ARTIFICIAL INTELLIGENCE: CAN IT BRING PRODUCTIVITY AND ECONOMIC HEALTH BACK TO FINANCIAL SERVICES?

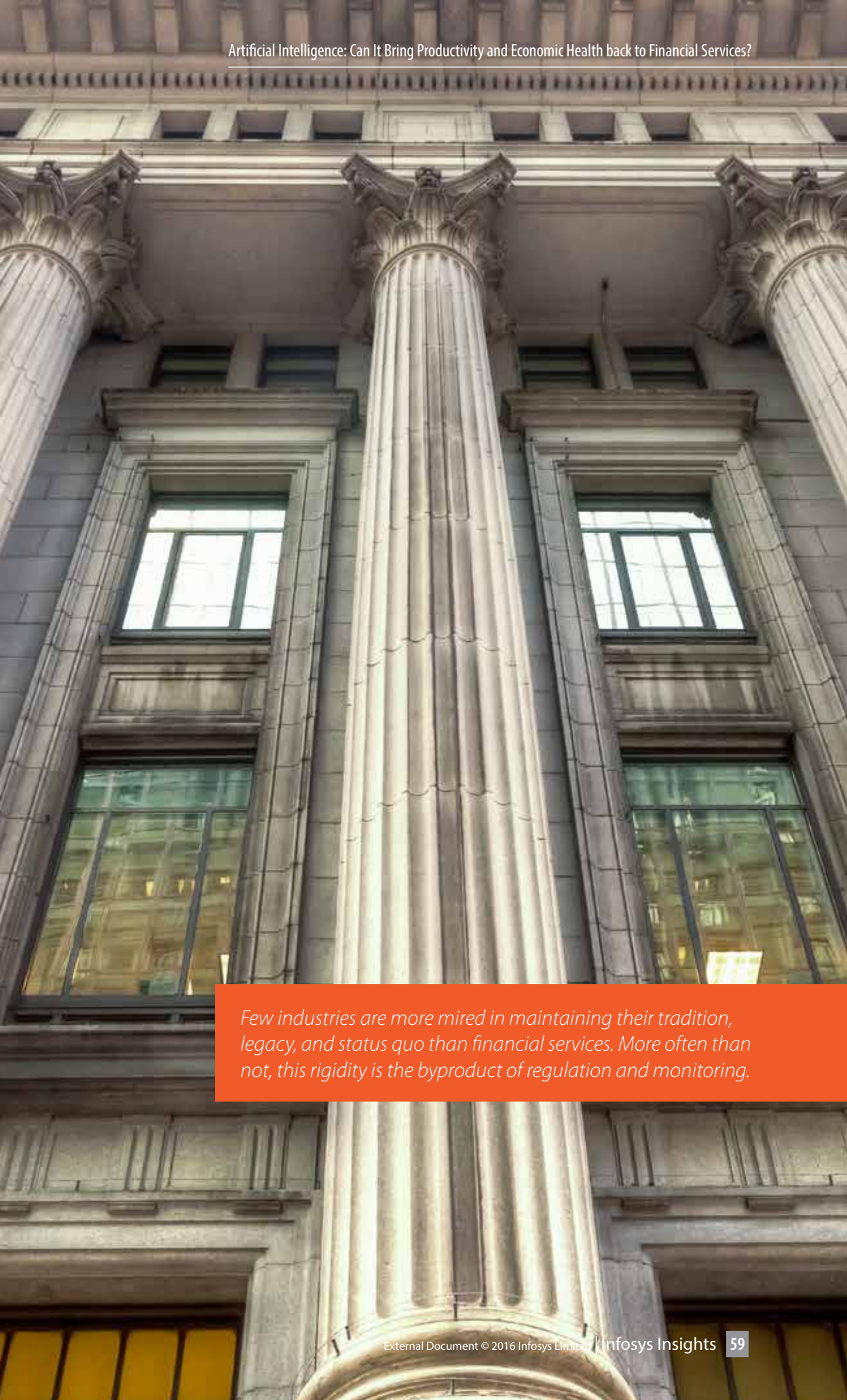
With financial services advancing into the digital age and Fintechs disrupting the landscape, banks are struggling to adapt. We explore the threats banks face from these new entrants and why artificial intelligence (AI) and automation are key to reinventing themselves.

Few industries are more mired in traditional operations, legacy systems, and maintaining their status quo than financial services. More often than not, this rigidity is the by-product of regulations and monitoring. Even so, unprecedented new competition and legislation along with a new, digital savvy customer base, have given the industry a genuine challenge: Evolve or die.

Thankfully, recent times have seen the evolution and refinement of artificial intelligence (AI) solutions within financial services. As use cases have evolved from being fantastical to practical, industry leaders are compelled to renew legacy technologies, invest in next-generation innovations, and enhance the adoption of AI through a better understanding of its capabilities. In fact, these developments in finance will shape AI's adoption across other industries for the years to come.

In a world of legacy

Banking is an age-old industry that is weighed down by monolithic systems, rigid regulations, and cultural traditions. Some



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countries like the UK use conventions and traditions dating back to the age of ink, quills, and dusty ledgers! For example, the internal compliance procedures at many traditional banks still require physical signatures to open bank accounts. Further, back office processes and routine decision-making also require paper-based forms and manual intervention, which delay services and add considerable costs.

But changes are taking place. Thanks to advancements in automation and data-led intelligence, financial AI technologies with minimal, day-to-day impact on workflows are becoming feasible while still maintaining compliance with existing or emerging regulations. This is because knowledge repositories that capture boundaries and basic interaction rules — regulatory protocols that need to be digitized if new AI systems are to remain within the boundaries of the law — already exist. AI, in essence, stands on the shoulders of the data and process automation technology trends that preceded it.

These trends, combined with new machine-learning technologies, will allow financial services providers to concentrate on high-value activities and creative solutions. Automated systems will handle volume-based and repetitive activities at lower costs, enabling higher throughput and reducing the need for oversight — all the while ensuring that banks can deliver compliant sales and service outcomes.

Two applications: High-frequency trading and investments

The notion that computers will dominate the financial services landscape is not new. Today, many specialized algorithms not only run the processes, but also make buy and sell decisions without stockbrokers. We can see an instance of this in high-frequency trading (HFT). HFT is a subset of algorithmic trading, focused on volume, speed, and autonomous decision-making. By using the data that is funneled into the system, these pieces of intelligent code can make informed market decisions and can also react to split-second opportunities in the market in ways that human stockbrokers can't, given that human brokers simply cannot move quickly enough to make such trades.

However, automation in trading isn't always about speed. Some algorithms are beginning to learn how to trade on their own through a variety of machine-learning methods. Whether it's through Bayesian networks, evolutionary computation, or deep learning, corporates and startups are leveraging the access they have to massive amounts of data, in order to train machines to automatically recognize and predict changes in the market. This is distinct from HFT as these AI traders are looking for long-term investments, not immediate ones; and are looking for them on their own.

High-frequency and AI-fueled trading isn't a replacement for human traders – who hold critical roles in larger deals, book-building, and other portfolio management processes.

That being said, high-frequency and AI-based trading isn't a replacement for human traders, who hold critical roles in larger deals, book building, and other portfolio management processes. However, for scenarios that are characterized by high volumes, small margins, and speed, machines have proven to be more productive, cheaper to operate, and have the ablility to produce higher returns. In fact, HFT's success is so widespread that it's now a key component of traditional investment banking strategies and, for some entities, is now overtaking traditional trading as the primary revenue and profit generator.

Keeping the machines in check

Although the benefits of AI in financial services are clear, this isn't to say that autonomous or AI-driven trading isn't without its risks. For example, in 2012, US market maker, Knight Capital, lost over US$400 million in a half-hour after an algorithm malfunctioned. Even the New York Stock Exchange (NYSE) saw a pause in trading while technicians corrected software issues within an automated system. Still, it's arguable that the benefits of this technology more than outweigh the impact of occasional glitches.

Given that autonomous systems are susceptible to 'judgement' lapses just like

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their human counterparts, it's unlikely that we will see completely autonomous models for banking, share dealing, and insurance risk analysis any time soon within the capital markets. The same goes for AI in retail banking, which has to tackle with the added complexities of human languages, dialects, and customer-centric interactions.

These are not, however, AI-killing problems. In fact, this is exactly where those pre-existing knowledge systems that govern compliance come into play. AI's biggest opportunity lies in automating the frontline, where usage is most intensive and the return on investment is often lowest. Cutting costs, increasing throughput, and extending operating hours all result in more trade, lower transaction charges, and greater economies of scale.

Retail banking has a different risk-benefit profile. The benefits of engaging with customers in a more automated and intelligent way offers significant cost savings, with the risk being spread over millions of customer interactions. The main issue is that the complexity of the more 'human' interactions is greater than the relatively simple, albeit impressive, number crunching that needs to take place in capital markets.

The future: Client and retail-facing applications

What's crucial to both existing and new market entrants is how they use automation to interact directly with customers. Automation offers retail financial services organizations the opportunity to reduce their physical footprint, lower their operational and transaction costs, and accelerate their time to market.

For competitive, branchless banks, like those operating as mobile app-based businesses, AI is a critical component of their strategy. Such businesses have the opportunity to automate customer-facing functionalities like frontline customer service, basic transaction fulfillment (transfers and payment reconciliation), and risk assessment for credit and transaction matching. These actions can help reduce their

operating costs. For example, these branchless organizations can use algorithms to circumvent the traditional mechanism for processing foreign currencies, in order to maximize the profit in a grouped trade. Doing so can reduce the overall transaction cost of fulfilling what would otherwise be a large number of low-value, high-unit, cost trades. This approach is best illustrated by the success of TransferWise in the retail foreign exchange (FX) markets.

The same approach can be employed to dispatch cross-border transfers via the most effective and cost-efficient partners and routes. For PayPal-like organizations that offer an alternate route to traditional financial transfers, intelligent and AI-driven money-routing could represent huge cost savings. Further, it could also provide the foundation to scale transaction volumes significantly faster than would be possible if human intervention was required to do the same work.

For other parts of the sector, such as insurance, AI presents an opportunity to take on frontline assessment of risk, fraud, and claims management. Using well-defined parameters, AI can be used to adjudicate and escalate claims, set premiums based on data-driven perceived risk, and even evaluate information to spot questionable activity. These are functions traditionally handled by armies of people and they represent one of the largest cost bases in insurance that AI can unpick. These advancements could also enable insurance companies to provide dynamic pricing to their customers, allowing them to enroll in products that are priced based on the personal choices and actions of customers.

The financial services sector is in need of significant and immediate change. Be it to address inefficiency, improve profitability, support higher liquidity regulation requirements, or make banks more efficient in the face of growing competition. AI-based applications must be developed to deliver the desired benefits while staying within clear boundaries. With clear limits and good data, AI systems have the potential to deliver substantial benefits that customers and institutions can trust.

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Richard believes in the Googly mantra of 'know the user, know the magic, connect the two.' For the past 20 years, he has shaped how companies make the Internet work for their customers across fintech, cloud, artificial intelligence (AI), and big data. He now uses his experience to be a trusted advisor to executives who know that something needs to be done, but would like to be a little more certain about what to do and how to do it. He guides large financial organizations on their journey from atoms to bits and has been pivotal in driving blockchain research, examining AI's impact on financial services, and modernizing digital experiences for clients.

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