

Cognizant Reports

## How Companies Can Move AI from Labs to the Business Core

APAC and Middle East organisations have big expectations from AI, but they're only just getting started. To realise the full potential of AI-led innovation, they must rapidly, but smartly, scale their deployments and embrace a strong ethical foundation, keeping a close eye on the human implications and cultural changes required to convert machine intelligence from lofty concept to business reality.

# Foreword

## AI in the time of COVID-19

Although this research study was conducted before the outbreak of the COVID-19 pandemic, advanced forms of artificial intelligence are critical to our understanding and treatment of infectious disease. Machine learning and deep learning are helping infectious disease scientists to more quickly sequence and model treatment therapies and vaccinations, accelerating time-to-market and limiting unintended consequences. They are also helping researchers to more effectively forecast and foretell the contours of pandemics like COVID-19 before they strike. These capabilities are applicable to every business in every industry.

COVID-19 is a global pandemic; it knows no boundaries. Swift data collection and algorithm sharing are vital elements of a collaborative effort that will result in an Rx to defeat this deadly disease. Those companies that have made strides in their AI journey are better positioned to weather the current crisis and will emerge stronger to compete in the post-COVID-19 world.

# Executive Summary

The age of artificial intelligence (AI) is here, and countries in the Asia Pacific (APAC) and Middle East zones have set their eyes on the prize. Startup activity around AI is booming; and the region is set to overtake the rest of the world in AI spending over the next three years – reaching \$15.06 billion by 2022, according to IDC.<sup>1</sup> APAC and Middle East countries have made AI a top priority, as evidenced by ambitious national initiatives such as China's bid to create a \$150 billion AI industry by 2030, and Australia's AI roadmap.<sup>2</sup> Meanwhile, the region's tech giants such as Alibaba have unveiled big plans to take on the AI industry's leaders such as Google and Microsoft.<sup>3</sup>

Against this backdrop, we surveyed 590 senior executives across the region in late 2019 to understand their companies' AI plans and actions. Our goal was to learn how APAC and Middle East businesses are employing AI, how this emerging technology is impacting business and how they are overcoming challenges to reap value from machine intelligence across various functional areas. Importantly, our study gauges how differences in revenue growth<sup>4</sup> impact senior leaders' perceptions of and investments in AI (see Methodology, page 25).

Our findings reveal a tale of enthusiasm accompanied by formidable challenges. Nevertheless, APAC and Middle East companies are moving forward with a high level of commitment and great expectations. Although most organisations that we surveyed are at experimental or early stages of AI deployment, many appear keen to harness the transformational power of AI. Key findings from our study include:

- **A considerable gap remains between enthusiasm and deployments.** Our survey found that APAC and Middle East companies across eight industries consider AI to be vital to their organisations' future and are eager to realise the promise of AI. However, a majority of AI projects are still languishing in lab pilot or proof-of-concept (PoC) stages. APAC and Middle East companies must accelerate deployment to keep pace with AI's inexorable move into the mainstream.



- **Senior leaders need to transcend ongoing spray-and-hope initiatives.** Senior leaders are applying AI across a variety of applications with a similar degree of focus. This reflects a clear inability to prioritize AI's near- and long-term business benefits. It also suggests a pack mentality in which senior leaders feel obliged to follow what rivals are doing inside and outside their markets.
- **Focusing on innovation is the silver lining.** APAC and Middle East companies have attached a high level of focus on both product and process innovation, indicating their desire to leverage AI to drive radical business change.
- **Organisations have yet to address a yawning talent gap.** APAC and Middle East companies across industries and growth categories expect the AI-oriented segment of their workforce to grow. Yet, they see talent acquisition as a top challenge. This suggests that they have yet to equip themselves with the skilled resources needed to tap AI's vast business benefits.
- **Many organisations seem inclined to go it alone.** A sizeable chunk of senior leaders surveyed indicate that they tend to rely on in-house development for their AI efforts. This could undermine the results since AI-led disruptive business change typically requires continuous access to advanced technologies, skilled resources and the input of experts possessing rich experience in aiding such initiatives.
- **A risk-averse culture is undermining progress.** Risk aversion appears to lie underneath findings such as buy-in being cited among top challenges and very few projects making it to full implementation – against a backdrop of high expectations that the region will emerge as a force to reckon with in the AI space.
- **Dedication to the ethical use of AI is simultaneously a strength and a weakness.** APAC and Middle East companies report a high focus on embedding ethical standards and policies into their AI fabric (compared with a lower ethics focus expressed by U.S. and European companies in our earlier study). Many are ensuring ethics are built in at the design stage of AI projects. However, our study found that relatively fewer organisations are working to ensure that AI apps learn and embrace ethical use of machine intelligence post launch. Customer feedback emerged as a top choice for improving the ethical use of AI. This suggests many organisations are working reactively rather than proactively in dealing with ethical issues such as unintended bias, which could be a potential source of risk.

## Seven prescriptions to accelerate AI with a human-centric focus

Understanding the human element of AI is critical to delivering business benefit. After all, not only do humans act as the creators of AI apps, they also act as end users. How organisations approach AI development has a cascading impact on the technology's deployment and ultimate success. Which is why we believe organisations should build their AI efforts on a strong foundation of human-centric thinking. The end goal is becoming a data-driven organisation where human creativity thrives around AI. This report outlines seven vital recommendations to help organisations in the region to develop and accelerate human-centric AI:

1. Formulate a robust strategy that lets business value guide the choice of AI opportunities in line with the organisation's digital transformation strategy.
2. Combine business and behavioural insights to build AI on the foundations of human-centricity.
3. Build a data-driven organisation by putting modern data management techniques and analytics to effective use and encouraging a culture of insights-driven decision-making.
4. Deploy AI tools and algorithms in line with the maturity curve as they target different areas for transformation.
5. Create an AI-centred culture through use of cross-functional teams, retraining and upgrading skills, and encouraging knowledge sharing.
6. Create a strong foundation of ethics, supported by a comprehensive governance framework.<sup>5</sup>
7. Employ external partnerships as AI levers to bring in necessary technology, talent and expertise to help businesses as they progress in their AI journey.

## Gap in AI enthusiasm vs. AI deployment

### APAC and Middle East businesses have big plans for AI

AI is seen as critical to businesses' success, not just today but also three years down the line (see Figure 1, next page). Our survey found that APAC and Middle East companies across eight industries are eager to realise the promise of AI. This is especially evident for companies growing faster than average. This enthusiasm is reflected in the responses to expected benefits: Of the eight options provided, the average score for efficiency was highest (83%), whereas increased revenue scored lowest (72%) (see Figure 2, next page).

The percentages for all benefit areas were in a similar high range, indicating the APAC and Middle East companies want to tap all key business results possible from AI, but this also hints at a sense of indecisiveness with regard to what they consider to be its most viable benefit. This is perhaps indicative of the peer pressure usually seen in the initial stage of adoption of new technologies.

Nevertheless, the silver lining is that AI is expected to have a significant or high impact on innovation, both in processes and products, over the next two to three of years in the APAC and Middle East region (see Figures 3 and 4, both on page 7). A high level of emphasis on innovation reveals APAC and Middle East companies' strong desire to employ AI as a lever to transform their businesses radically (see Quick Take, page 11) while pursuing vital efficiency goals.

## Most APAC and Middle East leaders see AI with staying power



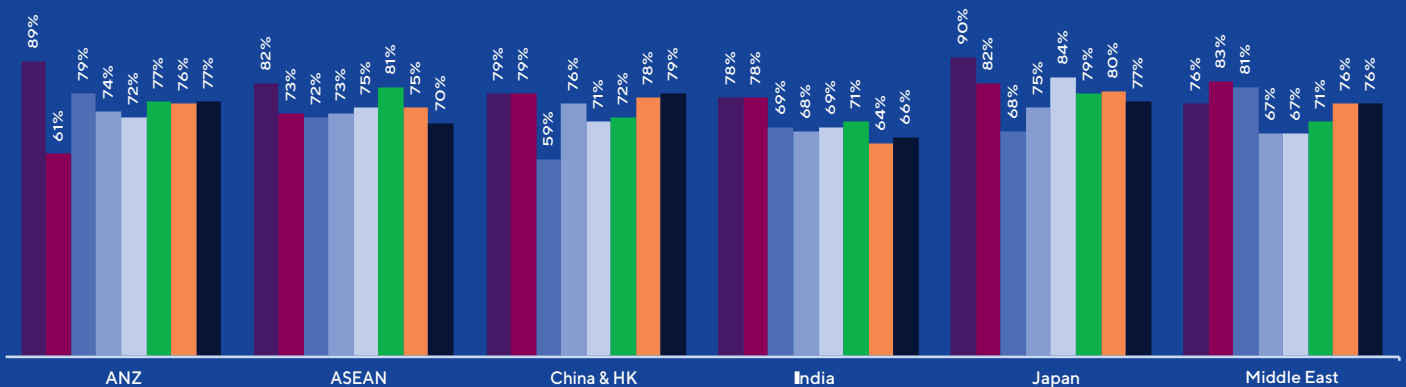
Note: Percentage of respondents from each growth category who replied "Extremely Important" or "Very Important" to the question "How important do you think the adoption of AI technologies is to your company's business success today and how important do you think it will be three years from now?"

Response base: 590 executives in APAC and the Middle East who reported one or more AI projects

Source: Cognizant

Figure 1

## High Expectations from AI all across APAC and the Middle East



Percentage of respondents who said "substantial benefit" or "significant benefit"

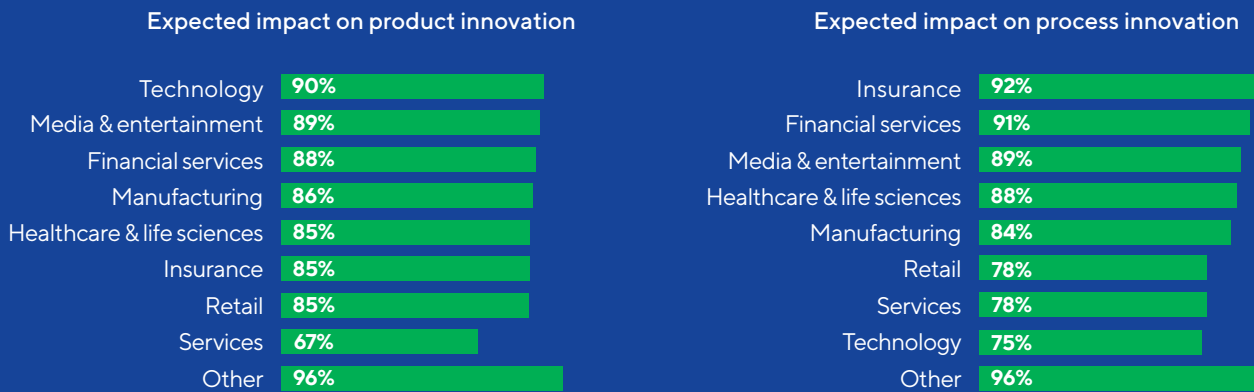
- Increased efficiency
- Lower business operating costs
- Increased revenues
- Ability to introduce new products or enter new businesses
- Ability to compete effectively with new firms entering our business
- Boost our innovation capabilities
- Improve customer satisfaction scores
- Speed up our time-to-market

Response base: 590 executives in APAC and the Middle East who reported one or more AI projects

Source: Cognizant

Figure 2

## Supermajority of industries see AI driving innovation

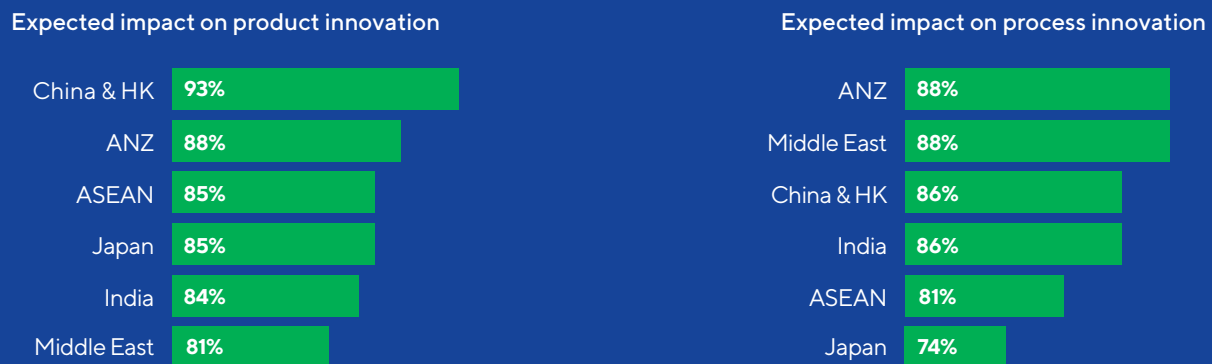


Percentage of respondents who expect “Significant” or “High” level of AI-led impact on product and process innovation in their companies over the next two to three years

Response base: 590 executives in APAC and the Middle East who reported one or more AI projects

Source: Cognizant  
Figure 3

## AI seen as a vital lever to drive product and process innovation across APAC and the Middle East



Note: Percentage of respondents who expect “Significant” or “High” level of AI-led impact on product and process innovation in their companies over the next two to three years

Response base: 590 executives in APAC and the Middle East who reported one or more AI projects

Source: Cognizant  
Figure 4

## APAC and Middle East companies cast their AI net wide

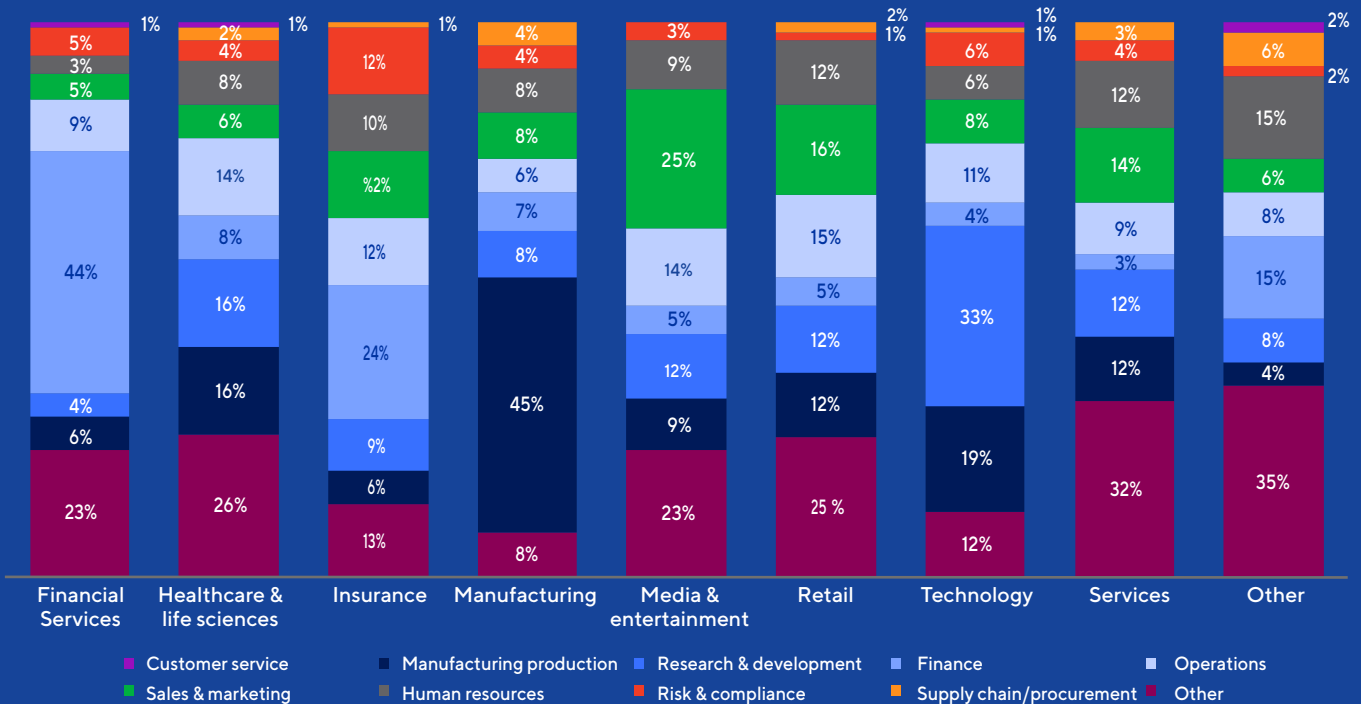
Companies that report below average or above average growth are more optimistic about AI at present as well as three years down the line, while companies that are growing at an average rate exhibit lesser optimism at present. Average growth companies must also consider the immediacy of AI adoption today or they put themselves at risk in the journey of AI-led transformation.

A look at how different industries are deploying AI (see Figure 5) reveals a more detailed picture of their preferences. Beyond customer service and their respective core areas, industries are also looking to leverage AI in areas such as sales and marketing and operations.

But if the current status of projects in the region means anything, APAC and Middle East businesses, in general, are just getting started, although this differs by region. Overall, only 22% of projects have reached full deployment. The Middle East (at 30%) leads the region (see Figure 6, next page). A look at growth categories shows that businesses that said they were growing slower than average had a substantially larger percentage of projects in early ages than their faster-growing counterparts (see Figure 7, next page).

## AI being employed to address a wide range of opportunities

Functional areas under focus of AI across industries

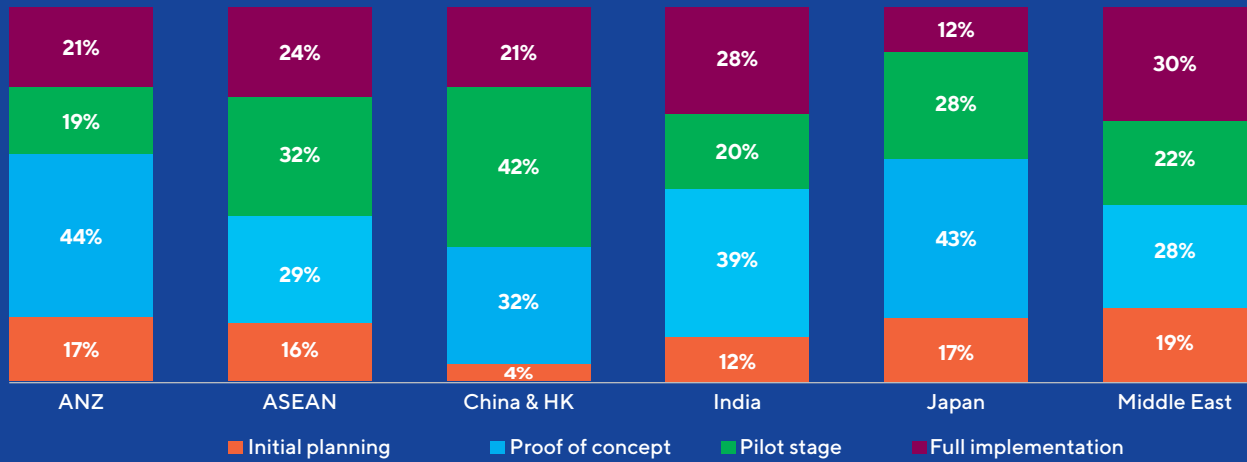


Response base: 590 executives in APAC and the Middle East who reported one or more AI projects

Source: Cognizant  
Figure 5



## Stages of AI project development vary across APAC and Middle East countries and regions

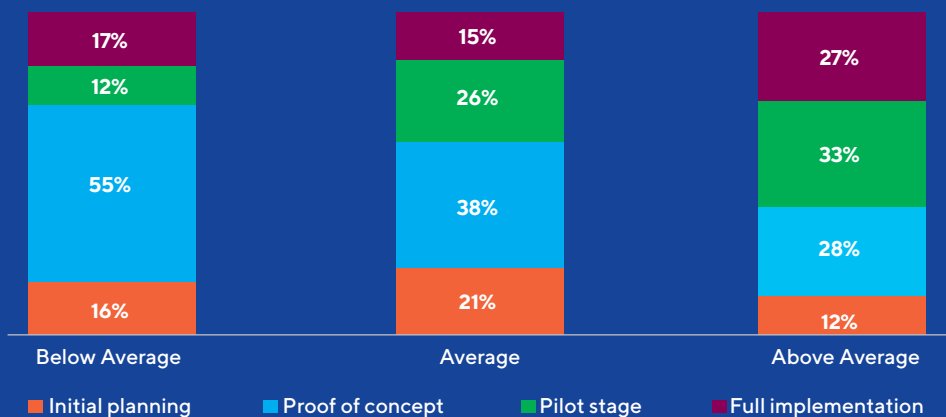


Response base: 590 executives in APAC and the Middle East who reported one or more AI projects

Source: Cognizant  
Figure 6

## Most AI projects remain in experimentation mode

Current status of AI opportunity/project



Note: We asked respondents to select their company's revenue growth category (based on the last two years) from the following options: much above average, somewhat above average, about average, somewhat below average and much below average.

Response base: 590 executives in APAC and the Middle East who reported one or more AI projects

Source: Cognizant  
Figure 7

With the exceptions of India (25%) and Japan (22%), which prefer R&D, customer service has emerged as the key focus area for businesses through the rest of APAC and the Middle East, followed by manufacturing production and R&D. This is further corroborated by the choice of technologies used by businesses, with the top choices being computer vision and virtual agents (51% each) – both technologies extensively used to drive customer experience. Companies in Japan and the Middle East reported a more balanced spread of technologies.

While businesses across the board expect a broad range of benefits from AI, the areas where they see the most value and the approaches they are adopting vary by growth, industry and region. For example, companies with average (20%) and above average (25%) growth have prioritized customer service, but respondents whose companies are growing below average (17%) showed a preference for R&D and sales and marketing (16%), investing in and assembling the necessary infrastructure and talents as they go. We believe that customer engagement must be central in digital transformation efforts to ensure customer intimacy, which is vital to the success of AI initiatives. Therefore, slower-growing companies also should reconsider their AI priorities by placing the customer at the core.

Given the transformative potential that AI offers, companies would do well to focus on particular AI capabilities that can advance and differentiate the business. A case in point is one of the largest multinational banking and financial services companies in Singapore, which suffered from the mismatch between the increasing demands of growing digital payment channels and its traditional ways of handling it. We helped the client achieve a unified payments view and build differentiating capabilities by moving from reactive to proactive prevention of errors, client monitoring and compliance. This paid rich dividends in terms of reduced customer churn, prevented costs of fines and penal interest, etc. (See Quick Take, next page.)

## Working with external partners

Partnerships with systems integrators and vendors can accelerate AI efforts. Our study found, on average, that a majority of respondents (52%) prefer working alongside systems integrators/vendors on their AI initiatives, compared with 39% who said they tend to do everything in house and 10% who rely fully on third-party vendors for their apps. Regardless of growth trajectory, all businesses prefer working with a mix of software applications vendors, systems integrators and in-house development (see Figure 8, page 12).

While building in-house AI development capabilities is critical, this seems more aspiration than reality across APAC and the Middle East. As a transformative technology, AI requires a symbiotic partnership with various third-party experts that can bring key capabilities to the mix – especially on the talent front, which a majority of respondents cited as a challenge (see Figure 14 on page 17).



# Quick Take

## Leading bank applies AI to create a more unified and proactive payments system

A leading APAC and Middle East bank needed to consolidate multiple digital payments channels that created siloed ways of handling failures. Monitoring vital client account activities across channels also presented a formidable challenge.

We helped the bank by developing an AI solution that provided a single payment command centre, enhanced the monitoring of key clients, and unified payments and workforce management capabilities. In addition, the solution facilitated early detection of delays and failures of high-value transactions, aided by a detailed analysis of payment processing errors. This enabled the bank to more quickly comply with regulations within those countries in which it operates. The solution also empowered the bank to put in place exception management of high-risk transactions that require special attention based on defined patterns like beneficiaries and country-specific regulations.

Improved and proactive error handling improved customer satisfaction considerably, as evidenced by the substantial reduction in customer churn rates. Improved compliance resulted in savings from prevented fines and penal interest besides reducing costs of operations by switching from a manual-intensive to an insights-intensive process.

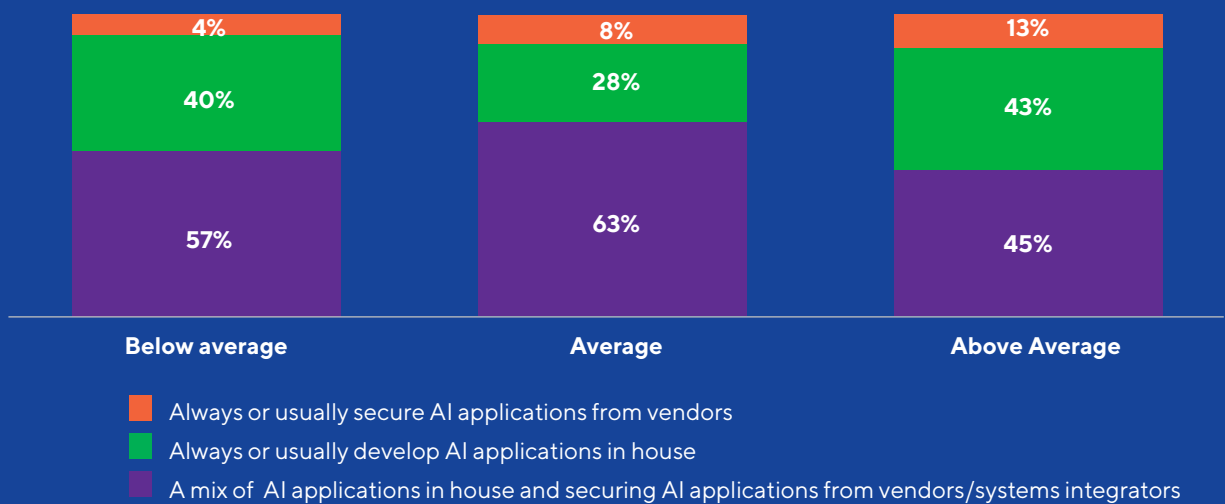
Slower-growing companies have cited the highest level of expected increase in AI-driven headcount, which may also point to the fact that the future talent gap may be more pronounced in this group vis-à-vis the other two company growth categories (see Figure 9, next page). Companies in other growth categories also expect headcount increases, which is expected to result in talent gaps in their organisations as well. Closing the gap is essential to ensure a smoother transition to the AI-led future.

To this end, companies may leverage partnerships with competent external vendors. Closing the gap is an immediate need, as companies do not have the luxury of time to gradually figure things out and move on. In the long run, these relationships can evolve into an AI ecosystem that can quickly adapt to new technologies and demands.

Given the transformative potential that AI offers, companies would do well to focus on particular AI capabilities that can advance and differentiate the business.

### In-house development and external partnerships are top choices

Approaches to develop AI apps



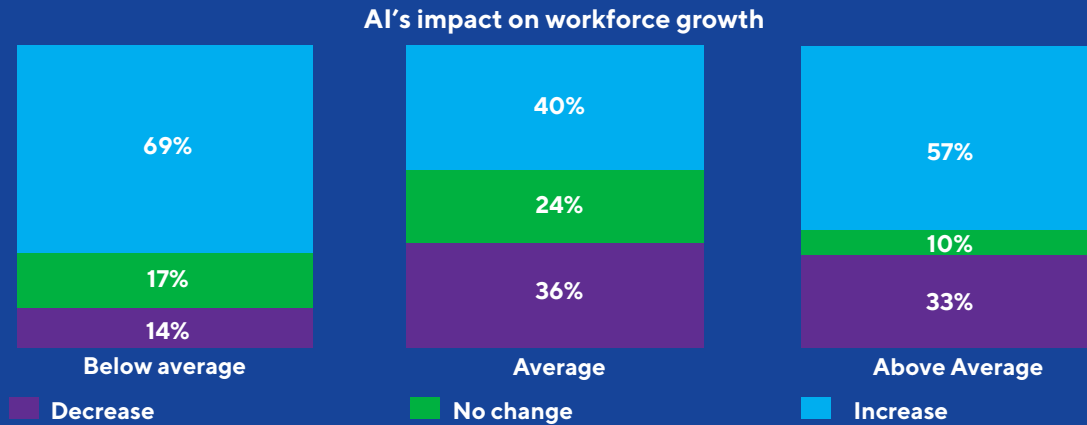
Note: We asked respondents to select their company's revenue growth category (based on the last two years) from the following options: much above average, somewhat above average, about average, somewhat below average and much below average.

Response base: 590 executives in APAC and the Middle East who reported one or more AI projects

Source: Cognizant

Figure 8

## Organisations with below average growth rate expect more AI talent growth



Note: We asked respondents to select their company's revenue growth category (based on the last two years) from the following options: much above average, somewhat above average, about average, somewhat below average and much below average.

Response base: 590 executives in APAC and the Middle East who reported one or more AI projects

Figure 9 Source: Cognizant

### Need to accelerate the pace of adoption

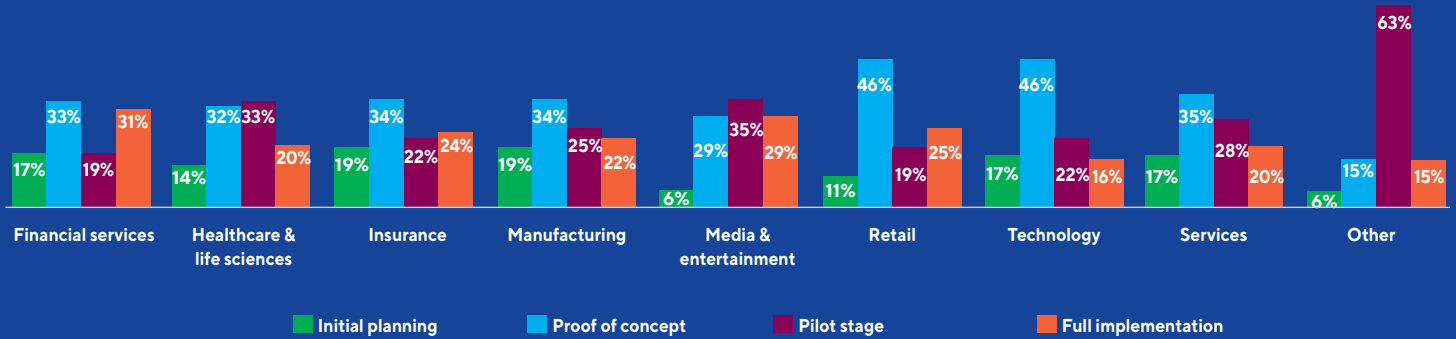
With access to world-class infrastructure, government support, a focus on building talent, the absence of a legacy burden, and a high level of internet and mobile penetration, APAC and the Middle East's AI capabilities rival the rest of the world. While China's AI capabilities are on par with the West, other countries in the region need to pick up the pace of innovation and adoption. To boost AI adoption, China has appointed national AI champions<sup>6</sup>— a select group of technology companies that help achieve the government's goals.

From a corporate perspective, AI projects across the region still seem to be restricted to experimentation labs. Bringing AI out of the lab and into the lines of business is the imperative for value realisation. Case in point: Our findings reveal that a majority of projects in the region have yet to reach full implementation (see Figure 6, page 9).

Banking and financial services (BFS) organisations are marginally ahead of other industries in terms of projects implemented (31%), while retail and technology companies have a majority of projects in the proof of concept (PoC) stage (see Figure 10, next page).



## AI projects languishing in labs, across industries



Response base: 590 executives in APAC and the Middle East who reported one or more AI projects

Source: Cognizant  
Figure 10

## APAC and the Middle East's triad of challenges – Talent, culture, ethics

### Talent issues

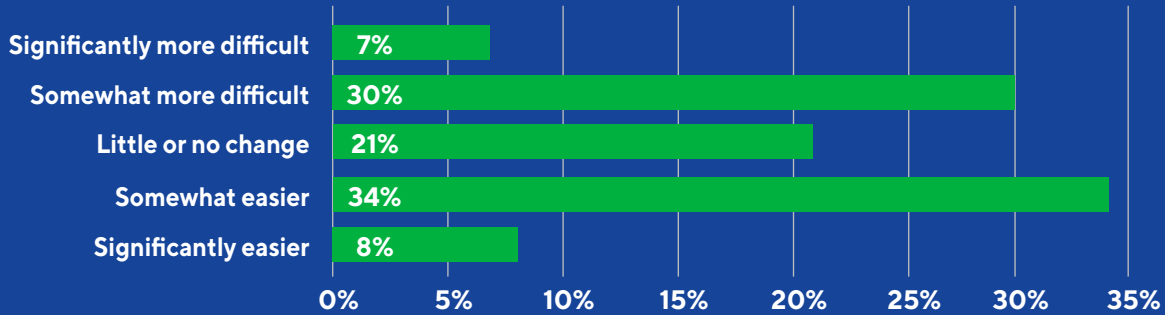
Asian and Middle Eastern businesses reported a broad set of challenges in their AI journeys (Figure 14, page 17). AI is expected to test their ability to retrain existing employees while attracting and retaining fresh AI talent in the near future. AI requires businesses to master a broad set of technologies. Reinventing traditional businesses through AI requires new skillsets in areas such as machine learning security and data.

For example, our Center for the Future of Work (CFoW), has identified 42 jobs that will emerge over the next 10 years that will depend on mastery of new technologies, including AI.<sup>7</sup> These include roles such as machine risk officers and cyber calamity forecasters, but also activities that require a deep understanding of human nature such as head of business behaviour, whose job will involve making sure ethical standards are followed when human behaviour data is collected.

Since AI talent is in high demand, and recruitment is often a lengthy and expensive process, retraining not only saves time and money but could also become a key differentiator for companies that create a strong talent pipeline. When asked whether AI will make it easier or harder for them to attract talent, the opinion is split (see Figure 12, next page). They also cite retraining employees as their biggest challenge (see Figure 14, page 17).

## Mixed opinion on talent issues

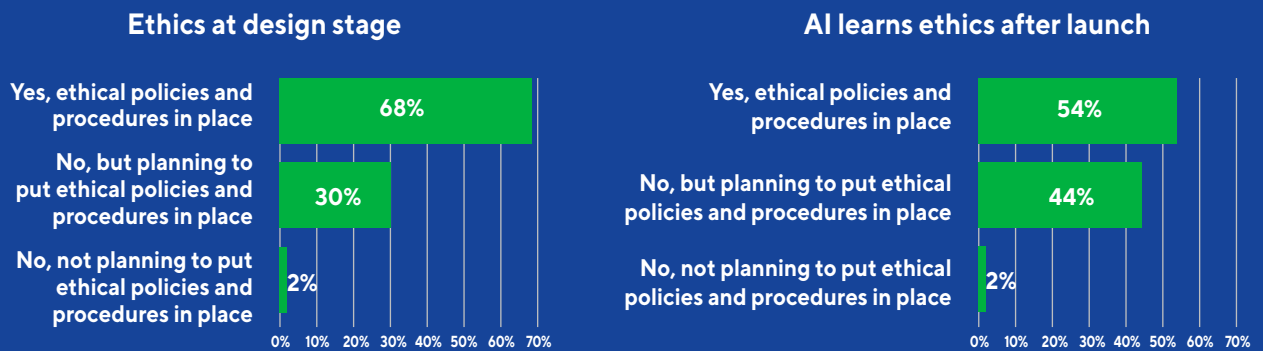
APAC and Middle East companies' views on whether AI applications will make it easier or more difficult for them to attract and retain talent



Response base: 590 executives in APAC and the Middle East who reported one or more AI projects

Source: Cognizant  
Figure 11

## Strong AI ethics focus: leaning more on design stage than post-launch learning



Response base: 590 executives in APAC and the Middle East who reported one or more AI projects

Source: Cognizant  
Figure 12

## Ethics-driven AI

Businesses in the region appear to place greater emphasis on ethical aspects at the initial stages than post launch, rather than maintaining a consistent focus on ethics throughout the app’s lifecycle (see Figure 12, preceding page). APAC and Middle East companies appear to have relatively less focus on ethical policies and practices into how AI apps behave post launch (54%), vis-à-vis the design stage (68%). This may make organisations vulnerable to potential reputational harm and could undermine customer satisfaction.

A sustained focus on ethics can ensure that AI solutions are minimally affected by human biases, intended or not, and build or reinforce trust between the business and its customers and employees. Interestingly, APAC and the Middle East fared better in this regard than the U.S. and Europe, as our earlier research found, whereby roughly half of the respondents had policies and procedures to address ethical concerns in the initial design of the app or after launch. Comparatively, 68% of APAC and Middle East businesses said they had ethical policies in place at the design stage. However, for post-launch ethical concerns, only 54% have relevant policies in place.

Unfortunately, 74% of businesses say they rely on customer feedback to address ethical concerns post-launch (see Figure 13). Relying on customer feedback reactively could adversely impact customer experience, defeating a key AI goal of achieving a leap forward in customer satisfaction.

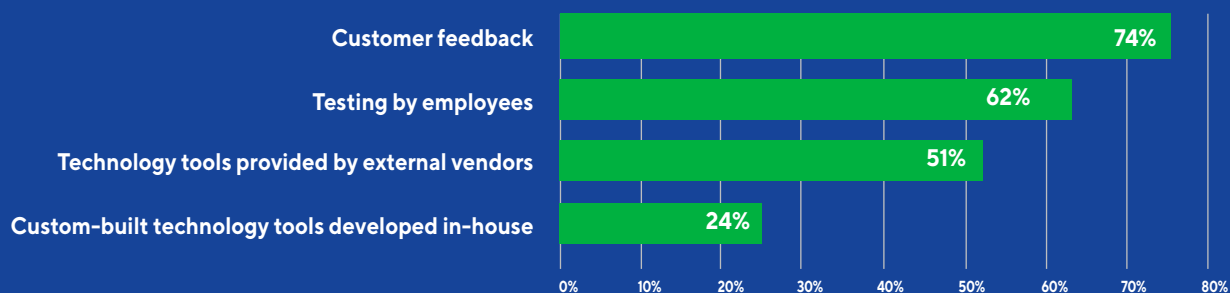
## Cultural change

Despite the heightened optimism around AI, executives reported securing management commitment and business buy-in as their biggest challenges (see Figure 14, next page). This resistance is understandable. After all, AI will help automate many jobs, and perhaps eliminate some. However, as cited above, it will also create new jobs. Businesses must therefore strive to create a new organisational mindset because without one they risk losing their ability to compete.

## Reactive learning through customer feedback is the top choice

### Tracking unethical behaviour after launch

Which of the following does your company use to help identify and address instances of potential unethical behaviour, such as bias, in AI applications? (Multiple answers allowed)



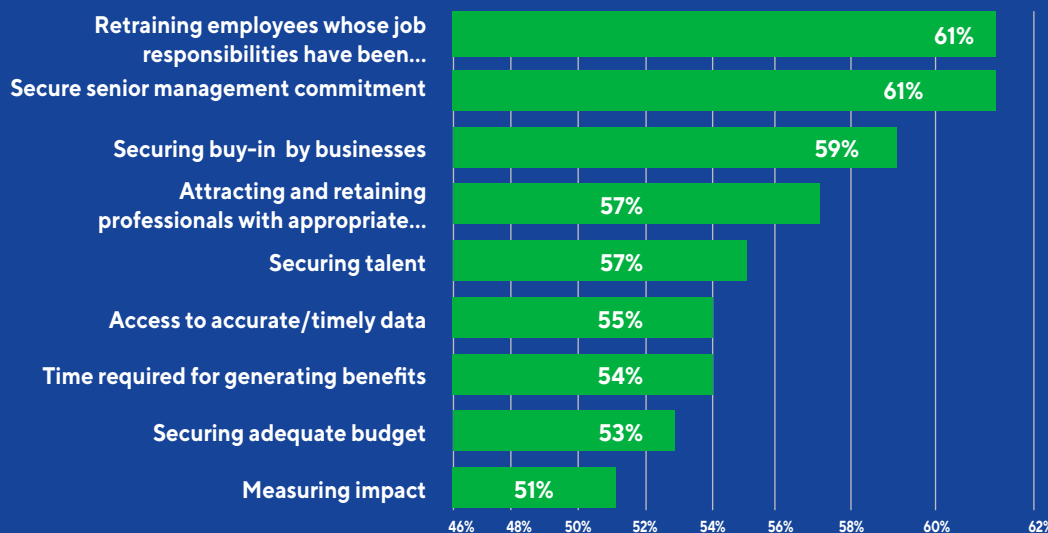
Response base: 590 executives in APAC and the Middle East who reported one or more AI projects

Source: Cognizant

Figure 13

## Talent issues and buy-in seen as major challenges

### Stumbling blocks in employing AI applications



**Respondents who cited “Extremely challenging” and “Very challenging” to the question “To what extent is each of the following a stumbling block in employing AI applications in your company?”**

Response base: 590 executives in APAC and the Middle East who reported one or more AI projects

Source: Cognizant

Figure 14

The low percentage of projects that moved to full implementation is perhaps indicative of the risk aversion associated with AI’s disruptive impact and lingering concerns over ROI timelines. AI projects, in our experience, are slow to yield ROI compared with initiatives such as robotic process automation (RPA) focused on specific tasks, but that shouldn’t deter companies from accelerating AI adoption.<sup>8</sup>

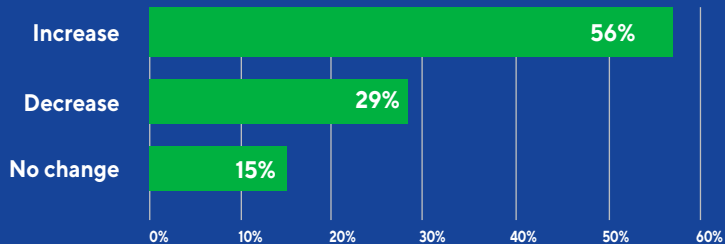
One way to accelerate the pace of AI adoption is to inculcate a machine algorithm culture that attracts and retains the best human talent (as noted above), and identifies the right opportunities for delivering value and driving innovation. The fear of job losses to automation looms large across APAC and the Middle East and undoubtedly plays a key role in decisions being made in the region.<sup>9</sup> But businesses need to reassure their employees that AI will also create jobs, as reflected in our findings (see Figure 15, next page).

## Getting AI right

The transformative nature of AI makes it a digital upgrade for the entire organisation. This means upgrading all the key ingredients that make an organisation tick. Putting in place and building on the key pillars is critical for AI success, starting with a clear strategy informed by business results, building the requisite technological capabilities, as well as establishing a strong talent pipeline and organisation-wide cultural change.

## Most companies expect AI to increase employee headcount

### Expected impact of AI on the number of employees over the next three years



Response base: 590 executives in APAC and the Middle East who reported one or more AI projects

Source: Cognizant

Figure 15

## Seven prescriptions for scaling up from experimentation mode

AI's impact in APAC and the Middle East is limited by the fact that businesses remain in experimentation mode. As companies plan their future moves, they will need to target larger benefits, such as enterprise-wide transformation or a market-making impact, which means adopting a more open-minded approach.

This approach, however, needs to be tempered with a clear focus on ethics and an oversight framework to build responsible AI.<sup>10</sup> This will ensure that AI-powered systems operate ethically and create business advantage (growing revenue and efficiency) while the technology evolves.

### 1 Formulate a strategy that lets business value guide choice of AI opportunities

- I Avoid common errors.** AI endeavours can be seen as merely technological projects, rather than as steps in building a business value proposition for the technology. This drastically undermines the impact that AI could have on the organisation. Similarly, businesses need to avoid the ivory tower mentality, where AI enjoys a higher priority over the digital transformation of the enterprise, in which everyone is a stakeholder. This is a sure-shot way to restrict AI's impact.
- I Look out for execution blind spots.** Ignoring blind spots is an invitation for unwanted outcomes. The key to avoid them is twofold: First, execute broadly, across the business, while looking for as many opportunities as possible to give yourself the best chance of success. Second, avoid big bets that can divert emphasis away from the enterprise's digitizing efforts.
- I Develop a robust AI strategy.** An AI strategy would be a microcosm of the organisation's broader business strategy for digital transformation. This means incorporating key business metrics to ensure that AI helps the organisation move towards new ways of doing business with an unwavering focus on business outcomes.
- I Combine a business impact criterion with technological capabilities.** While approaching any AI use case, organisations need to ask how that project helps their business. An idea might start off as a



sure-shot success right up to the pilot stage but may not deliver the desired results. Similarly, businesses could find themselves carried away trying to perfect the technology instead of driving transformation. To this end, our critical recommendation is to start with a business case based on a sound hypothesis. This way, technological advancements can be aligned with organisational vision to prevent misfires.

- I Rethink the ways of business first and then spot the resulting opportunities.** Wherever necessary, businesses need to put in place new support structures before exploring AI opportunities. This begins by reimagining how work gets done now that machines can do more and more of it, and viewing data with a holistic lens. Importantly, it means building trust for ML.

A case in point is that of a mining company based in Australia where injuries and worker deaths were increasing. We stepped in to craft an AI-based solution that is capable of predicting risk events, combining the power of ML, text analytics and natural language processing (NLP). The predictive capability empowered organisations to prevent human injuries and thus enhanced the brand's reputation. (See Quick Take on page 20.)

## 2 Combine business and behavioural insights to build human-centric AI

- I Embed human-centricity up front.** Human-centricity is critical for balancing ambition with machine resilience. This means an unwavering focus on AI literacy, re-skilling, up-skilling and retooling. Organisations should ensure a focus is on human-centricity from the initial stages.
- I Factor in behavioural insights.** Today, behavioural science is more important than ever for businesses. AI's transformative impact on businesses and industries means it needs to be a valued part of the organisation. To this end, businesses can fuse learnings from sociologists and anthropologists with their business strategy inputs.

## 3 Build a data-driven organisation

- I Embed data analytics to drive decision-making.** AI is only as good as the data it accesses. For businesses, it is not only critical to get a holistic view of data, but also to use data analytics to drive decision-making across the organisation.

A case in point is that of an Australian telecommunications company, which builds and operates networks and markets voice, mobile, internet access, pay television, and other products and services. With the proliferation of customer channels and business lines, the company's marketing operation, to be effective, needed to transform itself into a fact-based operation, with a unified view of customers across their interaction journey. We stepped in as a strategic partner and provided advisory and functional business analysis services, and designed a solution – the technical architecture to build a “customer interaction journey” platform. The platform captures any relevant customer-specific action by filtering events of interest. Each event also gets enriched with additional useful information before being explored. This helped marketing to make more accurate and relevant customer offers and to reduce time-to-delivery for customer services.

Growing cybersecurity threats means AI will have a key role in keeping organisations – and their data – safe. Success will depend on one critical factor: the cybersecurity talent organisations have on hand. (See Quick Take on page 22.)

- I Focus on compliance with data privacy laws.** Compliance with data privacy laws is critical to the trust established among businesses, governments and customers. As their AI deployments evolve, organisations must simultaneously safeguard the privacy rights of everyone concerned.

# Quick Take

## Keeping mines safe using predictive analytics

Mining industry operations are susceptible to events that put some workers at risk. A rise in incidents involving injuries and loss of workers' lives was of concern to one of our mining clients. The company sought our help to enhance safety by unleashing predictive capabilities to prevent the occurrence of risk events by identifying risks before they harm workers.

Our team of data and advanced analytics experts conceptualized and delivered an AI solution that accurately predicts potential accident types that could undermine conditions and controls in place to ensure miner safety.

We employed an analytical model that leverages advanced analytics and intuitive drill-downs to analyse various data sources related to the events data and provide insights to prevent such events/accidents from happening in the future. The system's dashboard helps visualize all the findings identified in NLP and regression models and offers insights on top risks, causes and other external factors that lead to accidents.

In the process of identifying causes, we designed the solution with the capability to learn and apply learnings from "reactive investigations" to "proactive onsite inspections."

Beyond preventing reputational damage, the solution is yielding two major benefits: reduction in the number of safety events (injuries and fatalities), thus creating a safer workplace for miners, and also significant savings from prevented losses in production during downtime due to injuries and accidents.

#### 4 Deploy AI tools and algorithms in line with the maturity curve

At a given point in time, any two organisations will have differing problems and challenges to confront. Achieving AI maturity involves moving along the maturity curve iteratively, adopting the necessary tools and creating new algorithms. Appropriate options will be defined by where organisations find themselves on the maturity curve.<sup>11</sup>

#### 5 Pave the way for creating an AI-centred culture

Cultural change, or the lack of it, reflects whether organisations fully grasp the impact AI is going to have on them. AI's impact on organisations will be transformative, and leaders need to recognize the implications it has for the people who work with them across the value chain, including employees, customers and partners. The cultural rewiring of an organisation begins at the top and needs to be approached with this end goal in mind: becoming a data-driven organisation where human creativity thrives around AI.

- I Inculcate cross-functional cooperation.** To realize AI's transformative power, businesses need a cross-functional team and a structured approach to identifying opportunities for process improvements.
- I Relinquish risk aversion.** As businesses move beyond experimentation, they will need to create an environment that encourages creativity and a risk-taking attitude. To make this happen, we recommend setting up an AI office or centre of excellence (CoE) to oversee AI projects from ideation to production while making sure ethical guidelines are followed.

Small, multi-skilled teams are critical. AI success depends on combining knowledge from business functions, processes, data and technology. It takes an organisational village.

- I Close the learning loop.** Bridging the gap between learning from AI experiments, which happens simultaneously across the organisation, and the areas where the output/lessons can be applied is important for advancing capabilities. An organisational mechanism that can oversee the experiments and update the broad approach accordingly can go a long way in upgrading capabilities.

# Quick Take

## Cybersecurity: A multi-pronged challenge

Cybersecurity and AI have a slightly complicated relationship. From the enterprise perspective, AI is a boon for early threat detection and response. Additionally, ML and deep learning techniques make sure that the enterprise security apparatus learns and adapts after every incident. AI is, in fact, critical to the future of cybersecurity. Cybercriminals are getting more and more sophisticated, using malware and, more recently, deepfakes.<sup>12</sup>

Tackling these threats is critical to protect assets and reputations. However, the security of human data, physical assets and reputations cannot be left to machines. Humans are the attackers, targets and responders in the cybersecurity cat-and-mouse game, making it critical that the AI security apparatus be fused with human insight. But this is where things get tricky.

Even as AI-related cybersecurity threats are expected to increase manifold in the coming years, there is conversely a deep shortage of cybersecurity talent.<sup>13</sup> According to estimates by (ISC)<sup>2</sup>, the global cybersecurity talent shortfall is at four million, with APAC falling short by a whopping 2.6 million.<sup>14</sup>

This presents a massive challenge to the region's ambitious plans for AI. The only clear path is to retrain existing employees to upgrade their skills, while attracting fresh data science talent from relevant fields. This needs to be supported with a work environment that effectively integrates the new talent and enables fast realisation of value in AI projects.

- I **Keep on communicating.** A strong culture thrives on communication. AI deployments might succeed or fail, but communication keeps people going. Nevertheless, it is critical for any corporate AI effort to keep all channels open for sharing knowledge and information and reinforcing business value, trust in technology and data.

## 6 Embrace ethics and governance

- I **Embed ethics up front to build responsible AI applications.** As AI is expected to be all-pervasive, touching every aspect of an organisation's business, building ethics into the fabric of AI technology is essential. Companies must build ethics right from the initial development stages and subsequently oversee that AI apps operate ethically and learn to evolve as well. Governance models are critical for ensuring that ethical aspects of AI don't get overlooked. AI's current limitations in the form of built-in biases<sup>15</sup> and an inability to handle complex situations<sup>16</sup> are well documented.

As businesses advance their AI efforts, ethics and governance become more and more critical to their deployments. By adopting an existing governance framework, they can ensure that they are on track to become a responsible, AI-led business. (See Quick Take, next page.)

## 7 Employ external partnerships as AI levers

- I **Address talent gaps.** Choose external vendors that are competent to augment the business's AI capabilities – vendors that have a workforce with AI-ready skills to engage an effective partnership.
- I **Leverage partnerships to access ever-advancing AI technologies.** How can organisations better prepare for rapid AI experimentation? Securing ready access to new technologies and techniques is an important first step. Many AI efforts get bogged down in lengthy technology procurement processes. Businesses need to be sure they have an open cloud environment to experiment with machine data. Better yet, they should create a robust set of partnerships that provide access to continuously advancing AI technologies.



# Quick Take

## Ethics and governance initiatives

The rise of AI and the accompanying fears have prompted governments and other institutions to launch efforts to allay these concerns. In APAC, the Middle East and across the globe, several initiatives are helping businesses, both established and new-fangled, to properly embed ethical values and embrace human-centredness into their AI thinking and action, as well as to properly govern new initiatives as they are launched. Here are two cases in point.

Singapore launched its AI model framework last year, becoming the first country in the region to have such a model.<sup>17</sup> The model is based on the principle that any AI implementation should be human-centric, explainable, transparent and fair. This approach is aimed at promoting trust and understanding in technology. The framework has since been adopted by the likes of DBS Bank, Hong Kong & Shanghai Banking Corporation (HSBC) and MasterCard.<sup>18</sup>

In its second edition, published in January, the model provides a sophisticated set of guidelines around areas such as internal governance measures, determination of human involvement and stakeholder interaction.<sup>19</sup> In addition, the model also provides case studies and a self-assessment guide to help organisations manage their progress.

Meanwhile, the Ethics and Governance of Artificial Intelligence Initiative,<sup>20</sup> a joint project by MIT Media Lab and the Harvard Berkman-Klein Center for Internet and Society, is focused on helping businesses understand how AI can reflect values of fairness, human autonomy and justice.

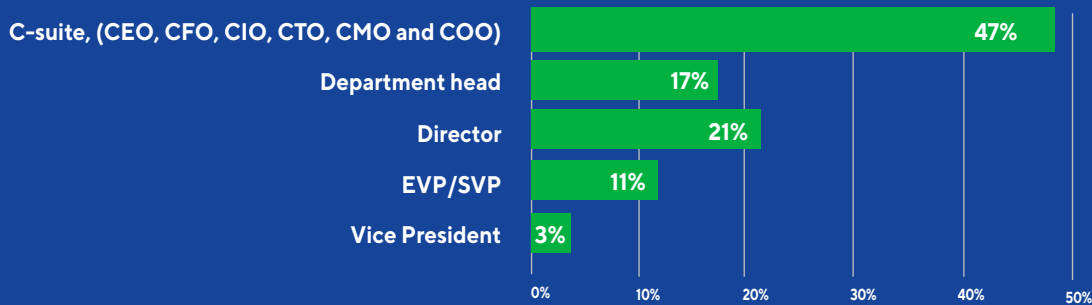
For businesses, these initiatives present an opportunity to adopt AI governance and ethics framework(s) that best suit their vision.

# Methodology

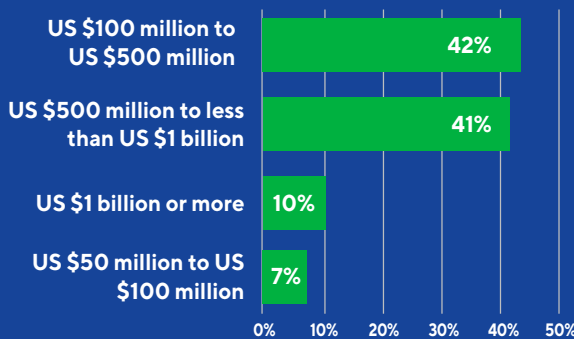
We surveyed 590 executives in the APAC and Middle East region using a combination of online and telephone interviews. These executives are spread across 15 countries, and split into six regions and eight industries. Nearly 50% belong to the C-suite.

## Respondent Profile

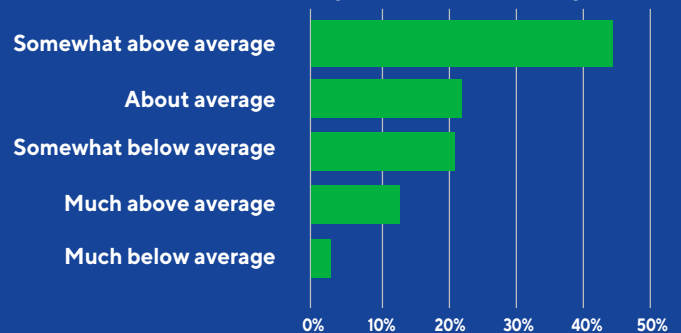
### Which one of the following best describes your title or level?



### What are your company's global annual revenues?

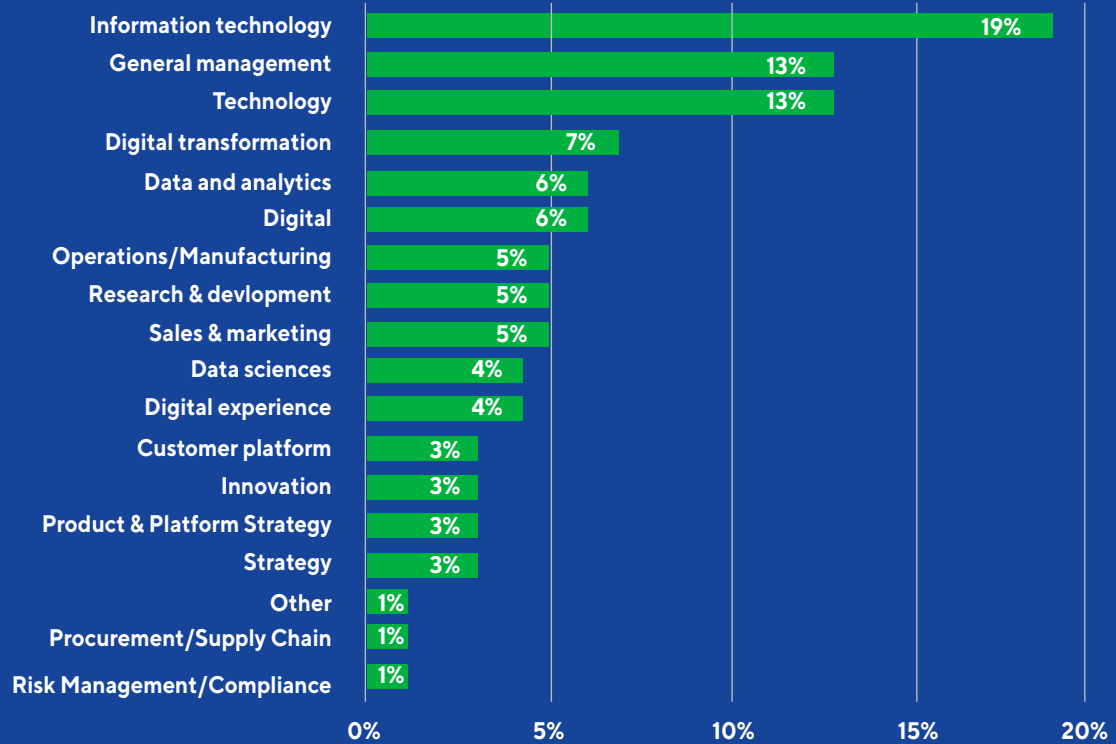


### What is the growth of your company's revenues compared to the average company in the same industry in the last two years?

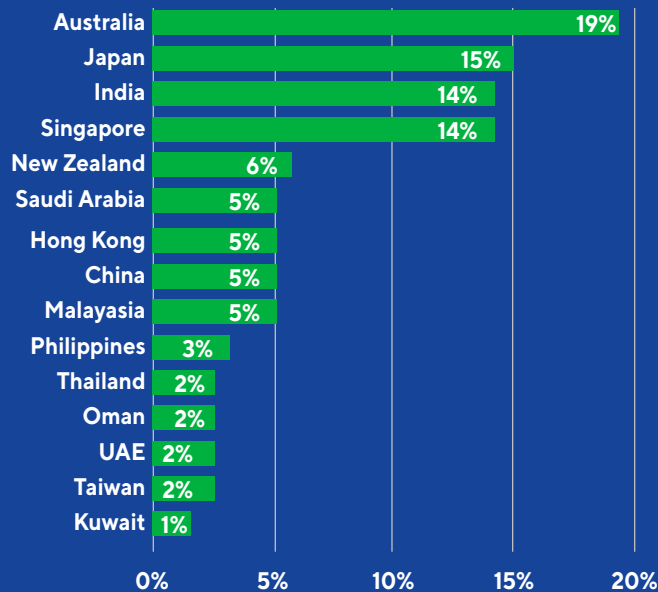


Countries	Category	
Australia	ANZ	25%
New Zealand		
Singapore	ASEAN	28%
Malaysia		
Philippines		
Taiwan		
Thailand		
China	China & HK	10%
Hong Kong		
India	India	14%
Japan	Japan	15%
UAE	Middle East	10%
Saudi Arabia		
Oman		
Kuwait		

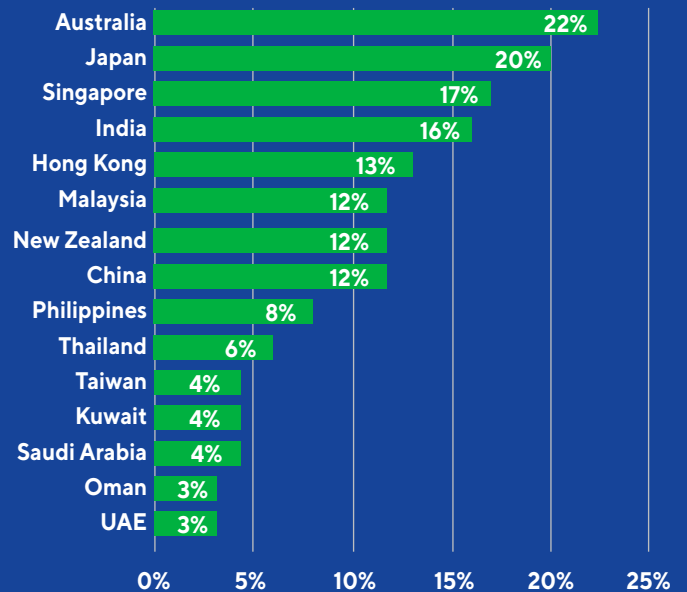
### In which functional area do you primarily work?



### Which country do you work in?



### Which country do have responsibilities for?



## Endnotes

- <sup>1</sup> IDC: Asia-Pacific spending on AI systems will reach \$5.5 billion this year, up 80% from 2018, TechCrunch, May 21, 2019, <https://techcrunch.com/2019/05/20/idc-asia-pacific-spending-on-ai-systems-will-reach-5-5-billion-this-year-up-80-percent-from-2018/>.
- <sup>2</sup> AI for health, infrastructure and natural resources key to Australia's future prosperity, CSIRO, Nov. 18, 2019, <https://www.csiro.au/en/News/News-releases/2019/AI-for-health-infrastructure-and-natural-resources-key-to-Australias-future-prosperity>.
- <sup>3</sup> Alibaba unveils its first A.I. chip as China pushes for its own semiconductor technology, CNBC, Sept. 25, 2019, <https://www.cnbc.com/2019/09/25/alibaba-unveils-its-first-ai-chip-called-the-hanguang-800.html>.
- <sup>4</sup> We asked respondents to select their company's revenue growth category (based on the last two years) from the following options: much above average, somewhat above average, about average, somewhat below average and much below average.
- <sup>5</sup> Making AI Responsible – And Effective, Oct. 2018, <https://www.cognizant.com/whitepapers/making-ai-responsible-and-effective-codex3974.pdf>.
- <sup>6</sup> A.I. in China: TikTok is just the beginning, *Fortune*, Jan. 2020, <https://fortune.com/longform/tiktok-app-artificial-intelligence-addictive-bytedance-china/>.
- <sup>7</sup> 21 More Jobs of the Future: A Guide to Getting and Staying Employed through 2029, Oct. 2018, <https://www.cognizant.com/futureofwork/whitepaper/21-more-jobs-of-the-future-a-guide-to-getting-and-staying-employed-through-2029>.
- <sup>8</sup> Property claims handling revisited: The insurance AI imperative, Cognizant Roundtable, Sept. 2019.
- <sup>9</sup> Job disruption in AI era likely to catch Asian governments by surprise, says MIT report, SCMP, May 2019, <https://www.scmp.com/tech/policy/article/3009168/job-disruption-ai-era-likely-catch-asian-governments-surprise-says-mit>.
- <sup>10</sup> Making AI Responsible – And Effective, Oct. 2018, <https://www.cognizant.com/whitepapers/making-ai-responsible-and-effective-codex3974.pdf>.
- <sup>11</sup> Insights for Getting – and Staying – Ahead in the Digital Economy, Cognizant, Nov. 2019, <https://www.cognizant.com/whitepapers/11-insights-for-getting-and-staying-ahead-in-the-digital-economy-codex5163.pdf>.
- <sup>12</sup> Untangling the Deepfake Menace, Cognizant, Feb. 2020, <https://www.cognizant.com/perspectives/untangling-the-deepfake-menace>.
- <sup>13</sup> Cybercrime: AI's Growing Threat, DarkReading.com, April 2019, <https://www.darkreading.com/risk/cybercrime-ais-growing-threat-/a/d-id/1335924>.
- <sup>14</sup> Cybersecurity Skills Shortage Tops Four Million, Infosecurity Magazine, Nov. 2019, <https://www.infosecurity-magazine.com/news/cybersecurity-skills-shortage-tops/>.
- <sup>15</sup> Machine Bias, ProPublica, May 2016, <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>.
- <sup>16</sup> How Design Thinking Can Power Creative Problem-Solving, Drive Change and Deliver Value, Cognizant Technology Solutions, Dec. 8, 2015, [www.cognizant.com/perspectives/human-centric-design-how-design-thinking-can-power-creative-problem-solving-drive-change-and-deliver-value](http://www.cognizant.com/perspectives/human-centric-design-how-design-thinking-can-power-creative-problem-solving-drive-change-and-deliver-value).
- <sup>17</sup> Model Artificial Intelligence Governance Framework and Assessment Guide, World Economic Forum, Jan. 2019, <https://www.weforum.org/projects/model-ai-governance-framework>.
- <sup>18</sup> Singapore updates model AI governance framework, Computer Weekly, Jan. 2020, <https://www.computerweekly.com/news/252477129/Singapore-updates-model-AI-governance-framework>.
- <sup>19</sup> Model AI Governance Framework, PDPC Singapore, Jan. 2020 <https://www.pdpc.gov.sg/Resources/Model-AI-Gov>.
- <sup>20</sup> The Ethics and Governance of Artificial Intelligence Initiative, <https://aiethicsinitiative.org/>.

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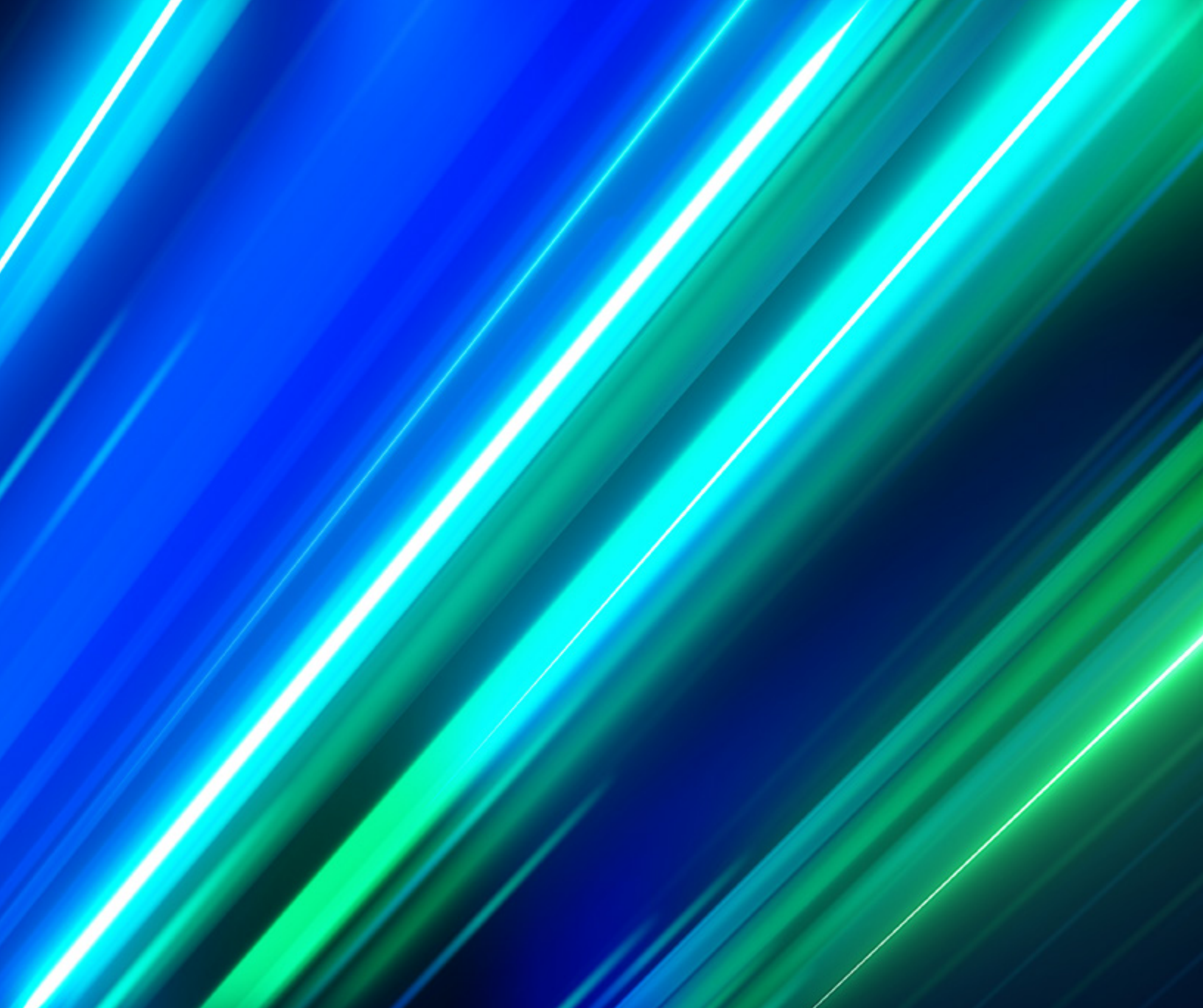
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## Acknowledgments

The authors would like to thank Newton Smith, Digital Business leader for Asia Pacific, for his valuable inputs.







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