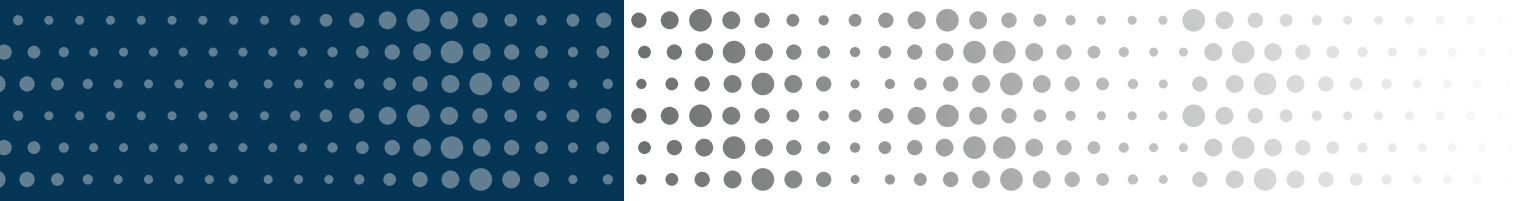


The ABCDs of Innovation[®] in Asia Pacific

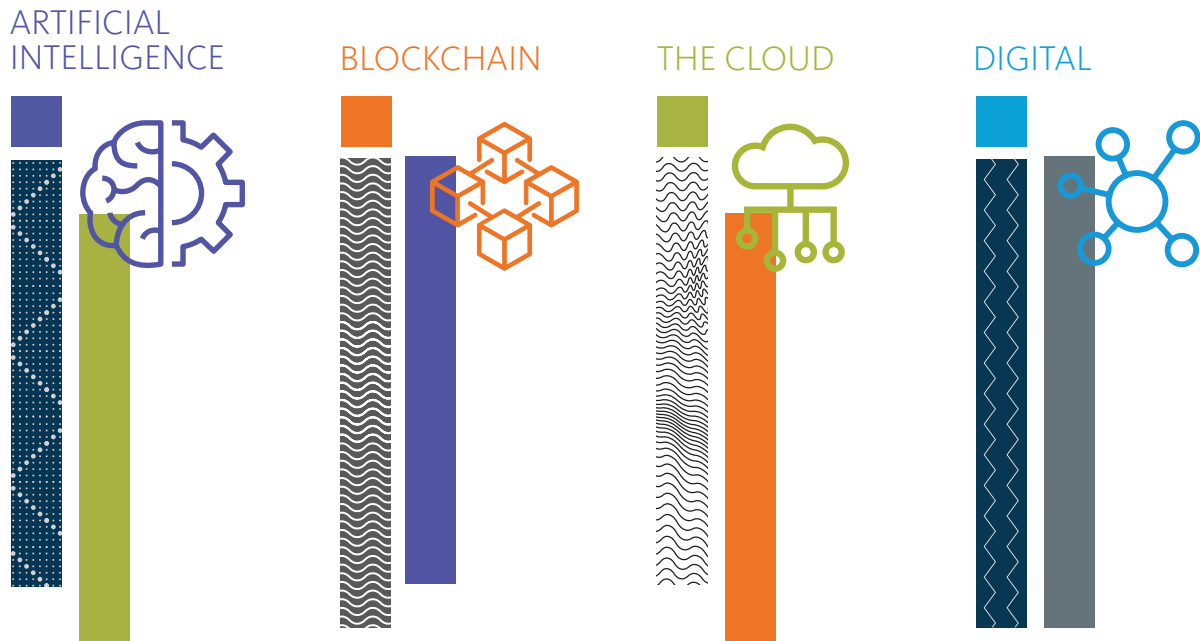




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The ABCDs of Innovation®



Broadridge simplifies the complex with **The ABCDs of Innovation®**. It's how we help our clients understand and apply next-gen technologies — including AI, blockchain, the Cloud and digital — to transform their business and get ready for what's next.

AI: At its core, AI is about data and scale. While initially focused on streamlining operations, firms are now harnessing AI to improve experiences, create products and drive revenue. Our network makes connections at scale—so you can transform data into actionable insight.

Blockchain: The value of any blockchain application comes from its network of participants. Peer-to-peer connections forge better security, transparency and efficiency. Broadridge combines a trusted network with next-gen technology—enabling firms to transform their business.

The Cloud: The Cloud makes it possible to innovate with speed and efficiency. Our hybrid cloud strategy reflects the regulatory and security realities our clients face. This combination of public and private cloud solutions makes it possible to scale with confidence in any environment.

Digital: Digital is not just a technology, it's a way of doing business. Because we support over 5,000 brands, we can bring the scale, reach and data you need to make meaningful connections—transforming everyday communications into dynamic, personalised engagements that fuel growth.

INTRODUCTION



COVID-19 AND DIGITAL TRANSFORMATION

The year 2020 has challenged financial markets and institutions like never before. But it didn't begin that way. In early January most of the world's financial centres were enjoying record performance. The S&P500 Index would enjoy its best month ever. Economic growth rates in Asia were robust.

By February, the outbreak of COVID-19 began to test many aspects of society. The coronavirus has been, above all, a human tragedy, severely affecting countless lives, destroying many businesses, and forcing painful lockdowns.

Within finance, markets have reacted to the pandemic with spiking trading volumes that have challenged electronic infrastructure and legacy processing systems. The sudden need to have staff around the world work remotely has placed an unprecedented strain on financial institutions.

The pandemic also crashed markets, from stocks to oil, and led to mass business shutdowns and layoffs. The response by governments has pumped securities markets with liquidity, but the risk of a depression in the real economy now threatens credit markets.

However, the COVID-19 pandemic has not stopped innovation. It is prompting the world's leading financial institutions to accelerate their digital transformation.

The good news is that many solutions already exist or are becoming available. Silicon Valley-style solutions have become prominent since the last financial crisis of 2008.

Financial institutions, distracted by the financial crisis and its regulatory fallout, were slow to undergo digital transformation programs. As banks and others have become serious about digitalisation, they remain hampered by legacy systems. COVID-19 has exposed the limits of remaining beholden to outdated processes. Institutions are now fast-forwarding their technology strategies either by utilising solutions that already exist or partnering with tech companies to create new ones.

This does not mean chasing the latest fad. Instead, digital transformation is about going back to the basics of what financial markets and services are all about – and reengineering one's technological capabilities to provide these more efficiently, at scale.

The most durable businesses are based on solid building blocks. At Broadridge, we believe **The ABCDs of Innovation®**, the fundamental starting points of next-gen technology will allow banks, brokers and asset managers to succeed.

This paper will explore **The ABCDs of Innovation®** – AI, blockchain, the Cloud and digital - as well as the underlying data and analytics that makes them more powerful—and how Broadridge is helping to simplify the complex for our clients in Asia Pacific.



ARTIFICIAL INTELLIGENCE

Banks and asset managers are speeding up their use of artificial intelligence. AI adoption among financial institutions has focused on data mining and post-trade processing, as well as market analytics and trading systems.

“There is a heightened pace now as firms look at the new landscape and understand where their earnings are going to come from,” says David Becker, managing director and head of Asia Pacific at Broadridge. Firms were already investing in AI in order to increase efficiency and productivity, as well as to enhance data and security and redeploy staff to more value-added tasks.

Until now, such investments have been impeded by legacy systems. With revenues under strain, firms will address this challenge more aggressively. Asian institutions are best positioned to move the quickest.

“The customer base in Asia is mobile-native and data-driven,” says Kurt Eldridge, head of sales at Broadridge for Asia Pacific. “At the same time, there are fewer legacy challenges here.”

Two examples of Broadridge’s AI capabilities show how technology is making firms leaner, safer, and more efficient. This in turn is unlocking new possibilities. Layering intelligence on top of back-office reconciliations is enabling trading desks to deploy capital much more effectively, while predictive analytics are helping asset managers get ahead of distribution trends.

RECONCILIATIONS: INTELLIGENT AUTOMATION AND TOOKITAKI

Asia is also becoming a source of AI innovation. Singapore-based machine-learning specialist Tookitaki Holdings is providing AI and machine learning technology to support a new initiative from Broadridge, called Broadridge Data Control Intelligent Automation. This uses AI to support industry-wide reconciliation, matching and exception management applications.

This is a breakthrough use of AI, because most reconciliation products are designed for specific uses, which leaves financial institutions with a confusing mix of solutions that can’t communicate. Intelligent Automation operates seamlessly across functions and enables third-party reconciliation software to interoperate.

Its first two modules help eradicate breaks in exceptions management and automates reconciliations, automatically finding the underlying cause of a problem and resolving it efficiently to ensure the underlying cause is addressed.

Tookitaki’s machine learning is unique in the level of transparency it brings, with an “explainability” framework that lets firms view the engine’s decisions, in order to build trust in the application.

Intelligent Automation represents the evolution of AI strategies around data that began a decade ago with data lakes, which firms constructed in order to centralise data strewn across dozens of internal systems. This led to the challenge of making sense of it all, which is where AI comes in.

By providing insight into a firm’s positions, any breaks or errors they have, and correlations among hundreds of data types, an operations manager can now predict failures. This in turn allows people to redeploy to more value-adding functions while the team reduces its risk and lowers its cost.

“AI allows capital markets businesses to reduce their risk by understanding their positions at any given moment,” says Kurt Eldridge. Reconciliation has gone from being a monthly or weekly batch process to an hourly automated task. Intraday confirmation of trades and exposures now allows prime brokers, trading desks and investors to utilise assets better.

PREDICTIVE ANALYTICS

Broadridge supports asset managers by providing data and analytics around fund flows, information that is useful to understand client segments and new sources of demand.

Insight relies on data, and Broadridge has unique access to a combination of sources. It blends primary data sourced directly from global consortia of fund management companies, with feeds from data partners, such as Lipper, Morningstar and Preqin. Pooling these allows Broadridge's clients to obtain important nuances into trends.

Broadridge is adding AI and use of unstructured data to make information more digestible, customised, and predictive.

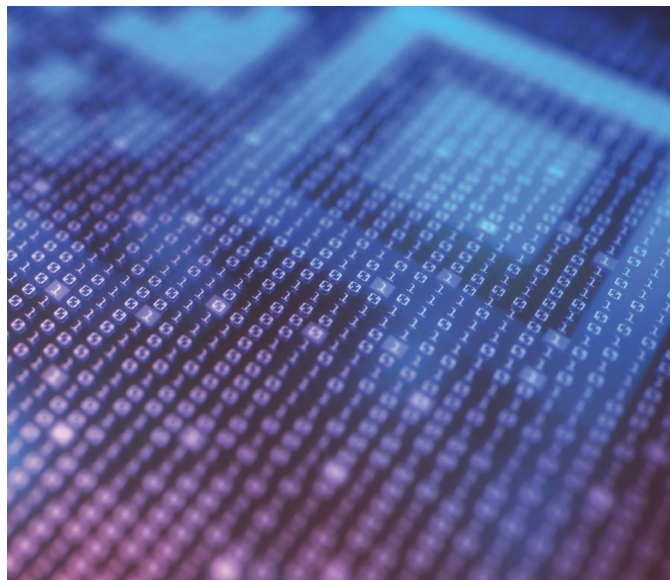
Yoon Ng, senior director of APAC distribution insights at Broadridge, says fund managers value this to understand asset flows, fees, and revenues by product and channel worldwide. It also provides insight into distribution trends—what types of clients are buying what type of investment products, from whom, and on the advice of which gatekeepers such as consultants.

“Our tools allow asset managers to benchmark themselves, confidentially, and project revenues for a product strategy or a product type.” - Yoon Ng

For example, asset managers in Japan use Broadridge to understand demand patterns among European pension funds for Japanese and Asian equities funds. Another example is global fund houses using Broadridge analytics to identify opportunities to win mandates from Asian insurance companies outsourcing some of their assets.

New analytics capabilities mean clients can anticipate trends as well as measure them. The first step is accessing a broad set of data. Broadridge curates the broadest and deepest distribution data across the globe, providing assets and flows by product, distribution channel and investor type. In the US, machine learning is used to analyse assets and flows generated through model portfolios.

Second is using analytics to turn data into meaningful insights. “The development of algorithms and use of machine learning allows both qualitative and quantitative inputs to be fed into the predictive process. We use it heavily in our fees and revenues forecasting module as well as to quantitate future demand and inform business targets” Yoon Ng says.





BLOCKCHAIN

Of all next-gen technologies, blockchain or Distributed Ledger Technology (DLT) has been the most hyped and the least understood. Its origin in the cryptocurrency space, which came to life in 2009, has obscured the advantages of a technology that is ultimately about coordinating multiple players that otherwise would not trust one another enough to cooperate.

At its core, blockchain is a networking tool, so it has taken time to understand its commercial potential and the right incentives to get market participants to work together for a common good.

Asia Pacific is home to one of the boldest institutional projects in blockchain: the Australia Stock Exchange's (ASX) replacement of its post-trade processing system with a blockchain solution. Broadridge is an investor in Digital Asset Holdings, the vendor that is building ASX's DLT solution.

Originally scheduled to go live in 2021, the ASX has had to slow down its consultation process in the wake of COVID-19, which has demanded emergency attention among Australia's brokers and issuers. A revised timetable has been announced by the ASX, with a target go-live date of April 2022.

Some of the industry's most notable blockchain deployments will be from Broadridge itself, whose solutions will be game-changers in their respective areas: fixed income (specifically repo markets) and corporate governance.

REPURCHASE AGREEMENTS (REPO)

Broadridge is already a core technology provider in global fixed income. In the US, it processes trades for 19 out of 24 primary dealers. It was well aware of inefficiencies in capital markets, starting with repurchase agreements: short-term sales of Treasuries by brokers to an investor with the promise to buy them back the next day, usually at a slightly higher price.

Repo transactions, because they are essentially overnight loans with Treasury securities as collateral, are fundamental to financing hedge fund strategies and to fuelling intrabank daily funding: even central banks use repo to conduct open-market operations.

Counterparties need to know where collateral is at all times. Because the fluctuating value of these securities can impact the willingness of investors to return them on time, deals are often over-collateralised. It is difficult to consolidate and track net positions, particularly when securities held as collateral are on-lent in other transactions (such as if a hedge fund is using them to short a stock).

Therefore, most repo transactions involve a third-party clearing agent that ensures a level of trust, puts a value on securities, and settles transactions on their books – all for a fee.

Broadridge realised distributed ledger technology and smart contracts could do similar work at much lower cost. By leveraging this technology, Broadridge's DLT Repo platform tokenises collateral, so that the blockchain validates their provenance, value, and ownership terms, while preserving anonymity. Digitisation of collateral and smart contracts significantly improves current processes for broker-dealers, who can now allocate their capital more efficiently.

No matter how good the benefits of a DLT, the hard part is always getting the industry to agree to operate on a given platform; it is very difficult for a bank to convince other banks to operate on its proprietary network.

Broadridge, however, is in a position it can leverage to jumpstart a DLT effort. By implementing the DLT Repo platform on top of well established, proven financial market infrastructure platforms, Broadridge can unlock the power of DLT while minimising implementation risk and time, enabling firms to quickly realise savings. "The first use case is intra-company repo, which can bring significant operational efficiencies" says Horacio Barakat, vice president of global fixed income at Broadridge. Broker-dealers with desks in, say, Paris and New York or New York and Tokyo conduct repo transactions among themselves. This internal trading can account for as much as 25 percent of all repo transactions at global institutions. By transacting internally on a distributed ledger, they can generate immediate savings from processing without incurring new risks. "By keeping risks low, we break the cycle of which banks join first," Barakat says.

This also has implications for the expansion of repo and securities lending beyond the US. Broadridge's solution will go live later this year with several European banks using it for intra-company repo transactions. The same piece of collateral may exchange in Paris with a 24-hour window. Traditionally, that security will sit on the books in Europe and be usable by the borrower only during local market hours.

Early adopter broker-dealers going live are excited by the potential to extend the platform's benefits to their clients and provide them a differentiating service. In addition, recent market events have increased the need for global institutions to access liquidity through US Treasuries.

Using Broadridge's blockchain, however, the bank can move that same asset to New York, and when the US market closes, transfer it to the desk in Tokyo. Michael Tae, head of strategy and M&A at Broadridge, explains how instead of eight hours of life for that security, it can follow the sun and be lent out in each geography. "A smart contract represents that asset and moves it digitally on-chain within the firm, creating three times the liquidity," he says.

Once enough broker-dealers begin doing this for internal transactions, they will begin to do it with outside participants, because enough players will have joined the network. With enough broker-dealers active, asset managers and other investors will naturally gravitate to where the liquidity is.

The platform therefore becomes a step change in efficiency, reducing risk, and driving liquidity in repo. Once it works with Treasuries, banks will likely try using it for other securities, such as mortgage-backed bonds and corporate debt, and eventually it could extend into all parts of the securities-lending world. This also suggests these activities will become more widely available and used in Asia Pacific, where traditionally securities lending has been mostly limited to big markets such as Japan and Australia.

CORPORATE GOVERNANCE

One of the biggest regulatory changes in 2020 is the European Union's updated Shareholder Rights Directive (SRDII). The extra-territorial nature of the law means intermediaries in Asia Pacific that manage shares in EU equities will have to comply.

SRDII is a comprehensive change to European corporate governance standards. It has three components: shareholder identification, agenda distribution and proxy voting, and vote confirmation.

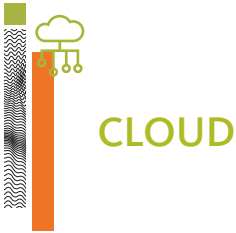
Within these areas, SRDII will clarify definitions, standardise communication formats and stipulate minimum data requirements. In concrete terms, all participants – brokers, asset managers, custodians – must offer electronic proxy voting services to all shareholders and disclose upon request information on their shareholders of EU securities.

That is a substantial undertaking, and the industry has little time to be prepared. Intermediaries, including those in Asia Pacific, must comply by September 3rd, 2020.

Broadridge already connects all these market players through its proxy voting services. Additionally, it is deploying a blockchain solution to help firms be compliant with the shareholder disclosure requirements of SRDII.

The Shareholder Disclosure Hub on blockchain ensures data integrity and that only the authorised recipients may see the appropriate disclosure "This is about auditability," says Demi Derem, general manager, investor communications solutions international at Broadridge. "It allows users to disclose only the information that is required."

This builds on Broadridge's existing experience with blockchain for shareholder services. For the past 5 years, Broadridge has run multiple pilot programs proving the viability of blockchain in automating proxy votes at annual general meetings.



The Cloud is foundational technology. It is revolutionising how businesses and individuals compute and store information. The Cloud is still steeped in hardware – servers, data centres – but it is scalable, reliable, cost effective, and able to more rapidly drive business goals.

“The Cloud breaks us out of legacy solutions based on databases or middleware and hard to manage hardware” - Mark Schlesinger

Mark Schlesinger, chief technology advisor and technology fellow at Broadridge. “It allows enterprises to end long and expensive cycles of testing and procurement. Firms can focus instead on agile innovation and timely development of business solutions – including artificial intelligence, blockchain and digitalisation.”

This doesn't mean financial institutions must rush to move every datum to the public Cloud. There are times when existing fit-for-purpose platforms are more effective, such as for batch processing (especially for core books-and-records processing), or when a firm needs to rely on proprietary hardware for compliance or security reasons.

When it comes to innovation and adaptability, the Cloud is now essential. Testing new products, personalising an investment offer, engaging with a client, or building APIs (application programming interfaces) to connect with third parties, require the speed and scaling of the public Cloud.

Broadridge is also relying on the Cloud to deliver next-gen capabilities to its clients, in capital markets, wealth and asset management, and banking. It is not a Cloud vendor. Rather, it provides Software-as-a-Service to financial institutions to become more efficient and generate revenue. That includes ensuring interoperability among a firm's multiple public Cloud vendors as well as in-house platforms.

Beyond these core services, however, the Cloud will be fundamental to taking advantage of Broadridge's cutting-edge services using artificial intelligence and blockchain, and its tools for digital transformation.

For asset managers, Broadridge is leveraging the Cloud to support digitalisation. Aside from the industry's leading giants, asset managers are too fragmented to match the tech budgets of a global bank or insurer. Many mid-tier asset managers need to accelerate their technology strategy, because these tools will give them the insight to remain relevant.

“Asset managers can use AI to understand their risks and portfolio exposures, and to incorporate data from alternative asset classes into their models,” says Kurt Eldridge.

It's the middle and front office that will benefit the most from these solutions: portfolio and risk management, and algorithms for trading and execution.

“The concern isn't about operations, which many asset managers have already outsourced,” Eldridge says. “The focus is on acquiring assets and customers.” AI is what can trigger an effective sales conversation – but it requires the flexibility and scalability of the Cloud to work.

Similarly, private equity firms are burdened by the cost of manually processing investment profiles, counterparty risks, covenants and loans among portfolio companies. These firms may not be active traders, but the documentation and reporting required for a given holding is vast. Putting this data on the Cloud is the path to efficiency.

Moving to the Cloud makes sense for asset managers that already have a light technological and operations footprint. For those still working off spreadsheets, it would be onerous to adopt or extend old-school legacy systems. At a time when buy side firms face enormous pressure to compete against low-fee passive products, greater regulatory requirements, and pressure from institutional clients to cut costs, the time is ripe to embrace the efficiencies of the Cloud.



DIGITAL



Before COVID-19 struck the world, market participants were already moving to digitise their cumbersome, manual activities. COVID-19 has disrupted normal workflows and forced people to work remotely.

“With work-from-home requirements, there is greater urgency to digitise as much as possible,” says David Becker. “Banks and asset managers rely on a spaghetti bowl of systems that can’t be maintained remotely, but our solutions can be.”

The most powerful example of a Broadridge service that seems perfectly designed for the post-COVID-19 world is VSM, its virtual shareholder meeting platform. Proxy votes and investor communications don’t mean anything if companies don’t hold their annual general meetings, so now these are going online at a rapid pace.

“With work-from-home requirements, there is greater urgency to digitise as much as possible,” - David Becker

VSM lets board members, corporate executives, and shareholders attend AGMs online. Broadridge pioneered this solution in 2009 in the US, where it was already gaining traction. It has found that virtual meetings boost participation, provide opportunity for every shareholder to contribute, and save the time and costs that go into preparing physical events.

The ABCDs of Innovation® in Asia Pacific

It is helpful to examine next-gen technologies in isolation: a solution using AI, or a service made possible through blockchain; the profound power of the Cloud and the digital transformation it can support.

However, **The ABCDs of Innovation®** are best understood as mutually reinforcing. The fintech revolution is no one single thing; its impact is so massive because it is a convergence of many digital technologies on all market players. AI, blockchain, the Cloud and digital are the building blocks of digital transformation.

That foundational nature makes them just as relevant in Asia Pacific as anywhere else.

The heart of any capital market is the exchange, and Broadridge has deep involvement with the region's most innovative projects, from the proxy voting platform Investor Communications Japan (ICJ), a joint venture with the Tokyo Stock Exchange, to the ASX's blockchain deployment, among others.

It is working with Asian partners such as Tookitaki to provide best-in-class AI to institutions everywhere; and it is leveraging global networks to help grow Asia's own capital markets, as is the case with its blockchain solution for repo.

The COVID-19 pandemic has been a challenging experience for everyone, but for the world of financial services, it is also worth noting what didn't break. Capital markets have continued to operate. Firms, faced with tough decisions, have pivoted to support their employees and their clients.

Pandemic related market volatility has led to huge trading volumes, straining all financial systems from the front to back office. As just one example of how dramatic the strain has been, Tokyo market volatility reached 2-3 times average levels, and this has tested all banking and market participants' operating systems.

While no market has suffered a critical breakdown, banks and asset managers now want assurance that their technology infrastructure has the flexibility and resilience to handle the change in trading levels.

"Broadridge's systems have held up well and have not experienced downtime, and it has been very inspiring to see our teams and technology hold up so well during this period" said David Becker, managing director and head of Asia Pacific at Broadridge, "Of all the lesson learned, resiliency in market infrastructure has become one of the biggest areas of ongoing focus as a result of the pandemic."

"Throughout the COVID-19 pandemic, Broadridge has remained strong and resilient, having invested in our technology as well as in the health and safety of our associates. Broadridge remains committed in supporting our clients and performing our role in enabling the functioning of the global financial system."

As Asia returns to the workplace, the speed of adoption of the Cloud, data, and digital technology in the financial industry is expected to drastically accelerate. Digitisation has been front and centre of all these efforts, especially the Cloud, the infrastructure that has powered a million videoconferences and hundreds of millions of transactions every day.

As we emerge from the consequences of COVID-19, the financial world will be in a position to be more resilient and effective. Those firms able to master **The ABCDs of Innovation®** will be those who lead the financial industry in the post-COVID-19 future.

READY TO APPLY THESE INSIGHTS? LET'S TALK.

To find more about how Broadridge is helping clients adopt emerging technologies, please visit: broadridge.com/intl/ABCDs.



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