**Trends in AI adoption,
leading use cases,
challenges, and the
future of data sharing
in Asia-Pacific**

The global AI agenda:
Asia-Pacific

A sian governments have ambitious plans for leadership in the AI era. From China to Japan, Singapore to India, policymakers across Asia have developed national-level plans for how AI can be used to enhance domestic and regional competitiveness, which include public and private sector collaboration.[1] Similarly, business executives have been bullish in recent years about the potential for AI to enhance customer experiences, lower costs, and become a source of new business models and revenue.[2]

Where the largest enterprises have been early movers, governments across the region are trying to avoid less well-resourced companies becoming left at the digital wayside. In South Korea's 2020 budget, the government earmarked nearly $4 billion for investments in information infrastructure to support the development of

Foreword

AI is no stranger to us. It has quickly become an integral part of how we think and strategize about transforming our societies into better functioning entities. With Covid-19 we are reminded once more of how AI offers tremendous potential to help prevent significant economic losses by augmenting our abilities to deal more effectively with crisis situations. AI thus clearly has reached the stage of having an undisputed status for bringing good to society.

Today's debate is no longer a question of if and how AI will participate in society, it is a complex discussion about how we should employ this collection of technologies to run our communities, businesses and governments in effective yet human-centred ways.

Asia-Pacific is at the forefront of this debate, as technology investments and innovative employment of AI are growing faster than anywhere else and this emerging ecosystem allows entrepreneurs, businesses, and governments to dream about endless opportunities empowered by AI. At the same time, however, the rapid growth of AI also accelerates the need to be sensitive to what kind of (business) value we want to achieve with AI and how this should be done.

Enthusiasm is one thing, but if the right culture and infrastructure is not in place, the potential value of AI may not be realized. In a region with the largest population in the world, a strong need exists to develop new and AI-empowered business models. Making these new models work to reap the benefits of enhanced technology use promises to be a major challenge for business leaders.

Leaders will be needed who can identify where AI brings the most value to their business processes and simultaneously be aware of the importance of how AI is used to make decisions. With technology being part of the business process, organizations will only become more responsible to ensure that personal data are protected and that the development of AI does not become an end in itself but is instigated with the aim to promote the quality and welfare of society and all its stakeholders.

The results of the Asia-Pacific survey underscore the readiness of bringing AI to the fore when it comes down to driving business value, while at the same time identifying the uncertainties surrounding what it means to be fair and trustworthy in its use. The future looks bright, but caution is needed to ensure we keep creating value that is humane at its core.

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AI and other technology, and to provide vouchers for small and medium-sized companies to invest in AI.[3] Singapore is trying to promote a robust AI ecosystem by structuring government procurement programs that encourage and support smaller or home-grown AI players.[4]

The collaboration of the state, private sector, and academia across vast data sets is a notable feature of AI development in Asia, often on specific industry sub-sectors such as transportation, health care, utilities, and community security. This close integration reportedly allowed Chinese authorities to use AI for predicting Covid-19 caseloads, allocating limited medical resources, and refining quarantine strategies.[5] In February 2020, the R&D laboratory of Chinese e-commerce giant Alibaba announced it had developed an AI algorithm for analyzing CT scans to detect Covid-19 infections.[6]

Against this backdrop, how do executives in Asia-Pacific see AI playing out in their business? What are the main use cases thus far, and what challenges do they face in AI deployment? This executive summary examines regional nuances from a global MIT Technology Review:

Insights survey that polled the views of 1,004 senior executives in Asia, the Middle East and Africa, Europe, Latin America, and North America, from sectors including consumer goods and retail, financial services, travel, telecommunications, and manufacturing.

Asia in the lead

Over 56% of Asian respondents to our survey had deployed AI in their operations by 2017, compared to less than a third of North American respondents and 35% on average across other regions. By 2019, nearly 96% of Asian respondents reported AI deployments, above the 85% average of respondents from the other regions.

While AI is certainly a widely used technology, it is still at the fringes of many business processes. In line with the global trend, nearly half of survey respondents expect AI to be used in between 21% and 30% of business processes in three years' time. A further 24% expect AI to touch up to 40% of business processes.

Unsure of its actual (as opposed to assumed) capabilities, and cognizant of the challenges it poses, businesses have been taking an iterative approach to

About The global AI agenda

This report is part of "The global AI agenda," a thought leadership program by MIT Technology Review Insights examining how organizations are using AI today and planning to do so in the future. Featuring a global survey of 1,004 AI experts conducted in January and February 2020, it explores AI adoption, leading use cases, benefits, and challenges, and seeks to understand how organizations might share data with each other to develop new business models, products, and services in the years ahead.

The respondents are evenly distributed globally, with 20% based in each of North America, Europe, Asia, Latin America, and the Middle East and Africa. Some 26% of respondents are C-level executives, 30% are directors, 16% heads of AI, and 10% heads of data or analytics. Over half (55%) of the organizations they represent are large, earning annual

revenue of $1 billion or more; nearly one-third (32%) have revenue of $5 billion or more.

Of the 11 sectors represented, the largest contingents come from manufacturing (15%), IT and telecommunications (14%), consumer goods and retail (13%), financial services (11%), and pharma and health care (10%). The other sectors in the survey are professional services, energy and utilities, transport and logistics, travel and hospitality, media and marketing, and government.

In addition, MIT Technology Review Insights conducted in-depth interviews with leading AI experts globally, from organizations such as the World Economic Forum, Emirates Group, Vodafone, Walmart, Bank of Singapore, Lemonade Insurance Company, and Loom.ai, among others.

Figure 1: In which three parts of your business are AI technologies being used most actively today and three years from now? (% of respondents, Asia-Pacific)

Legend: 2019, 2022

Category	2019	2022
IT management	62%	72%
Customer service	61%	72%
Research and development	51%	61%
Sales and marketing	36%	61%
Manufacturing and operations	35%	38%
Logistics and supply chain management	28%	36%
Finance	18%	34%
Human resources	14%	30%
Legal and compliance	11%	28%

Source: MIT Technology Review Insights survey, 2020

AI's deployment. Céline Le Cotonnec, chief data innovation officer at Bank of Singapore, notes that many corporate organizations want to deliver AI use cases before having first set the right foundations in terms of IT architecture, AI capabilities, target operating model, or data governance. "My response is 'first things first,'" she says. "We need to set up the right foundation for data before moving ahead." This includes having "analytics translators"–people who understand AI as well as the business to scope projects, manage the delivery, measure return on investment, and understand how feasible it will be to scale up.

Customer priorities in Asia's leading use cases

Our survey finds that enterprises in Asia are using AI most extensively today in IT management (selected by 62% of respondents as a top-three area for AI), followed by customer service and research and development. The area where AI is set to grow the fastest by 2022 is across sales and marketing departments. Currently only 36% of survey respondents selected sales and marketing as a top-three area of AI deployment. That is set to change, as a further third of businesses expand AI technologies more intensively into revenue-generating functions over the coming three years.

Similarly, survey respondents report customer priorities across their leading AI use cases, with customer care selected as the highest priority. Asia-Pacific is ahead of other regions in using AI for purposes such as the personalization of products and services and determining pricing. These trends are surely connected to the region's leadership in e-commerce. Research company eMarketer estimates e-commerce across Asia-Pacific grew 25% in 2019 (faster than all other regions) to reach $2.271 trillion, representing 64.3% of global e-commerce spending.[7] Additionally, six of 2019's top 10 fastest-growing e-commerce countries are in Asia–India and the Philippines (at more than 30% growth), China, Malaysia, Indonesia, and South Korea.[8]

The impact of Covid-19 will be huge for retailers as physical stores are shuttered, almost worldwide. A robust online customer experience will be key to survival for many businesses–Adobe estimates online purchasing power has increased 20% since millions have found themselves "social distancing" or self-isolating.[9]

The second-highest priority use case for companies in Asia-Pacific is fraud detection. Le Cotonnec says that in her previous role at a global insurance firm, fraud

detection use cases were the first that were implemented, since the benefit promised to be sizeable: According to a Reinsurance Group of America survey from 2017, 3%-4% of all global claims are fraudulent, with the highest incidence (4.16%) in Asia.[10]
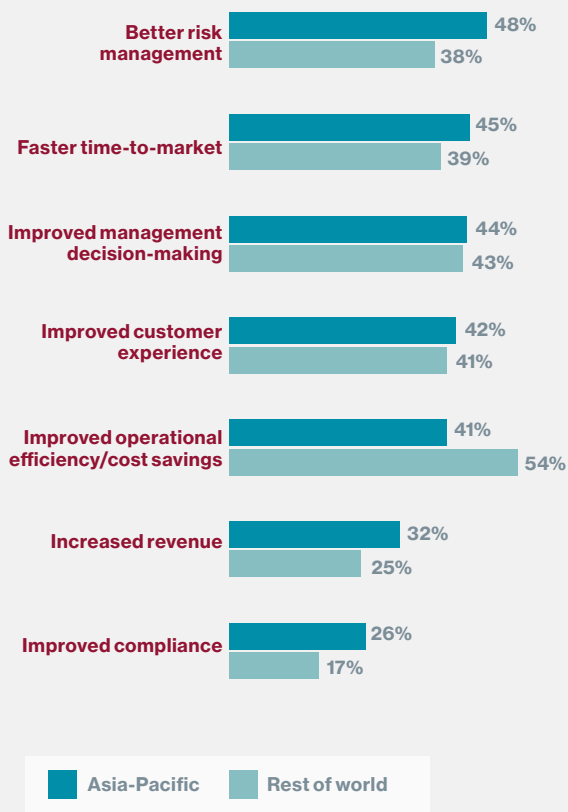
AI is exceeding expectations in Asia

In a report on AI adoption in Southeast Asia, the consultancy McKinsey calculated that businesses in the Association of Southeast Asian Nations could collectively add $897 billion to their profit margins through proactive adoption of machine learning technologies.[11] Globally, the majority of survey respondents say the return on investment (ROI) from AI projects is meeting (59%) or

exceeding (37%) their expectations. Respondents in Asia-Pacific report even greater success: almost half (46%) say that AI investments have exceeded their expectations. Experience, not surprisingly, appears to hold the key to the best results. The earlier that surveyed firms first deployed AI–Asia-Pacific companies being among the first–the more likely that their returns have surpassed expectations.

The greatest benefits achieved thus far have been in improved risk management, accelerated time-to-market, and better management decision-making capabilities, and within these areas, Asia is seeing greater success than other regions. The data show that where Asia is focusing on risk management, innovation, and customer processes, other regions have used AI to improve the bottom line. Some 54% of respondents in other regions report that operational efficiency and cost savings are a top benefit of their AI investments, compared to 41% in Asia.

The challenges of building scale in AI programs

Survey results, as well as interviews with the AI leaders who participated in this research, point to many challenges with AI adoption in businesses across the world. Over half of the survey respondents, globally, cite business or process challenges among their chief constraints to AI adoption (51%), followed by bottlenecks in the quality or quantity of data (48%), and a shortage of AI talent (42%). Organizations in Asia-Pacific struggle the most with building business cases for AI projects, being able to make solid forecasts for AI's impact. The change management struggles of many organizations worldwide, as well as shortfalls in data science skills, appear to affect Asian businesses less than those in other regions, likely a factor of their longer track record with AI applications.

Data is an issue that concerns half of survey respondents, both globally and in Asia. Chief among the challenges are the difficulty of interfacing with open-source platforms, integrating with unstructured data, and data sets which are of poor quality.
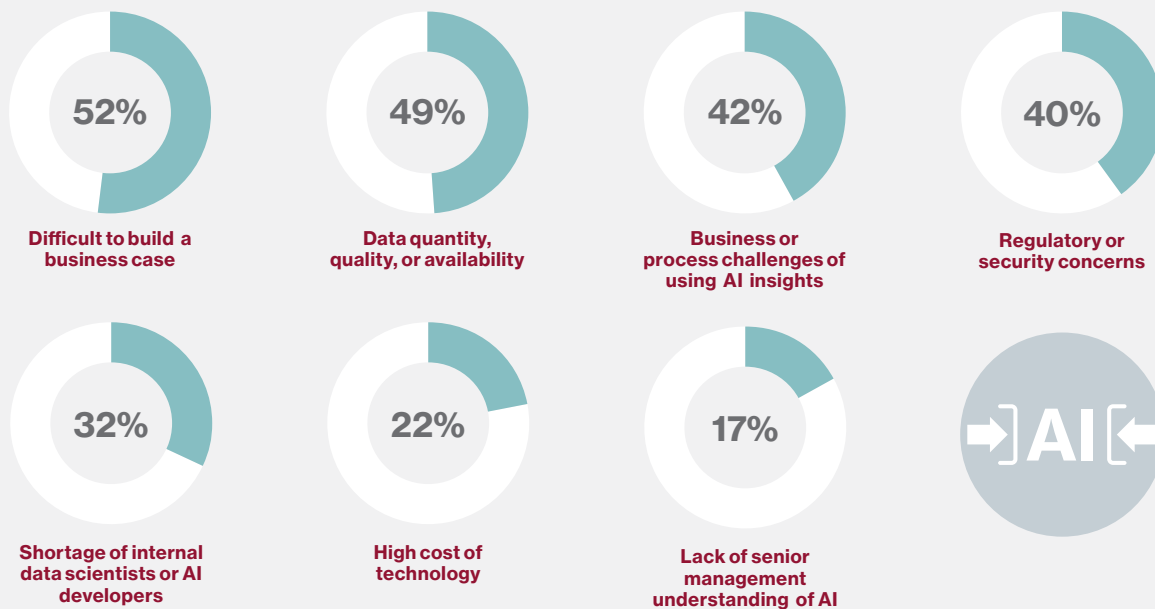
Data is the lifeblood of machine learning models and fundamental to algorithm development, which is why the public and private sectors in Asia are increasingly considering how data sharing can unlock value for businesses, individuals, and societies. In November 2019,

Figure 2: What have been the tangible benefits of your AI investments? (% of respondents, Asia-Pacific and Rest of world)

Benefit	Asia-Pacific	Rest of world
Better risk management	48%	38%
Faster time-to-market	45%	39%
Improved management decision-making	44%	43%
Improved customer experience	42%	41%
Improved operational efficiency/cost savings	41%	54%
Increased revenue	32%	25%
Improved compliance	26%	17%

■ Asia-Pacific   ■ Rest of world

Source: MIT Technology Review Insights survey, 2020

the Australian government commissioned a report estimating that AI and other technology applications using Earth and marine observation (EMO) data from meteorological and geological monitoring systems could generate $1.35 trillion in value for Asia-Pacific Economic Cooperation economies by 2030 across a diverse range of industries, such as resource extraction, shipping, and insurance.[12] However, if regional governments and enterprises actively collaborated to share EMO data, its collective value would increase to over $1.48 trillion.

The desire to share data for increasing speed and visibility across supply chains is envisaged as the No. 1 benefit of data sharing by survey respondents globally. In Asia-Pacific, while supply chain efficiency is important, respondents see the ability to create new business models as being the greatest driving force for sharing data with third parties.

Survey respondents in Asia-Pacific expect data sharing to lead to new business models, enhanced customer experiences, and supply chain efficiencies. Yet executives are cautious—more than half say greater regulatory clarity is needed before data sharing can take off.

Figure 3. What are the biggest constraints to your company's use of AI?
(% of respondents, Asia-Pacific)

52% Difficult to build a business case

49% Data quantity, quality, or availability

42% Business or process challenges of using AI insights

40% Regulatory or security concerns

32% Shortage of internal data scientists or AI developers

22% High cost of technology

17% Lack of senior management understanding of AI

Source: MIT Technology Review Insights survey, 2020

To spur the data economy, efforts to build trust in data sharing are growing. Those behind Ocean Protocol, a nonprofit platform developed by a Singapore-based foundation, see its technology underpinning the formation of "data marketplaces" in which companies, consumers, and other parties share or trade data. Ocean Protocol operates similarly to federated learning in allowing the decentralized searching of data, which will eventually ensure that AI models can be run on fully anonymized data.

To provide greater regulatory clarity around data sharing, the Singapore government has also developed a Trusted Data Sharing Framework that provides guidelines and standard processes for collecting and exchanging datasets.[13] The benefits of increased data sharing could be in the form of new efficiencies, products and services, or even value chains that emerge from data-sharing arrangements.

Overall, two-thirds of respondents in Asia-Pacific said they were "very" or "somewhat" willing to share datasets with third parties, a more muted level of enthusiasm than among North American respondents (75%) and those in Latin America (80%).

Figure 4: Which of the following developments would likely lead your company to engage more actively in data sharing with third parties?
(% of respondents, Asia-Pacific)

55%
Changes in regulation or greater regulatory clarity on data sharing

51%
Competitors' initiatives to increase data sharing

45%
Development of agreed industry standards on data sharing

43%
Growth in number of data-sharing use cases

37%
Growth of data intermediaries or marketplaces

28%
Consumer demand for data portability

Source: MIT Technology Review Insights survey, 2020

Key takeaways

1 **Asia-Pacific is an early adopter.** Spurred by "mobile first" consumer markets, availability of talent, and strong government incentives, organizations in Asia are among the most progressive AI adopters globally. Determination and innovation are paying off, as nearly half of survey respondents state that ROI on AI has exceeded expectations, more than in any other region.

2 **AI priorities include customer care and sales and marketing.** Businesses in Asia are using AI to improve customer service and support, personalize products and services, and manage risk (particularly fraud). Customer care is such a widely adopted AI use case because of high transaction volumes and the need to effectively migrate customers across online and offline channels. Over the coming three years, respondents in Asia report they will also increasingly bring AI into sales and marketing processes.

3 **Data sharing offers untapped sources of value.** While survey respondents in Asia can foresee new business models, supply chain efficiencies, and new or enhanced customer experiences, there is still a sense of caution around the prospect of sharing proprietary data with third parties. Government data-sharing initiatives and new data-exchange platforms are slowly building trust, yet respondents say more clarity from regulators and industry bodies is needed.

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Footnotes

1 "Asia's AI agenda: The ecosystem," MIT Technology Review Insights, 2018

2 "Asia's AI agenda: AI for business," MIT Technology Review Insights, 2018

3 "South Korea commits US$4bn to bolster tech sectors," Global Government Forum, 22 August 2019

4 Accreditation@SGD, Infocomm Media Development Authority, page last updated 30 November 2019

5 "China suppressed Covid-19 with AI and big data," Asia Times, 3 March 2020

6 "Tech takes on the outbreak," Alibaba, 21 February 2020

7,8 Global Ecommerce 2019, eMarketer, 27 June 2019

9 "Adobe's Digital Economy Index highlights how COVID-19 altered e-commerce," Zdnet, 31 March 2020

10 RGA 2017 Global Claims Fraud Survey, Reinsurance Group America, 16 February 2018 (pdf, p.3-4)

11 Artificial intelligence and Southeast Asia's Future, McKinsey & Company, 2017 (pdf, p.13)

12 "Current and future value of earth and marine observing to the Asia-Pacific region," Australian Government and APEC, November 2019 (pdf, p.8)

13 Trusted Data Sharing Framework, Infocomm Media Development Authority, June 2019 (pdf)

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