

Asia's AI agenda

AI for business



A research program in association with:

Founding sponsor



Gold sponsor



Silver sponsors



Preface

Asia's AI agenda is an MIT Technology Review Insights research program sponsored by ADP, IMDA, Genesys, Splunk, and the Asia School of Business. It is designed to comprehensively examine the development of artificial intelligence (AI) in Asia Pacific from four distinct angles: Asia's AI ecosystem, the leading use cases and business applications across the region, the evolving talent landscape, and the emerging discussions around AI and ethics. To produce this series, MIT Technology Review Insights conducted a survey of almost 900 executives across 13 markets, and a series of interviews with leading authorities from academia and industry. The research is editorially independent and the views expressed are those of MIT Technology Review Insights.

The survey

- In September and October 2018, MIT Technology Review Insights surveyed 871 senior business leaders, of whom 29% are CIOs, CTOs or heads of AI or analytics. More than half (53%) are C-suite and director-level executives. Almost 60% are from large companies with over \$1 billion in revenue.
- Survey respondents are based in 13 Asia-Pacific economies: Australia, China, Hong Kong, India, Indonesia, Japan, Malaysia, New Zealand, the Philippines, Singapore, South Korea, Thailand, Vietnam, with a minimum of 50 responses from each.
- Respondents are drawn from a wide range of industries, including more than 50 from each of the following sectors: consumer goods and retail; financial services; information technology and communications; manufacturing, pharmaceuticals and healthcare; professional services; property, construction, and engineering; and transport and logistics.

Expert interviews

We would like to thank the following experts for contributing their time and insights towards this research program:

Rohit Adlakha, vice president and global head for Wipro Holmes and automation ecosystem, **Wipro Limited**

Puesh Ajmani, head of advanced analytics and insights, **Mahindra & Mahindra**

Zhao Binqiang, head of personalization, **Alibaba**

David Chinn, senior partner and global leader, cybersecurity practice, **McKinsey & Company**

David Lloyd, head of strategic planning, **Qantas**

Scott Park, president and CEO, **Doosan Bobcat**

Erwann Thomassain, head of marketing, Asia Pacific, **Genesys**

Viriya Upatising, chief information officer, **True Corporation**

Ken Wong, head of AI Lab, **OCBC Bank**

Contents

1.	Executive summary	4
2.	Past the halfway mark	5
	Case by case	5
	Problem by problem	6
3.	AI as a growth driver	8
	The customer experience	8
	Bringing in the bots	10
	Better decision-making	10
	AI and new business models	11
	Operational efficiency	11
	Industries in transformation	12
4.	Challenges ahead	15
	Measuring success	15
	Sidestepping the hype	16
	People and playgrounds	16
5.	Conclusion	17

1. Executive summary

The second part of our series, *Asia's AI agenda*, explores how businesses in the Asia-Pacific region are assessing the value of artificial intelligence (AI), creating strategies for deploying it within their organizations, evaluating the emerging use cases, and overcoming the challenges they are facing along the way. Unsurprisingly, given current projections for how AI will transform business and society, many senior executives in Asia are bullish about AI as a source of future competitiveness. This report, *AI for business*, is based on a survey of 871 senior business and technology leaders across Asia Pacific and a series of expert interviews. The key findings of the report are as follows:

- **Asia is past the halfway mark**

More than half of the survey sample have already deployed AI technologies within their business. Of the 13 markets covered by the survey, the highest level of AI penetration is in North Asia—Japan and South Korea. Indonesia and Vietnam are at the most nascent stage; with just a quarter of companies using AI.

- **Adopting on a case-by-case basis**

Less than a third of the 'AI adopters' have a centralized strategy for AI. The majority are deploying AI case by case. Measuring the effectiveness of the technology on the same terms as other business projects is important, but with caveats. Machine learning takes place over a period of time, and is only as effective as the quality of its training data.

- **Improving the customer experience is imperative**

Delivering an improved customer experience is the number one priority for companies in Asia in terms of their development and deployment of AI, with more than half of survey respondents already having used AI in customer processes and interactions. Improving business decision-making speed and quality, and increased operational efficiency, are also ranked as organizational priorities for AI.

- **Machine learning is the most common AI tool**

Machine learning is the most highly deployed AI tool according to our survey (44%), followed by automated reasoning (34%), natural language processing (33%), and robotic process automation (RPA) (33%). In the year ahead, image recognition followed by reinforcement learning will be the fastest growing areas of AI.

- **Constraints include talent, a lack of data, and high costs**

A shortage of internal talent, noted by 58% of survey respondents, ranks as the region's greatest challenge in deploying AI. Yet filling the gap is not easy, as AI engineers are scarce and in high demand. Moreover, retaining them is not guaranteed. Other top AI challenges reported in the survey include the lack of available data and the high costs of deployment.

2. Past the halfway mark

Asian governments and businesses are bullish about AI's potential as an opportunity to create economic and social value. Buoyed by flourishing AI ecosystems in several markets in Asia, notably China and Singapore, companies across nearly all surveyed industries are in the process of trialing or refining AI initiatives.

The survey finds that by the end of 2018, more than half (51%) of the 871 respondents had deployed AI inside their company. A further 21% are rolling out AI initiatives in 2019, with only a quarter having a longer time horizon than that. Surveyed companies in Japan and South Korea reported being ahead of the curve, with 74% and 60%, respectively, already being AI adopters. The majority of respondents (more than 50%) in Singapore, Australia, India, China, and Thailand also reported that they are using AI. The lowest adoption is in Indonesia, with just a quarter deploying any AI thus far.

Case by case

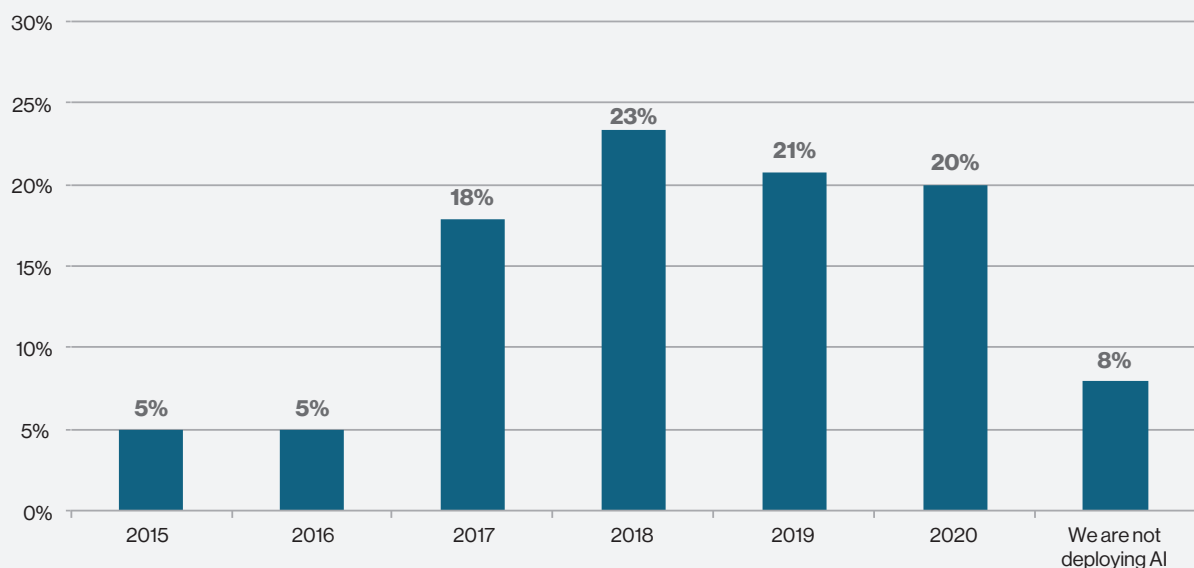
Not wanting to be left behind, there is pressure on business leaders to understand and make sense of what AI can deliver for their organizations. In the last quarter of 2017, public companies across the world mentioned AI and machine learning in their earnings reports more than 700 times, seven times as often as in the same period in 2015.¹ Last year, firms worldwide spent around \$21.8 billion on mergers and acquisitions related to AI, according to PitchBook, a data provider, about 26 times more than in 2015.²

Yet our survey shows that in the majority of cases, AI is being deployed by industry on a case-by-case basis, rather than as part of a centralized business strategy. Less than a third of companies already deploying AI (and only 17% overall) are using a top-down approach; the bulk are investing ad hoc, on the strength of individual business cases.

Figure 1: Year of AI launch

In what year did you, or will you, first deploy AI in your organization?

(% of respondents)



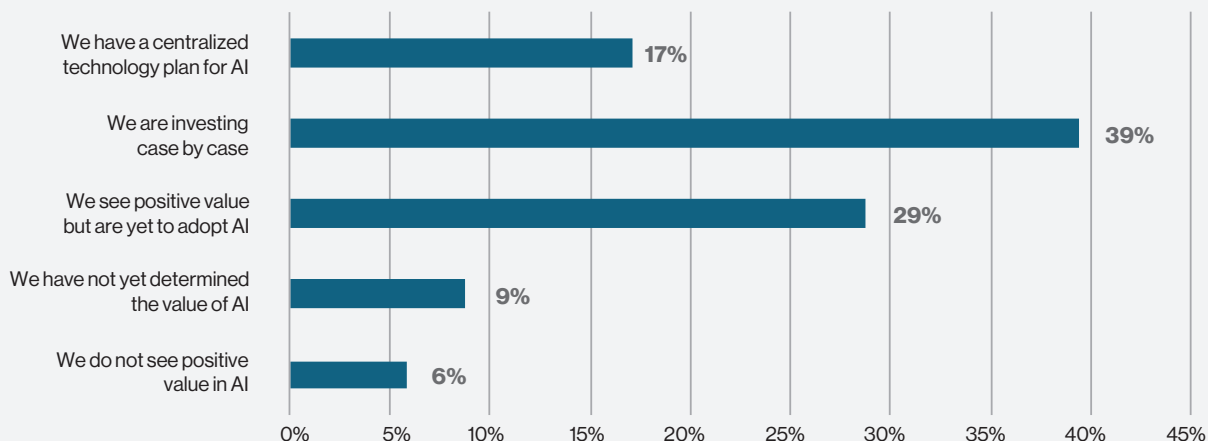
Source: MIT Technology Review Insights survey, 2018

¹ www.bloomberg.com/professional/blog/business-focus-artificial-intelligence-rising-2/

² https://files.pitchbook.com/website/files/pdf/PitchBook_1Q_2018_Analyst_Note_Real_Potential_for_AI.pdf

Figure 2: Strategy for AI

Which statement best describes your company's strategy for AI?
(% of respondents)



Source: MIT Technology Review Insights survey, 2018

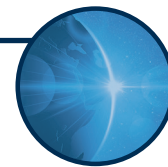
At Singapore-headquartered OCBC Bank, Ken Wong, head of AI Lab, says that the bank's AI strategy is centrally managed and the team is directly funded under the CEO's office. The dedicated AI team, formed a year ago, also has the bank's COO and head of group operations and technology as key stakeholders. "We engage the relevant business units and effectively bring problem statements and our views on how each of these projects bring value to the bank," says Wong.

The team's momentum is building, with key initiatives identified in a few significant areas. "This year [2019], the objective is really to understand what the big directions are and drive transformational changes with AI within each of those," he says. "For example, using AI to drive insights from external data, that's one big program for us and within that, we probably have four or five different smaller projects."

Problem by problem

"The first step is to prioritize the business problems to be solved," according to [Rohit Adlakha](#), vice president and global head for **Wipro Holmes** and automation ecosystem, the AI and process automation services division of Wipro Limited. "We realized that while customers are greatly excited about technology, algorithms, and how to implement

The majority of respondents to our survey are deploying AI on a case-by-case basis, with a fifth having a centralized plan for AI. Just 6% have no plan at all for using the technology in their business.



them, the bigger issue is identifying the business problems that needed to be resolved first, given that there are potentially numerous challenges and opportunities that need to be addressed at an organization."

Adlakha explains that the company's strategy is to become an automation and AI partner to its clients and enable their transformation journey through clearly articulated outcomes and processes. "Externally, we have multiple Wipro Holmes-based solutions, which have been hosted on our partners' marketplaces," he says. "Internally we use many AI-based, smart automation solutions, which have been built using a combination of our own capabilities and services from our partner ecosystem."



The Qantas approach to digital transformation

Founded in 1920, Australia's flag-carrying airline, Qantas, is in the midst of a business transformation in which David Lloyd, head of strategic planning, is looking at opportunities for automation and the organizational impact it would have. "We need to have an [automation] technology plan, which starts getting us economies of scale or consistency," says Lloyd. "And the pieces of technology need to be able to talk to each other across the organization," thus avoiding "thousands of unrelated projects that all need supporting," he adds.

As a starting point, the team separated AI into different verticals, such as the automation of processes; social AI regarding interactions with people; physical robotics (including fixed robotics and mobile); and also looked at other maturing technologies such as 3D printing. The company is currently assessing AI to test the robustness of its scheduling, likelihood of delays, and to work out the best route for customers when there is a disruption. Future applications include predicting delays in real time on live schedules in order to minimize any lags and optimizing its hedging strategy for fuel and foreign exchange.

Qantas' in-house emerging technology department has developed AI for ensuring the timely turnaround of an airplane after landing for the next flight. Image recognition technology, working from existing security camera footage that surrounds the plane, sends out alerts if a process such as connecting the aerobridge, refueling, or unloading and loading the bags is not completed according to schedule.

A key element to the airline's strategy development is using an AI analytics platform, provided by technology vendor Faethm, to navigate through emerging technologies and their application to Qantas, and in particular, the impact on staff. "We are looking at the impact of the technology on the tasks within job roles and then working out how many roles could be impacted over that period of time," says Lloyd. "We are hypothesizing where the opportunities are," as well as what the goals for the use of automation technology should be, he says, "along with how to minimize any negative impact on staff."

3. AI as a growth driver

From banking to telecoms to agriculture and beyond, AI technologies offer the promise of doing more with less, interacting in more personalized and profitable ways with customers, and reducing inefficiency and administration. The survey shows that improving the customer experience is the most important business driver for companies in Asia to invest in AI, followed by improving decision-making speed and quality, and then reducing operational costs.

The customer experience

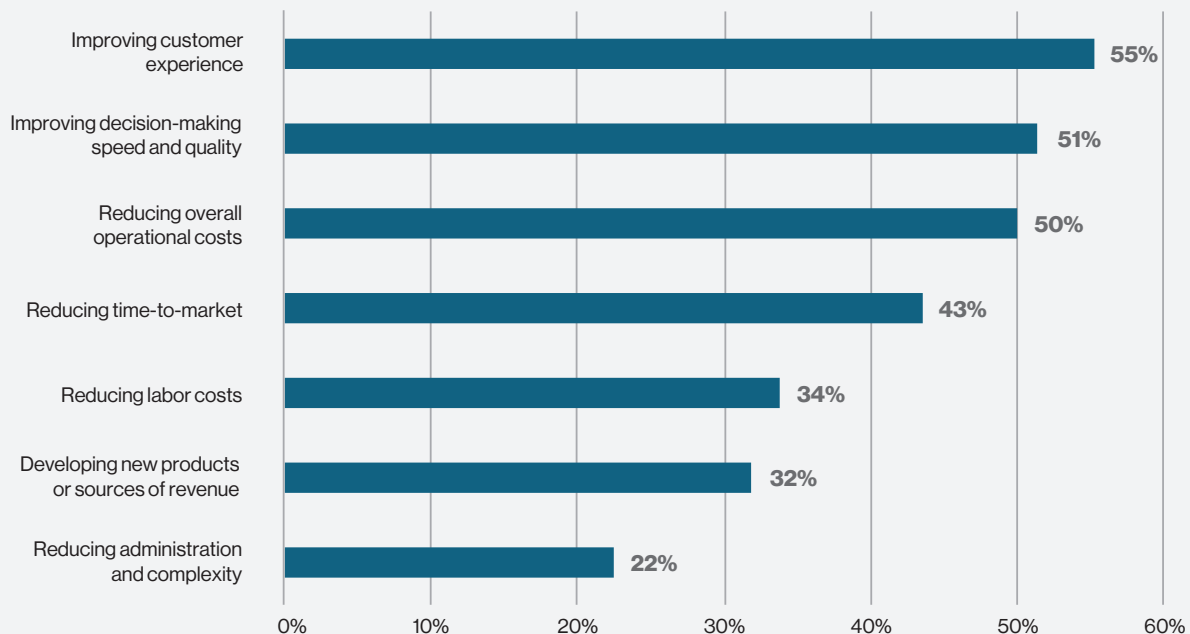
Between 2017 and 2021, the share of customer service interactions worldwide handled entirely by AI will rise fivefold, to 15%, and by 2019 at least

40% of such interactions will involve an element of AI, according to technology research firm Gartner.³ And improving the customer experience is at the heart of many companies' AI strategies, according to our survey. Businesses in Asia are using AI more extensively in their customer experience or customer insight processes than in any other area (54%, as compared to the 43% using it to drive efficiencies in manufacturing and service delivery, the second highest application area).

Executives interviewed for this report gave examples from encouraging shoppers down the 'buying funnel', to optimizing contact center and after-care management. At **Mahindra & Mahindra**, Puesh Ajmani, head of advanced analytics and insights, describes how sentiment analysis is being

Figure 3: Business drivers for AI

What are your company's top three business drivers for deploying AI?
(% of respondents)

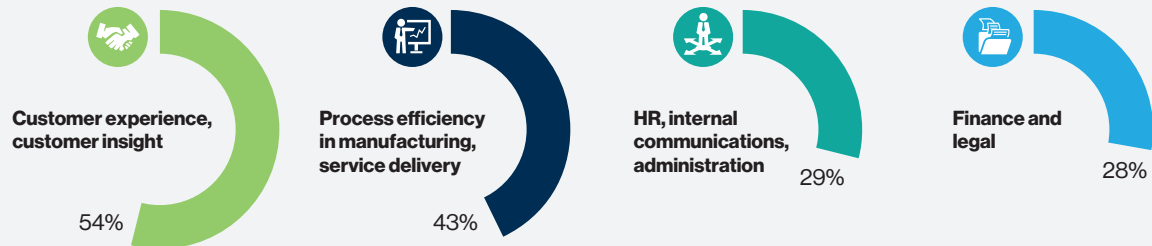


Source: MIT Technology Review Insights survey, 2018

³ www.economist.com/special-report/2018/03/31/customer-service-could-start-living-up-to-its-name

Figure 4: AI deployment in business processes

Where within your business processes have you invested in AI?
(% of respondents)



Source: MIT Technology Review Insights survey, 2018

used with call center sales agents in its automotive business—Mahindra is number three in the Indian private vehicle market—to build a comprehensive understanding of what is happening during sales calls. “Using voice analytics, we can understand whether the customer was really engaged during the conversation. Did they feel good? How did the call go? Based on the quality of the conversation, we are able to predict whether the customer is going to buy the vehicle or not,” he says.

Advanced pilots are also in progress where by converting voice to text, the team can examine the quality of the call and give input into the design of sales conversations. “Did it [the call] follow the list of questions? Did it happen effectively or not? Once you convert those calls into text, you can analyze them to come up with recommendations as to the design of the conversation; e.g. this is exactly where it went right or where it went wrong so that the corrective actions can be taken.”

Building a Thai natural language processing program is a key initiative for **True Corporation**, Thailand’s second largest mobile telecommunications operator. With no product available on the market, True has developed the program in-house and will be using it in the call center and in interactive voice response. The objective, says [Viriya Upatising](#), chief information officer, is to manage costs and increase service

“By using voice analytics, we can understand whether the customer was really engaged during the conversation and we are able to predict whether the customer is going to buy the vehicle or not.”

Puesh Ajmani
Head of Advanced Analytics and Insights
Mahindra & Mahindra

quality. “Right now, we have a lot of backlogs in the call center. With this technology we can be more efficient and provide better service, reduce call waiting times, and increase productivity.”

Other AI technologies that True is using to increase customer processing speeds include facial recognition, since the Thai government mandates that customers submit a copy of their identification card when applying for a phone number, and RPA for filling in forms.



AI and personalization at Alibaba

AI is driving increasingly sophisticated personalization at Chinese e-commerce company **Alibaba**. Binqiang Zhao, head of personalization, describes the machine learning journey moving from linear regression towards deep and reinforcement learning. By identifying a customer's long-term preferences on types of items, price, brand, and manufacturer location, Zhao and his team have built "a very deep model that accurately

predicts the click and conversion rate." Alibaba's app also collects information that proves valuable. For instance, the orientation of the handset, how frequently it is activated, and other indicators signal when a customer is searching for a better price or indicating buying behavior. Since 2016 Alibaba has made a click and conversion improvement of more than 10% in search, and more than 20% in recommendations.

Bringing in the bots

Bots are another area of increasing AI adoption. Jupiter Research reports that Facebook's Octane AI is used to engage 90% of shoppers who have abandoned their online carts, and successfully converts 10% of them to sales. The company also estimates that by 2023, chatbots deployed in the retail sector globally will save the industry \$11.5 billion in costs, and generate over \$112 billion in sales revenue.⁴ In 2017, on Singles Day, China's largest shopping event held each November 11, Alibaba made over \$25 billion in sales through its Taobao site and resolved 93% of customer queries using AI-enabled chatbots. That was the equivalent of over 120 million rounds of customer conversation, which would have required 83,000 human agents working around the clock.⁵

But agents should not be too concerned that AI is taking their jobs away. A more commonly-held belief among the executives interviewed in this report is that it will free customer-service agents from routine tasks so they can sell other services and generate new revenue.

"We believe businesses need to strike the right balance when deploying digital channels, automation and AI in the customer service experience," says Erwann Thomassain, head of marketing, Asia Pacific, at contact center solutions company **Genesys**, a sponsor of this report. "Businesses can use AI to provide the kind of

service consumers value the most as well as to alleviate their biggest pain points when applied strategically and in concert with human effort." The topic of AI and the implications on people and jobs is considered in detail in the separate white paper *Asia's AI agenda: AI and talent*.

Better decision-making

Realizing the value of organizational data has become a board-level priority for many businesses globally. According to Gartner, 90% of medium and large businesses will hire or have hired a chief data officer by the end of 2019.⁶ AI technologies, in particular machine learning algorithms, are key weapons in the arsenal for turning data into actionable insights on which better business decisions can be based.

Machine learning is the most commonly deployed AI tool by companies in Asia, according to our survey (44%), followed by automated reasoning (34%), natural language processing (33%) and RPA (33%).

In *Prediction Machines: The Simple Economics of Artificial Intelligence*, the authors describe the rise of AI as enabling a drop in the cost of prediction—more accurate predictions allow businesses to increase productivity whereas uncertainty creates a constraint on strategy and execution.⁷ Amazon has algorithms to predict demand for hundreds of millions of products it sells, often as much as 18 months ahead.⁸

⁴ www.brand-news.it/wp-content/uploads/2018/07/How-Chatbots-Will-Transform-The-Retail-Industry-whitepaper.pdf

⁵ www.technologyreview.com/s/612422/humans-bots-tension-and-opportunity

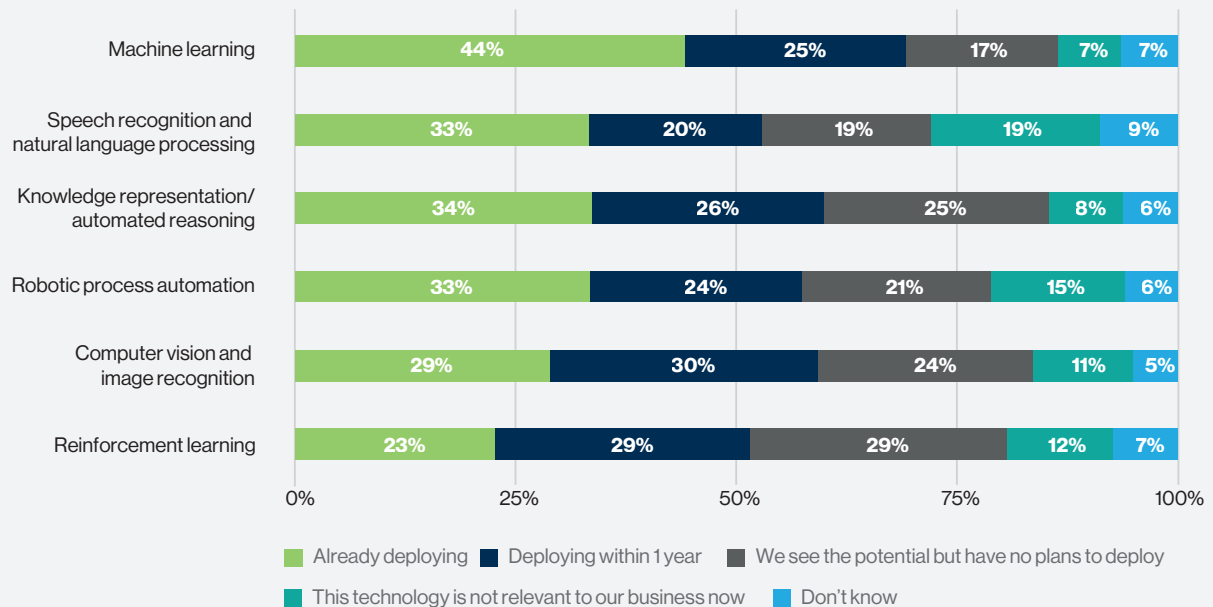
⁶ www.medium.com/swlh/data-should-it-be-your-boards-priority-in-2018-d5ae426d696a

⁷ www.predictionmachines.ai

⁸ www.economist.com/special-report/2018/03/31/non-tech-businesses-are-beginning-to-use-artificial-intelligence-at-scale

Figure 5: Use of specific AI technologies

Which of the following AI technologies are you deploying?
(% of respondents)



Source: MIT Technology Review Insights survey, 2018

At Wipro, Adlakha's Holmes unit is working on revenue prediction models that drive more accurate budgeting and planning for enterprises. Using machine learning with structured and unstructured data sources, "we are able to predict what the revenue for the coming quarter for the company, or a customer, is going to be, with a high degree of accuracy," he says.

AI and new business models

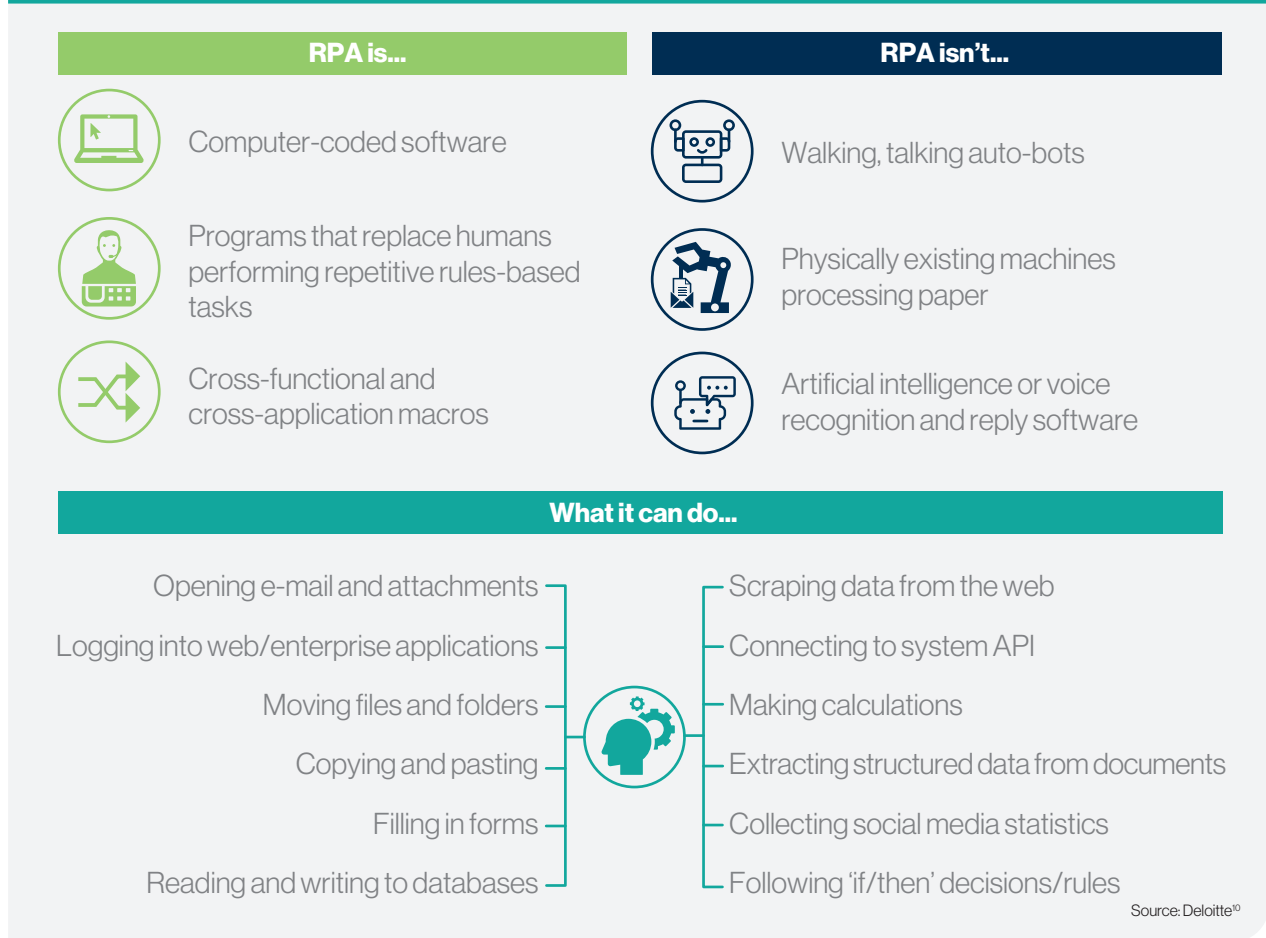
AI has been gaining traction in manufacturing environments as sensors and telematics build data sets for predictive analytics and maintenance. For **Scott Park**, president and CEO at **Doosan Bobcat**, a global market leader in compact construction equipment, headquartered in Seoul, the exciting area of AI is in finding the "not so obvious things" such as new business models, products, capabilities, or services that enhance the customer's experience. "It's thinking about what can AI bring to the table that would enhance our capabilities, make a better product, or an

autonomous product," he says, or to create deeper analytical capabilities for predictive maintenance. "There are the obvious things like the hours needed for doing an oil change or checking your hydraulic fluids. That you really don't need AI for. But it's in trying to connect the actual failure of the machine or a warranty claim, or a customer satisfaction issue with the telematics data that we get to see if there are any trends or any kind of predictability in what comes up."

Operational efficiency

According to Thomas Davenport, a research fellow at the MIT Initiative on the Digital Economy, rules-based expert systems and RPA are the most common ways to automate digital and physical tasks. RPA is transparent in how it works, but is not yet capable of learning and improving, although developers are slowly adding more intelligence and learning capabilities. It is also one of the least expensive and easiest to implement AI technologies and can deliver a high return on investment.⁹

⁹ www.hbr.org/2018/01/artificial-intelligence-for-the-real-world

Figure 6: Robotic process automation

According to the survey, by the end of 2019 half of the respondents will be using automated reasoning and RPA within their organizations, which will have a huge impact in reducing internal administration and increasing back office efficiency.

Industries in transformation

Agriculture: In its agribusiness division, Mahindra & Mahindra has launched the Myagrigruru app, which is currently testing features for identifying crop diseases via image recognition. The app, used by over 800,000 farmers, will be able to identify the crop, the disease, and recommend how to treat it. Alibaba's Agriculture Brain helps pig farmers trace each individual animal through video and sound sensors, to monitor its health and prevent the spread of diseases.

Automotive: Chinese search engine giant Baidu and US motor vehicle maker Ford are collaborating on self-driving cars with on-road testing.¹¹ Ford's autonomous vehicles have already been fitted with Baidu's open-source driving system Apollo. Test sites for autonomous vehicles are operating in Singapore and Japan, with China, South Korea, and Australia to follow suit in 2019.

Education: Asia's appetite for education creates a fertile environment for AI learning platforms to flourish. Shanghai-headquartered Squirrel AI simulates a human teacher giving highly personalized one-to-one instruction for children in primary and secondary (or 'K-12') classes. The company, founded in 2014, has raised RMB 300m (US\$ 44m), and opened 700 learning centers across 100 Chinese cities. LAIX, another Chinese

¹⁰ www2.deloitte.com/bg/en/pages/technology/articles/deloitte-global-rpa-survey-2018.html


¹¹ www.cnbc.com/2018/10/31/ford-and-baidu-team-up-to-test-self-driving-vehicles-in-china.html

¹² www.crunchbase.com/organization/liulishuo#section-overview

education AI startup, has attracted \$123m in venture capital to grow its English language tuition business.¹²

Financial services: When it comes to money, AI has been touted as a great equalizer. From robo-advisors providing affordable mass-market wealth management services, to algorithms that determine credit-worthiness, to AI that detects fraud, financial services firms are finding countless applications. Research suggests that a person's digital footprint is an equal or more precise indicator of potential to default on a loan than customary credit bureau scores.¹³ Simon Loong, the founder of Hong Kong fintech unicorn WeLab, says that based on his company's analytics, those who apply for a loan online from 1am to 6am are the least creditworthy along with those that capitalize all their letters.

Healthcare: Healthcare is a leading application of AI in Asia. Crafting algorithms that can process medical images, such as CT scans and X-rays, is a hot field for China's startups, as image classification plays to the strength of the latest deep-learning



"AI cybersecurity solutions are not foolproof. This is a business with adversaries that are also developing fast. They only need to get in once, and you have to stop them every time. It's fundamentally asymmetric."

David Chinn
Senior Partner and Global Head,
Cybersecurity Practice
McKinsey & Company

algorithms.¹⁴ Other Chinese innovations include an AI program that can design dentures, an algorithm that can use ultrasound data to detect blood clots, and unmanned 'one minute clinics' staffed with

Cybersecurity at machine speed

Many of today's cyberattacks are automated, says David Chinn, head of cybersecurity at **McKinsey & Company**. "The signal to noise ratio is low. We know that it takes approximately six months to detect a data breach. Most of the bad actors found in big public breaches have been on the inside of those companies for more than six months," he says.

Within financial services, investments made in AI-enabled cybersecurity are beginning to come to fruition, says Chinn, particularly in areas such as credit card fraud where machine versus machine infighting is already happening. Similarly, in loan fraud, where risk decisioning happens in real time, banks (and their IT vendors) are building AI-cyber centers of excellence. An area of focus is on how to use open source technologies to build better models. "We're seeing them partner with university programs to develop these solutions," he adds,

but in the future, banks could be encouraged to share data with each other about cyber threats and attacks.

The sheer number of devices and sensors employed by companies today means that the traditional alerts-based security operating center (SOC) model struggles to cope. When hundreds of alerts turn into tens of thousands, anomalies occur constantly, particularly in organizations with poor discipline. AI solutions are emerging to make sense of it, but more progress can yet be made. "It's not foolproof," says Chinn. "You still worry about false negatives and missing the signal that matters. We're far from 'problem solved'. This is a business with adversaries, adversaries that are also developing fast. They only need to get in once, and you have to stop them every single time, so it's fundamentally asymmetric."

¹⁴ www.technologyreview.com/s/610397/ai-could-alleviate-chinas-doctor-shortage/
¹³ www.jbs.cam.ac.uk/fileadmin/user_upload/research/centres/alternative-finance/downloads/2018-af-conference/paper-berg2.pdf

a chatbot that (after a quick human review) can dispense medication on the spot.¹⁵

Insurance: Ping An Insurance uses AI to verify the authenticity of car accident photographs and put a price tag on the claim. Once the photos are uploaded, the algorithm estimates the costs of the damages, and—if both parties agree on the sum—the money is wired immediately. Ericson Chan, CEO at Ping An Technology says 98.7% of the company's car accident claims are settled within 24 hours thanks to AI.¹⁶

Manufacturing: Manufacturers are using numerous AI technologies such as image recognition, machine learning, and RPA to improve quality control, optimize production processes, and enable predictive maintenance. In our survey, manufacturers were the most advanced in adopting RPA, with 54% already

using the technology. Also, it was the only sector that did not view a lack of talent as the biggest challenge to deploying AI. Instead, the sector's biggest objection is the high level of investment required.

Retail: Retailers are leveraging AI and machine learning technology to help create a more interactive and personal experience for consumers. E-commerce, as discussed earlier in this report, is making big strides in the use of AI in sales and customer care channels. In-store robots are gaining mixed reviews; Softbank's Pepper robot has sold around 12,000 units globally since 2016, with one installed in each of Japanese restaurant chain Amazushi's 400 restaurants.¹⁷ Yet reaching mass scale region-wide in the next few years seems unlikely. A recent survey found that just 1% of Australian consumers want to use retail robots and chatbots as part of their shopping experience.¹⁸

¹⁵ www.scmp.com/tech/enterprises/article/2173657/ping-good-doctor-blazes-trail-developing-unstaffed-ai-assisted

¹⁶ www.prnewswire.com/news-releases/ping-ans-lung-nodule-smart-reading-technology-is-evaluated-by-luna-as-no-1-in-the-world-300578105.html

¹⁷ www.forbes.com/sites/parmyolson/2018/05/30/softbank-robotics-business-pepper-boston-dynamics/#979fd544b7fc

¹⁸ www.verdict.co.uk/retail-robots-rejected-australia/

4. Challenges ahead

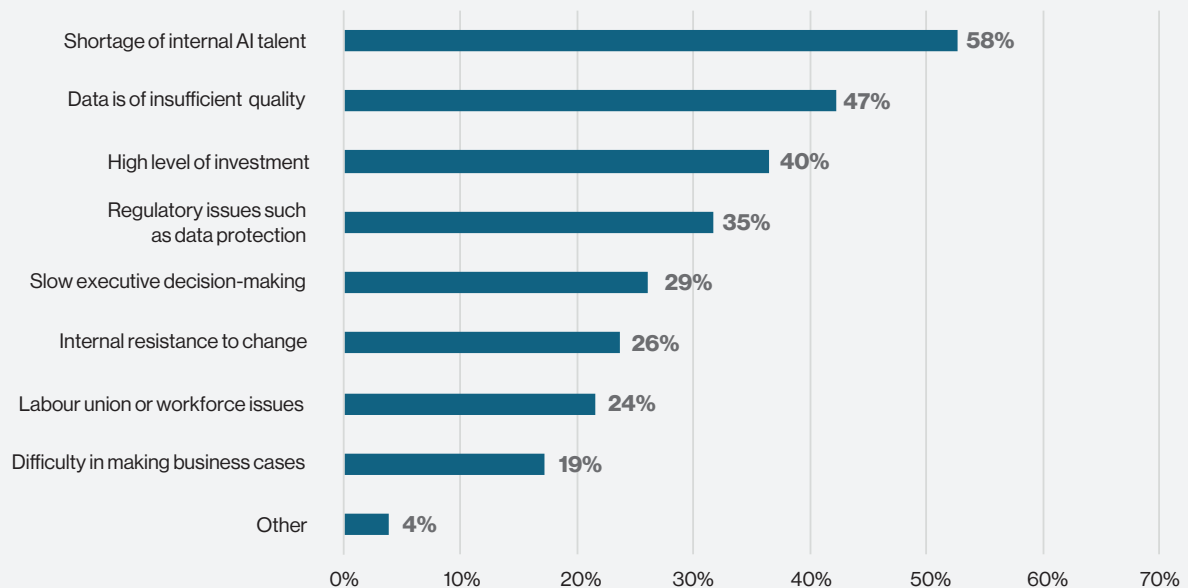
Measuring the success of AI projects may require a re-think for some organizations. “For every single experiment we put in success criteria before we start and we know how it contributes to the bigger picture,” says Wong at OCBC Bank. “It could be in terms of efficiency, man-hours, accuracy, or revenue growth. It’s on a case-by-case basis.” But he cautions that machine learning gets better over time. “Many people are still looking at AI as a typical system implementation, where you start a project and by the end you’ve built something that is supposedly the best available. But with AI it’s very different,” he says. “The data is ground zero and the model learns by itself—it gets better over time. So how do we change that mindset

to accept the fact that the project starts only when it actually goes live?”

Traditional measures for tracking capital investments will become outdated in an AI era, says Accenture in the report *How AI Boosts Industry Profits and Innovation*. Its authors argue that CFOs will need a new toolbox of financial metrics to properly assess the return on AI, which could be related to the value generated from each algorithm or some combination of initial outlay and ongoing costs.¹⁹ Already several US-based AI firms charge fees according to a benefit-linked revenue model such as labor cost savings reaped by customers or according to each transaction conducted.

Figure 7: Challenges in deploying AI

What are the top three challenges for your business in deploying AI?
(% of respondents)



Source: MIT Technology Review Insights survey, 2018

¹⁹ www.accenture.com/fr-fr/_acnmedia/36DC7F76EAB444CAB6A7F44017CC3997.pdf

Sidestepping the hype

AI has undoubtedly become a buzzword of 2018, and not wanting to be left behind, companies are investing heavily. According to research firm IDC, the spending on cognitive and AI systems will reach \$77.6 billion in 2022, more than three times the \$24 billion forecast for 2018. The compound annual growth rate for the 2017-2022 forecast period will be 37.3%.²⁰

Yet there are certainly risks—such as frittering resources on expensive experiments or building algorithms that potentially reinforce bad processes or decisions. The business complexity should also not be underestimated, says Ajmani at Mahindra & Mahindra. “Putting AI into a real-life production environment, into an ecosystem of an organization means there needs to be integration with existing business processes technology, infrastructure, and enterprise architecture.”

People and playgrounds

In the survey, a shortage of talent was identified as the biggest challenge that companies face when deploying AI. Hiring a host of AI scientists is not an easy solution. Firstly, they are in high demand; a 2018 study by Element AI estimated there were just 22,000 AI scientists globally, with salaries also skyrocketing.²¹ Secondly, retaining them could be tricky says Park at Doosan Bobcat.

“I may be able to hire a few AI experts, but the playground that I provide is not going to be fun enough for them to stay, so I’ll lose them anyway,” he says. The solution lies in leveraging the ecosystem, he adds: “I need to partner with a company that provides the right environment for these people to play in.”

The executives we interviewed for this report gave many examples of how they are working with



“I may be able to hire a few AI experts but the playground I provide is not going to be fun enough for them to stay. I need to partner with a company that provides the right environment for these people to play in.”

Scott Park
President and CEO
Doosan Bobcat

partners and leveraging third parties. Qantas is using Google’s Dialogflow as the core technology for social AI interactions including internal and external chatbots. True’s facial recognition software used for verifying new customer identities is licensed by Microsoft.

The Singapore government, aware that companies need readily available plug-and-play AI assets is building up an open source library of resources, such as the National Speech Corpus. Released in November 2018, it contains 2,000 hours of audio and text transcriptions with local accents, place names, and phrases unique to Singapore. The corpus is available to developers, and enables tech companies to provide speech-related applications without needing to develop their own speech library. Singapore has also developed an open source library of algorithms for data analytics.²²

²⁰ www.idc.com/getdoc.jsp?containerId=prUS44291818

²¹ www.bloomberg.com/news/articles/2018-02-07/just-how-shallow-is-the-artificial-intelligence-talent-pool

²² www.technologyreview.com/s/612654/asias-ai-agenda-the-ecosystem/

5. Conclusion

This report, *AI for business*, is the second part of the research series Asia's AI agenda. It has examined how companies across Asia should approach their AI strategy, the purposes and use cases they are finding, the specific applications and techniques they are using, and the hurdles they face. The region-wide survey of 871 executives and series of expert interviews has the following conclusions for companies:

- 1. Prioritize business problems.** Half of the 871 companies that participated in this survey are already deploying AI in some area of their operations. The survey suggests that by the end of 2019, another 20% will follow suit. Few executives will say that AI has no value to their business; but leaders should still exercise caution and evaluate each business case fully. Correctly identifying and prioritizing the business problems to be solved using AI was cited as a key success factor by executives interviewed for this report.
- 2. Leverage the ecosystem.** There are many plug-and-play AI assets and algorithms available on the market. Companies should build themselves when there is no better alternative, and the business case supports it. The majority of organizations do not have enough of the right talent to develop their own programs in-house. Nor, in traditional industries, will they provide the right 'playground' for the best and brightest. Many Asian markets have increasingly robust AI ecosystems for companies to leverage, including government initiatives, university R&D, and presence of start-ups and tech vendors.
- 3. Customer expectations are high.** Improving the customer experience was the top ranked business priority for companies in their deployment of AI. And the survey shows that this is the area where companies have also made the most progress, particularly in business-to-consumer enterprises. This includes personalizing their online presence with customized search results and recommendations, then optimizing customer service to scale the business efficiently while at the same time deepening customer intimacy. For those organizations yet to deploy AI in customer processes, it would be easy to be left behind. Customers' baseline expectations for service are becoming very high.
- 4. Plan for the impact on people.** While internal resistance to change did not rank the most highly as a barrier to AI, automation and AI will begin to affect more and more staff, raising questions about retraining and upskilling. Companies must also ensure that any headcount reductions led by AI do not go against progress made in diversity and inclusion initiatives. In the future, the agendas of the chief technology officer and human resources officer must be closely aligned.

About MIT Technology Review Insights

For more than 100 years MIT Technology Review has served as the world's longest-running technology magazine, the standard bearer of news and insights on how the latest technologies affect the world around us. Read by a global community of innovators, entrepreneurs, investors and executives at the highest level, it offers an unrivaled authority that is backed by the world's foremost technology institution, and features editors with a deep technical knowledge and understanding of technological advances.

MIT Technology Review Insights is the content solutions division of MIT Technology Review. It includes two main divisions: Research and Live Events. Aligned with the same stellar editorial heritage and standards as the magazine itself, we leverage our access to a wide network of subject matter experts and leading content contributors to create custom content for clients who want to reach new audiences with relevant, cogent and high-quality stories and experiences to users wherever they want it—in digital, print, online, and via unique in-person experiences.

While every effort has been taken to verify the accuracy of this information, MIT Technology Review Insights cannot accept any responsibility or liability for reliance by any person on this report or any of the information, opinions or conclusions set out in this report.



MIT Technology Review Insights



insights.techreview.com



[@techreview](https://twitter.com/techreview) [@mittr_insights](https://twitter.com/mittr_insights)



insights@technologyreview.com