FSI*Review*

Deloitte Southeast Asia
Financial Services Newsletter
Issue 20, February 2019

Turning challenges into opportunities

- Breaking blockchain open: A financial services perspective
- Key elements in FinTech
- The future of non-financial risk in financial services
- Double your intelligence: Using intelligent automation to double productivity in finance

Deloitte.

Foreword

FinTech has affected our lives in many ways, offering simplicity, speed, cohesiveness and streamlined processes. The industry itself has evolved considerably due to the rapid development of technology, the inception of the internet and the wide penetration of smartphones.

However, there is a controversy around FinTech – some saw it as a disruption of technology, while others construed it as a technology enabler for financial services. For instance, some banking organisations consider it a threat as some FinTech players have targeted profitable areas of the industry, particularly payment services. On the other hand, it can also be seen as a collaboration instead of competition between financial institutions and FinTech players, reaping benefits for both. So how can financial institutions tackle the resulting challenges and turn them into opportunities instead?

When discussing FinTech, blockchain is a topic that is often talked about. Our first article looks into the minds of blockchain-savvy executives to understand their opinions and perceptions of the impact and opportunities brought about by blockchain in our Global survey "Breaking blockchain open".

Next, we turn our attention to the basic elements of FinTech – blockchain, Artificial Intelligence (AI), security, Internet of Things (IoT) and Cloud, exploring the effects of these elements and how financial institutions can triumph over resulting challenges and unlock benefits.

Over the years, financial institutions have made substantial investments to upgrade their risk management programmes and comply with stringent regulatory requirements. However, there is a growing need to manage non-financial risk. "The future of non-financial risk in financial services" dissects the key considerations for financial institutions to adopt a holistic approach in managing these risks.

Our final article examines the many opportunities intelligent automation presents for financial institutions to halve the capacity required from their finance functions, or double their output, all while increasing the intelligence and quality of information. The article also explains the benefits presented by robotic and cognitive automation (R&CA) technologies through examples of the work that we have done with some of our clients.

We hope that you will find this issue of the FSI*Review* an interesting and insightful read.

Ho Kok Yong
Financial Services Industry Leader
Deloitte Southeast Asia

In this issue

To receive a copy of FSI*Review* or the latest updates in the financial services industry, subscribe to our mailing list at sgindustries@deloitte.com.

Breaking blockchain open: A financial services perspective

Deloitte's 2018 survey of more than 1,000 blockchain-savvy executives globally is a leading indicator of where blockchain is headed. While blockchain is not quite ready for primetime, it is getting closer to its breakout moment every day. The academic hypotheses of five years ago are steadily becoming a reality. Momentum is shifting from a focus on learning and exploring the potential of the technology to identifying and building practical business applications.

As more organisations put their resources behind this emerging technology, we expect blockchain to gain significant traction as its potential for greater efficiency, support for new business models and revenue sources, and enhanced security are demonstrated in real-world situations.

In this article, we highlight key findings from the Deloitte Global Blockchain Survey, including the opinions and perceptions around blockchain and the potential impact of the technology in the future, with a financial services perspective.

Blockchain today

Blockchain is at an inflection point, with momentum shifting from "blockchain tourism" and exploration to the building of practical business applications. This is particularly true among digital enterprise organisations (emerging disruptors), rather than in more traditional (legacy) enterprises that are still working on how to incorporate digital into their existing operations and protocols.

While the survey shows that these legacy organisations may be lagging their fully digital brethren in this endeavour, the fact is, traditional enterprises are putting more resources behind blockchain than they had been in an effort to achieve greater efficiency and to develop new business models and revenue sources.

Despite legacy respondents' interest in blockchain's capabilities, nearly 39 percent of the broad global sample said they believe blockchain is "overhyped." This perception may be driven by the steep increase in token values, and survey members conflating blockchain with the incentive layer of public blockchains, namely tokens.

On their own, these numbers seem to indicate that blockchain is moving in the wrong direction. However, this change in attitude may be more reflective of the shift toward the pragmatists in the blockchain community.

While executives in the financial services industry are leading the way in using blockchain to re-examine processes and functions that have remained static for decades, their counterparts in other industries remain more reserved as they work to develop appropriate use cases for blockchain. At the same time, there are a growing number of emerging disruptors across each industry, challenging traditional business models with the use of blockchain.

Theoretical vs practical

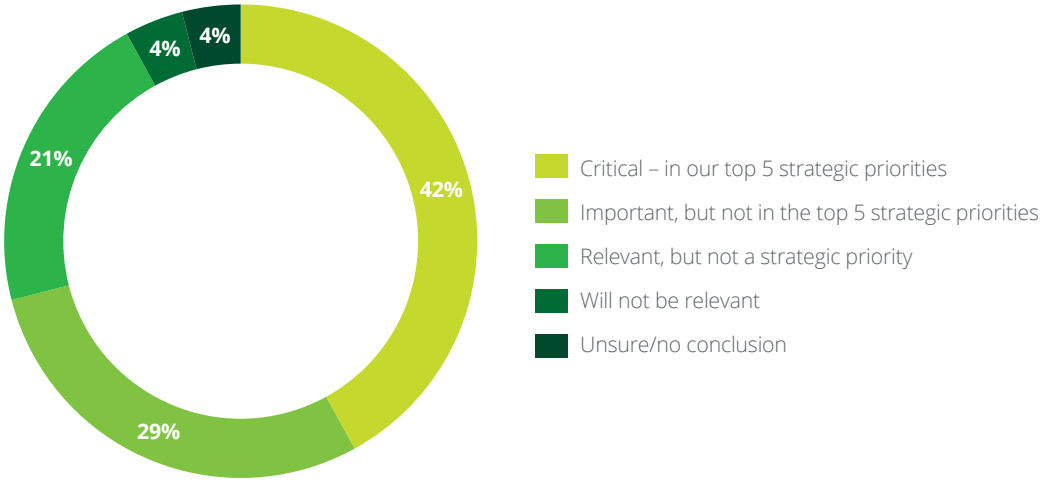
Blockchain is a versatile technology that can record financial transactions, store medical records, or even track the flow of goods, information, and payments through a supply chain. Ultimately, it's more of a business model enabler, than a technology.

This understanding is key to discerning the difference in how traditional enterprise organisations view blockchain in comparison to their digital enterprise compatriots. For legacy organisations like well-established financial institutions and traditional brick-and-mortar retailers, we are starting to see a change in approach towards blockchain – i.e., development of more sensible, pragmatic business ecosystem disruption.

What many enterprise executives are still struggling to see, however, is that blockchain represents a fundamental change to their business. This helps explain that while a significant majority of our survey respondents report that their organisations consider blockchain technology to be very important to their organisation (Figure 1), only 34 percent say their company has initiated deployment in some way.

Adding to the uncertain state of blockchain adoption is the fact that even though more than 41 percent of respondents say they expect their organisations to bring blockchain into production within the next year, only 21 percent of global respondents say they still lack a compelling application to justify its implementation.

Figure 1: Question: Which of the following best describes how your organisation currently views the relevance of blockchain to your organisation?



Enterprise organisations versus emerging disruptors

Findings from the survey represent the perspectives of enterprises, but it is also important to understand what is happening in the digital space. Most of these digital companies could be described as start-ups, or as we call them, emerging disruptors.

We define emerging disruptors as companies that entered their respective industry segments as start-ups, but have grown rapidly to the point where they are currently or will soon be disrupting the larger players in their markets. And since the survey focused only on enterprise organisations implementing legacy-constrained solutions, and not on the start-ups or emerging disruptors, the results do not necessarily tell the whole story and do not adequately reflect the incredible level of innovation infiltrating each industry sector.

The established companies face a host of legacy concerns and are trying to make blockchain fit into an already existing business paradigm that may or may not benefit from the introduction of this technology. The emerging disruptors, on the other hand, have business models inspired by blockchain. They are experimenting and building without the constraints of legacy business processes. They focus energy on what is possible and then deal with any challenges as they rise.

Potential versus implementation

Among the general public, early adopters, such as crypto-currency traders, have helped to bring mainstream notoriety to blockchain. For all this advocacy, however, there remain a significant number of sceptics who view blockchain as the overhyped engine behind a volatile and unregulated financial market.

According to our survey, stagnant perceptions about blockchain's capabilities appear to be more entrenched in countries outside of the United States. When asked if they believed that blockchain was just "a database for money" with little application outside of financial services, just 18 percent of US respondents agreed with that statement versus 61 percent of respondents in France and the United Kingdom.

Like their compatriots leading the crypto-currency revolution, our survey data shows that a significant percentage of early adopters in the business community (59 percent) believe in blockchain's potential to disrupt and revolutionise their industries, and the overall economy. The problem, respondents say, is that for all the talk about blockchain's promise, there are very few active use cases they can currently employ to advance their beliefs.

As a result, a certain "blockchain fatigue" is beginning to set in among those who feel its potential has been over-communicated, while its real-world benefits remain elusive. Based on our view of where blockchain is today and, more importantly, its likely adoption rate within the next three years, we strongly believe that organisations need to evolve their thinking around the technology.

While 78 percent of our survey respondents believe they stand to lose competitive advantage if they do not eventually implement blockchain, they see a variety of obstacles moving forward, with a full one-third saying they believe their current return on investment (ROI) in blockchain technology remains "uncertain."

However, the only real mistake we believe organisations can make regarding blockchain right now is to do nothing. Even without a completely solid business case to implement, we believe that organisations should at the very least, keep an eye on blockchain so that they can take advantage of opportunities when they present themselves.

Financial services perspective

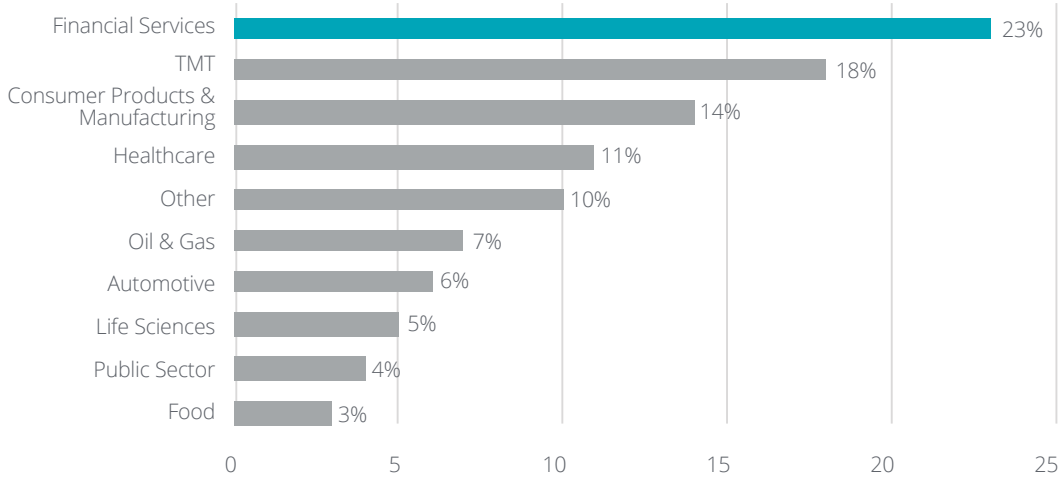
The financial services industry was one of the first industries to explore blockchain and is recognised globally as an industry with high potential to be truly impacted by blockchain technology. For this reason, nearly one-quarter (23 percent) of respondents in the Deloitte Blockchain Survey identified themselves as working in financial services (Figure 2).

After years of looking at blockchain as something of a curiosity, the financial services industry has now begun to expand its view of blockchain both as a threat and an opportunity. At Deloitte, we are seeing a demonstrable shift within financial services from efficiency and cost savings toward a broader portfolio of blockchain applications designed to include new revenue streams.

At a practical level, decentralised and distributed ledger technologies have the potential to fundamentally redesign the ways in which financial institutions interact with each other, regulators, and their customers. Historically, use cases for blockchain technology in financial services include trade finance, customer on-boarding, regulatory reporting, and cross-border payments. Moving forward, revenue-generation use cases for crypto-trading services, loyalty programmes, securities-lending services, and others have started to come into focus.

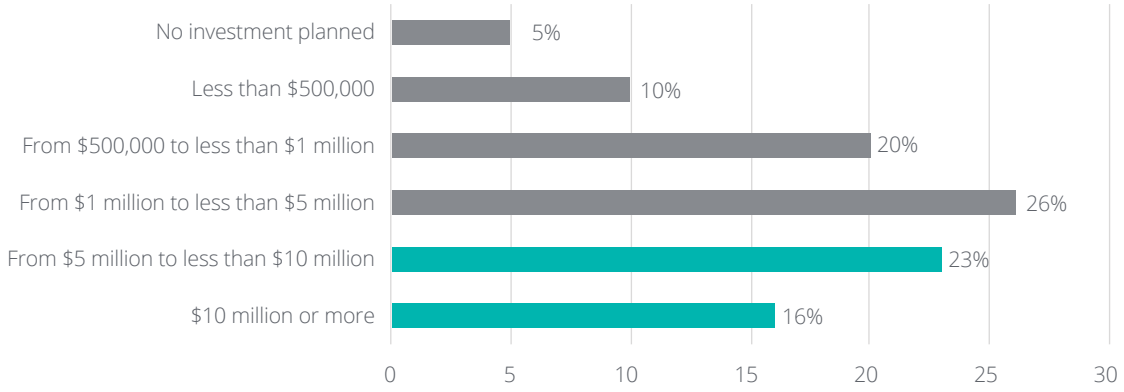
While global institutions begin to spin up blockchain focused teams, and internal investment increases, it is important to note the emerging disruptors in this space.

Figure 2: Percentage of respondents by industry



As discussed in our earlier examination of traditional organisations versus emerging disruptors, new blockchain start-ups are not constricted with legacy technologies, operating systems, or business models. Many incumbents are taking note, and some of the biggest names in the financial services space are currently investing heavily in and acquiring blockchain capabilities. According to our survey, 39 percent of respondents planned to spend more than US$5 million, and 16 percent planned to spend more than US$10 million in 2018 (Figure 3).

Figure 3: Question: Thinking specifically of blockchain technology, what is the approximate investment (in USD) your organisation will make in the next calendar year in this area?



Still, blockchain is not without its challenges:

- **Scalability** is a key issue to address as organisations look to explore the many potential blockchain solutions available to them.
- **Security** is an important consideration: 84 percent of respondents indicated they believe blockchain-enabled solutions will be more secure but remain unclear as to what new threat matrix may develop.
- **Consortia creation and collaboration** is imperative to enable the financial services industry to unlock the true potential of the technology. According to our global survey, 45 percent of respondents said they would look to join a consortium and partner with others to develop and reap the benefits of blockchain.

It is clear the financial services industry is at the tipping point of critical change, and those who understand both the opportunities and challenges will emerge as winners.

Conclusion

As more organisations put their human and financial resources behind blockchain and come to better realise how it can improve their business processes and their bottom lines, we expect the technology to gain significant traction, as its cost savings, competitive advantages, and ROI benefits become more pronounced.

The view further down the road is an inspiring one. We see blockchain enabling a completely new level of information exchange both within – and across – industries. As connections are made between blockchain and other emerging technologies, particularly the cloud and automation, we see the potential for blockchain to help organisations create and realise new value for businesses beyond anything we can imagine with existing technologies.

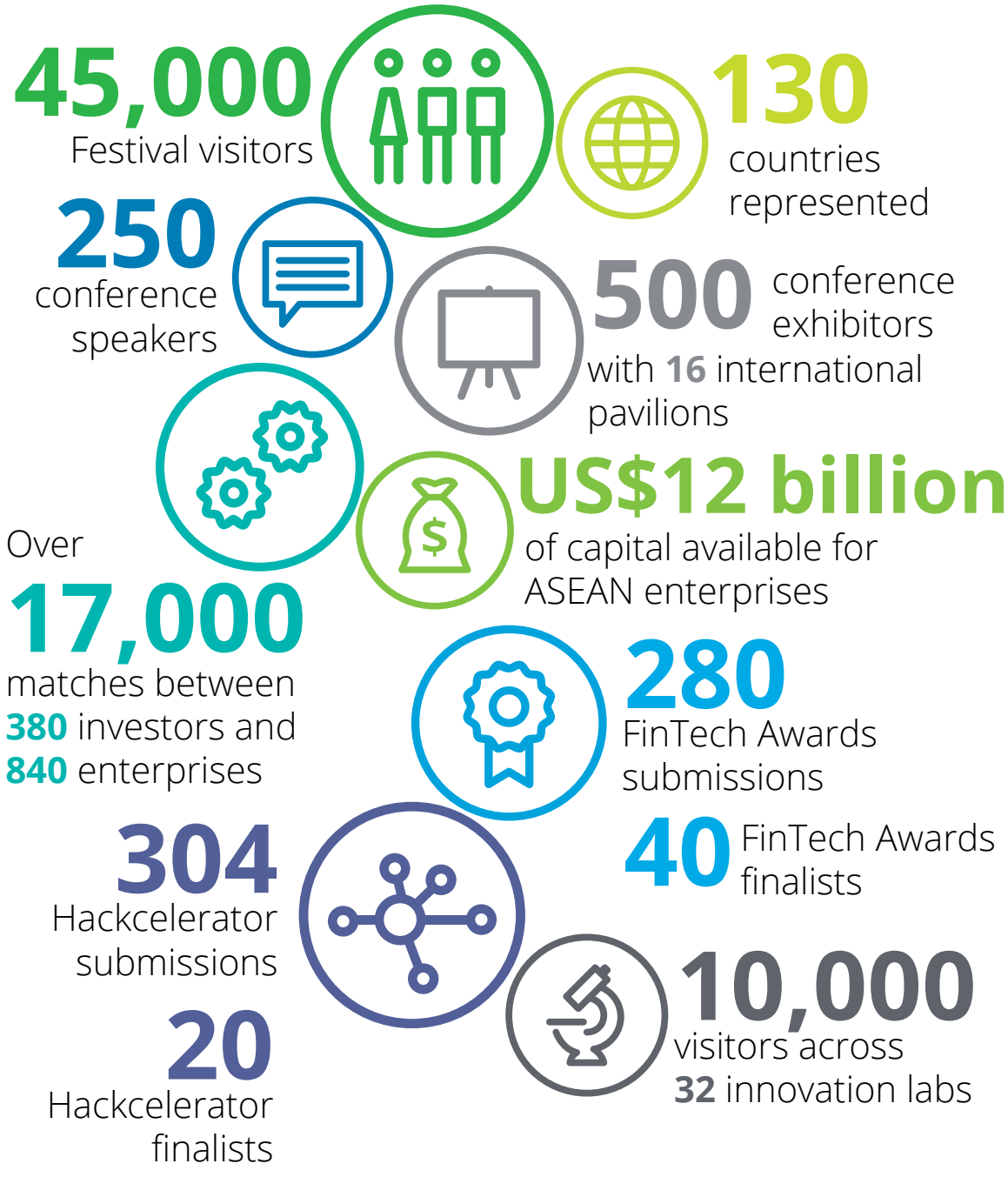
This Deloitte Global Blockchain Survey polled a sample of 1,053 senior executives in seven countries at companies with $500 million or more in annual revenue. Respondents had at least a broad understanding of blockchain and were familiar with and able to comment on their organisations' blockchain investment plans.

Key elements in FinTech

Traditional financial institutions have been confronted with many questions in the face of disruption by financial technology. How will FinTech affect my organisation? What do we need and how do we prepare for this change? The effects of FinTech are also being felt by other stakeholders from consumers to businesses and regulators.

2018 Singapore FinTech Festival

The Singapore FinTech Festival is a good indication to get a sense of how far FinTech has come and where it is headed. The world's largest FinTech gathering staged its third annual event in November last year, attracting about 40,000 participants from over 100 countries, and more than 300 exhibitors ranging from financial services firms to industry associations, regulators, and international service and standards providers.



Prominent speakers helped broaden perspectives and perhaps even inspired new ideas, and participants learned how each country is embracing and developing FinTech to help improve competitiveness as well as close the financial inequality gap.

Ravi Menon, managing director of the Monetary Authority of Singapore, discussed three key initiatives developed in the city-state. The first is SGQR, a standardised QR code that unifies the many barcodes of different financial and non-financial services. This should greatly increase adoption by merchants as they now need only display one QR code for customers to scan. Secondly, Singapore PayNow, similar to Thailand's PromptPay, makes peer-to-peer payments easier by connecting with either an email address or mobile phone number. Lastly, Project Ubin allows local banks to conduct domestic interbank transactions using distributed ledger technology (better known as blockchain), without going through the central bank.

'Basic' elements

Most CEOs from financial institutions agree that FinTech creates both challenges and opportunities for incumbents to improve the customer experience by offering simpler, faster and cheaper interactions and transactions, including customer support and advising on financial services or products and completing business transactions.

FinTech can also be a boon to previously underserved customers, especially those in remote areas who can now make financial transactions using just a mobile phone. Similarly, micro or small businesses, often overlooked as a low-margin segment by banks, can be helped in areas such as account opening, alternative credit scoring and financing.

When it comes to the elements that contribute to the success of FinTech, think basic: blockchain, Artificial Intelligence (AI), security, Internet of Things (IoT) and Cloud.

Many people still find blockchain or distributed ledger technology difficult to understand, but many organisations are exploring and finding real use cases. For example, the main stock market in Switzerland, SIX Swiss Exchange, plans to introduce an end-to-end settlement solution in mid-2019. The new SIX Digital Exchange (or SDX) will focus on digitised assets, not trading crypto-currencies.

Smart contracts, another highly promising blockchain application, are also starting to be used by various businesses, not just financial services.

Compared with blockchain, IoT, security and cloud applications are now mainstream. One interesting IoT use case highlighted in Singapore involves an insurer that uses sensors and drones to help agents in the field assess claims. In addition to speed, the system offers safety in areas such as construction sites, where a drone survey reduces the risk of injury to humans.

When it comes to AI, many business leaders believe its potential is still far from being realised, and that it may ultimately deliver the most benefits.

Research by the World Economic Forum and Deloitte Consulting[1], based on workshops and interviews with 200 AI experts, sheds some light on what the future might hold.

More about pervasive impact of AI

AI is a suite of technologies, enabled by adaptive predictive power and exhibiting some degree of autonomous learning, that dramatically advance our ability to:

- recognise and detect patterns;
- anticipate and forecast future events;
- create rules to optimise outcomes;
- make good decisions by applying rules;
- communicate with other people through digital or analogue media.

AI is enabling financial institutions to drive new efficiencies and deliver new kinds of value, ranging from "doing the same thing, better" to "doing something radically different".

For example, in investment management, a firm can use AI to help seamlessly set up accounts and acquire new customers. Smarter decision-making is possible when financial advisers are equipped with highly personalised customer insights based on analysis of individual customer data.

Consumers will one day interact with an AI-based agent offering guidance on complex decisions such as home-buying, retirement planning or corporate financing. At the same time, routine transactions such as bill payment and refinancing will be automated.

Conclusion

The impact of these basic elements of FinTech on financial institutions as well as regulators and consumers and society as a whole will include:

Creating new kinds of value: Product and service innovation will lead to greater financial inclusion and a smoother, more personalised customer experience.

Reshaping operating models: Financial institutions will become leaner, highly networked and more specialised. They will also become more dependent on the capabilities of large technology players.

Upending competitive dynamics: Data sharing will become critical to competitive success. The advantage will go to first movers and large-scale players.

Taking public policy into uncharted territory: AI will raise questions that prompt the need for a new set of norms to protect humans, regulate machines, and remake the financial infrastructure.

The future of financial services lies in the industry's ability to fully benefit from new technologies. It is a journey subject to the whims of economic, social and political change that no firm should take on alone. Nothing less than a collaborative effort among stakeholders – financial institutions, FinTech, associations and regulators – will triumph over these challenges and unlock all the benefits for the best interests of business and society.

The is an adaptation of an article written by Somkrit Krishnamra, Deloitte SEA FSI Risk Advisory Leader and Narain Chutijirawong, Deloitte Thailand Business Development Director, that first appeared in the Bangkok Post on 10 January 2019.

1. The new physics of financial services: How artificial intelligence is transforming the financial ecosystem. https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Financial-Services/gx-fsi-ai-wef-summary.pdf

The future of non-financial risk in financial services

In the years since the global financial crisis, financial institutions have made substantial investments to upgrade their risk management programmes and comply with ever more stringent regulatory requirements. While most institutions now have well-developed risk management frameworks to manage market, credit, and liquidity risk, there is a growing recognition of the need to enhance management of non-financial risk (NFR). Many of the largest risk events in recent years have stemmed from NFRs rather than from traditional financial risks.

The growing importance of NFR management comes at a time of particular uncertainty and volatility in the business environment due to uneven economic growth, increased political and regulatory uncertainty, and varied revenue opportunities and returns on equity for many firms. Given these turbulent developments, institutions need to rethink their approach to risk management in general in order to reduce expenses, while simultaneously improving effectiveness[2].

Institutions will need to move from the current piecemeal efforts and instead, adopt a holistic approach to NFR. The foundation of an effective programme to manage NFR, and a step that presents a challenge for many institutions, is to implement a comprehensive process to identify all the NFRs facing the organisation.

2. The future of risk in financial services, https://www2.deloitte.com/global/en/pages/financial-services/articles/gx-future-risk-in-financial-services.html

Defining and understanding NFR

NFRs are generally not considered core or directly associated to the primary business and revenue-generating activities reflected in the profit and loss statement and the balance sheet. Nevertheless, they can have substantial negative strategic, business, economic, and/or reputational implications.[3] NFR includes operational risks as defined in the seven Basel operational risk event types, but also other important risks such as cyber, conduct, model, compliance, strategic, and third-party risk.

A 2018 survey of consumers found that financial services is the least trusted industry globally and has had this dubious distinction for the last five years.[4] A negative perception of the industry as a whole represents unstable ground for individual firms' efforts to manage reputational risks; NFRs can damage an institution's reputation and brand in addition to having financial impact.

NFR is not a new topic. The Bank for International Settlements (BIS) identified the management of NFR as a relative weakness of financial institutions already in 2009,[5] but only limited progress has been made since then. The greatest attention has been paid in recent years to operational risk. Illustrating the magnitude of operational risk, the ORX financial services operational risk loss database has now grown to include over €400 billion in operational risk losses at its contributing institutions.[6] Regulatory enforcement fines, penalties, and litigation now comprise the bulk of the operational risk losses at most major banks.

The Basel Committee on Banking Supervision (BCBS) as part of its reforms recently finalised the Basel III framework, which will fundamentally alter how operational risk capital (ORC) is calculated at many institutions. In the past, many internationally-active banks used a model-based approach for calculating ORC that included a number of variables. Under the new standard, the model-based advanced measurement approach (AMA) is being replaced by the Standardised Measurement Approach (SMA). The SMA is based on three variables, the Business Indicator Component (BIC), which is in turn based on selected financial data intended to be representative of the bank's business volume in different aspects, and the Internal Loss Multiplier (ILM), which is in turn based on the bank's actual operational risk loss history.[7]

The implications will be far reaching. Banks will need to ensure that they have comprehensive and accurate internal loss data to support and substantiate their calculated ILM. The change is likely to alter the attitude that banks take to operational risk in particular, and NFR in general. Now banks will have a stronger incentive to take proactive steps to minimise operational risk losses in order to lower their ILM and resulting regulatory capital requirement.

While banks have made progress in managing some operational risks, typically they have lagged in developing the policies, processes, and controls required to identify and manage other NFRs. A number of developments have raised other types of NFR to greater prominence and the increasing importance of managing NFR is not limited to banks, but includes insurers, asset managers, and other financial services firms that typically draw selected risk management practices from their banking counterparts.

3. The pressing case to design and implement a Non-Financial Risk Management Framework, https://www2.deloitte.com/content/dam/Deloitte/de/Documents/financial-services/Deloitte_Non-Financial-Risk-Management-Framework-July2017.pdf
4. 2018 Edelman Trust Barometer: Global Report, https://http://cms.edelman.com/sites/default/files/2018-02/2018_Edelman_Trust_Barometer_Global_Report_FEB.pdf
5. Issues in the Governance of Central Banks, http://www.bis.org/publ/othp04.pdf
6. ORX Annual Banking Loss Report - Operational risk loss data for banks submitted between 2012 and 2017, https://managingrisktogether.orx.org/orx-loss-data/annual-banking-loss-report
7. The future of operational risk in financial services, https://www2.deloitte.com/content/dam/Deloitte/us/Documents/risk/us-the-future-of-operational-risk-in-financial-services.pdf

Types of non-financial risks

Conduct risk

In recent years, well publicised instances have occurred of inappropriate behaviour by employees at major financial institutions, both in retail and wholesale markets. The top 20 global banks are estimated to have lost US$348 billion from 2012 – 2016 through conduct related costs.[8] Regulators in many jurisdictions have focused on the importance of conduct and culture, looking at such issues as misaligned compensation incentives and lack of accountability. Locations in which regulators have addressed conduct risk include the European Union, Hong Kong, Australia, the United Kingdom, and the United States. For example, in August 2017, the head of the European Central Bank's (ECB) supervisory board said that it "has identified conduct risk—which includes compliance with anti-money laundering (AML) laws—as one of the key risks for the euro area banking system."[9]

Cyber risk

The losses from cyberattacks were an estimated US$445 billion across all industries in 2016, up 30 percent from three years before, and banks and other financial institutions are prime targets of hackers.[10] The number of cyberattacks against financial institutions is estimated to be four times greater than against companies in other industries.[11] In November 2017, SWIFT warned banks around the world that cyber risk was on the rise, saying that hackers had advanced their capabilities since a hacker stole $81 million from Bangladesh Bank in February 2016.[12] Regulatory initiatives focused on cyber risk can be found in the United States, the United Kingdom, Hong Kong, mainland China, Japan, Singapore, and Australia. The US Treasury Department has named cyberattacks as one of the top risks facing the US financial sector.[13]

Third-party risk

The increasing use of outsourcing by financial institutions in an effort to reduce costs has increased third-party risks such as contractual non-performance, the potential that vendors will violate laws or engage in unethical behaviour, data breaches, loss of intellectual property, and an inability to maintain operations in the instance of a natural disaster or infrastructure breakdown, among others. Regulators have made clear that financial institutions are responsible for managing the risks posed by their third parties; while European regulators have made this a thematic priority for on-site inspections.

Model risk

Model risk has grown as financial institutions have come to rely more heavily on models in such areas as risk and capital management, product pricing, AML, and financial reporting. These risks can arise from a variety of sources such as inaccurate data, incorrect assumptions, inappropriate methodology, or errors in implementing processes based on models. Managing model risk has received significant attention by regulators and financial institutions over the last several years. In the United States, the Federal Reserve SR 11-7 guidance and OCC 2000-16 guidance specifically addressed model risk management. In other jurisdictions, regulatory expectations are less well-defined but are nevertheless increasing as well.

8. CCP Research Foundation Conduct Costs Project Report 2017, http://foreigners.textovirtual.com/ccp-research-foundation/271/221503/conduct-costs-project-report-pr-no-1-aug-2017.pdf
9. Danièle Nouy, Chair of the European Central Bank Supervisory Board, Letter to Sven Gould, Member of the European Parliament, https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.mepletter170818_Giegold.en.pdf?bda3955c6b1e32eba44c53afdb430dd6
10. Economic Impact of Cybercrime—No Slowing Down, https://www.mcafee.com/enterprise/en-us/assets/reports/restricted/economic-impact-cybercrime.pdf; Banks Adopt Military-Style Tactics to Fight Cybercrime, https://www.nytimes.com/2018/05/20/business/banks-cyber-security-military.html
11. Financial institutions on high alert for major cyberattack, https://www.computerweekly.com/news/4500272926/Financial-institutions-on-high-alert-for-major-cyber-attack
12. SWIFT warns banks on cyber heists as hack sophistication grows, https://www.reuters.com/article/us-cyber-heist-warning/swift-warns-banks-on-cyber-heists-as-hack-sophistication-grows-idUSKBN1DT012
13. Office of Financial Research 2017 Annual Report to Congress, https://www.financialresearch.gov/annual-reports/2017-annual-report/

Four key levers to enhance management of NFR

Effectively managing NFR in the current unpredictable environment will require institutions to develop new capabilities and rethink traditional approaches. Specifically, Deloitte has identified four key levers that can be used to drive change and respond to the evolving risk management environment[14].

1. Infuse risk management into strategy

Effectively managing NFR will require the risk management function to work in close collaboration with the businesses and senior management to make sure that the NFR risk profile is considered when setting the institution's business objectives and developing its strategic plan. Many strategic risks fall into the category of NFRs, which are inherently difficult to assess. For this reason, these key elements of strategy often do not receive sufficient attention and analysis. As the organisation sets its strategic plan, it is important to assess the impact of new products and markets on the institution's risk profile, including the NFRs it faces.

As each business evolves and adopts new strategic objectives, the institution's NFR risk taxonomy and resulting risk profile will need to continually be upgraded in tandem. As part of this process, institutions will require a formalised process to continually assess the strategic risks to the business model stemming from new technology and other changes in the external environment.

2. Rethink the three lines of defence

An NFR Management Framework will require an institution to re-examine the design of its three lines of defence risk governance models, clearly defining the responsibilities of each line of defence and streamlining the structure by eliminating overlapping areas of responsibility. Rather than simply adding individual risk types to the existing structure, an institution should use its NFR management framework to re-assess the existing governance model and adapt it as necessary to address this broader set of risks. One of the decision points in implementing its risk governance model is deciding whether an institution should have one individual responsible for oversight of a risk type across the organisation, have the responsibility decentralised, or use a combination of these approaches.

A robust NFR taxonomy provides a standardised language for risk across the institution and helps clarify the responsibilities to be assigned across the three lines of defence. It also reduces complexity by bringing order to the many different types of NFRs.

It is important that risk identification is conducted in collaboration between the risk management function and individual businesses, which are closest to the institution's products and clients, to make sure that all relevant scenarios are considered. Getting buy-in from business units can be difficult since they are measured and rewarded on revenue generated, rather than specifically on risk management activities. Adding a new set of NFRs to their responsibilities will raise the bar even higher.

Although there are many challenges to assessing the likelihood and impact of NFRs on business issues and incidents, the lack of a sufficiently detailed understanding of the relevant business processes among the risk professionals in the first line of defence poses a significant obstacle at some institutions. Filling this skills gap will require institutions to invest in hiring new talent and upgrading the skills of existing employees.

14. The future of risk in financial services, https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Financial-Services/gx-global-RA-Future-of-Risk-POV.pdf

3. Focus on people and culture

The rapidly evolving risk management environment requires institutions to ensure they have a sufficient number of specialists with subject matter expertise in high-risk activities, and this will be especially important in the area of NFR. Management of NFR requires different skills than those needed to manage traditional financial risks. Further, NFR requires a far more diverse set of skills since this category includes risks of very different types ranging from conduct and third-party risks to cyber and compliance risks. Based on the results of their risk identification process, institutions will need to identify and prioritise the different types of skills and experiences they will need to effectively manage the risks identified. Many institutions may find that they lack sufficient skills and will need to either hire new employees or upgrade the skills of their current workforce with respect to NFR.

Each institution will also have to consider its culture – the habits and behaviours of its organisation – and the tone set at the top by senior management to make sure that the importance of NFR and the responsibility of employees throughout the organisation to identify and manage NFRs is clearly understood. The importance of NFR should be regularly and consistently communicated by top management, and all relevant employees should be familiar with NFR terminology and risk management processes.

To be taken seriously, however, NFR management needs to have real world consequences. For a start, capabilities for managing NFR could be considered when establishing the operating budgets and available investments for a business unit. Beyond these business-wide impacts, managing NFR should be included among the job responsibilities of relevant employees as well as considered in performance objectives and compensation decisions.

4. Leverage emerging technologies

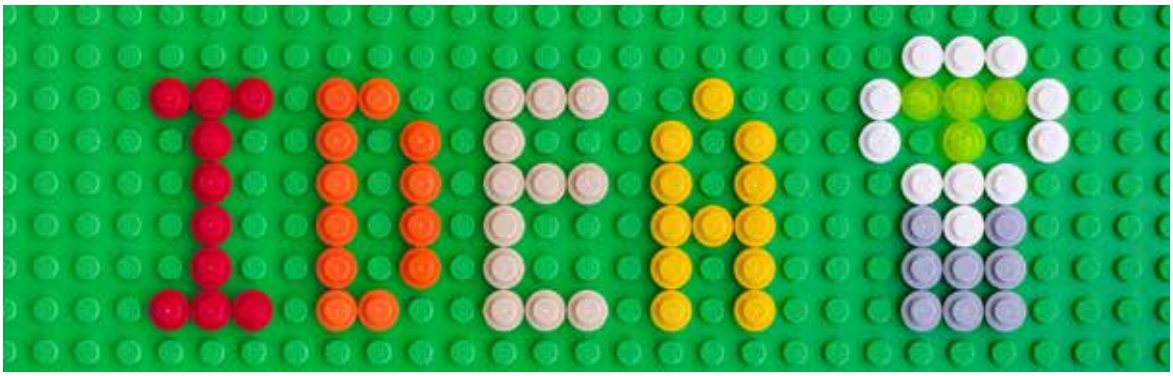
The latest technologies are transforming risk management including the management of NFR. Traditionally, banks and other financial institutions have relied on human judgment to examine historical data on losses and attempt to identify correlations and patterns. Today, new technology tools are being applied to many of these manual processes and can complement advances and changes in the use of traditional Governance, Risk and Compliance (GRC) systems that aim to link processes, risks, and controls around NFR.

Recent developments in big data, predictive analytics, artificial intelligence, and machine learning are not only driving down costs by automating manual tasks, even more importantly they are providing institutions with the ability to identify and address potential threats, often before they have been recognised by the organisation's risk practitioners.

Using natural language processing and optical character recognition, these tools can analyse a much broader range of data such as unstructured data from customer complaints and social media posts. Patterns and correlations can be identified that would have gone unrecognised if relying solely on review by human professionals, as well as flag the potential existence of tail events that were previously difficult to identify. Automatically scanning relevant data sources can provide early warning signals for potential risk events that may exceed the institution's risk appetite, provide decision support, prioritise areas for testing and monitoring, and deploy automated monitoring of limits. Several leading institutions are employing big data coupled with advanced analytics in a variety of areas including antimony laundering, fraud prevention, third-party risk management, and regulatory reporting.

As an example for conduct risk, a bank would assess its current conduct risk environment and culture, identify relevant structured and unstructured data sources and apply risk analytics to identify trends and correlations that predict potential conduct risk exposures and events.[15] For example, sensing analytics could be deployed to analyse behaviour patterns among front-office personnel by monitoring a range of data sources such as email, chat, phone call, voicemail, customer complaints, compliance issues, and employee training, among others. RPA "bots" can be programmed to continuously scan and gather data from specified data sources; when coupled with cognitive technology, optical character recognition, and natural language processing technologies, the result can be streamlined monitoring of key risk indicators in real time – at lower cost and with much higher accuracy than has traditionally been possible by collecting ex-post loss information.

15. The future of risk in financial services, https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Financial-Services/gx-global-RA-Future-of-Risk-POV.pdf



The final step is for the risk professionals to use these analyses to better understand the root causes of conduct risk in the institution such as weak controls, a lack of accountability, or disparate subcultures. Employing predictive risk tools in this situation would provide better understanding of the behavioural patterns in the organisation, an increased ability to evaluate how the business model and growth objectives affect the organisation's desired cultural values, and improved techniques for managing the organisation's human resources and providing incentives.

While the benefits are substantial, to reap them, institutions will need to address and overcome several challenges. First, these tools require access to reliable and comprehensive risk and performance data, which will be a challenge for many institutions. Many institutions will need to expand the types of data they source to include additional sources (if allowed in their relevant jurisdictions), such as internal voice mail and chat and external sources such as social media. Second, these technology applications will put a premium on having a robust data governance and integrity process. Finally, the use of predictive analytics will be subject to the potential for modelling errors, so that assessing and managing model risk will be important in this area.

These levers do not stand alone but instead interact. For example, the business strategy an institution adopts will have important implications for the NFRs it faces and the risk management skills required by its business units. Institutions that take these steps discussed will be better positioned to manage NFR and meet increasing regulatory expectations in today's fast-changing risk management environment.

Conclusion

Risk management is today at an inflection point, requiring that financial institutions take their programmes to an entirely new level if they are to remain effective in today's more unpredictable economic environment. Financial institutions will need to keep these broader risk management trends firmly in mind to ensure they design and implement a programme to manage NFRs that can meet the continually escalating requirements of today's risk management environment.

NFR comprises a diverse and complex set of risks with the potential to inflict substantial financial and reputational damage on financial institutions. Supervisory authorities around the world are increasingly focused on the importance of effective management of specific categories of NFR, such as conduct risk and cyber risk, as well as on NFR management as a whole.

To meet these increasing supervisory expectations, financial institutions need to implement an integrated framework for managing NFR. A key first step is to adopt a taxonomy of all the types of NFR and then identify the specific NFRs facing the organisation.

Financial institutions are undertaking these initiatives to enhance NFR management at a time of exceptional volatility and uncertainty in the business and risk management environment. They need to align their NFR management framework, including their risk identification process with the fundamental trends that are today transforming risk management as a whole.

The article is an excerpt of the report, "The future of Non-Financial Risk in financial services: Building an effective Non-Financial Risk management programme" by the Deloitte Banking Union Centre Frankfurt. To receive a copy of the full report, drop us an email at sgindustries@deloitte.com.

Double your intelligence: Using intelligent automation to double productivity in finance

Intelligent automation presents a huge opportunity for finance functions within financial institutions to deliver information and value to the business more quickly, more accurately and at lower cost.

These intelligent automation technologies, which we call robotic and cognitive automation (R&CA), can have a rapid transformation effect and are facilitating the standardisation of core finance processes that are long-overdue for simplification. It is our view that a different approach is required to deploy robotics effectively by creating finance automation utilities, which is different to how automation is typically deployed within front and middle-office functions.

This unique approach, which combines robotics, point cognitive tools and operational excellence, can typically achieve a 20-25 percent increase in efficiency within six to 12 months. Furthermore, experimenting effectively with artificial intelligence (AI) can enable finance functions to achieve over 50 percent efficiencies within two to three years, speeding up and vastly enriching the insight finance brings.

Financial institutions can harness the potential of R&CA to halve the capacity required from their finance functions, or double their output, all while increasing the intelligence and quality of information. In this article, we will explore how to achieve this.

Opportunities for intelligent automation in finance

Robotic automation is delivered through software that is used to mimic human action and perform rules-based tasks. The opportunity presented by robotics is widely understood. Performed correctly, robotics can reduce costs, increase speed and improve the quality and accuracy of finance processes and can be deployed alongside large-scale technology implementations. This is particularly valuable in helping to automate simple processes such as reconciliations and invoicing, for example. However, robotics is far beyond automating small parts of processes. It has the real potential to enable an automated back-office processing centre or 'robotic servo', where tasks are performed and overseen by robots with little human interaction.

The opportunity presented by cognitive technologies is less well understood. More advanced cognitive tools are able to interpret and produce analysis or make decisions, as well as interact with finance personnel within the organisation, making accountants and quants more effective. There is a lot of hype around AI, but deep accounting and regulatory compliance expertise is required to ensure these technologies are adopted in a controlled and compliant manner.

We are working with our clients to experiment across a range of areas in finance including:

- Neural networks and learning technologies to investigate repetitive reconciliation breaks by seeking missing counterparty data from external sources.
- Learning engines to provide more granular management reporting than would have been possible within previous timescales and constraints.
- Advanced predictive modelling to improve financial forecasting using information gathered from various sources and processed in big data analytical solutions.
- Cognitive assistance that learns from quants and actuaries, to provide them with data more quickly to support them in their daily, monthly and quarterly activities – making them more efficient and effective.
- Natural language generation to automate whole or key parts of statutory and management reporting commentary where a consistent format is required regularly.
- Chat-bot technology to support business partnering and business user self-service, such as the resolution of common queries from cost centre controllers.

Benefits of intelligent automation in finance

Processing speed, capacity and timing are greatly improved as validation, adjustment and calculation steps of multiple processes are performed in parallel by robots. In addition, more effective workload balancing and overnight processing from robots removes significant waiting times, as well as time zone issues and downtime between different locations, and frees up capacity to allow a far leaner working day timetable.

Enhanced quality control is achieved through standardising and consistently applying thresholds, levels of materiality and business rules that help identify and address common control inconsistencies.

Better quality for consumers is achieved as ultimately the speed and accuracy of information that is provided to business partners, cost centre controllers and the regulator is all greatly enhanced.

Reduced physical space requirements, allowing the consolidation of existing operating locations. Automation also challenges the need and motivation for extensive offshoring or outsourcing.

Standardisation opportunities are made visible through the implementation of robotics, presenting a significant incremental opportunity.

Automation needs to be adapted to finance processes

Finance processes tend to be high in variability and low in volume compared to other back-office processes targeted for automation. Whilst organisations should not ignore notable opportunities to automate large portions of specific repetitive activities such as accounts payable, accounts receivable and expense processing end-to-end, this should not be the foundation of their approach. In our experience, the pipeline of worthwhile automation will run out without realising the material benefits of R&CA.

The approach to automation should be tailored for finance processes where the most significant savings are typically driven by identifying common pervasive process components, such as data extraction, data validation, and performing standard calculations and adjustments that cut across processes.

Our financial services clients are using robotics to help automate, speed up and reduce the effort needed to deliver activities for numerous finance processes including:

Rethinking the Finance operating model

Our clients are working with us to build intelligent automation delivery capability by creating robotics centres of excellence, set up either specifically for finance within the shared service centre or provided by their operations or IT functions. In either case, it is critical to understand and plan how that support model will operate in practice. This is an evolving and important consideration that financial institutions are evaluating and prioritising alongside their automation journeys.

Those making the most of intelligent automation are using it as a lever to challenge and rethink their core finance operating model made up of business processes, software applications, technology infrastructure and governance models. These operating model components are undergoing change that is driven by the potential of new intelligent automation technologies.

The full potential to increase the efficiency of the finance function is achieved when AI and cognitive technologies are integrated with cloud-based enterprise resource planning (ERP) solutions. As technology infrastructure in finance functions shifts to cloud-based solutions for storing, managing and processing data, AI and other cognitive technologies can begin to harness the massive volumes of data these cloud-based ERP technologies can generate. This will allow finance functions to provide more automated, granular insights while eliminating error-prone, repetitive tasks and increase the efficiency of the finance function.

This unique approach to implementing standardised and automated processes in robotics centres of excellence, alongside more advanced cognitive technologies that harness the power of cloud-based ERP solutions, will enable finance to achieve over 50 percent efficiencies within the next two to three years.

Financial institutions will need to re-organise and re-plan their teams to adapt to the delivery and maintenance of automated processes. They will also need to address capability changes required within their finance teams such as advanced analytical skills and data interpretation and data insight skills, in addition to expert oversight needed to manage automated processes and cognitive technologies. These changes will all need to be addressed while retaining finance technical knowledge.

Learnings: Approach to implementing intelligent automation

Through our experience of supporting clients in automation, there are a number of relevant considerations that can help organisations in shaping their intelligent automation initiatives and approach to implementation:

Develop incrementally. Prioritise where to automate, within the constraints of your existing change and business calendar. Learn from early implementations and do not go for everything at once as automated components can be re-used multiple times across processes and divisions.

Take a process-driven approach. Look across the finance function and address processes across divisions to avoid duplication and prioritise the re-engineering of common process steps and components that increase capacity significantly.

Re-use automations. Each automation needs to be implemented before it is added to the 'catalogue' of automated process components and re-used across processes and divisions.

Design the future operating model in parallel. Design a vision for finance and introduce robots gradually into the operational environment, monitoring quality and building user confidence.

Invest and experiment in AI. Create budget for experimenting with emerging AI tools with a clear vision and priority focus for analysis and service provision.

Achieve early stakeholder buy-in. Support is needed from strategic to operational stakeholders to quickly deliver such change.

Address limited resource constraints. Prioritise robotics where possible to secure small and medium-sized enterprises (SME) and change resource. Increase capacity through early automations and use implementation partners to provide capacity for large scale change.

Build robotics capabilities within finance. Partnering, particularly in early implementation will help to scale capability faster. Financial institutions should also provide training in robotics and consider specialist recruitment and outsourcing.

Resolve IT infrastructure issues. The speed of implementation is dependent on quick resolution of current IT issues and implementing a stable and high performing environment.

Set-up for scale. Your robotic and AI enabled 'workforce' will require the infrastructure and support model to operate effectively and resiliently.

Training and continuous improvement. Existing technical finance managers and SMEs should be re-trained to use, support and maintain robotic tools and technologies. This technical finance knowledge coupled with robotic skills is also critical to the continuous improvement of the finance function.

Conclusion

The potential for intelligent automation to enable a quicker, more accurate and cost-efficient finance function is significant, if you get the approach right. Finance functions present scalable opportunities for automation that financial institutions can realise to achieve their efficiency objectives. Automation should be used as a lever to rethink and reimagine the finance operating model which is being challenged by digital disruption. Move now, accelerate, deploy at scale, and invest in AI experimentation and integration with cloud-based ERP technologies.

This report is an excerpt of the report, "Double your intelligence: Using intelligent automation to double productivity in Finance" by Deloitte UK. To receive a copy of the full report, drop us an email at sgindustries@deloitte.com.

SEA Financial Services Practice

Southeast Asia Financial Services Leader

Ho Kok Yong
kho@deloitte.com
+65 6216 3260

Business Leaders

Audit & Assurance
Tay Boon Suan
bstay@deloitte.com
+65 6216 3218

Consulting
Lim Eng Hong
englim@deloitte.com
+65 6232 7104

Financial Advisory
Jeff Pirie
jpirie@deloitte.com
+65 6216 3168

Financial Advisory
Radish Singh
radishsingh@deloitte.com
+65 6530 8077

Risk Advisory
Somkrit Krishnamra
somkrishnamra@deloitte.com
+66 2034 0000

Tax & Legal
Michael Velten
mvelten@deloitte.com
+65 6531 5039

Country Leaders

Guam
Tung Wei-Li
wtung@deloitte.com
+1 671 646 3884

Indonesia
Rosita Sinaga
rsinaga@deloitte.com
+62 21 2992 3100

Malaysia
Anthony Tai
yktai@deloitte.com
+60 3 7610 8853

Philippines
Bonifacio Lumacang
blumacang@deloitte.com
+63 2 581 9000

Singapore
Ho Kok Yong
kho@deloitte.com
+65 6216 3260

Thailand
Somkrit Krishnamra
somkrishnamra@deloitte.com
+66 2034 0000

Vietnam
Thinh Pham
thpham@deloitte.com
+84 839100751

Deloitte.

Tick. Tock. Tech.

Technology waits for no one. Immense forces are squeezing and stretching the financial services industry. Faced with great change, you can allow yourself to be squeezed and stretched. Or together, we can shape the future.

With our broad expertise, we see Financial Services from many different perspectives. We can examine your tech transformation needs from a risk viewpoint, through a marketing lens, from a strategic standpoint and with an analytics angle. We can overlay all these elements required for tech transformation to give you a complete and clear path to success.

So disrupt the disruption with total technology solutions designed to make building, implementing, and scaling financial services tech a reality.

Visit **www.deloitte.com/fsi** to find out more.