to effectively trade collateral. The platform will allow for a centralized way for clients to execute and manage trade structures with their counterparties.

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EquiLend Exposure offers clients real-time visibility and management of counterparty intra- and end-of-day exposure, optimization of collateral usage and reduction of unnecessary costs of settlement for borrows and loans.

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Ledger Vault

Ledger Vault

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Ledger Vault is a multi-authorisation cryptocurrency wallet management solution enabling financial institutions to build digital asset operations at speed and scale. It is securing assets for 40+ global organisations including Uphold, Crypto.com NDAX and Coinhouse.

It is powered by Ledger, a leader in security solutions for digital assets and blockchain applications founded in 2014. Headquartered in Paris with offices in New York and Hong Kong, Ledger has a team of 180 professionals developing a variety of products and services to safeguard crypto assets for individuals and companies including the Ledger Nano S and Nano X, which already sold over 1.5 million units in 165 countries.

Linedata

www.linedata.com

With over 20 years' experience and more than 700 clients across 50 countries, Linedata's 1,300 employees in 20 locations deliver humanised technology, services and data solutions that empower leading asset management and credit industry firms worldwide to evolve and operate at the highest levels.

Linedata's asset management solutions offer a robust, configurable platform of software, security and data solutions and services that enable our wealth, institutional and alternative clients to grow, operate efficiently and provide excellent service to their own clients and stakeholders.

Headquartered in France, Linedata achieved revenues of EUR 173.2 million in 2018 and is listed on Euronext Paris compartment B FR0004156297-LIN – Reuters LDSV.PA – Bloomberg LIN:FP.

PACIFIC FUND SYSTEMS

Pacific Fund Systems

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PFS initially commenced its business supporting the alternative fund management industry and now supports wholesale fund administration across the full spectrum of funds from fully regulated retail funds through to hedge funds and private equity vehicles.

PFS-PAXUS is a proven global technology solution for the fund administration industry that enables clients to automate all fund administration components on a single platform. PFS-PAXUS improves administrative efficiencies, implements essential controls, manages operational risk and ultimately empowers service partners to exceed the expectations of their clients.

PFS-PAXUS is revolutionary in that it integrates all the processes that are normally performed on multiple systems, including; securities portfolio, allocation system, general ledger, fee calculation, share registry, investor communications and web portal.

PFS has always had a global approach to its business, with its core PFS-PAXUS software currently in operation in more than 70 separate database installations across multiple global jurisdictions, with thousands of funds administered and audited on PFS-PAXUS annually.

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SmartStream is a recognised leader in financial transaction management solutions that enables firms to improve operational control, reduce costs, build new revenue streams, mitigate risk and comply accurately with regulation.

By helping its customers through their transformative digital strategies, SmartStream provides a range of solutions for the transaction lifecycle with AI and machine learning technologies embedded—which can be deployed in the cloud or as managed services.

As a result, more than 2,000 clients—including 70 of the world's top 100 banks, rely on SmartStream Transaction Lifecycle Management solutions to deliver greater efficiency to their operations.

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TriOptima is the leading multilateral compression provider that lowers costs and mitigates risk in OTC derivatives markets and is now part of CME Group. As the world's leading and most diverse derivatives marketplace, CME Group (cmegroup.com) enables clients to trade futures, options, cash and OTC markets, optimise portfolios and analyse data—empowering market participants worldwide to efficiently manage risk and capture opportunities.

CME Group exchanges offer the widest range of global benchmark products across all major asset classes based on interest rates, equity indexes, foreign exchange, energy, agricultural products and metals. The company offers futures and options on futures trading through the CME Globex platform, fixed income trading via BrokerTec and foreign exchange trading on the EBS platform. In addition, it operates one of the world's leading central counterparty clearing providers, CME Clearing.

With a range of pre- and post-trade products and services underpinning the entire lifecycle of a trade, CME Group also offers optimisation and reconciliation services through TriOptima, and trade processing services through Traiana.

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