IDC Perspective: Six Capabilities from Leading RPA Service Providers That Advance Financial Services Institutions Toward Intelligent Automation

Sneha Kapoor

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EXECUTIVE SNAPSHOT

FIGURE 1

Executive Snapshot: Overview of Intelligent Automation and Intelligent Digital Workforce

The term "intelligent automation" is used by the financial services industry to point to the intelligent digital workforce. IDC Financial Insights' Intelligent Digital Workforce comprises intelligent digital workers — essentially software robots that can perform both deterministic and nondeterministic tasks by continuously capturing, understanding, and analyzing both structured and unstructured data. They represent both rules- and judgement-based automation.

Key Takeaways

- Choose an RPA and intelligent automation service provider based on six key capabilities — ability to deliver desired business outcomes; process identification and optimization; ability to deliver enterprisewide scale; security, governance, and post-deployment support as the core tenets; intelligence powered by AI technologies and innovative tools; and availability of talent and strong ecosystem support — to achieve more favorable, scalable, and sustainable results.
- By 2022, IDC Financial Insights expects that 75% of tier 1 Asia/Pacific banks and insurance companies will deploy intelligent automation solutions at scale to achieve an exceptional business value and deliver a more real-time and contextual customer experience.

Recommended Actions

- Create a well-defined automation strategy and secure management sponsorship.
- Redesign and optimize processes to increase automation potential.
- Change management is critical for the success of any automation project.
- Institutions must carefully evaluate how the selected service provider and its solutions can fundamentally solve their business problems and optimally support them in achieving hyperscale and hyperperformance with automation.
- As the new approach to intelligent automation takes hold, the institution will create demand for new roles and skills and must also be ready for an unprecedented level of reskilling.

Source: IDC, 2020

SITUATION OVERVIEW

Overview

IDC Financial Insights continues its series of reports on automation and artificial intelligence (AI) in financial services. This report is fourth in the series, where we start by looking at robotic process automation (RPA) and how the proposition around it has steadily moved toward intelligent automation and leveraging an intelligent digital workforce. RPA has often been cited as the essential first step toward automation, but we believe it could be more accurately described as part of a continuum of technology-enabled initiatives that brings intelligence into the automation of business processes. IDC Financial Insights defines this continuum of technology-based initiatives focused on process automation as the "Automation Continuum." This continuum also underscores a notable evolution of demand and capabilities toward an intelligent digital workforce from the rules-based digital workforce.

Although we expect to see most of the traction and advancement (in terms of currency) toward intelligent automation from leading financial services institutions (FSIs) in Asia/Pacific (excluding Japan) (APEJ), we will also see a compelling growth in demand from small to midsize institutions that are about to take their first step in embracing digital workforce solutions. In our opinion, the markets to watch out for both intelligent and digital workforce solutions in APEJ are Australia, Singapore, India, China, Hong Kong, South Korea, Thailand, Malaysia, Indonesia, and the Philippines. These markets are hotspots for various digital trends, driving institutions to invest in everything digital to increase business growth, enhance customer engagement, and improve operational efficiencies. As per our definition, FSIs include banks, insurance companies, and securities and investment services firms.

Even as the adoption of RPA and intelligent automation gained significant momentum in 2019, many FSIs were not able to scale their automation deployments. Moreover, many early adopters that tried to infuse intelligence with cognitive/AI technologies and innovative tools in automation did not see the value they expected from their intelligent automation initiatives. The purpose of this IDC Perspective is to support Asia/Pacific FSIs in their automation journey by addressing their key challenges and assisting them, especially in their vendor selection exercise, by identifying and analyzing the key capabilities of a good intelligent automation service provider. This report also presents the profiles of eight service providers that provide intelligent automation offerings in the region for the financial services industry. The report focuses on the unique propositions of their key capabilities and their resolve to deliver an end-to-end intelligent automation to their clients. We address the following five questions:

- What is intelligent automation and intelligent digital workforce?
- What are the key trends and market developments in the automation market in 2020?
- What are the key capabilities of a good intelligent automation service provider?
- Who are the key service providers in this region and what are their unique capabilities?
- What are the key considerations for Asia/Pacific FSIs when they embark on and/or advance in their automation journey?

Defining Intelligent Digital Workforce

The financial services industry in Asia/Pacific is now keen to pursue intelligent automation and the deployment of an intelligent digital workforce to help them deliver better customer engagement and experience while improving operational efficiencies, increasing employee productivity and morale, and ensuring robust security, governance, and compliance.

What is digital workforce in financial services? Broadly defined, IDC Financial Insights' Digital Workforce comprises digital workers — essentially software robots that, when initiated at predefined times or triggered by an external event, can automatically execute deterministic, repetitive, standardized, high-volume, and rules-based tasks by capturing and analyzing structured data and working across several interoperable systems (such as applications and other technologies). The term "RPA" is also used by the industry to point to the digital workforce. Treated like their human counterparts, the digital workers are assigned separate IDs and passwords to sign in to company applications to complete their allocated tasks. We have seen examples of banks and insurance companies that are anthropomorphizing their digital workers (making them more human-like) by naming them and making them accountable for security and governance purposes. For example, Singapore's OCBC Bank in 2017 named its first digital workers "Bob" and "Zac." Other examples include "Amy" and "Eve" at UOB Bank (Singapore), and "Alex" at AXA Affin General Insurance (Malaysia). Some of the tasks performed by digital workers in financial services include billings and collections, loans processing, credit card applications processing, performance and financial reporting, insurance claims handling, and policy administration and servicing.

The digital workers help to significantly reduce the turnaround time to complete a process. Early indicators point to a reduction of 50–90% (see *Robotic Process Automation in Asia/Pacific Financial Services: Key Learnings from 10 Early Adopters*, IDC #AP43545718, February 2018, for more benefits for Asia/Pacific financial services). Employees are freed up from mundane tasks, allowing them to focus on more critical initiatives that require judgement and complex decision-making. For example, it allows them to focus more on improving customer engagement or engaging in business development. Deploying a digital workforce helps improve employee morale by awarding more enriching and rewarding jobs to human employees. The digital workforce may also be viewed as a preemptive action considering the future workforce, as there seems to be little to no inclination from younger talent to do mundane, repetitive tasks that can be easily executed with the help of technology. It is important to note that these digital workers can exist in both attended and unattended forms and can be delivered on-premise, on the cloud, or in a hybrid model.

But what is the intelligent digital workforce? IDC Financial Insights' Intelligent Digital Workforce comprises intelligent digital workers — essentially software robots that can perform both deterministic and nondeterministic tasks by continuously understanding, capturing, and analyzing both structured and unstructured data. They represent both rules and judgement-based automation, and, like their human counterparts, they are both self-learning and self-healing workers that can discover patterns to predict decisions and even offer recommendations to improve them. In other words, the intelligent digital workforce is progressively graduating from merely mimicking human actions to augmenting human intelligence, as well as evolving quickly to achieve the potential of autonomously emulating this intelligence.

The term "intelligent automation" is also used by the industry to point to the intelligent digital workforce. This workforce has the potential of delivering meaningful customer service and support, improved decision making, and valuable customer insights. Some of the key enabling technologies for intelligent digital workforce solutions are business rules management software, event-streaming processing software (process mining and insights software and stream processing software), capture software, process-centric application platforms, RPA, event-driven middleware, integration software (API management software and integration platforms), predictive analytics, business process management, workflow management, content management, AI, and data management. Additionally, IDC defines cognitive/artificial intelligence, or AI, as systems that learn, reason, and self-correct. The system hypothesizes and formulates possible answers based on available evidence, can be trained through the ingestion of vast amounts of content, and automatically adapts and learns from its mistakes and

failures. Some of the technology components of cognitive/AI include machine learning, or ML (both supervised and unsupervised machine learning), natural language processing (NLP), Q&A processing, dialogue-based interactions, natural language generation, structured data analysis, speech recognition, and visual processing.

It is worth noting that although RPA is compatible with many other technologies within intelligent automation, it can also compete with these technologies. For example, some FSIs have now started to evaluate APIs and compare their benefits and challenges with the RPA software. Another point to note is that before we get to a future state where the use of AI is more pragmatic, responsible, and customer-centric, there are many considerations that need to be addressed, such as customer consent, data quality, biases, ethics, and security, to realize its truly transformational results. Even though there is still time before we experience that state of truly autonomous, ethical, and infallible AI (see *Many Things from the Shiny New Thing: 20 Early Adopters of Artificial Intelligence in Asia/Pacific Financial Services*, IDC #AP43052218, October 2019), there is a burgeoning interest from FSIs to understand and experience how AI can help them to deliver exceptional business value, enhance customer engagement, and create new products and services.

Key Trends and Market Developments

IDC Financial Insights expects to see huge changes and developments in the financial services industry in APEJ in 2020, especially in terms of rapidly growing demand for intelligent automation and AI; the focus on achieving scale; the deployment of hybrid and flexible workforce; changing organizational structures with a demand for new roles and skills; and increasing efforts in retaining and building automation talent. Based on our various discussions with FSIs and leading players in the market, we list below some noteworthy trends and market developments that are shaping the automation market in Asia/Pacific:

- **Intelligent automation is gaining both recognition and currency.** FSIs are now, more than ever, interested to bring in intelligence to the automation of their business processes with a combination and integration of technologies such as RPA, cognitive capture, AI technologies, chatbots, and analytics. These institutions want to act on both structured and unstructured data to generate data-driven insights, achieve operational efficiencies, and deliver a more personalized customer experience. The financial services industry has already started to see significant value from intelligent automation and will continue to invest in suitable use cases. The automation story is also moving beyond just achieving financial benefits to also deriving nonfinancial ones, including the invaluable benefits of increased customer centricity and improved employee morale. The use of AI will also circumvent low-code methods to make the adoption of intelligent automation easier for nontechnical business users. This trend also highlights that the ecosystem partnerships and innovation will further accelerate to deliver favorable outcomes for clients.
- **Achieving scale will be a key priority in 2020.** Institutions are agreeing that approaching RPA and intelligent automation tactically with only lead to limited results. The objective is to scale automation strategically throughout the enterprise to generate value for the business and customers. As very few organizations have been able to scale in the region until now, there will be a bigger drive from many leaders to scale their automation initiatives in 2020. This will also necessitate tackling key automation challenges, as well as designing new business models, delivery models, and products and services. Another point to note here is that how you define scale is also very subjective: some define it by number of robots, while some define it by number of automated tasks and processes. Although the definition of scale will depend on many factors, including the institution's size, its organization structure, and the automation potential, our conversations with leaders of FSIs underscore that an institution might not want

to limit its thinking to whether it has achieved scale or not; it must continue to automate as long as there is a business value to be realized.

- **The adoption of RPA on the cloud will accelerate.** IDC Financial Insights anticipates an era of accelerated cloud adoption for the financial services industry, especially banking in the Asia/Pacific, in the next few years. A confluence of positive factors has led this to development, primarily, the greater willingness by banks to take on various models of cloud (private, public, and hybrid), increased regulatory clarity on cloud use by banks, and the sheer growth of requirements of banks (compute, storage, networking, and application workloads) that inevitably call for cloud. The institutions today want to have the ability to make deployment model choices, as well as to achieve consistency in how these models enable how automation and AI solutions are built, tested, deployed, and managed. This availability of choices will impact adoption decisions in 2020 and beyond. "Automation as a service" within an institution would lead to a more efficient and effective business transformation model. Therefore, many automation and AI players are going after the cloud-based automation opportunity. We also expect increasing deployments of RPA and intelligent automation on the cloud to reduce total cost of ownership (TCO), as well to offer usability, agility, and scalability. As per our *Worldwide and Regional Public IT Cloud Services Forecast, 2019-2023*, public cloud platforms have become the primary launchpads for digital technology innovations, including automation and AI, security, digital infrastructure, data services, and more. The developers seeking access to the latest IT innovations are likely to find them on one or more of the major public cloud platforms. In fact, many intelligent automation products have now re-engineered to support a cloud-native architecture.
- **Process and task mining will proliferate.** Process mining and discovery features identify and recommend processes that are suitable for automation with a higher probability of delivering targeted business results. Process mining can also help by identifying how to restructure the processes. The leading institutions are also utilizing AI-enabled process mining and discovery to track, record, monitor, and finalize automation candidates. Along with process mining, institutions will also use task mining to monitor and evaluate the performance of their workforce.
- **Demand for new automation roles will continue.** Now this is big. As FSIs expand their automation to multiple teams and take an enterprisewide approach, we will see the rise of new formal roles, such as Executive Sponsor, Automation Change Manager, Automation Program Manager, Agile Product Owners, Scrum Masters, Automation Process Analyst, Automation Trainer, Automation Developer, Head of Intelligent Automation Center of Excellence (COE), and even Chief Automation Officer. These roles will be visible especially in FSIs that are serious about achieving significant business value from their automation strategy.
- **There will be more focus on upskilling and reskilling talent.** A shortage of automation and AI talent plagues the Asia/Pacific region. Moreover, institutions are now keen to broaden their employees' skill sets and investing in upskilling and reskilling them to lead and manage their automation deployments. Automation initiatives require a lot of domain and process experts and therefore, it becomes key for institutions to encourage their talent to upskill and reskill themselves. Apart from software vendors, many service providers are now offering trainings, certifications, and specialized programs in various formats to build up automation and related skills for business users, IT staff, and developers within their client organizations. They are also setting up many initiatives to train, upskill, and reskill their own employees to deal with the exponential growth in their automation business. Leading service providers are also partnering with universities to accelerate the availability and competency of this talent. We also believe that the fresh new talent with good digital and automation skills entering the market will also accelerate the adoption of automation.

- **Attended automation will make significant inroads into the front office in 2020.** FSIs that are placed high on the digital transformation index have started to invest more in automating front-office processes. Attended automation can help the front-office staff to deliver a real-time, seamless, and personalized customer experience. For example, attended bots can help the front-office staff to pull out a single view of the customer instantly to address the customer's queries and concerns in real time. Moreover, we believe that automation in its current form cannot completely replace human employees' judgment and decision making. A human in the loop and human oversight will remain critical in many current tasks and processes. Therefore, it may be prudent to focus on using automation and AI to augment human judgment via attended automation. Some of the use cases for attended automation are customer onboarding, customer service, claims processing, policy servicing, loan origination, know your customer (KYC) and anti–money laundering (AML) checks, fraud investigation, transaction verification and execution, and daily P&L reporting.
- **Multivendor strategy will gain more prominence in 2020.** There is a growing inclination among institutions to work with more than one vendor for their different automation needs and a multitude of reasons, including the growing demand for more intelligent automation offerings and key capabilities, the need to reduce concentration risk on a single vendor, and the desire for better licensing terms. However, exceptions may exist here. This inclination would also drive increased partnerships and reliance on service providers, which will work with various vendors to deliver an end-to-end integrated and intelligent automation at scale. Based on their client needs and business problems, the service providers will play an important role in recommending suitable solutions to their clients from among various tools and solutions available in the market.
- **Market consolidation will continue.** The market is overcrowding following quick advances in the demand for automation, the convergence of various tools and disciplines, and the emergence of new automation vendors and service providers. In November 2019, Microsoft renamed Microsoft Flow into Power Automate, added RPA features to it, and launched Power Virtual Agents. Micro Focus also launched an RPA product in July 2019 to help its clients build, secure, and scale automated business processes. IDC Financial Insights believes that this overcrowding will lead to more mergers and acquisitions in the automation space (for both software and services players) in the next two to three years. Since 2018, we have seen some notable acquisitions, including:
  - ABBYY acquired TimelinePI, a comprehensive process intelligence platform provider
  - Appian acquired Novayre Solutions SL, a developer of the Jidoka RPA platform
  - Automation Anywhere acquired Klevops, a workflow provider
  - Blue Prism acquired Thoughtonomy, a cloud-based RPA provider
  - Kofax acquired Nuance Document Imaging, a division of Nuance Communications
  - Nintex acquired EnableSoft, an RPA software company
  - Pegasystems acquired In The Chat, a digital messaging platform provider
  - SAP acquired Contextor, an RPA software company
  - Sykes acquired Symphony, an RPA service provider
  - UiPath acquired ProcessGold (Process Mining), StepShot (Process Documentation), and Smart Data (Capture Software)
- **Reusability is speeding up automation.** Many service providers are helping their FSI clients to speed up the time to realize business value and avoid a redundancy of resources by leveraging reusable components. The reusable components, such as templatized use cases and preconfigured bots that connect with several applications, will help institutions to accelerate the delivery life cycle, achieve scalability with speed, and reduce the cost of

automation. These reusable components also address the demand for vertical- and function-specific offerings for automating vertical and functional processes. Breaking down the operating silos and making reusable components available across the organization will also help realize these benefits rapidly. The Six Key Capabilities of an Intelligent Automation Service Provider

The Six Key Capabilities of an Intelligent Automation Service Provider

This section focuses on the six key capabilities of an intelligent automation service provider. IDC Financial Insights highlights that FSIs, which choose an intelligent automation service provider based on the below-listed capabilities, typically achieve more favorable and long-term results from their automation deployments.

Ability to Deliver Desired Business Outcomes

Before an institution embarks and advances in its automation journey, it must begin by identifying a business problem or a business goal in mind. As per our recent conversations with some of the leading FSIs in the region, the top 3 current priorities and goals for deploying automation tools and solutions are improving operational efficiencies, reducing costs, and enhancing customer experience. Other key priorities are driving higher revenue growth, building capabilities for the future, improving employee productivity and satisfaction, and complying with the new or existing regulations (see IDC's *Intelligent Automation Services Buyer Perception Survey, 2019*). This survey also highlighted that the ability to deliver desired outcomes is one of the most critical factors for identifying a suitable automation service provider and ensuring the success of the overall engagement. Therefore, it is key for FSIs to select and work with partners that can deliver their desired business outcomes. The partner must be able to design and deliver on an end-to-end automation vision and strategy to achieve optimal results.

Based on its clients' priorities, the automation service provider will create a target operating model (TOM), which will include an automation framework, expected ROI and other benefits, identified risks and costs gaps, defined roles and responsibilities, and risk management and governance structure, among other things. The model should also emphasize future scalability enablement and facilitation. The service provider must demonstrate a combination of domain knowledge, industry insights, and technical capabilities, as well as offer the entire stack of RPA and intelligent automation services. Additionally, it must provide functional and vertical-specific solutions. The service provider should ensure an appropriate integration and collaboration with the client team and showcase the ability to meet client-developed project timelines and expected ROI, apply proven methodologies/tools, integrate intelligent automation solutions with the client's existing IT environment, handle changes in the project scope, and deliver reliable, accurate, and trustworthy bots. Overall, the partner must be able to support the clients through their entire journey, including discovery (e.g., defining the problem statement, initial process analysis, selection of automation candidates, selection of solutions), process management and optimization, and automation implementation (e.g., decisions about tools and technologies, POCs, and pilots). The service provider must also be able to showcase its innovation by highlighting how it transfers the innovation to its clients via innovative service delivery, the quality and depth of thought leadership the firm generates, and the ability to bring ROI models to the table to support the business case for RPA and intelligent automation adoption.

Process Identification and Optimization

One of the primary challenges in getting started with automation is identifying the right tasks and processes to automate. Initial results and subsequent investments are highly dependent on automating the right processes. RPA, especially in its first stages, is best deployed in business processes that are standardized, rules-based, and high-volume and can be used for POCs. Once you

have identified the right processes to automate, we recommend refraining from trying to automate everything at once. Choose the quick wins first and move forward toward more automation opportunities. We recommend that the institutions must also create a long-term plan to build a process catalogue consolidating the existing process documentation in the organization, together with top-down suggestions and bottom-up feedback to identify opportunities. Using their various proprietary use case frameworks, modelling templates, and process discovery workshops, the service providers will help their clients by assessing processes, studying automation opportunities, creating a process prioritization matrix, identifying bottlenecks and gaps, and determining expected ROI and other benefits. The process prioritization framework will be based on the levels of complexity, benefits, effort, and readiness of process owners.

The second important point is about process redesigning and optimization. IDC Financial Insights highlights that only a few processes can be automated in their present state, and that most of the processes must be redesigned and optimized to make them suitable for automation. Most of the automation deployments in the last two years in the region have been for "as-is task/process." The process excellence mindset is either missing or intentionally deferred to a future date by most of the institutions. On an average, only 10–20% of processes are redesigned and optimized by the leading adopters in APEJ. Although institutions do agree that process transformation and optimization will bring them real significant value, most of the deployments have been undertaken without taking this exercise for various reasons. One of them is mounting pressure on the teams to showcase business value rather quickly with RPA. However, we do believe that it is very important to redesign, re-engineer, and streamline processes through various methodologies and tools such as Lean, Six Sigma, and business process re-engineering (BPR). In the next two to three years, we will see greater realization among FSIs to undertake process redesigning and optimization. It is also worth noting that process redesigning, at least in the short term, can also constrain the extent of automation in the process. Systemic enhancements are a long-drawn process, especially when they cause disruptions to core systems and result in significant efforts and costs. Therefore, these enhancements usually get restricted to large-scale implementation initiatives.

Institutions must deal with many complex issues, including capturing, storing, and analyzing semi-structured and unstructured data to truly achieve end-to-end process automation. Consequently, a huge number of business processes are usually not considered feasible, especially in the early stages of automation maturity. We also believe that the availability of reusable bots and components, functional- and vertical-specific offerings, and process mining and discovery features by the service provider will further shorten the time to realize business value. Process mining and discovery can also help identify tasks that are ripe for automation. We also expect to see more software vendors and service providers to leverage advanced process mining and discovery features in their solutions in 2020. Currently, there are many AI-based process mining and discovery tools in the market, which enable users to track, collect, record, monitor, and facilitate automation by itself.

Ability to Deliver Enterprisewide Scale

To be sure, most Asia/Pacific FSI have implemented automation projects in a couple of business units only — an enterprisewide approach is still missing. Most FSIs have implemented less than 15 processes, some even less than 15 tasks. Currently, less than 10% of FSIs could be considered to have achieved scale. However, we saw more and more institutions agreeing in 2019 that a piecemeal approach to automation will only accrue limited results, and in some cases, even outright failure. This acceptance has encouraged management and teams to expand automation deployments from a single team or few teams to an enterprisewide scale across the organization in 2020 and beyond. We also highlight that there is a massive change in the perception of the capabilities of RPA and intelligent automation tools and services within the last two years. It is, therefore, critical that your service

provider should be able to help you achieve significant business and customer value by deploying automation at scale. We also believe that RPA and intelligent automation offerings on the cloud will accelerate the speed of accomplishing scale and democratize these capabilities within the institutions. The reusable components will also speed up and reduce the cost of automation.

In the next two years, we will see more investments from FSIs in establishing COEs to drive and communicate best practices in automation and enable more robust management and control, security and audit, and overall governance and maintenance of the intelligent digital workforce. The COE must focus on the vision and best practices for the operating model, talent management, delivery management, knowledge management, vendor and contract management, and innovation. It must include all key stakeholders and ensure cross-functional collaboration. The establishment of dedicated COEs will also make it easier for institutions to address regulatory compliance challenges in the region. Based on their requirements and needs, institutions will choose how to structure their COEs: centralized, federated, and, in some cases, even decentralized models.

To achieve scale, it is also essential that you can secure executive commitment and sponsorship within the institution. Many early adopters have now recognized the need to identify "Automation Champions" to secure support from the management, business, and IT teams and therefore the success of their deployments. We will also see more institutions disintegrate their internal silos and focus on change management and upskilling and reskilling to achieve an enterprisewide scale. Focusing on top-down concerted communications and involving the stakeholders early for their relevant parts of the project with defined roles and responsibilities will help with organizational change management.

Security, Governance, and Post-Deployment Support as the Core Tenets

The mere utterance of the terms "robots" and "artificial intelligence" in any meeting is enough to raise unrelenting questions about security and governance, including concerns about securing customers and their data and even the institution itself against rogue automation. Contrary to popular belief, robots improve the accuracy, consistency, and security in transactions and processes. They do not commit human-like errors and they operate within well-defined rules. The use of robots guarantees better compliance with higher due diligence and precision. With the new regulatory compliance mandates that focus on the governance of business processes, there is also a strong, supportive view of how a digital workforce can ease compliance for institutions. However, all these statements and opinions are based on an underlying assumption that institutions can ensure stricter security and governance controls to secure the automation from bad internal and external actors — basically, that the machines work as planned and these actors do not influence them for their own advantage.

Our advancement toward a more digital world and digital workforce fundamentally requires that we start treating our digital workers like our human employees. That is, digital workers must be accountable and responsible for their actions and, therefore, all security parameters including access, control, and auditability must apply to them as well. To support this viewpoint, an automation solution must ensure that the client has granular role-based access, control, and management across all key aspects of the solution. The role-based access approach guarantees that only authorized users can access sensitive data and/or execute bots and provides a secure and effective way for an institution to manage its digital workforce. To achieve auditability and traceability, the solution must track changes made to a bot, data, system, and user's permissions. These logs will not only help identify errors and bottlenecks in the automation process but also detect fraud or misuse by bad actors.

Post deployment, some institutions can face issues, such as unavailability of talent and skills, evolving capabilities of tools, IT change management issues and frequent upgrades, timely access to

infrastructure and applications, and interdependencies of the systems. It also then becomes necessary to combine your resources with that of your service provider to deal with these issues quickly and efficiently. To address these issues and promote the success of their automation deployments, early adopters are leveraging agile development methodology, which ensures that the scrum teams can develop and test RPA and intelligent automation in quick and repetitive cycles. Early adopters have created Agile squads in partnership with their services partners and vendors and secure a high degree of collaboration between operations, technology, sourcing, infrastructure, and other teams. The quick and constant feedback from the users is also critical for the development team to make adjustments and keep the objectives of the project intact throughout the development and testing cycles. Early adopters also include a long hypercare phase so as to have an incident tracking framework and root cause/feedback loop for framework improvement and preventive actions. This allows them to guarantee quality assurance, stabilize the systems and proceed in a structured manner, as well as accelerate the speed of automation afterward. A well-defined governance structure will ensure that there are continuous review meetings and audits, real-time operations monitoring and intelligence, and centralized reporting. The institutions must also make sure that benefits are measured, reported, and realized as projected. This can also be executed by developing robots to measure the performance of other robots. The governance structure will also highlight escalation paths and reporting relationships.

Intelligence Powered by AI Technologies and Innovative Tools

Most of the deployments in Asia/Pacific institutions until now are at the basic level of automation, which is not at all a bad thing for a start. Based on our recent survey, less than 10% of the total automated use cases are for intelligent automation, which necessitates the use of intelligence powered by AI technologies and innovative tools. However, we are steadily advancing toward a state where the use of intelligent robots will be more common and the efficient automation of more complex, non-standardized, and less repetitive tasks will be possible. Institutions will need to consider a holistic approach, where RPA, intelligent automation, and AI will combine with other innovative tools and technologies to deliver exceptional business value and superior customer and employee experience. In the next two to three years, we will see more service providers supporting and encouraging the advancement of their clients toward more intelligent automation deployments. We will soon see more intelligent robots in FSIs in the form of intelligent robo-advisors, intelligent chatbots, and virtual agents that are self-learning and self-adapting and offer intelligent assistance and advisory services to improve customer retention and loyalty. IDC Financial Insights expects that these intelligent automation offerings will also accelerate how AI is consumed within financial services.

Currently, unstructured data amounts to approximately 80% of the total data found in an institution. With its ability to deal with various types of data (both structured and unstructured) from multiple and disparate sources, the intelligent automation solutions can recommend, design, and launch on-demand usage-based products that align with current market expectations. Today, most of the leading solutions in the market have added and integrated AI technologies such as ML, NLP, and machine vision. One area where FSIs are seeing improved results is intelligent document processing. For example, many FSIs have already invested in automating invoice processing and insurance claims processing. In 2019, we also saw institutions utilizing intelligent document processing for credit card applications, mortgage applications, remittance processing, collateral documents, customer and corporate agreements, and account maintenance–related legal documents. Some other tasks and processes where intelligent automation is being increasingly considered are procure to pay (invoice processing, as also mentioned earlier), order to cash, record to report, customer onboarding and service, KYC and AML, check processing, loan origination, insurance underwriting, compliance, financial reporting, contract management, vendor and partner onboarding, and employee onboarding. Despite the promises and potential of intelligent automation, only few organizations have been able to

advance their journey due to issues such as lack of understanding of the capabilities of intelligent automation and AI; technical and integration complexities; commercial infeasibility; strict and short timelines; a huge amount of time required to train the models; non-availability, inaccessibility, and inadequate quality of data (including shortage of model training data), data privacy and compliance requirements, and lack of technical infrastructure, among other things. For more details on these challenges, please refer to our report, *Many Things from the Shiny New Thing: 20 Early Adopters of Artificial Intelligence in Asia/Pacific Financial Services* (IDC #AP43052218, October 2019). Additionally, the convergence of automation technologies, especially AI with other technologies such as big data, IoT, and blockchain, can also deliver transformational results for FSIs. However, it can be a complicated and time-consuming process to achieve these results.

Availability of Talent and Strong Ecosystem Support

Finding the right automation talent is a challenge in Asia/Pacific. The upsurge in the interest and adoption of automation in many industries in the region has resulted in a shortage of skilled resources. The demand for these resources has far surpassed the supply. IDC believes that the success of an automation project is measured by how well an implementation service provider manages the quality of its resources and staff turnover during a project's lifetime. The success is also measured, in part, by the headcount, as well as the breadth of skills the service provider has in its automation practice. The leading service providers are training their current resources on various automation tools through their specialized learning and training programs. It is also essential for institutions to evaluate how these service providers can help their employees to build these relevant skills and capabilities to lead and manage their automation deployments.

We believe that the strength and depth of the support extended by the ecosystem will be one of the key differentiating factors that will drive the demand for one automation service solution over another. Like any other ecosystem, the most important component of the automation ecosystem is partners, which offer related services and technologies that complement the features and functionalities of the solutions. It is necessary for institutions to evaluate now the overall ecosystem of the shortlisted service providers in their vendor selection process. The service providers will continue to form alliances and partnerships with various RPA and intelligent automation software vendors, as well as third-party vendors (e.g., optical character recognition [OCR], ML, AI, NLP, analytics, process mining) to enhance their solutions' capabilities. We are also seeing leading AI platform vendors such as Google, IBM, and Microsoft undertaking partnerships with intelligent automation vendors as they develop their own cognitive/AI-enabled process automation capabilities. IDC expects that these efforts and partnerships will accelerate throughout 2020 and beyond.

Ready Propositions for an Intelligent Automation Solution

IDC Financial Insights' research on various automation projects in the Asia/Pacific region shows that the institutions in the region are choosing automation service providers based on their key offerings and capabilities, demonstrated vertical and function-specific use cases, local references, pricing terms, and the availability of talent and local support. In this report, we look at the propositions of eight players that offer intelligent automation solutions for the financial services industry in Asia/Pacific. We emphasize that this is by no means a definitive and exhaustive list of service providers to consider. However, the various approaches of these eight players to key capabilities discussed in the previous section underscore that the institutions in the region have an array of excellent options to choose from to meet their automation requirements. Please note that the profiles are arranged in an alphabetical order.

Capgemini

Capgemini is one of the leading players in consulting, technology services, and digital transformation. To align with the industry appetite, the company's go-to-market (GTM) strategy has evolved from traditional RPA to intelligent process automation (IPA). Capgemini provides a full life cycle of IPA projects as an integral component of its managed services and industry-specific go-to-market offerings delivered by six dedicated pillars: IPA Advise, Transform, Deliver, Operate, Innovate, and an all-inclusive Digitally Augmented Delivery Center. Its current clients include some of the leading banks and insurance companies in Asia/Pacific. Capgemini has automated over 478 processes and deployed over 620 bots for its financial services clients in the region.

- **Ability to deliver desired business outcomes.** Capgemini ensures that it understands the client's business and technology landscape, corporate processes, culture, and challenges to provide customized and targeted solutions and advisory focused on sustainable ROI across front-, middle-, and back-office operations. It employs a consultative problem-solving approach to define clients' IPA vision and strategy, establish base IPA capabilities, architect solutions, and define an IPA road map. The team initiates the automation journey for its clients with an IPA Advisory and Transformation Feasibility Study, which follows a four-pronged approach involving process assessment, product fitment, formulation of operating model, and the business case for the robotics program. The product fitment (RPA technology evaluation) is based on four dimensions, namely, functional, technology, security, and vendor profile and risk. Capgemini creates an operating model that would align within the existing IT operating model, which interacts well with the business stakeholders. The operating model contains the DNA of each Automation Factory. It includes designing roles and responsibilities, as well as the processes in the client's Intelligent Automation COE. To ensure sustainable business outcomes, Capgemini integrates organizational change management practices early in each project to drive further adoption throughout the business. To drive better ROI, Capgemini has innovative commercial models that are output-based and gain share.
- **Process identification and optimization.** Capgemini assesses the process portfolio and captures process and business-specific details for an Automation Potential Heat Map and Book of Work. It leverages its proprietary Eliminate, Standardize, Optimize, Automate and Robotize (ESOAR) framework for end-to-end process transformation, as well as data and process mining tools to assess the client's processes and create a prioritized list of opportunities along with their expected ROI. Capgemini developed the PROMPT toolkit, which enables the generation of desktop-based analytics on recorded interactions and activity between users and systems across the entire organization. The team engages in business case development, which is a program plan to select processes (the portfolio) for automation. Certain processes are assessed using a Digital Twin solution that combines process and data mining tools with simulations and predictive analytics that allow stakeholders to see the impact of transformations and highlight more opportunities in a simulated process environment. This case is further enhanced by setting up organizational change management, design authority, and architecture practices to achieve sustainable and tangible business results. Capgemini ensures the application of the best-in-class process blueprints and reusable automation components supported by process discovery and cognitive analytics, transformational accelerators, transformation change management, and the ESOAR framework. The Command Center tool provides detailed analysis in the form of management dashboards, which describe each transformation and automation opportunity in an interactive and informative fashion in detail.
- **Ability to deliver enterprisewide scale.** Capgemini encourages its clients to build and deploy an augmented workforce at scale. Its implementation services focus on the synergy between human and virtual workforce to transform business operations. Capgemini's Augmented

Delivery Center provides a virtual workforce of robots and platform delivery that has elastic scalability based on the client's business scenario. The company advises its clients to take the factory approach, "Capgemini Automation Factories," in their COE set up. The Automation Factory is set up in alignment with the guidelines provided by the target operating model (e.g., structure, roles, processes) and consists of both process experts as well as RPA developers. Based on its client's needs, Capgemini recommends a suitable COE setup (centralized, federated, or decentralized), governance architecture, and responsibilities in joint workshops (on-site or remote). The company also enables its broad portfolio suite of IPA offerings with Capgemini Intelligent Automation Platform (CIAP), which is a cloud-ready, technology-neutral, and plug-and-play platform designed for intelligent automation at scale by enabling end-to-end seamless integrated automation solutions for applications, IT, and business operations across the value chain. Its "FastTrack Hub" contains reusable, pre-built intelligent automation solutions, bots, accelerators, and use cases to deliver economies of scale in every deployment and maintenance. CIAP also enables real-time bot monitoring, analytics, and control. Following an asset-based delivery approach, Capgemini also developed many reusable components such as Code Analyser, Environment Checker, and common libraries to accelerate the delivery life cycle, reduce the time to market, and deliver a positive impact on the ROI.

- **Security, governance, and post-deployment support as the core tenets.** Capgemini's proprietary rapid bot development methodology leveraging the Smart Automation Engine (SAE) Framework enables a decoupled way of implementation and supports test-driven development (TDD). For implementation, Capgemini follows a hybrid model of traditional waterfall as well as next-gen Agile delivery methods. The company reviews the applications involved, the technical platforms for the applications, and the technical environments. It works with its client in planning an environment that would allow the robots to integrate into the relevant applications. Subsequently, it plans the data for automating individual processes so that the multiple applications involved in that flow have consistent test data to execute the test cases. Capgemini conducts unit tests, systems integration tests, and UAT. For high-volume or high-risk processes, it also executes performance tests and stress tests. For governance, the company creates a detailed and mutually agreed upon responsibility assignment (RACI) matrix involving executive teams of both Capgemini and the client and other key stakeholders. The periodic meetings of the governance board are also set up to identify, prioritize, and sign off on processes for RPA. Capgemini's operate services offer a comprehensive catalogue of solutions, including Smart Dispatch for the run and maintain services, Capgemini Robotics Operations Command Center (CROCC) to monitor the bots in production 24 x 7, and Platform Command Tower to provide a detailed view of bot performance and statistical analysis. Under CROCC, self-heal mechanisms are built in to execute corrective actions with minimal L1 team intervention. Capgemini's Cognitive Robots Knowledge management (IKON) and problem management (ROOCA) can also be deployed to reduce the burden on operations.
- **Intelligence powered by AI technologies and innovative tools.** IPA is part of the Capgemini Group's Perform AI offering, a holistic AI service portfolio of solutions and services to achieve AI at scale. By combining the power of IPA and AI, the team enhances operations without growing dedicated capabilities supported by intelligent automation delivery, IPA implementation as a service, augmented process experience, augmented workforce analytics, IPA Engineering, and platformization. Capgemini also provides "innovation as a service" to its clients based on its own internal innovation programs focused on ten core areas: next-gen RPA, process mining, speech recognition, natural language understanding, natural language generation (NLG), ML and AutoML, deep learning, knowledge engineering, image analysis, and cognition. Its industry-specific offerings include Cognitive Document Processing (CDP), mortgage solution, Robo-Advisor, Intelligent Insurer, Digital FNOL, and appeals & grievances. It has dedicated on-premise and private cloud–ready solutions, ML models, and docker-based

solutions that are easy to maintain, scale, and integrate into automation. Moreover, it offers custom AI algorithms that can be added to existing solutions to add intelligence to process automation. To address technical complexity and advancements in the IPA and AI space, Capgemini offers a variety of business and technology talent, ongoing monitoring, experimentation, and testing to ensure that the automation stack is up to date and ready to overcome business challenges but also tested, secure, and adequate for business needs. The company is also boosting its existing data and analytics services to turn them into mission-critical data and AI powerhouses.

- **Availability of talent and strong ecosystem support.** Capgemini offers two streams of robust internal learning and certification program on IPA and AI: Automation Drive Academy and AI Academy. Automation Drive Academy is a Capgemini Group–led curriculum and deployment experience certification program that provides training on the latest tools and technologies. Meanwhile, AI Academy offers a learning platform to develop AI capabilities by offering business-linked learning curricula, certifications, industry trends, community learning, and real-life case studies. Capgemini also offers a set of classrooms and online training sessions separately for clients' IT and business process teams. It offers on-the-job training to clients' IT teams by involving them in the development pods and dedicated training programs. It also offers post-robotization training programs to quickly bring process owners/subject matter experts (SMEs) to administer and monitor the virtual workforce. Capgemini follows a product-agnostic implementation approach. It has partnered with leading RPA product vendors such as Blue Prism, Pega Robotics, UiPath, Automation Anywhere, and WorkFusion. It supports clients' multivendor strategy and recommends RPA tools based on its clients' needs and expectations. In July 2019, Capgemini unveiled a new RPA COE in Malaysia, serving the Southeast Asian market in collaboration with Blue Prism. It also has global alliances with leading technologies such as Parascript, IBM Datacap, Cogito, ABBYY, Google, SAP, and Salesforce to develop end-to-end and integrated cognitive solutions.

ADVICE FOR THE TECHNOLOGY BUYER

RPA and intelligent automation will play a pivotal role in addressing business problems and goals in 2020. A new focus will be apparent among FSIs to derive unprecedented value for business, customers, and employees through a combination of automation and AI, by improving operational efficiencies, reducing costs, driving business growth, enhancing customer and employee engagement, and delivering contextual customer experience. In 2020, many FSIs in APEJ will also demonstrate their efforts to scale their automation deployments, or at least create a vision to do so. Moreover, the institutions will start to think about how to optimize their hybrid workforce — an optimal combination of digital workers and nondigital workers (i.e., human employees). We believe that the next two to three years will be crucial as more and more institutions appreciate the achievement of significant benefits with intelligent automation, more successful functional- and vertical-specific use cases are presented in the market, and more advanced features and propositions are made available by the software vendors and service providers. By 2022, IDC Financial Insights expects that 75% of tier 1 Asia/Pacific banks and insurance companies will deploy intelligent automation solutions at scale for increased automation, intelligent decision making, and improved operational efficiencies to achieve an exceptional business value and deliver a more real-time and contextual customer experience. We also believe that the intelligent automation solutions will significantly accelerate how cognitive/AI technologies are consumed within financial services.

Despite the hype and the curiosity that has led to a double-digit and even triple-digit growth for many vendors and service providers, we believe that it is important, now more than ever, to cut through the noise and paint a credible picture of the current market situation. Most of the automation deployments

in Asia/Pacific FSIs currently lack scale: less than 10% of FSIs could be considered to have achieved scale. A siloed, piecemeal approach to automation is still more common than an enterprisewide strategy. Moreover, only 10–20% of processes, on average, are redesigned and optimized by the leading adopters in the region. Additionally, less than 10% of the total use cases automated are for intelligent automation, which necessitates intelligence powered by AI technologies and other innovative tools. Many early adopters that tried to instill cognitive intelligence in the automation of their business processes have not been able to deliver steady and accurate results or justify ROI from these deployments due to many challenges. However, all these benchmarks also exemplify a massive untapped opportunity for the institutions, as well as for the vendors and service providers.

This IDC Financial Insights report tries to address these challenges by helping FSIs to identify and choose suitable RPA and intelligent automation service providers based on their key automation capabilities and, as a result, achieve successful and sustainable results from their automation initiatives. Even though most of the institutions may choose to spend more time and effort on choosing the most appropriate solution, it is important to note that the competence of a solution to deliver the best quality outcomes, advice, and decisions will also depend on the institutions' ability to address their own internal readiness for automation and AI. Institutions must understand that having cutting-edge technology, the best solutions, and skilled talent will not suffice to seal their success. They also need to put in effort and investments on fixing key challenges, including issues related to integration, security and governance, infrastructure readiness, and organizational structure and culture to expand the automation footprint within the organization. Moreover, we do believe that integrated intelligent automation will bring the next level of value addition, but to achieve this value, it is critical to break down the operating silos that are still quite prevalent within institutions.

As Asia/Pacific institutions decide to start and/or steadily progress in their automation journey, we advise them to consider the following:

- **Create a well-defined automation strategy and secure management sponsorship.** These will ensure adequate investments, effective change management, processes redesign, experimentation, sharing of best practices with other departments, and so forth. It is also important that you invest in only those projects where results can be measured. Define clear and detailed KPIs and metrics, including benefits and risks, time required, use case ownership, key roles, and accountability. The benefits are typically higher and sustainable in the longer term, when an implementation is part of a long-term road map rather than part of a siloed approach by a few individuals or groups. For effective management buy-in especially as you start to add more AI in your automation deployments, considerations (e.g., customer consent, data quality, biases, ethics, security, and governance) need to be made (see *Many Things from the Shiny New Thing: 20 Early Adopters of Artificial Intelligence in Asia/Pacific Financial Services*, IDC #AP43052218, October 2019 for a detailed explanation). We also believe that identifying an automation champion is key to securing the required support from the management, business, and IT. Typically, we have seen that the line-of-business (LOB) heads are the most common sponsors of intelligent automation engagements. As per IDC's buyer's survey in 2019, majority of the sponsors were in non-IT functions, such as CFO, CEO, or chief analytics/data officer across industries.
- **Redesign and optimize processes to increase the automation potential.** As this report shows, only few tasks and processes can be automated in their present state; most of the processes have to be redesigned to make them suitable for automation. Redesigning rigid business processes can be a daunting task. Even so, it is important to redesign, re-engineer, and streamline workflows and processes to make them simple, lean, and suitable for automation through various methodologies and tools such as Lean, Six Sigma, and BPR. Institutions will also have to evaluate how work and processes will transform in the future and, therefore,

redesigning and optimizing processes can be seen as a preemptive action for the future. At present, most of the institutions have been able to automate only part of their employees' work. The major challenge here is the legacy way of doing work and the way processes have been executed by human employees for years in the institutions. In the most ideal situation, when an intelligent automation solution is deployed for redesigned and optimized processes, it can deliver truly end-to-end automation and thus free employees to focus on more meaningful and valuable work.

- **Change management is critical for the success of any automation project.** To address employee concerns and fears, institutions must focus on continuous concerted communications to provide clarity and transparency. When the value of automation from the people, process, and technology perspectives is effectively communicated, the leadership, LOB, and IT teams can efficiently foster a culture of automation across their teams and effectively manage any cultural resistance that may arise. We have also seen this resistance to automation change when business users experience firsthand the benefits of automation and how these digital workers free them from their manual and repetitive work and help them focus on more critical initiatives. As more AI is added and integrated in automation initiatives, institutions also need to build a collaborative and empowering work culture, in which experimentation, innovation, and risk taking are encouraged. They must provide incentives to employees for adopting and leading automation projects. For example, in some of the leading institutions, employees who were earlier a part of business teams and led the automation initiatives were offered to become an integral part of the enterprisewide transformation team responsible for driving transformation and adoption throughout the organization. For effective change management, you also need to invest in your employees and offer opportunities to help them upskill and reskill. One way you can also address this is by partnering with service providers and training institutes that will help develop your workforce skills that are relevant to the era of automation and AI.
- **Choose the right intelligent automation service provider.** We recommend choosing a service provider based on the six key capabilities identified by IDC Financial Insights in this report to achieve more favorable and sustainable results. To reiterate, these identified capabilities are: ability to deliver desired business outcomes, process identification and optimization, ability to deliver enterprisewide scale; security, governance, and post-deployment support as the core tenets; intelligence powered by AI technologies and innovative tools, and availability of talent and strong ecosystem support. It is crucial that the service provider understands and analyzes the client's business processes, technology landscape, organizational culture, talent, and key challenges to offer consulting and customized solutions. Evaluate how various service providers differentiate their offerings and expertise for the financial services industry. Assess how these providers are working on democratizing RPA and intelligent automation capabilities to address fears and concerns related with automation and transformation and deliver scale. Moreover, it is imperative that the selected service provider can support you throughout your automation journey with an automation vision, forward-looking strategy, and strong capabilities to deliver truly end-to-end intelligent automation now and in the future. IDC Financial Insights recommends a careful evaluation of how the selected service provider and its solutions can fundamentally solve your business problems and optimally support you in your intent to achieve hyperscale and hyper-performance with automation. It is also important to note that the competence of intelligent automation solutions to deliver best quality outcomes, advice, and decisions will also depend on institutions' readiness for automation and AI and its ability to address the issues around data quality, data usability, and data governance, among other things.
- **Establish COEs to democratize automation and AI capabilities.** IDC Financial Insights believes that COEs, which can be formed as part of digital transformation or innovation initiatives, will be responsible for many things, including in setting up KPIs, establishing RPA, intelligent

automation, and AI best practices (including for control, security, and governance), focusing on change management, encouraging innovative and collaborative culture, and investing in continuous learning and training. The dedicated COEs are vital for the continuous improvement and customer experience management. In the next two years, more FSIs will establish COEs to democratize RPA/IA/AI capabilities and cultural traits. Bringing the entire institution together and having the ability to work cross-functionally remain key challenges throughout the industry. Establishing COEs will ensure cross-functional collaboration and engage all stakeholders to lock in support. To guarantee success through cross-functional collaboration, many early adopters have now formed interdisciplinary projects teams, many of which are agile development teams with collaborations from software vendors, service providers, product teams, technology and operations, sourcing teams, and innovation teams, among others. These collaborative practices will bring together diverse skills and experience from within the institution to build more effective solutions.

- **Not all process automation initiatives require the use of cognitive/AI.** However, intelligent automation and AI must be considered wherever they increase the chances of attaining more robust automation. Institutions seeking to build process automation capabilities should consider the entire automation continuum, including solutions based on self-learning and self-healing systems. IDC has seen institutions in Asia/Pacific turn to RPA to manage volume variability, and they are currently exploring intelligent automation solutions powered by cognitive/AI technologies and innovative tools to improve their operational efficiencies and enhance customer engagement capabilities. It is also important to note that institutions should have different expectations from intelligent automation initiatives vis-à-vis RPA initiatives in terms of KPIs, project timelines, technical complexities, availability and quality of data, and infrastructure readiness. We do acknowledge that AI can create a pervasive impact in institutions; however, effective business buy-in often starts small, and considerations should be made to deliver accurate, consistent, and transformational results.
- **Human oversight will remain critical for automation deployments.** Institutions need to ensure stricter security, compliance, and governance controls to secure automation from bad internal and external actors. The objective is to assure that digital workers and machines work as planned, and that the bad actors do not influence them for nefarious reasons. Therefore, human oversight will remain crucial for automation deployments for many years to come. Demonstrate strong governance and risk management controls over the regulated data and business processes. There are 13 key markets that make up Asia/Pacific, and as such, regulatory positions differ drastically. We also predict that by 2021, 25% of Asia/Pacific banks and financial institutions will adopt automated governance, risk, and compliance (GRC) solutions to improve operational performance and substantially reduce the operating expenses associated with manual processes. This will be to address algorithm opacity, decision bias, malicious use of AI, and data regulations to ensure governance, compliance, transparency, explainability, and continuity of models.
- **Preparing the workforce and finding automation talent.** Due to the fast-growing supply–demand gap, finding RPA and AI talent is tough and will be even tougher in the next couple of years. As the new approach to intelligent automation (particularly AI) takes hold, the institution will create demand for new roles and skills and must also be ready for a level of reskilling it has never seen before. This necessitates more investments in continuous learning programs to upskill and reskill talent. Although many institutions are now focusing on upskilling, we recommend them to also emphasize on reskilling to improve employee morale and ensure effective change management. The demand for skills in several areas is growing — critical thinking and decision making, design thinking, probability and statistics, data science, programming languages (Python/C++/R/Java), big data and analytics, cloud services, distributed computing, cybersecurity, risk management, and compliance and governance, just to name a few. We are also witnessing a rising demand for new automation roles: Executive

Sponsor, Automation Change Manager, Automation Program Manager, Agile Product Owners, Scrum Masters, Automation Process Analyst, Automation Trainer, Automation Developer, Head of Intelligent Automation COE, and even Chief Automation Officer. As a result of automation and AI, many FSI leaders also expect the growing importance of the gig economy and a more distributed and flexible workforce. You also have to think of a new organization structure, where the teams will be reorganized to form a hybrid workforce. Leaders and managers will not only have human employees but also intelligent digital workers reporting to them. Institutions will have to address many new issues including reimagining work of the future, defining new roles and responsibilities of human employees, and creating new HR policies including a new approach to performance management and growth. Not only FSIs but also governments, educational institutions, industries, and societies across the region will have to come together to put initiatives in place to encourage and motivate their human employees to re-train and acquire new skills, as well as give them adequate time to prepare for the jobs of tomorrow.

- **Multivendor strategies will gain more prominence in 2020**. As aforementioned, this will be for FSIs' different automation needs and a multitude of reasons, some of them being the escalating demand for more intelligent automation offerings, mitigating vendor concentration risk, and achieving better licensing terms. In case an institution goes ahead with a multivendor strategy, it is worth noting that it will also have to manage challenges and complexities that come with managing multiple vendors. Moreover, it is necessary that the new solutions should be able to integrate with the current solutions that have already been deployed by the clients. This will ensure control on the maintenance costs, among other things. To manage these challenges and complexities, many FSIs will rely on their service providers to assist them in choosing the right solutions for their business problems and achieve their desired business outcomes. To support this strategy, the service providers will also offer their proprietary automation platforms that can manage various robots from several vendors and present a comprehensive view of an enterprisewide automation.

As institutions continue to advance on their intelligent automation journey by coalescing more AI technologies and innovative tools, they will have to embrace and experiment with a test-and-learn methodology. Institutions should brace themselves for experimentation and failures and evolve as an organization to achieve transformational business and customer value. They will also have to invest and build an optimum architecture, technology, platform, and robust networks with high scalability to support their increasing automation and AI efforts. One way is to use preexisting AI/ML cloud platforms to accelerate AI development. Moreover, having adequate amounts of data and deciding how it is used will determine the institution's competitive advantage now and in the near term. It is critical to ensure that all aspects of the data — its quantity, quality, context, source, and time value — have been considered before it is fed into an AI solution. As an institution, work does not end once you have trained an AI model to deliver accurate and consistent outcomes. It will be important to think about how this model will fit into current processes and existing systems. Organizations must also consider AI model life-cycle management, including maintenance and governance, as AI technologies and systems do get vulnerable to biases, ethics, privacy, and other issues.