

WORKFORCE BLUEPRINT FOR AI

Preparing Asia Pacific's People, Organisations,
and Education Systems for 2035



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Foreword

Artificial intelligence is reshaping the future of work with remarkable speed, changing how organisations operate, how industries compete, and how people learn, create, and contribute. Yet as significant as these technological advances are, they point to an even more important question: How do we prepare young people to thrive alongside them?

For more than a century, Junior Achievement (JA) has helped young people develop the skills, confidence, and entrepreneurial mindset to succeed in a changing economy and through periods of industrial and technological upheaval. At JA Asia Pacific, that mission extends across one of the world's most dynamic and diverse regions, intersecting education, business, and government to prepare the next generation for the opportunities ahead.

AI represents one of the most profound shifts we have seen, not only in the tools employees use, but also in the capabilities employers value. Preparing for this future calls for a deep understanding of the human capabilities that will become increasingly valuable, the education systems that will develop them, and the partnerships needed to bring them to life.

This is where the JA Institute plays an important role. As JA Worldwide's centre for research, thought leadership, and youth voices, the institute examines the forces reshaping education, work, and entrepreneurship – including the rapid advancement of artificial intelligence – and translates those insights into practical frameworks that help prepare young people for the future. By bringing together educators, employers, policymakers, researchers, and technology leaders, the JA Institute helps ensure that conversations about AI remain grounded in human potential, workforce readiness, and opportunity.

Earlier this year, JA Asia Pacific also established the JA APAC AI Council to help guide this work within the region. Bringing together leaders from business, technology, education, government, and intergovernmental organisations, the

Council provides a forum for examining how AI is transforming learning and work, identifying emerging opportunities and challenges, and helping ensure that young people have a voice in shaping the future they will inherit.

The AI Workforce Blueprint, a publication of JA Asia Pacific, JA Institute, and Ecosystem, is one of the council's first major contributions, exploring the capabilities, education systems, workforce models, and cross-sector collaboration that will determine whether AI expands opportunity across Asia Pacific. Its recommendations recognise that preparing for the future of work is a shared responsibility that requires educators, employers, policymakers, and learners to evolve together.

Throughout our history, JA has been guided by a simple belief: Talent is universal, but opportunity is not. As AI transforms economies across the region, the benefits of this technological revolution will depend on whether people everywhere have access to the skills, experiences, and opportunities needed to participate in it.

We hope this position paper serves as both a source of insight and a catalyst for action. The future of work is already taking shape. By working together across sectors, and by ensuring that young people remain at the centre of these conversations, we have an opportunity to build an AI-enabled future that is more innovative, inclusive, and prosperous for everyone.

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1.

Executive Summary

AI will change how people work, but the impact will not be seen all at once.

Some organisations are already adopting AI tools and redesigning roles, while others are moving towards AI-enabled workflows and intelligent operations. Over time, work will evolve further as people and intelligent systems operate together in more adaptive ways. **These shifts can be understood through three horizons:** Horizon 1, focused on AI-driven productivity and early role redesign; Horizon 2, where work becomes AI-orchestrated; and Horizon 3, where organisations operate through adaptive human-AI ecosystems.

Across all three horizons, the nature of work will shift. People will spend less time performing routine tasks and more time making decisions, managing systems, solving problems, and applying judgement. Technical skills will continue to change as AI, robotics, quantum technologies, and other emerging systems evolve. However, capabilities such as critical thinking, collaboration, creativity, adaptability, and judgement will become more critical.

The future workforce will not be defined by the ability to use a specific AI tool. It will be defined by the ability to learn continuously, work effectively with intelligent systems, and apply human expertise where context, accountability, and complex decisions matter.

AI will reshape industries differently

AI adoption will vary by industry. The pace of change will depend on each sector's business model, regulatory requirements, technology maturity, and operating environment. We look to financial services and manufacturing to illustrate this differentiation.

Financial services is moving towards AI-enabled decision-making. Institutions are applying AI across customer processes, risk management, compliance, fraud detection, and operations. As AI becomes embedded in decision processes, workforce priorities will move towards governance, model oversight, regulatory interpretation, and professional judgement.

Manufacturing takes a different path. AI is being combined with robotics, automation, computer vision, and digital twins to improve production, maintenance, quality, and supply chains. The focus is on improving operational performance while preparing workers to operate alongside increasingly intelligent systems.

These sectors demonstrate that **there is no single AI workforce pathway**. Financial services is moving more quickly towards Horizon 2, where employees manage AI-supported decisions and workflows. Manufacturing remains largely in Horizon 1, using AI to improve productivity and build the foundations for more autonomous operations.

Asia Pacific's AI opportunity depends on capability, not just technology

Asia Pacific has significant advantages in the AI transition. Its diverse economies, large and increasingly digital populations, strong technology ecosystems, and central role in global supply chains provide strong foundations for AI-enabled growth.

However, technology investment alone will not determine success. Asia Pacific's ability to capture AI's economic benefits will depend on whether people and organisations have the skills, infrastructure, and opportunities needed to apply AI effectively.

Four forces will shape the region's workforce transition:

- ◆ Closing the AI readiness divide between countries, communities, and businesses
- ◆ Developing the infrastructure capabilities needed to support AI adoption
- ◆ Helping organisations translate AI investment into productivity and innovation
- ◆ Preparing new entrants for a labour market where roles and skills continue to change

Without action, differences in access to skills, infrastructure, and practical experience could widen existing economic gaps. AI capability must therefore be treated as strategic economic infrastructure — a foundation for productivity, competitiveness, and inclusion.

Youth will shape Asia Pacific's AI future

Asia Pacific's young and digital population is one of its greatest strategic assets. However, demographic advantage alone will not create an AI-ready economy.

Young people will be among the first generations to experience AI throughout their education, careers, and civic lives. Their ability to adapt, their trust in AI, and their participation in shaping how AI is developed and used will influence the region's long-term economic and social outcomes.

Young people should not be viewed only as future workers who need to be prepared for AI. They are already using and experimenting with AI in education, entrepreneurship, creative work, and communities. They should therefore be active participants in shaping how AI is developed and deployed, helping ensure that its benefits contribute to economic growth, social progress, and sustainable development.

Education systems must shift from skills delivery to capability building

Education systems across Asia Pacific are at a turning point. Preparing learners for an AI-enabled workforce will require more than adding AI to the curriculum.

It requires a rethink of the entire learning pipeline – from primary education and educator capability through to vocational training, higher education, and lifelong learning.

Many education systems were designed for a world where skills remained relevant for longer. AI is shortening that cycle. Learners now need to develop the ability to adapt as technologies, tasks, and occupations evolve.

This means education systems must build AI and digital literacy, while placing greater emphasis on transferable capabilities such as:

- ◆ Critical thinking and problem-solving
- ◆ Systems thinking
- ◆ Creativity and collaboration

Asia Pacific has strong foundations, including industry-linked education models, vocational pathways, growing digital economies, and increasing investment in AI capability.

The next step is to connect these strengths into flexible learning systems that can develop capability continuously and keep pace with workforce change.

Building the AI workforce requires action across the ecosystem

No single organisation can build an AI-ready workforce. Governments, education providers, employers, and learners all have a role.



Education providers must redesign curriculum, assessment, and teaching approaches to develop learners who can work alongside AI. This means embedding AI capability across disciplines, strengthening educator readiness, and expanding practical learning through industry partnerships.



Policymakers must treat workforce capability as a strategic priority alongside AI investment and infrastructure. This requires national capability frameworks, modernised qualification systems, stronger education-industry collaboration, and policies that ensure access to AI opportunities is not limited to those with existing advantages.



Employers must move beyond AI adoption towards workforce transformation. Organisations need to redesign roles around human-AI collaboration, build AI capability across the workforce, and develop specialised skills in areas such as AI governance, oversight, and risk management.



Learners must prepare for careers defined by continuous change. Alongside AI literacy, they need to develop transferable capabilities that remain valuable across all AI horizons, including judgement, creativity, collaboration, adaptability, and ethical reasoning.

The priority is to connect these efforts rather than treat them as separate initiatives.

Education needs to anticipate changing workforce requirements, employers need to help shape those pathways, policymakers need to enable them, and learners need meaningful opportunities to apply what they develop.



2.

Three horizons of AI workforce evolution

Preparing the workforce for AI requires looking beyond immediate skills needs to the longer-term evolution of work itself. A three-horizons framework helps organisations anticipate how capabilities, roles, and operating models will change as AI becomes more autonomous and converges with other emerging technologies.

The impact of AI on work extends beyond today's focus on AI skills and digital fluency.

It reflects a broader shift in how work is organised, how capability is developed, and how organisations operate as intelligent technologies become more autonomous and increasingly integrated into business processes and physical environments.

A three-horizons approach provides a structured way to anticipate how work will change. Rather than preparing the workforce for current technologies alone, it maps the capabilities required across successive phases of transformation. Horizon 1 focuses on adopting AI today, while Horizons 2 and 3 consider how emerging technologies, new operating models, and changing workforce structures will reshape work over the next decade.

The next step is to connect these strengths into flexible learning systems that can develop capability continuously and keep pace with workforce change.

For policymakers, educators, and employers, this provides a basis for long-term workforce planning. It enables investment in foundational capabilities that remain valuable across different technologies, while identifying the new roles, skills, and governance models that will emerge as work changes.

As AI converges with robotics, automation, digital twins, quantum computing, and other intelligent systems, workforce readiness will depend on the ability to learn, adapt, and apply human judgement as the nature of work evolves.



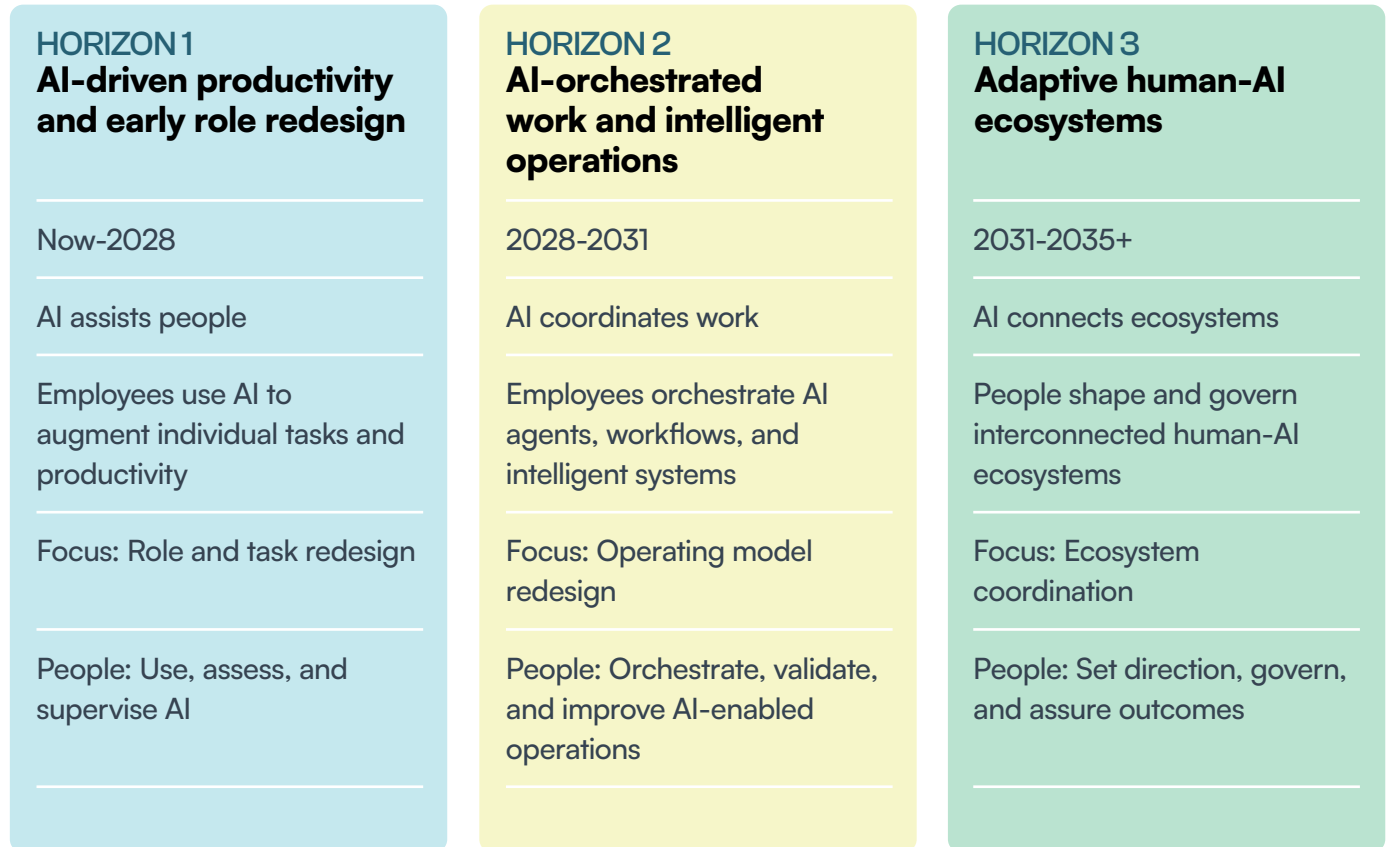
Six forces shaping the future of work

The three horizons represent different stages in the evolution of work, but that evolution will be driven by a common set of long-term forces. These forces are reshaping how technology develops, how organisations operate, and how skills are acquired and applied – moving work from today’s AI-assisted activities towards autonomous and interconnected systems.

- 01.**
Continuous technology change
Technology is not evolving in predictable cycles. AI, quantum computing, robotics, spatial computing, new human-machine interfaces, and other emerging technologies will continue to advance in parallel, creating successive waves of change. No single platform, capability, or technical discipline is likely to remain relevant throughout an entire career. Workers will need to keep developing their capabilities as technologies converge and industries change.
- 02.**
Work shifting from tasks to systems
The nature of work is expanding beyond individual tasks. Today, AI primarily augments specific activities. Over time, organisations will redesign entire workflows around AI, while longer-term models will connect people, technologies, data, and processes across organisational boundaries. Success will depend on designing, integrating, and governing these systems rather than operating individual tools.
- 03.**
Increasing autonomy of machines
AI is progressing from assisting people to making decisions, optimising processes, and operating with defined levels of autonomy. AI agents, autonomous robots, intelligent infrastructure, and self-managing systems will take on a growing share of operational work. Human roles will shift towards setting objectives, defining guardrails, supervising outcomes, and intervening when necessary.
- 04.**
Convergence of digital, physical, and biological systems
Technology domains are becoming more interconnected. AI, software, robotics, IoT, advanced manufacturing, biotechnology, and environmental technologies are being combined to address complex challenges. Digital twins – real-time virtual representations of physical assets, processes, and systems – are enabling organisations to simulate, monitor, and optimise real-world environments. Future roles will sit across these boundaries, requiring people to combine expertise from different disciplines and technology domains.
- 05.**
Accelerating skill obsolescence
As technologies evolve more rapidly, the lifespan of technical skills continues to shrink. Individuals will need to learn, unlearn, and apply new capabilities throughout their careers rather than prepare for a single technology or profession. Durable capabilities including critical thinking, creativity, collaboration, adaptability, and responsible AI practices will therefore become increasingly important.
- 06.**
Geopolitical fragmentation and digital sovereignty
Technology environments are being shaped by varied regulatory, data, infrastructure, and technology requirements across markets. Organisations will need talent that can operate across these environments, understand relevant regulatory constraints, and work with different approaches to data and AI infrastructure. For some roles, awareness of these requirements will become an important part of operating effectively in a more fragmented technology landscape.

Three horizons framework

Figure 1: The three horizons of workforce evolution



HORIZON 1:

AI-driven productivity and early role redesign (Now–2028)

AI is becoming part of everyday work. What began as experimentation is being embedded into business processes and workplace applications, enabling employees to complete routine cognitive tasks more efficiently. Rather than replacing entire jobs, AI automates parts of existing roles, prompting organisations to redesign tasks and redistribute work between people and machines.

For most employees, AI functions as an assistant that augments individual productivity. Meanwhile, organisations are focused on building AI literacy, strengthening digital and data capabilities, and redesigning roles so people can work confidently alongside intelligent systems.

The defining shift is from individual productivity to AI-enabled work. Competitive advantage comes from equipping people with the skills, governance, and digital foundations needed to adopt AI effectively.



What work looks like

- ▶ AI is embedded into everyday workplace tools and applications.
- ▶ Employees routinely use AI to draft, analyse, summarise, code, and coordinate work.
- ▶ Individual roles evolve as tasks are redistributed between people and AI.
- ▶ Human value centres on judgement, context, oversight, and ethical decision-making.
- ▶ Digital, data, and AI literacy become baseline expectations across most occupations.



Education priorities:

Building foundational capabilities

- ▶ Build digital, data, and AI literacy across disciplines.
- ▶ Strengthen critical thinking and information evaluation to assess AI-generated outputs.
- ▶ Embed cybersecurity and responsible AI practices across learning.
- ▶ Develop communication and collaboration skills for human-AI environments.



Industry priorities:

Embedding AI into everyday work

- ▶ Integrate AI into core business processes and workplace applications.
- ▶ Redesign jobs and workflows to improve productivity and quality.
- ▶ Establish governance for safe, transparent, and compliant AI use.
- ▶ Upskill employees to work effectively alongside AI.

Figure 2: Workforce capabilities for horizon 1

Technical capabilities	Durable capabilities that differentiate	
Applied AI literacy (using AI tools effectively and responsibly)	Problem-solving and critical thinking Assessing AI outputs and applying judgement	Self-awareness and career orientation Recognising how AI is changing role and identifying development areas
Prompt engineering and AI-assisted workflows	Creativity and idea generation Framing problems effectively and exploring new approaches	Communication and persuasion Translating AI outputs into actions
Digital productivity and collaboration tools	Teamwork and collaboration Coordinating effectively through AI-enabled platforms	
Data literacy and basic analytics	Problem-solving and critical thinking Interpreting insights and challenging assumptions	
Information verification and evaluation	Problem-solving and critical thinking Validating accuracy, relevance, and bias	

WORKFORCE SHIFT

Employees are moving from simply completing tasks to working effectively with AI-enabled tools, while applying judgement, communication, and accountability.



HORIZON 2:

AI-orchestrated work and intelligent operations (2028-2031)

As AI capabilities mature, organisations move beyond improving individual productivity to redesigning how work is organised. AI agents, autonomous workflows, robotics, and digital twins become embedded across business functions, executing complex processes while people coordinate, supervise, and continuously improve these systems.

Employees manage outcomes rather than individual tasks, while specialist teams orchestrate AI agents, workflows, and enterprise platforms. Subject-matter experts remain central to validating AI outputs, resolving exceptions, and ensuring decisions

align with business, regulatory, and operational requirements.

The defining shift is from AI-enabled work to AI-enabled organisations. Competitive advantage comes from redesigning operating models, decision-making, and governance so people and intelligent systems can operate effectively at enterprise scale. As frontier AI capabilities mature, organisations are moving beyond task-specific automation toward systems that can reason across domains, coordinate complex workflows, and support higher-order decision-making.



How the workplace will operate

- ▶ Employees oversee AI agents that execute multi-step workflows.
- ▶ Domain experts validate AI outputs, resolve exceptions, and ensure AI-driven decisions remain accurate, compliant, and aligned with business objectives.
- ▶ Teams coordinate work across AI, automation, robotics, and digital platforms.
- ▶ Human effort shifts towards orchestration, exception handling, and continuous improvement.
- ▶ Governance, assurance, and risk management become embedded across business functions.
- ▶ Cross-functional teams become the primary unit for delivering work.



Education priorities: Preparing people to orchestrate intelligent systems

- ▶ Develop systems thinking and workflow design capabilities.
- ▶ Build expertise in supervising AI agents and autonomous systems.
- ▶ Strengthen governance, assurance, and responsible AI decision-making.
- ▶ Expand interdisciplinary learning that combines technical, business, and domain expertise.
- ▶ Build capability for effective collaboration across human and machine teams.



Industry priorities: Redesigning the operating model

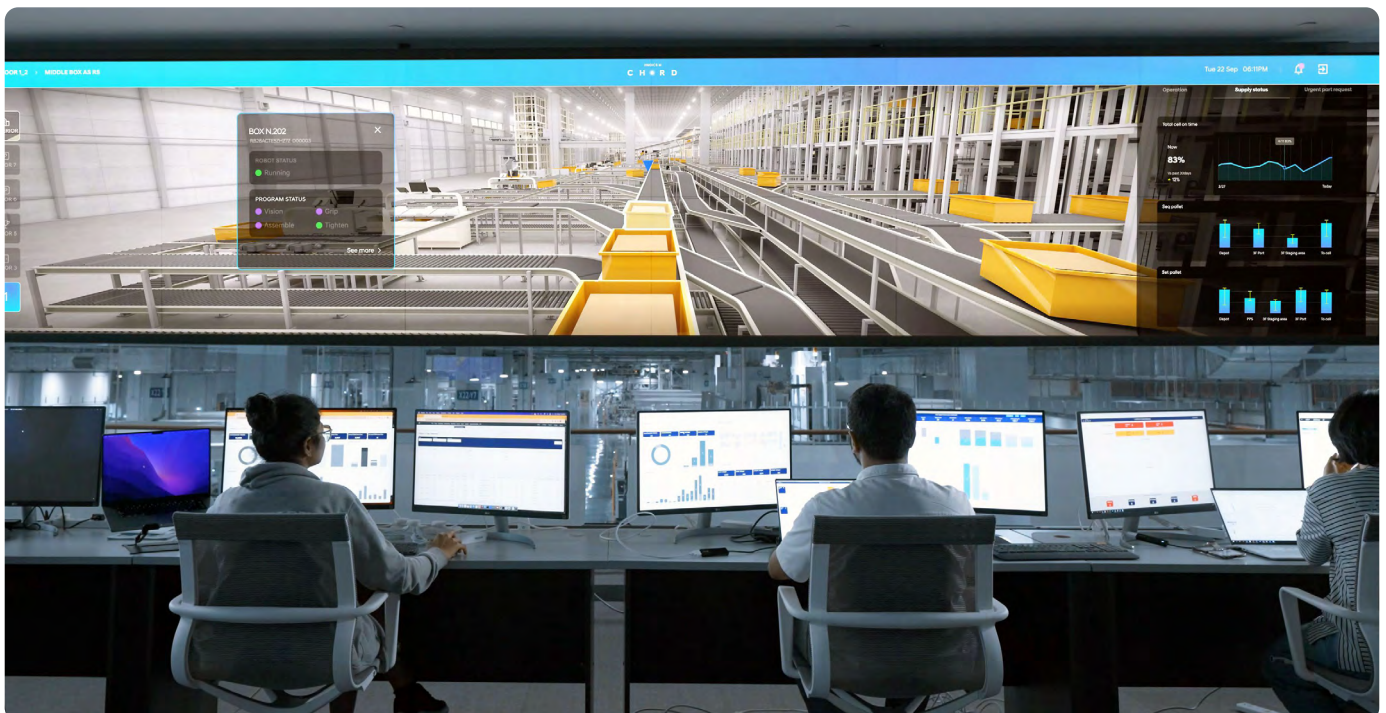
- ▶ Redesign operating models around AI-enabled workflows.
- ▶ Deploy AI agents, digital twins, and intelligent automation across core operations.
- ▶ Establish governance frameworks for autonomous systems.
- ▶ Build organisational capabilities for continuous workforce reskilling.

Figure 3: Workforce capabilities for horizon 2

Technical capabilities	Durable capabilities that differentiate	
Workflow and process redesign	Creativity and idea generation Rethinking processes rather than simply automating existing activities	
Systems thinking	Problem solving and critical thinking Evaluating dependencies across connected processes	
Automation technologies	Teamwork and collaboration Bringing together business, technical, and operational expertise	
AI agent orchestration	Problem solving and critical thinking Defining objectives, testing outputs, and resolving exceptions	Ethical judgement Ensuring AI behaviour aligns with organisational and regulatory expectations
Data science and decision analytics	Communication and persuasion Converting insights into decisions and influencing action	
AI governance and assurance	Communication and persuasion Aligning with business, technology, risk, and compliance stakeholders	Self-awareness and career orientation Understanding evolving professional responsibilities as AI assumes greater operational autonomy

WORKFORCE SHIFT

Employees move from using AI tools to redesigning processes, coordinating intelligent systems, and managing AI-enabled operations.



HORIZON 3: Adaptive human-AI ecosystems (2031-2035+)

By the early 2030s, frontier AI systems, advanced robotics, quantum technologies, and intelligent platforms extend beyond individual organisations to connect supply chains, industries, and public infrastructure. These technologies move beyond automating defined tasks towards enabling new forms of discovery, optimisation, prediction, and decision-making across interconnected environments.

AI fluency is now a baseline capability across the workforce. Most employees define objectives, constraints, and desired outcomes through intelligent platforms that abstract much of the

underlying complexity, while a growing proportion of the workforce develops the expertise to orchestrate interconnected AI systems directly. Subject-matter experts remain indispensable, assuring outcomes, challenging assumptions, and ensuring intelligent ecosystems remain aligned with business, regulatory, and societal expectations.

The defining shift is from organisational optimisation to ecosystem coordination.

Competitive advantage comes from governing interconnected intelligent ecosystems, shaping long-term strategy, and solving complex challenges that no single organisation can address alone.



How the workplace will operate

- ▶ AI fluency is assumed across the workforce. Employees define goals, constraints, and desired outcomes, while intelligent systems coordinate work across people, applications, and organisations.
- ▶ Domain experts assure outcomes, applying subject-matter expertise to validate AI-driven decisions, resolve exceptions, and continuously improve system performance.
- ▶ Governance shifts from overseeing individual AI systems to managing interconnected ecosystems, with accountability, resilience, and trust embedded across organisational boundaries.
- ▶ Teams collaborate seamlessly across organisations and industries through shared data, intelligent platforms, and autonomous workflows.
- ▶ Innovation focuses on solving complex, system-level challenges that span organisations, sectors, and societies.
- ▶ Leadership shapes the direction of intelligent ecosystems, balancing innovation, resilience, governance, and long-term economic and societal outcomes.



Education priorities: Preparing ecosystem leaders

- ▶ Develop expertise in designing and governing socio-technical ecosystems.
- ▶ Strengthen interdisciplinary learning across technology, business, and public policy.
- ▶ Build capabilities in responsible innovation and ethical leadership.
- ▶ Foster systems innovation, foresight, and lifelong learning.



Industry priorities: Building intelligent ecosystems

- ▶ Connect intelligent systems across organisations, supply chains, and industries.
- ▶ Develop ecosystem-based business models enabled by AI and automation.
- ▶ Strengthen governance, resilience, and accountability across interconnected networks.
- ▶ Build workforce models that maximise complementary human and machine capabilities.

Figure 4: Workforce capabilities for horizon 3

Technical capabilities	Durable capabilities that differentiate	
Frontier AI-enabled decision intelligence	Problem solving and critical thinking Applying judgement where AI recommendations have broader consequences	
AI ecosystem orchestration and systems architecture	Problem solving and critical thinking Managing complexity, uncertainty, and unexpected interactions	
Socio-technical systems design	Teamwork and collaboration Aligning technology, people, and organisational objectives	Creativity and idea generation Designing new ways of working
Intelligent platform design and integration	Teamwork and collaboration Coordinating decisions across multiple organisations and ecosystems	
AI governance and ecosystem assurance	Adaptability and resilience Responding to changing regulatory and societal expectations	Ethical judgement Maintaining accountability and trust
Ecosystem leadership*	Communication and persuasion Aligning diverse stakeholders	Self-awareness and career orientation Continuously redefining leadership contribution as AI capabilities evolve

*The capability to design, govern, and steer outcomes across interconnected AI systems that span multiple organisations, distinct from managing a single team or function. This will involve setting shared standards, resolving cross-organisational accountability, and aligning incentives across parties who don't report to the same leadership structure.

WORKFORCE SHIFT

Employees move from operating within AI-enabled organisations to shaping and governing interconnected human-AI ecosystems.



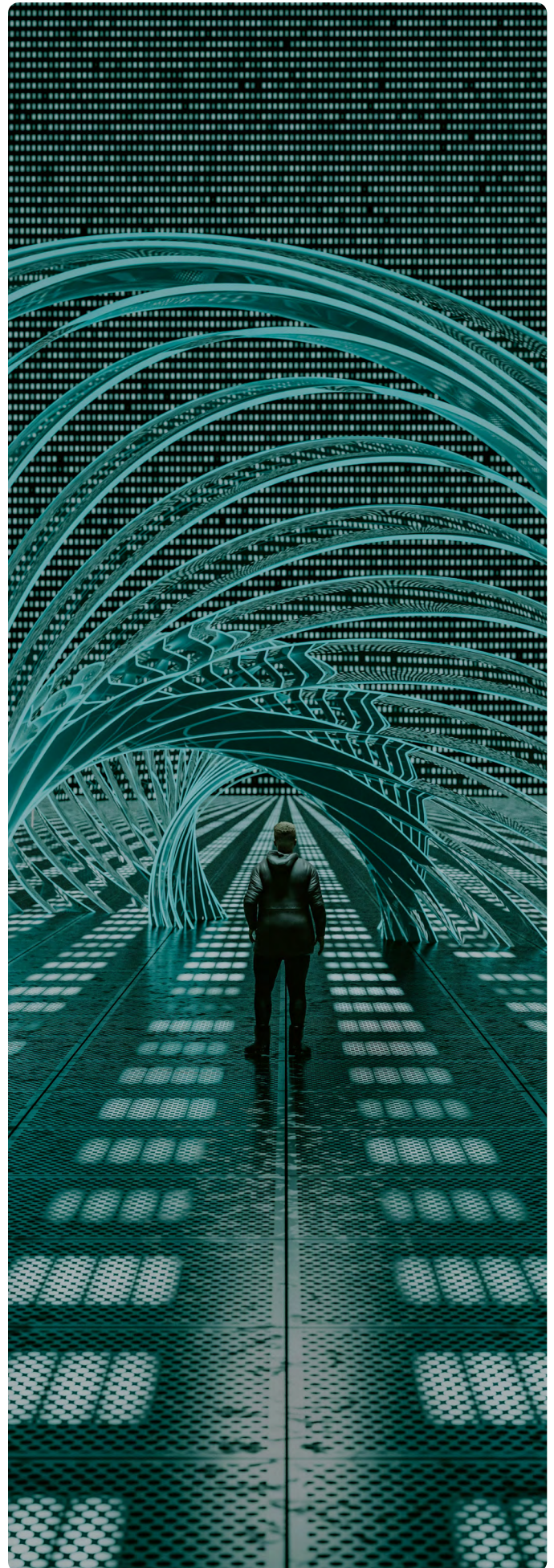
Beyond the three horizons

The three horizons describe how AI reshapes work, organisations, and workforce capabilities. Beyond 2035, as frontier AI systems, quantum technologies, robotics, and other emerging capabilities become more mature and embedded across economies, the defining challenge is likely to shift again – from building AI-enabled organisations and ecosystems to participating in intelligent networks that continuously evolve across organisational, industry, and national boundaries.

Competitive advantage will not be based on what any single organisation can achieve independently, but on its ability to contribute to, govern, and derive value from shared digital ecosystems. Organisations will exchange data securely, coordinate autonomous systems, and collaborate through interoperable platforms spanning supply chains, public services, and critical infrastructure. Success will depend on trusted partnerships, shared governance, and the ability to respond collectively to increasingly complex economic, environmental, and societal challenges.

What work could look like

- AI supports workflows that span multiple organisations, enabling work to be coordinated across supply chains, industries, and public services.
- Organisations collaborate through shared data, autonomous systems, and interoperable digital infrastructure.
- Human work focuses on strategy, governance, innovation, and solving complex challenges that extend beyond individual organisations.
- Multidisciplinary teams work across organisational and industry boundaries, with stakeholder engagement, negotiation, and partnership-building becoming core capabilities.
- Specialists combine expertise across AI, quantum technologies, advanced computing, and domain disciplines to address complex challenges.
- Success depends as much on ecosystem participation, interoperability, and trusted relationships as it does on internal capability.



Emerging role clusters across the horizons

AI is changing jobs in every industry, but it is not creating an entirely new labour market. Instead, demand is concentrating around several role clusters that combine technical expertise with industry knowledge and human judgement. While individual job titles will continue to evolve, these clusters provide a more stable view of where workforce demand is likely to grow.

Research from the Organisation for Economic Co-operation and Development (OECD)¹, the World Economic Forum (WEF)², the Asian Development Bank Institute (ADBI)³, and the World Bank⁴ points to sustained demand for roles that develop, deploy, govern, and integrate AI into business and industry.

Figure 5: Emerging workforce roles across the three horizons

ROLE CATEGORY	PRIMARY HORIZON	FOCUS	REPRESENTATIVE ROLES	
AI, data and decision intelligence	Horizon 1, expanding through Horizon 2	Develops AI models, manages data, and supports AI-enabled decision-making across business functions.	- AI Product Manager - MLOps Engineer - Decision Intelligence Analyst - Data Governance	- Specialist - AI Assurance Officer - AI Knowledge Engineer
Intelligent operations and automation	Horizons 1-2	Designs, operates, and optimises AI-enabled operational systems across manufacturing, logistics, healthcare, energy, construction, and other asset-intensive industries.	- Robotics Systems Supervisor - Operational Intelligence Specialist - Industrial AI Technician	- Automation Workflow Designer - Autonomous Operations Manager - AI Systems Safety Specialist
AI governance, risk and trust	Horizons 1-2	Governs the safe, compliant, and trustworthy use of AI through assurance, cybersecurity, model oversight, compliance, and risk management.	- AI Risk Manager - AI Assurance Auditor - AI Governance Specialist - Model Risk Analyst	- Algorithmic Risk Auditor - Digital Ethics Officer - AI Compliance Specialist
Human-AI work design	Horizons 2-3	Redesigns work by coordinating people, AI agents, and automated workflows to improve organisational performance.	- AI Workflow Designer - Human-AI Interaction Designer - AI Agent Orchestration Specialist	- Enterprise Automation Architect - AI Operations Manager - AI Business Translator
Ecosystem and platform roles	Horizon 3	Designs, governs, and optimises AI-enabled collaboration across platforms, industries, and digital ecosystems.	- AI Ecosystem Architect - Ecosystem Orchestration Lead - Cross-Industry AI Solution Designer - Multi-Agent Systems Architect	- Ecosystem Integration Specialist - Ecosystem Sustainability and Governance Lead

The three-horizons framework provides a common view of how AI is reshaping work, but its impact will vary across industries. Differences in technology adoption, regulation, operating models and workforce composition will influence how quickly work changes, which roles evolve, and the capabilities organisations need to develop.

3.

The impact of AI on industries

AI will reshape every industry differently. Business models, regulation, workforce composition, capital intensity, and operating environments all influence where AI creates value, how quickly it is adopted, and the capabilities organisations require. While foundational skills such as AI literacy and critical thinking will become essential across the economy, the way work is redesigned will remain industry-specific.

Sector analysis: A tale of two industries

Financial services and manufacturing offer two contrasting perspectives on how AI adoption is reshaping work across Asia Pacific.

Financial services is one of the region's more advanced AI sectors. AI is being embedded into decision-making, customer engagement, fraud detection, risk management, and regulatory compliance, providing an early view of how knowledge-intensive work is evolving and how governance and human oversight become integral to AI-enabled operations.

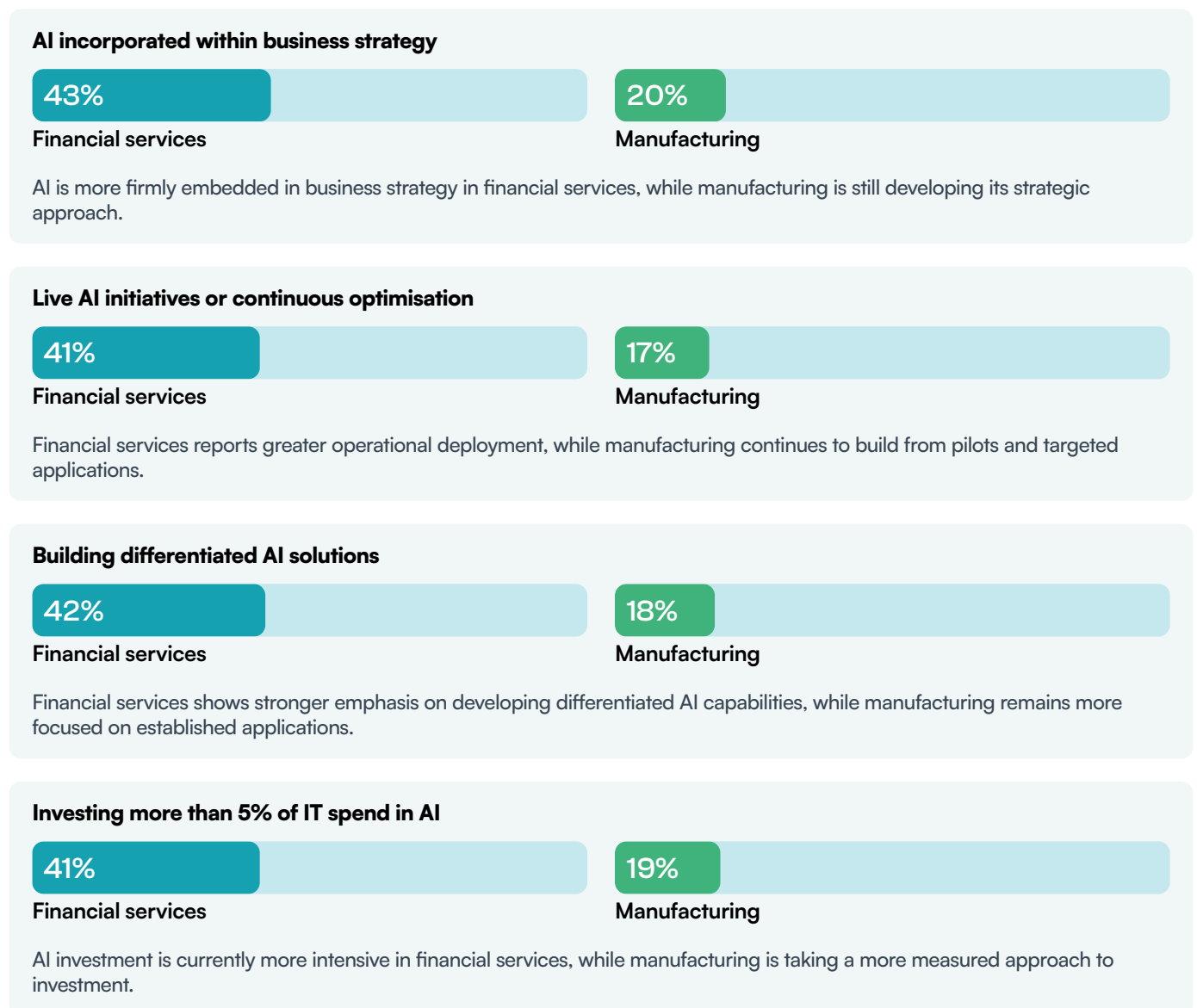
Manufacturing provides a complementary perspective. As a major contributor to economic output, exports, and employment across Asia Pacific, it illustrates how AI is reshaping operational

work. Organisations are applying AI to predictive maintenance, quality inspection, production scheduling, warehouse operations, and supply chain optimisation. In more advanced environments, AI is also being integrated with robotics, computer vision, and digital twins. Adoption is shaped by different economics: competitive labour costs, varied levels of automation, and complex legacy environments mean AI investments need to demonstrate clear operational value.

The sectors also sit at different points on the AI maturity curve. Financial services has generally progressed further in enterprise AI strategy, governance, investment, and operational deployment. Manufacturing is steadily scaling proven AI and automation where the business case is clear.



Figure 6: Two industries, two AI adoption pathways



The analysis draws on a survey of senior business and technology leaders across Asia Pacific (India, Indonesia, Japan, Korea, Malaysia, Philippines, Singapore, Thailand, Vietnam) – 108 from financial services and 103 from manufacturing – conducted between November and December 2025. More than half of respondents represented enterprises employing over 1,000 people.

Source: Ecosystem, 2026

These differences in AI maturity translate into different workforce trajectories. Financial services is progressing more rapidly towards Horizon 2, where AI augments professional judgement and increases demand for governance, assurance, and human oversight. Manufacturing remains primarily in Horizon 1, embedding AI into operational environments to improve productivity, quality, and resilience while laying the groundwork for more autonomous operations.

Neither pathway is inherently more advanced. Each reflects the economics, regulatory environment, and operational priorities of the industry. The Three Horizons provide a common framework, but the pace of adoption, redesign of work, and workforce capabilities required will continue to differ by sector.

Financial services

Financial services is among the sectors most affected by AI because it combines digital operations, vast volumes of structured and unstructured data, knowledge-intensive work, while operating in highly regulated environments. These characteristics make it well suited to AI while placing greater emphasis on governance, assurance, and human oversight than many other industries.

Financial institutions are applying AI across fraud detection, Anti-Money Laundering (AML) / Know Your Customer (KYC) , employee productivity, customer personalisation, risk management, compliance, software development, and internal operations. For many, the focus is now on embedding AI into day-to-day business processes. Maturity, however, varies across markets and institutions. Leaders such as DBS Bank in Singapore, KakaoBank in South Korea, Commonwealth Bank of Australia, and several digital banks in the region have integrated AI across multiple business functions, while many financial institutions across the region remain in earlier stages of adoption.

As AI becomes embedded in core operations, the challenge shifts from deploying technology to redesigning work. Roles, workflows, and decision-making are being restructured so AI augments professional judgement while people retain responsibility for governance, regulatory compliance, and customer outcomes.

"Our early and sustained investments in data and technology have established a robust foundation for industrialising AI across hundreds of meaningful use cases. This positions us to harness the game-changing potential of generative AI and agentic AI."

Tan Su Shan, CEO, DBS Group⁵

How work is changing

AI reshapes tasks, not jobs

Much of the debate around AI and employment assumes automation will replace entire jobs. In financial services, AI is more often changing the composition of roles – automating some tasks, augmenting others, and increasing the importance of human judgement.

A credit analyst, for example, may use AI to gather and analyse information, prepare documentation, and synthesise research, while continuing to interpret outputs, manage exceptions, engage stakeholders, and make accountable decisions. The role does not disappear; its centre of gravity shifts.

This pattern is emerging across the industry. AI is automating routine activities such as reconciliations, documentation, transaction monitoring, research synthesis, and first-line customer enquiries, while human effort shifts towards decision-making, governance, complex cases, relationships, and regulatory oversight.

For workforce planning, the implication is practical: organisations need to redesign work at the task level, deciding which activities AI should perform, which should remain with people, and where human oversight is essential. The question is not simply how many jobs AI will replace, but how each role should be redesigned as the balance between human and AI work changes.

"AI is not replacing jobs outright in financial services; it is redistributing tasks. Routine analytical work is automated, but human judgement, oversight, and accountability become even more important."

Dr. William Lo, Board Mentor, Criticaleye

Figure 7: Illustrative example: Credit analyst task recomposition

Rather than replacing the Credit Analyst role, AI redistributes work across its component tasks. Routine execution becomes AI-led or AI-augmented, while humans remain responsible for defining the problem, applying judgement, and making accountable decisions.

TASK	PROBLEM FRAMING	EXECUTION	ASSESSMENT
Define lending objective	Human-led		
Identify required information	Human-led, AI-assisted		
Gather customer data		AI-led	
Verify documentation		AI-led	Human oversight
Analyse financial statements		AI-augmented	
Calculate financial ratios		AI-led	
Assess credit risk		AI-augmented	Human judgement
Run scenario analysis		AI-led	
Compare against lending policy		AI-assisted	Human oversight
Draft credit recommendation		AI-generated	Human review
Review exceptions			Human-led
Approve / decline application			Human accountable

AI's impact by function

The impact of AI is not uniform across financial services. While the underlying pattern of task automation and augmentation is consistent, the nature and pace of change vary considerably between different functions.

Figure 8: Functional shifts in financial services

FUNCTION	FROM	TO
Customer engagement and sales	Executing routine enquiries, onboarding, comparisons and straightforward sales	Advisory, judgement-intensive work – trade-offs, trust, and previously unprofitable segments made viable
Governance, risk and compliance	Monitoring business activity manually, case by case	Providing oversight of AI-enabled financial services, including model risk, drift, explainability and bias monitoring
Finance and treasury	Producing periodic financial information	Interpreting information continuously and acting as a strategic business partner
Operations and shared Services	Processing transactions manually, one at a time	Orchestrating workflows, managing exceptions and ensuring operational resilience
Technology and digital	Building standalone applications	Designing, integrating and governing intelligent digital platforms that enable AI enterprise-wide



CUSTOMER ENGAGEMENT AND SALES

AI is automating routine customer interactions while increasing the value of advisory work. Enquiries, onboarding, product comparisons, and straightforward sales are being handled through AI-assisted and self-service channels, allowing professionals to focus on more complex customer needs. AI is also changing the economics of advice. By automating research, analysis, and routine servicing, institutions can deliver personalised guidance more efficiently, extending advice to customer segments that were previously uneconomical to serve.

As a result, customer-facing roles become more consultative. AI supports research, meeting preparation, and recommendations, while professionals remain responsible for understanding customer circumstances, building trust, balancing competing priorities, and making accountable decisions.



GOVERNANCE, RISK, AND COMPLIANCE

As AI becomes embedded across financial products and business processes, governance functions become more important rather than less. AI enables large-scale transaction monitoring, AML/KYC screening, fraud detection, and regulatory surveillance, allowing teams to review far greater volumes of activity and focus attention on higher-risk cases.

The role is shifting from executing controls to assuring AI-enabled decisions. Governance teams increasingly investigate exceptions, interpret regulatory requirements, oversee model risk, explainability, bias, and model drift, and ensure AI remains aligned with regulatory and organisational expectations.



FINANCE AND TREASURY

Finance is among the functions most affected by AI because of its structured, data-intensive work. Reporting, reconciliations, budgeting, forecasting, and consolidation are increasingly automated, reducing the effort required to produce financial information.

The workforce shift is from producing information to interpreting it. Faster reporting and stronger anomaly detection enable finance professionals to spend more time analysing performance, challenging assumptions, and supporting strategic decision-making, reinforcing Finance's role as a business partner.



OPERATIONS AND SHARED SERVICES

AI is transforming high-volume, rules-based operations by automating activities such as payments processing, settlements, onboarding, document verification, and claims processing. Institutions can process significantly higher transaction volumes while reducing manual effort.

The role of operations teams is shifting from transaction processing to exception management, workflow orchestration, and operational resilience. Competitive advantage will depend less on the size of transactional workforces and more on the capability to operate and continuously improve AI-enabled processes.



TECHNOLOGY AND DIGITAL

Technology teams are both early adopters of AI and the enablers of enterprise-wide transformation. AI coding assistants are automating routine software development tasks, allowing developers to focus on architecture, systems integration, and platform engineering.

As AI becomes embedded across the organisation, technology teams provide the platforms, integration, security, and governance that enable AI to scale safely. Their role expands beyond building systems to ensuring AI-enabled operations remain secure, resilient, and trustworthy.

Workforce transformation

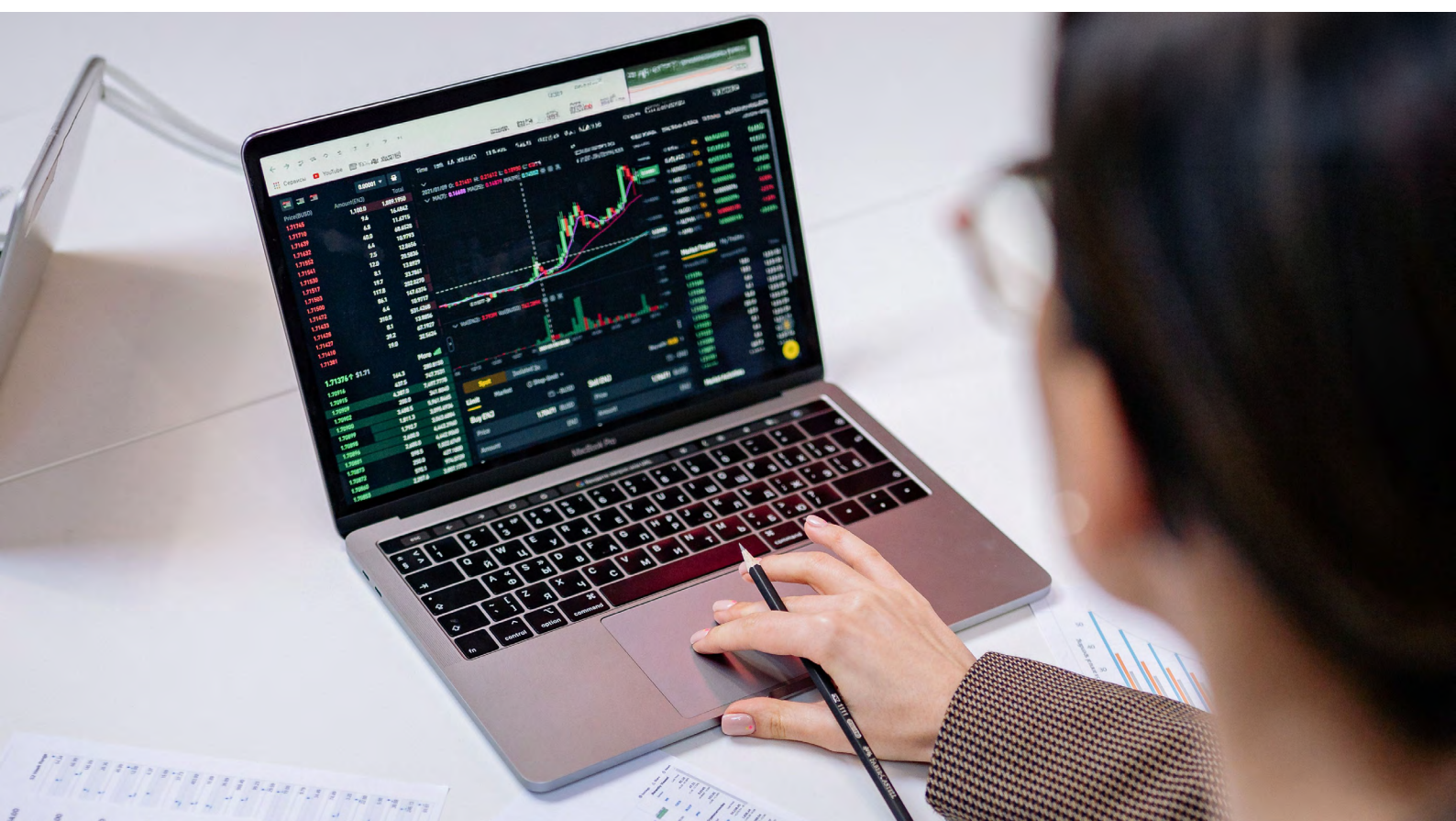
AI is changing more than individual roles. It is reshaping how financial institutions organise work, develop talent, and build workforce capability. Alongside the redesign of existing jobs, institutions are creating specialist AI roles, embedding AI responsibilities into established functions, and placing greater emphasis on judgement, governance, and continuous learning.

Emerging workforce roles

AI adoption is creating new specialist roles while formalising responsibilities that were previously distributed across technology, risk, compliance, and business teams. Many of these roles focus more on governing, validating, and operationalising AI use across the enterprise.

Figure 9: Emerging workforce roles in financial services

ROLE	FOCUS	WHERE IT SITS
AI Ethics Officer	Defines the principles governing responsible AI use – fairness, transparency, explainability – and advises on ethical implications where automated systems influence customer outcomes	Enterprise-wide, advisory
AI Assurance Specialist	Validates models post-deployment: monitors performance degradation, drift, bias and hallucinations; stress-tests against edge cases and recommends retraining or retirement	Ongoing, cross-functional
AI Agent Orchestrator	Designs and manages teams of AI agents automating or augmenting business processes; sets rules, guardrails and escalation paths	Likely to emerge within individual functions (finance, risk, operations, compliance) as each builds its own agent portfolio
AI Decision Reviewer	Validates and, where necessary, overrides AI-generated recommendations in regulated processes (credit underwriting, fraud detection, AML/KYC, risk assessment)	Regulated, high-judgement processes
AI Governance Manager	Operationalises AI governance: frameworks, controls and approval processes for how models are developed, deployed, monitored and retired	Coordinates across technology, risk and compliance



Workforce capability

As AI automates more routine activities, the workforce shifts towards judgement, oversight, and higher-value decision-making. Career progression

depends on the ability to work effectively with AI, apply domain expertise, communicate recommendations, and make accountable decisions in regulated environments.

Figure 10: Workforce implications for financial services

WORKFORCE SHIFT	IMPLICATIONS FOR FINANCIAL INSTITUTIONS	PRIORITY CAPABILITIES
Entry-level work becomes more analytical	AI automates much of the routine analytical work traditionally performed at the start of a career, changing how early-career professionals build experience and requiring them to interpret AI outputs, apply judgement, and communicate recommendations earlier.	AI literacy; Data literacy; Problem solving and critical thinking; Communication and persuasion; Self-awareness and career orientation
Human judgement becomes the differentiator	AI generates more analysis and recommendations, shifting professional value towards validating outputs, managing exceptions, and making accountable decisions in regulated environments.	AI oversight; Domain expertise; Problem solving and critical thinking; Communication and persuasion
Competitive advantage shifts from AI use to AI application	With AI becoming widely available, competitive advantage depends on applying it to solve business problems, improve customer outcomes, and create new sources of value.	AI literacy; Domain expertise; Creativity and idea generation; Problem solving and critical thinking
Capability development becomes continuous	Rapid advances in AI shorten the lifespan of technical and professional skills, making continuous learning and capability development part of everyday work.	AI literacy; Adaptability and resilience; Self-awareness and career orientation; Learning agility

Priority capabilities

Many AI capabilities, including AI literacy, data literacy, and responsible AI use, are becoming baseline expectations across every industry. Within financial services, however, competitive advantage will depend on combining technical expertise with durable capabilities that reflect the sector's regulatory, analytical, and customer-facing nature.

- ◆ **AI governance and assurance.** Overseeing AI models, managing model risk, validating outputs, and ensuring AI systems operate safely, transparently, and within regulatory requirements.
- ◆ **Regulatory and risk judgement.** Applying AI within regulated environments while balancing compliance, customer outcomes, and commercial objectives.
- ◆ **Decision intelligence.** Evaluating AI-generated insights, recognising bias or errors, and making accountable decisions in complex or ambiguous situations.

- ◆ **Customer trust and communication.** Explaining AI-supported decisions clearly, building confidence with customers, and maintaining trust where empathy and professional judgement remain essential.
- ◆ **Business transformation.** Redesigning products, processes, and operating models around AI rather than simply automating existing activities.

AI changes the technical skills people need, but it also increases the value of the capabilities that AI cannot easily replicate. As routine work becomes automated, human contribution shifts towards judgement, collaboration, influence, creativity, and continuous adaptation.

The sector illustrates how workforce transformation extends beyond automation. As organisations move through the three horizons, the greatest changes are likely to occur in how work is organised, how decisions are made, and the capabilities people need to work effectively alongside AI.

3.3 Manufacturing

Manufacturing illustrates how AI is reshaping both digital and physical work. Unlike financial services, where AI primarily augments knowledge work, manufacturers are combining AI with robotics, automation, computer vision, and connected production systems to improve production, maintenance, quality, and supply chains.

However, the sector is not uniform. Adoption varies with automation levels, data maturity, capital intensity, and regulatory requirements. Highly automated industries such as semiconductor manufacturing are extending existing capabilities with AI, while labour-intensive industries face different operational and economic constraints. Across Asia Pacific, AI is being used to address labour shortages, demographic pressures, and rising workforce costs in some markets, while others prioritise expanding production capacity, improving productivity, and strengthening competitiveness. AI deployment therefore reflects both industry characteristics and local economic priorities, rather than a single regional model.

Manufacturing also tends to adopt AI incrementally. Long equipment lifecycles, operational risk, and the need for reliable performance mean AI is introduced through equipment upgrades, factory modernisation, and new facilities. Hybrid environments combining AI-enabled equipment with legacy machinery will remain common as technology and workforce capabilities evolve.

"AI delivers the most value when it unlocks human potential. Physical AI improves safety and efficiency by handling repetitive tasks, while AI in knowledge work boosts productivity and decision-making. The transformative value unlock comes from combining human judgement with the power of AI so people can focus on innovative problem-solving, relationships, and growth."

Bala Vaidyanathan,
Senior Vice President
of Data & AI, FedEx

How work is changing

Human-AI collaboration

Physical AI is changing manufacturing work by enabling machines to perceive, monitor, and respond to conditions on the factory floor. Robots, collaborative robots (cobots), autonomous mobile robots, machine vision, digital twins, and AI-enabled equipment can adapt within defined parameters rather than simply repeat pre-programmed sequences. The result is a shift in work: people spend less time operating equipment and more time supervising, coordinating, and optimising intelligent production systems.

This redistributes responsibility rather than eliminating it. AI can handle monitoring, inspection, optimisation, and routine operational decisions, while workers validate outputs, manage exceptions, configure systems, and remain accountable for safety, quality, and performance.

As routine activity becomes more automated, human expertise shifts towards complexity and the unexpected. Equipment degradation, material changes, defects, and unfamiliar production scenarios require contextual judgement and practical experience. AI changes where expertise is applied, rather than removing its value.

Manufacturing is moving towards a model in which humans and machines share operational decisions: AI manages predictable activity within defined boundaries, while people oversee outcomes, resolve exceptions, and drive continuous improvement.

"Maybe 10% of our operations can be roboticised, with a humanoid maybe 20%, but it's not going to be 80%."

Jim Farley, CEO, Ford⁶

FIGURE 11: Illustrative example: Maintenance technician role shift

Rather than replacing the Maintenance Technician role, AI monitors equipment, predicts failures, and recommends maintenance actions, while technicians diagnose complex issues, carry out repairs, and ensure safe, reliable operations.

TASK	HUMAN-LED	HUMAN-AI COLLABORATION	AI-LED
Monitor equipment condition		Review alerts	Continuous monitoring
Detect potential failures		Validate predictions	Predict failures
Diagnose faults	Resolve complex faults	AI-assisted diagnosis	
Plan maintenance activities	Approve work priorities	Optimise schedules	
Perform repairs	Execute repairs	AI-guided procedures	
Verify equipment performance	Return to service	Compare test results	Analyse performance data
Identify reliability improvements	Implement improvements	Evaluate recurring patterns	Detect recurring patterns

AI's impact on job families

The impact of AI is not uniform across manufacturing. While the underlying pattern of task automation and augmentation is consistent, the nature and pace of change vary across functions. Examining broad job families provides a practical way to understand how AI is reshaping work, responsibilities, and skill requirements across manufacturing organisations.

Figure 12: Functional shifts in manufacturing

JOB FAMILY	FROM	TO
Supply chain	Periodic planning based on historical data	Supervising AI-driven planning, managing exceptions, and optimising connected supply networks
Quality	Manual inspection and defect detection	Continuous AI-enabled monitoring, validation, and predictive quality management
Production and operations	Operating equipment and monitoring production lines	Supervising autonomous production systems, coordinating people and machines, and optimising operations
Engineering and product development	Producing and testing designs through iterative manual processes	Evaluating AI-generated designs, accelerating simulation, and focusing on engineering trade-offs and innovation
Maintenance	Scheduled preventive maintenance and reactive repairs	Predictive, condition-based maintenance focused on reliability and asset performance

 SUPPLY CHAIN

Planning across suppliers, factories, warehouses, and logistics networks depends on interpreting large volumes of structured, time-sensitive data, making it well suited to AI. AI supports demand forecasting, inventory planning, procurement, production scheduling, and logistics by identifying patterns and constraints that are difficult to detect through manual analysis.

The role is shifting from producing plans to supervising AI-driven planning. Professionals validate AI recommendations, manage exceptions, and coordinate trade-offs across procurement, production, and logistics as supply chains become more connected and responsive.

 QUALITY

Detecting defects and process deviations relies on analysing visual, sensor, and production data, making quality management a natural application for AI. Computer vision automates visual inspection and defect detection, while AI analyses production data to identify quality issues before defects occur.

As quality monitoring becomes continuous rather than dependent on end-of-line inspection, professionals spend less time inspecting products and more time validating AI findings, investigating exceptions, and addressing the root causes of quality issues.

 PRODUCTION AND OPERATIONS

Many production activities are structured, repetitive, and data-intensive, making them well suited to AI. Industrial robots, collaborative robots, autonomous mobile robots, and production control systems use AI to automate assembly, material handling, process monitoring, and routine operational decisions.

The role is shifting from operating equipment to supervising autonomous production systems. Production teams coordinate human and robotic workforces, optimise production performance, respond to exceptions, and validate AI recommendations.

 ENGINEERING AND PRODUCT DEVELOPMENT

Design and engineering involve iterative analysis, simulation, and technical decision-making, all of which can be accelerated by AI. AI supports simulation, digital twins, design optimisation, and virtual testing, enabling engineers to evaluate more design alternatives, reduce reliance on physical prototypes, and access organisational knowledge more efficiently.

Rather than producing designs manually, engineers spend more time evaluating AI-generated options, balancing engineering trade-offs, and ensuring products meet requirements for manufacturability, safety, performance, and customer needs.

 MAINTENANCE

Keeping production assets operating reliably depends on understanding equipment condition and anticipating failures before they occur. By analysing equipment, sensor, and operational data, AI identifies patterns associated with deteriorating performance and recommends maintenance before failures occur.

The role is shifting from routine inspection and scheduled maintenance to condition-based intervention. Maintenance professionals validate AI recommendations, diagnose complex faults, and focus on improving equipment reliability and asset performance.

Workforce transformation

As AI becomes embedded in manufacturing operations, workforce change extends beyond individual roles. New specialist positions are emerging to design, operate, and govern AI-enabled production systems, while existing engineering and operational roles are evolving to incorporate AI supervision, optimisation, and decision-making. At the same time, manufacturers are placing greater emphasis on how technical knowledge is developed, transferred, and applied across the organisation.

Emerging workforce roles

AI is reshaping both manufacturing structures and workforce requirements. Some roles are entirely new, created to manage intelligent production systems and their interaction with physical operations. Others build on established engineering, automation, and operations roles, adding responsibilities for AI deployment, oversight, and governance.

Figure 13: Emerging workforce roles in manufacturing

ROLE	FOCUS	WHERE IT SITS
AI Robotics Engineer	Designs, deploys, and optimises AI-enabled robotic systems using computer vision and machine learning to adapt to changing production conditions. Integrates robots with factory systems and sensor networks and improves performance using operational data.	Engineering, automation, and advanced manufacturing
Digital Twin Engineer	Develops and maintains AI-enabled digital twins of equipment, production lines, and factories using real-time operational data to support predictive maintenance, optimisation, scenario planning, and training.	Engineering, manufacturing, and industrial transformation
AI Agent Orchestrator	Designs and governs AI agents supporting production scheduling, quality inspection, predictive maintenance, inventory management, and other workflows. Defines operating rules, guardrails, and escalation paths between autonomous systems and human operators.	Cross-functional; likely to emerge within manufacturing operations, engineering, supply chain, or industrial AI teams
Robot Fleet Supervisor	Manages fleets of AI-enabled robots, including autonomous mobile robots, collaborative robots, and autonomous forklifts. Monitors performance, manages exceptions, and improves safety, productivity, and reliability.	Production, warehousing, and industrial operations



Workforce capability

AI can support routine decisions and make operational knowledge more accessible, but it does not replace practical experience or engineering

judgement. As automation expands, human capability shifts towards diagnosing unfamiliar problems, improving production systems, and applying knowledge across functions.

Figure 14: Workforce implications for manufacturing

WORKFORCE SHIFT	IMPLICATIONS FOR MANUFACTURERS	PRIORITY CAPABILITIES
AI helps address workforce shortages	AI can accelerate workforce readiness by providing contextual guidance, operational knowledge, and digital work instructions for technicians and new employees.	AI literacy, operational data literacy, digital work instructions, human-machine interface skills, adaptability and resilience, self-awareness and career orientation
Experience remains difficult to automate	AI supports troubleshooting and knowledge access, but process understanding, practical judgement, and craftsmanship continue to depend on experience and mentoring.	Process expertise, equipment knowledge, predictive maintenance, engineering judgement, problem solving and critical thinking, creativity and idea generation
Human value shifts towards systems optimisation	As automation expands, employees focus less on individual machines and more on improving production systems, quality, maintenance, and operational performance.	Systems optimisation, industrial data analysis, automation optimisation, problem solving and critical thinking, teamwork and collaboration, communication and persuasion
Capability development becomes embedded in work	AI assistants, digital twins, and knowledge systems support learning during daily operations, complemented by apprenticeships, coaching, and knowledge transfer.	AI-enabled learning tools, digital twin platforms, data interpretation, adaptability and resilience, self-awareness and career orientation, teamwork and collaboration

Priority capabilities

Competitive advantage will depend on combining engineering expertise with intelligent production systems and the operational capabilities required to optimise complex physical environments.

◆ Systems optimisation

Understanding how production, maintenance, quality, engineering, and supply chain processes interact to improve performance across the manufacturing system rather than individual assets alone.

◆ Engineering judgement

Applying operational experience to diagnose unfamiliar problems, balance competing production priorities, and make decisions beyond the capabilities of automated systems.

◆ Continuous improvement

Using AI-generated operational insights to redesign workflows, improve quality, reduce waste, and identify opportunities to enhance production performance.

◆ Human-machine collaboration

Working effectively alongside AI-enabled machinery, robotics, and autonomous systems while understanding where human oversight, intervention, and accountability remain essential.

◆ Operational problem solving

Combining technical knowledge, data insights, and practical experience to resolve exceptions, adapt processes, and maintain reliable operations in dynamic production environments.

Manufacturing differs from many other sectors in that much of its workforce already enters roles with specialised technical training, whether through engineering pathways, apprenticeships, or vocational education. The challenge is not building expertise from the ground up but extending it. As AI becomes embedded in production environments, technical knowledge will need to be combined with data literacy, systems thinking, problem solving, and the ability to work alongside intelligent systems.

Manufacturing shows how workforce transformation extends beyond automation. As intelligent production environments evolve, the greatest changes will occur not only in the tasks people perform, but in how decisions are allocated between humans and machines, how knowledge is shared, and how organisations build the capabilities needed to operate alongside AI.

Financial services and manufacturing demonstrate that AI's workforce impact is shaped by industry context but follows a consistent pattern. Automation shifts work away from routine execution towards judgement, oversight, problem-solving, and collaboration with AI. These changing skill requirements are becoming increasingly relevant across the Asia Pacific workforce.



4.

Asia Pacific's AI workforce opportunity

Asia Pacific's skills transition is about more than developing AI expertise. It is changing how people enter the workforce, how organisations improve productivity, how opportunities are distributed across the labour market, and the capabilities needed to operate in an AI-enabled economy.

Asia Pacific is at the centre of the global AI workforce transition.

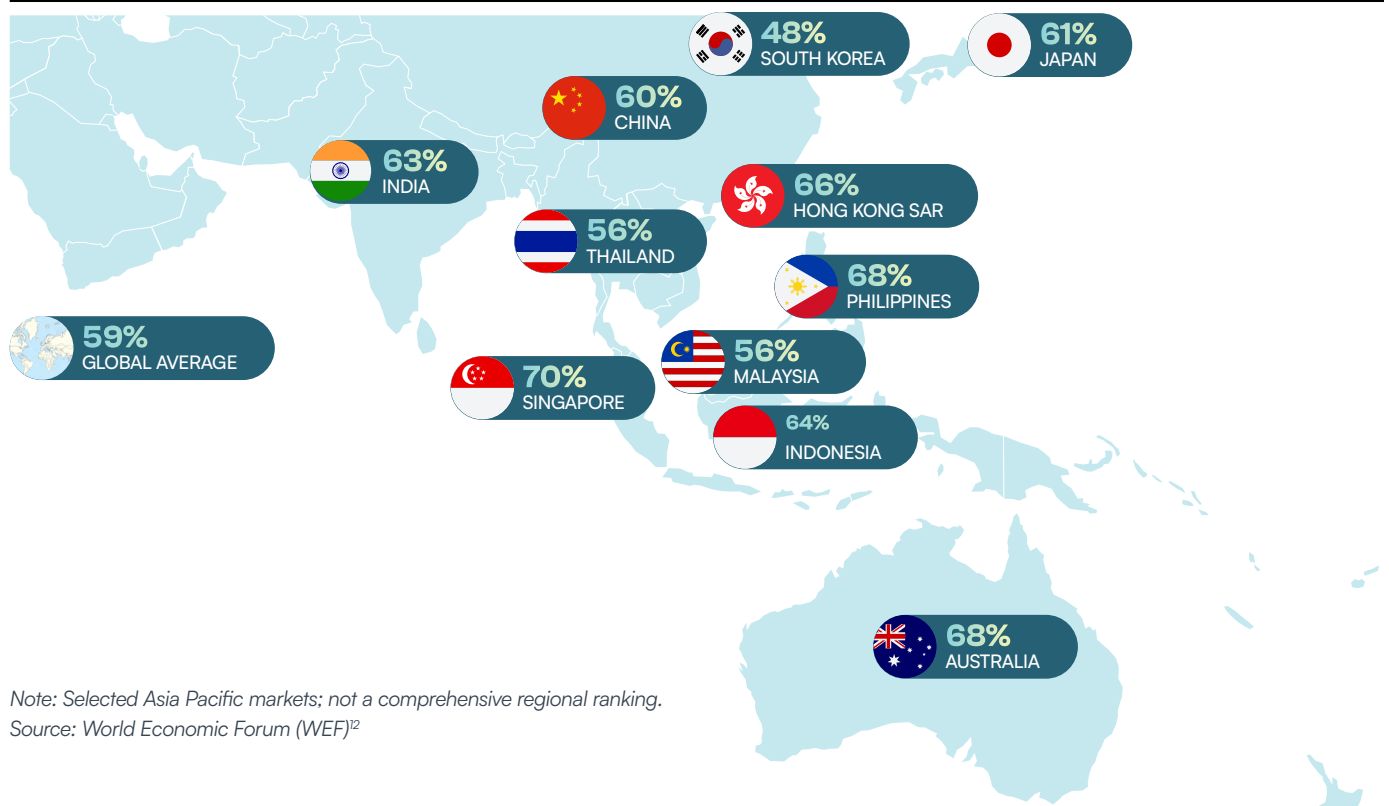
Home to more than 4.7 billion⁷ people and the world's largest economy by both nominal and purchasing-power-adjusted GDP – USD 44 trillion⁸ and USD 102.7 trillion⁹ respectively in 2026 – the region's scale means its workforce decisions will shape not only its own economic competitiveness, but also the future of global supply chains, digital services, and advanced manufacturing. AI spending in Asia Pacific is projected to reach USD 78 billion in 2026, growing at a 25.6% compound¹⁰ annual rate, underscoring the technology's growing importance to the region's economic trajectory.

Asia Pacific's workforce challenge runs in two directions. Aging economies such as Japan and South Korea face shrinking labour forces, while younger, still-expanding workforces in India,

Indonesia, and the Philippines need capabilities developed at scale. AI can help offset labour shortages and sustain productivity in the former, while accelerating industrialisation and creating new forms of work and entrepreneurship in the latter. The International Monetary Fund (IMF) notes that higher labour force participation, better resource allocation, and wider AI adoption could help mitigate the economic drag from ageing.¹¹ In both contexts, capturing the opportunity depends not only on access to AI, but on whether workforces can develop the capabilities needed to use it effectively.

Employers across the region are already anticipating a substantial need for workforce upskilling as AI changes how work is performed. In eight of the 11 Asia Pacific markets shown below, employers expect a larger share of their workforce to require additional training than the global average of 59%.

Figure 15: Employers expect significant workforce upskilling needs across Asia Pacific



The pattern points to the scale of the capability challenge. AI is not simply creating demand for specialist AI talent; employers across a broad range of Asia Pacific economies expect existing workforces

to require additional training. This makes workforce development a central part of AI adoption, alongside technology investment and infrastructure.

Four forces shaping the AI workforce

Asia Pacific's workforce transition will not follow a single path. Differences in economic structure, demographics, digital maturity, and industry composition will shape how AI affects jobs, skills, and productivity across the region. Four forces will be particularly important in determining how effectively economies and organisations respond.

1 The expanding AI readiness divide

The digital divide was once defined largely by access to the internet. That is no longer enough. In the AI economy, readiness depends on whether people and organisations have the skills, tools, education, and practical opportunities to use AI effectively. As AI becomes embedded in work, these capabilities will influence productivity, innovation, and economic competitiveness.

Across Asia Pacific, AI readiness is developing at different speeds. More digitally mature economies have stronger foundations in digital infrastructure, workforce development, and national AI strategies, while others are building capability alongside broader economic and industrial development. OECD analysis shows that digital inequality is driven as much by capability as connectivity¹³, while the World Bank identifies digital capability, organisational support, AI tools, and continuous learning as critical determinants of workforce participation and productivity¹⁴. Differences in digital maturity, education systems, access to skilled talent, and organisational capability will influence not only how quickly AI is adopted, but also where productivity gains, investment, and higher-value employment are concentrated.

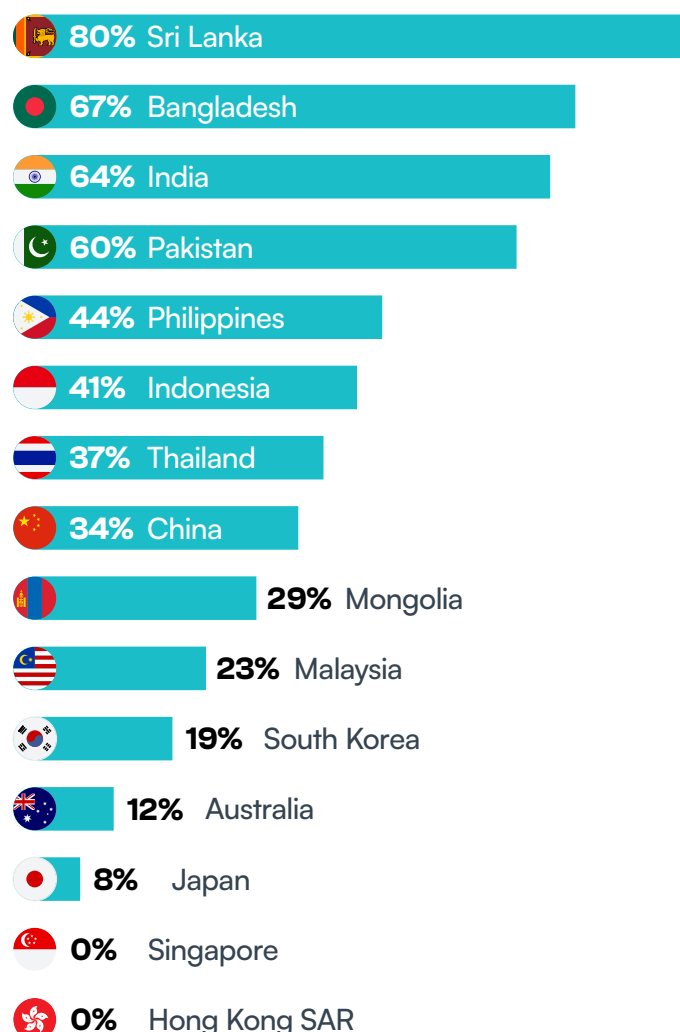
AI readiness also varies within economies. Socio-economic inequality can limit access to quality education, lifelong learning, digital technologies, and the practical opportunities needed to build AI capability. As demand for AI-related skills grows, differences in educational attainment and access to continuous learning could increasingly translate into differences in economic opportunity.

Geography reinforces these differences. Workers in major urban centres generally have greater access to universities, technical education, digital infrastructure, AI-enabled employers, and opportunities to gain practical experience than those in regional and rural communities. Without broader access to AI capability development, existing productivity and employment gaps could widen, turning AI readiness into a new dimension of economic inequality.

"If we are not careful, AI could create a new form of inequality – not simply between people who have internet access and those who do not, but between people who have access to high-quality AI-enabled learning environments and those who only have access to basic technology."

Dr Krishna Alejandrino,
Executive Director, JA
Philippines

Figure 16: Rural population share highlights geographic differences in AI access



Note: Selected Asia Pacific markets; not a comprehensive regional ranking.

Source: World Bank Group¹⁵

The challenge also extends to businesses. Micro, small, and medium-sized enterprises (MSMEs) account for an average of 99% of all enterprises^{16,17,18} and employ the majority of the region's workforce, yet they typically have fewer resources than large organisations to invest in AI platforms, specialist talent, workforce development, and organisational transformation. Making AI capability accessible to smaller businesses will therefore be important to ensuring that AI-enabled growth extends beyond the region's largest organisations.

The OECD's *Bridging the AI Skills Gap* finds that demand is rising for both specialist AI expertise and broad AI literacy¹⁹, while access to training remains uneven. Randstad similarly reports that demand for AI skills has increased fivefold over

the past year²⁰, but training opportunities have not expanded at the same pace. The challenge for Asia Pacific is therefore not simply to produce more AI specialists, but to expand the baseline capability needed for workers, businesses, education providers, and governments to participate in an AI-enabled economy. Reducing the AI readiness divide will be critical to preventing the benefits of AI from becoming concentrated in a small number of economies, industries, organisations, or communities.

IMPLICATION

The AI readiness gap will not close through market forces alone. Public policy should move beyond promoting AI adoption in general to expanding access to AI capability among those with fewer resources to invest themselves. This includes lower-income communities, regional populations, and MSMEs through subsidised workforce development, regional innovation hubs, shared AI infrastructure, and incentives for employers to provide practical AI training. Success should be measured by how broadly AI capability is developed across the economy, not simply by the number of AI specialists produced.

2 AI infrastructure as a workforce capability

Workforce readiness depends on more than AI fluency. As countries develop their AI roadmaps, organisations also need people who understand the infrastructure that enables AI, including cloud platforms, trusted data ecosystems, cybersecurity, governance, and the physical infrastructure on which AI depends. As AI becomes embedded in critical industries, the ability to operate within national regulatory requirements and trusted digital environments is becoming an important workforce capability.

Across Asia Pacific, AI readiness varies considerably. Countries differ in cloud maturity, connectivity, data centre capacity, access to high-performance computing, regulatory frameworks, and increasingly, the availability of reliable and affordable electricity.

As AI workloads become more compute-intensive, energy capacity and grid resilience are emerging as critical enablers of AI adoption alongside traditional digital infrastructure.

Figure 17: AI preparedness index varies across Asia Pacific economies



Note: Selected Asia Pacific markets; not a comprehensive regional ranking.
Source: IMF²¹

These differences will influence where AI investment occurs, how quickly industries adopt advanced AI capabilities, and the types of jobs that emerge. Economies with stronger digital infrastructure, trusted data environments, resilient energy systems, and supportive policy settings are likely to attract greater investment in AI development, data centres, advanced manufacturing, and intelligent infrastructure. That investment will create demand not only for AI specialists, but for people who can build, operate, maintain, secure, and govern these environments.

The objective is not for every economy to develop identical infrastructure, but to build the workforce capabilities needed to participate in an AI-enabled regional economy. For Asia Pacific's diverse and relatively young workforce, this creates significant opportunities. As investment in AI infrastructure accelerates, new career pathways will emerge not only in AI development, but also across cloud, networking, trusted data management, energy systems, cybersecurity, advanced manufacturing, and digital operations.

IMPLICATION

National AI strategies should integrate workforce planning with infrastructure investment. Decisions on cloud, data centres, connectivity, energy capacity, and trusted digital ecosystems should be matched by long-term plans to develop the technical workforce needed to build, operate, and govern them. Coordinating infrastructure and skills development will help economies attract AI investment, strengthen digital resilience, and build higher-value industries.

3 Workforce capability as strategic infrastructure

The relationship between technology and productivity is changing. Investment in AI, cloud, and digital infrastructure remains essential, but productivity depends on whether organisations have the skills to adopt these technologies, redesign work, and embed AI into day-to-day operations.

The first phase of AI adoption also exposes an important challenge. Most organisations initially use AI to automate tasks and improve individual productivity rather than redesign roles, operating models, or business processes. Productivity improvements alone rarely deliver proportional commercial outcomes. Greater value emerges when organisations use AI to rethink how work is organised, enabling better decisions, new ways of working, and more efficient operating models rather than simply completing existing tasks faster.

This makes organisational capability a critical link between technology investment and economic value. Realising value from AI depends on whether people can redesign work, adapt business processes, interpret AI outputs, and operate effectively alongside intelligent systems. The technology may create the potential for productivity gains, but capability determines how much of that potential is realised.

The OECD's 2026 *AI and Skills: What We Know So Far* reinforces this relationship. It identifies skills shortages as a major barrier to AI adoption²². It also finds that AI is raising demand for highly educated workers and increasing the importance of data, problem-solving, creativity, innovation, and other complementary skills. Training is the dominant employer response, and workers who receive AI-related training are more likely to report positive outcomes from adoption.

The European Centre for the Development of Vocational Training (Cedefop) adds a further dimension, highlighting the importance of education, lifelong learning, and workforce development as AI changes skill requirements²³. These capabilities increasingly determine how effectively organisations translate technology investment into productivity.

The implication is that productivity gains are only the first step. Real economic value comes when organisations redesign jobs, workflows, operating models, and business models around AI rather than simply using AI to perform existing work more efficiently. Workforce capability is therefore not only an enabler of AI adoption, but the mechanism through which productivity gains can translate into growth, innovation, and competitive advantage.

IMPLICATION

AI programmes should be evaluated by the business transformation they enable, not simply by technology deployment. Organisations need to invest as deliberately in redesigning workflows, operating models, management practices, and workforce capability as they do in AI platforms. The greatest value will come from redesigning how work is performed, rather than simply automating existing tasks.

4 The redefinition of entry-level work

AI is changing the starting point for many careers. The World Economic Forum's *Future of Jobs Report 2025* found that 41% of organisations expect to reduce roles where skills are becoming less relevant, while 73% plan to accelerate automation between 2025 and 2030. Globally, 85% of organisations plan to expand workforce upskilling and 70% plan to recruit people with new skills – priorities that resonate strongly across Asia Pacific's diverse economies¹².

This reflects a labour market in transition rather than decline. The International Labour Organization (ILO) estimates that around 22% of jobs across the Asia Pacific region are exposed to generative AI²⁴, while separate analysis suggests AI could add 9-12% to GDP in the region's more advanced economies by 2030²⁵. As AI adoption expands, 70% of Asia Pacific business leaders report they would not hire candidates without AI skills²⁶ – the highest share of any region globally. UNICEF also highlights a structural challenge: many young people are entering less stable forms of employment that provide fewer opportunities to build practical experience²⁷, while unequal access to digital skills is widening differences in employment outcomes.

The more fundamental change is how expertise is built. As AI takes on routine tasks, graduates may have fewer opportunities to develop judgement and practical experience through the traditional entry-level work that once formed the first step in a career. The impact, however, will differ across three broad pathways: corporate knowledge work, operational work, and digitally enabled entrepreneurship.

In corporate knowledge work, entry-level roles are becoming more demanding. AI-native graduates who understand how to apply AI tools effectively can contribute at a higher level earlier in their careers, while new employees are increasingly expected to evaluate AI outputs, apply judgement, communicate insights, and solve problems rather than perform routine analytical tasks. Research from Stanford University²⁸ and Deloitte²⁹ points to emerging pressure on entry-level white-collar roles in occupations highly exposed to AI.

“Consulting is a good example. Entry-level roles used to involve doing the grunt work – gathering data and turning it into a polished presentation. Now it’s more likely to be ‘Get the data, have the presentation ready in an hour, and tell us where we can add value based on our knowledge and data’.”

Stephen Barnham, Group Chief Digital and Information Officer, Daiichi Life Group

Operational roles are evolving at a different pace. In manufacturing, logistics, and other physical environments, AI is augmenting work through automation, robotics, and intelligent systems, but practical experience and technical expertise remain essential. The shift is less about removing entry-level pathways and more about changing the skills required to operate alongside increasingly capable machines.

A third pathway is emerging through digital-native workers, entrepreneurs, and independent professionals who use AI as a force multiplier. Across the Asia Pacific region's growing digital economy, individuals and small teams can use AI tools to create products, deliver services, automate business processes, and compete with organisations that previously required larger teams and resources. This accelerates a shift away from traditional career ladders towards more flexible models where value is increasingly tied to skills portfolios, adaptability, and the ability to combine technology with domain expertise.

The result is not the disappearance of entry-level work, but a redefinition of how people build capability and create value. Employers and education systems will need to ensure that new pathways – whether corporate, operational, or entrepreneurial – continue to develop judgement, practical experience, and the durable skills required to work effectively alongside AI.

IMPLICATION

Education and training systems should move beyond treating AI as a technical discipline and embed AI capability across lifelong learning. Schools, vocational institutions, universities, and professional education providers should place greater emphasis on applied learning, critical thinking, interdisciplinary problem-solving, and industry engagement, giving learners the judgement and practical experience needed in an AI-enabled labour market. Closer collaboration with employers will be essential to keep education pathways aligned with changing workforce needs.

The workforce implications of AI are becoming clearer than the mechanisms for developing the required capabilities. As skill requirements evolve, the effectiveness of education and training systems will shape how quickly Asia Pacific economies can translate AI adoption into productivity.



Spotlight: Youth at the centre of Asia Pacific's AI future

Building trusted, equitable and inclusive pathways into tomorrow's digital workforce

Asia Pacific's young people represent a major workforce opportunity, particularly in economies where labour forces are still expanding. At the same time, ageing economies across the region face shrinking workforces and rising pressure to sustain productivity. In both contexts, developing the capabilities of younger generations will be critical to how economies adapt to AI.

Young people will also be the first generation to spend their entire working lives alongside increasingly capable AI systems. A study jointly commissioned by FedEx and Junior Achievement, *Shaping Tomorrow's Workforce: Asia Pacific Youth Insights*, covering more than 4,200 young people aged 15-22 across 10 Asia Pacific markets, shows that this generation already expects a fundamental shift in how it will work: 84% expect to work alongside AI, 82% believe AI will change the jobs available to their generation, and 77% expect the skills employers value to change because of AI.³⁰

Young people are entering a labour market where the ability to learn continuously, adapt to changing technologies, and work alongside intelligent systems is becoming a fundamental employability requirement. At the same time, geopolitical uncertainty and rapid technological change are reshaping pathways into employment, entrepreneurship, and economic participation.



Awareness is running ahead of preparation

The challenge is that formal education alone is not meeting students' expectations for future readiness. On average, young people believe their education provides 68% of the skills and knowledge they will need for future success, while 90% of those aged 18 and over see a gap between what they are learning and what employers will expect. Almost

all respondents – 97% – want greater exposure to how the working world operates. The implication is not that schools need to provide everything, but that work readiness needs stronger links between education, workplaces, communities, and real-world experience.

Young people are also clear about the capabilities they need. Adaptability and learning agility (53%) and problem-solving and critical thinking (52%) rank ahead of digital and technology skills (37%) among the capabilities they consider most important for the next 10-15 years. When asked what they would strengthen in the curriculum, 52% prioritise problem-solving and creative thinking and 51% real workplace experience, compared with 29% for using AI effectively. The message is clear: preparing young people for AI requires more than teaching them how to use AI tools. Education needs to connect learning more directly to work, experimentation, problem-solving, and changing workplace requirements.

Young people are already building these capabilities beyond the classroom. 42% say they learn most about using AI for work or study by teaching themselves and experimenting with AI tools, while 35% learn through social media and 31% through online videos and tutorials. School or university lessons rank fourth, at 29%. This points to an extended learning ecosystem in which education providers, employers, online platforms, and young people themselves all contribute to workforce preparation.



Youth and inclusion: widening access to opportunity

The benefits of AI will not be distributed automatically. Young people with limited access to quality education, digital tools, AI-enabled

employers, or practical experience risk being excluded from the higher-value opportunities created by AI.

This makes inclusion an economic consideration as much as a social one. Expanding access to digital and AI capability broadens the talent pipeline, supports social mobility, and enables more communities to participate in productivity growth. For economies with large and growing youth populations, this will help determine whether demographic scale translates into economic advantage.



A generation entering a different labour market

Unlike previous generations, young people are not simply adapting to a new workplace technology. AI is expected to shape their education, careers, civic participation, and economic opportunities throughout their lives. Their relationship with AI is therefore shaped by two interconnected questions: *What will AI mean for my future?* and *What kind of future should AI help create?*

For many, employability is the immediate concern. A 2025 study by UK not-for-profit Jisc found that employability was students' primary concern about AI³¹, with many expecting it to reshape graduate careers. Rather than rejecting AI, students called for greater AI literacy and a more active role in determining how AI is used in education.



AI must reflect their values

Career readiness is only part of the story. Young people are also placing increasing importance on how AI is developed and what it is used to achieve. Growing up alongside climate change, social inequality, and rapid technological change has shaped a generation that often expects technology to deliver broader societal value rather than business impact alone.

This aligns with the international AI for Good movement, which positions AI as a tool for advancing better education, healthcare, climate resilience, sustainable development, and more inclusive public services. For many young people, AI is more likely to gain acceptance when it is seen as contributing positively to society rather than simply improving efficiency or profitability.

Responsible innovation also includes environmental responsibility. Young people are becoming more conscious of AI's energy consumption, carbon emissions, water use, and broader environmental footprint. Alongside expectations for fairness, transparency, and accountability, sustainability is becoming part of how they judge whether AI is being developed responsibly.



Learning across generations

Preparing young people for an AI-enabled workforce should not mean assuming that the newest generation has all the answers. Previous generations have already navigated major shifts in workplace technology, business models, and ways of working, developing capabilities that remain valuable as the pace of change accelerates.

Experience with adapting to disruption, learning new systems, solving unfamiliar problems, working with others, and navigating uncertainty provides a form of resilience that technology alone cannot teach. Younger workers may bring greater familiarity with emerging technologies and new ways of working, while experienced workers contribute domain knowledge, institutional context, professional judgement, and lessons from previous waves of change.

The opportunity is therefore two-way. Education and workplaces can create stronger pathways for generations to learn from one another, combining digital fluency and experimentation with experience, resilience, and enduring human capabilities. In an AI-enabled workforce, the ability to adapt is not new – but the need to keep adapting is.



Young people as co-designers of Asia Pacific's AI future

Young people are more likely to embrace AI when they can see both a place for themselves within an AI-enabled economy and confidence that AI is being developed responsibly, sustainably, and in ways that create broader social benefit.

“We need to give young people the opportunity to experience what the workplace is actually like, rather than just preparing them academically.”

Rob Gardiner, Co Founder and Operations Counsel, Prestasi Junior Indonesia

As the generation that will live longest with the consequences of AI, young people have a legitimate stake in how AI is developed, governed, and applied. That starts with giving them meaningful exposure to how AI is changing work, not simply preparing them academically for a future that is difficult to predict. Opportunities to engage with employers, experiment with AI in real-world settings, and contribute to how AI is used in education, workplaces, and public services can help build both capability and confidence.

For Asia Pacific, this is more than an engagement exercise. The region's long-term competitiveness will depend not only on enabling young people to participate in an AI-enabled economy, but on giving them the **capability, voice, and agency to help shape it**. A trusted, inclusive, and sustainable AI future will ultimately need to be built not only for the next generation, but increasingly with them.



5.

Education and training systems: Preparing the AI workforce

AI is exposing structural challenges that already existed within many education and training systems. Curriculum reform, educator capability, industry engagement, and equitable access to learning have long evolved gradually, yet workforce requirements are now changing at a much faster pace. The challenge is not simply teaching AI, but ensuring education systems can adapt as quickly as the labour market they support.

Education systems today are expected to do more than prepare learners for their first job. As AI reshapes work across industries, they must equip people with the technical, analytical, and professional capabilities needed to work alongside AI while supporting continuous learning throughout increasingly dynamic careers.

This requires a shift in educational priorities. Many systems were designed for a world where knowledge remained relevant for years, but AI is shortening the lifespan of technical skills. Rather than focusing primarily on today's tools, education systems must develop enduring capabilities that enable people to learn new technologies, exercise judgement, solve unfamiliar problems, and adapt throughout their working lives.

Challenges facing education and training systems

Education and training systems across Asia Pacific are adapting to a labour market that is changing faster than traditional curriculum, qualification, and policy cycles. While employers are redesigning work around AI-enabled processes, many education systems continue to prepare learners for more stable patterns of work. Across the region, four interconnected challenges are limiting the ability of education systems to develop AI-ready workforces.

1 Education systems in transition

Education and training systems across Asia Pacific are adapting to a labour market that is changing faster than traditional curriculum, qualification, and policy cycles. While employers are redesigning work around AI-enabled processes, many education systems continue to prepare learners for more stable patterns of work, creating a growing gap between the capabilities developed through education and those increasingly required by employers.

Demand for AI capability is rising rapidly. A global 2025 survey found that 69% of students wanted their curriculum to include AI tools relevant to future careers, up from 65% in 2023.³² Yet AI remains at an early stage of formal curriculum integration

globally, with only a small number of countries, including China, India, the UAE, South Korea³³ and Singapore³⁴, embedding AI into K-12 education or implementing national AI education strategies.

At the same time, AI is entering education largely through commercial platforms rather than curriculum reform. AI assistants embedded within productivity software and learning platforms are accelerating adoption, but they also risk equating AI capability with familiarity with a small number of widely available tools. Education systems therefore need to develop transferable AI capability, enabling learners to understand how different models, tools, and techniques can be selected, evaluated, governed, and applied rather than simply teaching proficiency in a single technology ecosystem.

International evidence points to the same conclusion. *The OECD Skills Outlook 2025* finds that AI is changing skills demand faster than education policy and curriculum cycles can respond, calling for more agile, data-driven systems that support lifelong learning.³⁵ A joint World Bank, ILO, and UNESCO study similarly concludes that Technical and Vocational Education and Training (TVET), particularly in lower-income economies, is not keeping pace with technological and economic change.³⁶ *The OECD Digital Education Outlook 2026* further finds that curricula, assessment, and teaching practices remain more closely aligned with previous models of work than with the capabilities required in AI-enabled workplaces.³⁷

2 Fragmentation across the learning pipeline

Education and training operate as a connected pipeline rather than a series of independent stages. Capabilities developed in primary education influence success in secondary school, shape readiness for higher or vocational education, and ultimately determine workforce outcomes. As AI raises skill requirements across the economy, weaknesses at any stage accumulate over time, making them progressively harder to address as learners move towards employment.

Across Asia Pacific, these challenges manifest differently at each stage of education, but together

they reveal a fragmented learning pipeline that is not consistently preparing learners for AI-enabled work.

Primary education: Building digital foundations

Primary education establishes the digital and learning foundations on which later AI capabilities depend. While AI tools are becoming more common in schools, a recent review of AI in K-12 education found that their effective use continues to be constrained by technological limitations, pedagogical uncertainty, ethical concerns, and institutional readiness.

Key pressure points include:

- ▶ **Digital literacy is not AI literacy.** Basic digital skills do not automatically develop into the ability to understand, evaluate, and use AI effectively.
- ▶ **Digital capability remains uneven.** AI-enabled learning assumes levels of digital competence among students and teachers that are not yet consistent, affecting both adoption and learning outcomes.
- ▶ **Digital skills remain peripheral.** Curricula often treat digital capability as a separate subject rather than embedding it across learning.
- ▶ **Teacher capability requires continued investment.** OECD TALIS findings indicate that many teachers are still building confidence in AI-enabled teaching and learning.³⁸ Competing demands and uneven access to high-quality professional development have limited opportunities to develop the pedagogical capabilities needed to integrate AI effectively into classroom practice.

Secondary education: From digital skills to applied capability

Secondary education is where foundational digital skills should evolve into analytical thinking, problem-solving, and applied capability for further study and employment. In many systems, however, this progression remains inconsistent.

Key pressure points include:

- ▶ **Applied digital capability is concentrated within STEM.** Digital and AI skills remain unevenly integrated across non-STEM subjects, limiting

broader workforce preparation.

- ▶ **Assessment methods lag workforce requirements.** Assessment continues to prioritise knowledge recall over analysis, experimentation, and problem-solving.
- ▶ **Access to AI learning is uneven.** Advanced digital and AI electives are often concentrated in better-resourced schools.
- ▶ **Industry exposure is limited.** Students have relatively few opportunities to apply digital and AI skills through structured workplace or industry experiences.

Higher education: Bridging theory and practice

Universities continue to provide strong disciplinary knowledge, but practical experience with AI-enabled tools, data environments, and interdisciplinary problem-solving remains uneven.

Key pressure points include:

- ▶ **Limited applied AI experience.** Many programmes introduce AI conceptually but provide limited experience using the tools graduates will encounter in the workplace.
- ▶ **Digital capability remains discipline-specific.** AI and data capabilities are often concentrated in technical programmes rather than embedded across disciplines.
- ▶ **Industry engagement varies.** Capstone projects frequently lack sustained engagement with industry, operational datasets, and real business problems.
- ▶ **Faculty capability is uneven.** AI literacy and teaching capability vary considerably, particularly outside STEM disciplines.

Vocational education: Aligning training with industry

Vocational education is designed to prepare learners for employment, but curriculum renewal often moves more slowly than changes in workplace technology.

Key pressure points include:

- ▶ **Curriculum updates are slower than technology adoption.** Qualification frameworks typically operate on multi-year review cycles, making it difficult to keep pace with AI-enabled industries. OECD research highlights this as a continuing challenge for vocational education and training systems²¹.
- ▶ **Digital capability is not consistently embedded.** Digital and AI skills are often delivered as separate modules rather than integrated across occupations. OECD has repeatedly emphasised the importance of transversal digital skills in vocational education.
- ▶ **Training environments do not always reflect industry practice.** Limited access to current digital infrastructure means learners are often trained using legacy systems. UNESCO-UNEVOC identifies this as a persistent challenge across TVET systems globally.³⁹
- ▶ **Industry engagement remains inconsistent.** Learners do not always gain sufficient exposure to contemporary workplace technologies and operational environments.

3 Educator readiness: The enabler of AI capability

Educators are central to translating education system change into learner outcomes. As AI reshapes the skills required across the economy, teachers, instructors, and faculty members are taking on an expanding role in helping learners develop the judgement, critical thinking, and practical capabilities needed to work effectively with AI. However, educator readiness is shaped by the same structural challenges affecting the broader education and training pipeline: changing skills demand, evolving curriculum expectations, and uneven access to institutional support and professional development. AI is entering learning environments rapidly, creating new opportunities while also introducing new expectations for educators. Many teachers and instructors are actively exploring how AI can support teaching and learning, but the pace of change can exceed the ability of education systems to provide

consistent guidance, resources, and development pathways. Evidence from the Center for Democracy and Technology illustrates this transition: in 2025, 85% of teachers reported using AI tools, but only around half had received formal training.⁴⁰

"Teachers are the primary driver of student outcomes. The big question is whether we are truly empowering them – through continuous upskilling and reskilling – to keep pace with the evolving technological landscape."

Kessara Amornvuthivorn, Centre Director,
Southeast Asian Ministers of Education Organization
Regional Centre for STEM Education (SEAMEO
STEM-ED)

The challenge extends beyond familiarity with AI tools. Educators are increasingly navigating how AI affects learning, assessment, and professional practice, while helping learners evaluate information, apply critical judgement, and use AI responsibly. This requires the ability to integrate AI into different learning contexts, support students in assessing AI-generated outputs, and develop learning agility as technologies continue to evolve. It also requires embedding AI literacy across disciplines so learners understand how AI influences evidence, reasoning, communication, and professional practice, rather than limiting AI education to specific tools or technical subjects. UNESCO's *AI Competency Framework*⁴¹ highlights the importance of integrating AI literacy across the curriculum and educators modelling responsible AI use.

The broader pace of workforce change adds further pressure. The WEF estimates that 39% of workplace skills will change by 2030, increasing the need for education systems to continually adapt the capabilities they develop.¹² UNESCO and the WEF identify educator capability as an important factor in determining whether AI can be integrated effectively across education systems.⁴¹ As AI literacy becomes relevant across a wider range of occupations, educator readiness will influence whether learners develop transferable capabilities that extend beyond individual tools or platforms.

4 Access and equity in AI-enabled learning

Access to AI-enabled learning depends on more than curriculum reform. Learners require reliable digital infrastructure, equitable learning environments, and foundational digital capabilities to participate effectively. Where these conditions are uneven, the benefits of AI-enabled learning risk being distributed unevenly, reinforcing existing gaps in educational opportunity and workforce readiness.

Inequality begins with differences in access to devices, connectivity, and digital learning environments. The OECD's *Digital Education Outlook* shows that students from lower-income households remain significantly less likely to have reliable access to digital devices and stable internet connectivity.³⁷ UNESCO's *Global Education Monitoring* reports further show that these disparities can compound over time, with learners who have limited opportunities to develop digital capability becoming less able to benefit from technology-enabled learning without additional support.⁴²

A further layer of inequality is emerging as AI becomes more embedded in education. Access to AI tools alone does not guarantee meaningful learning outcomes; students also require opportunities to develop the judgement and critical thinking needed to evaluate and apply AI effectively. As discussed previously, the quality of AI-enabled learning experiences is influenced by educator readiness, institutional capacity, and the availability of appropriate guidance.

These factors reinforce one another across the education pipeline. Differences in infrastructure, digital capability, and learning opportunities accumulate over time, contributing to uneven readiness when learners transition into further education or employment. As AI becomes more relevant across occupations, unequal access to AI-enabled learning risks widening existing capability gaps between learners and regions.



Asia Pacific's capacity to respond

The challenges are substantial, but Asia Pacific also has several foundations that can support a faster response. Across the region, education systems have established links with industry, vocational and technical pathways, strong digital adoption, growing STEM participation, and increasing investment in workforce capability. These strengths provide a platform for adapting education and training as AI changes the nature of work.

The region's advantages are not specific to AI. Many have supported previous waves of industrial and digital transformation and can now be applied to building AI-ready workforces:

Established education-industry collaboration

Partnerships between employers and education providers, including curriculum input, internships, workplace learning, and industry placements, provide mechanisms for keeping programmes aligned with changing workforce needs.

Strong vocational and technical pathways

Technical and vocational education provides practical routes into manufacturing, engineering, logistics, construction, healthcare, and digital occupations. These networks can incorporate AI capabilities alongside existing technical skills.

A strong foundation in applied learning

Apprenticeships, workplace placements, project-based learning, and other forms of work-integrated learning are particularly valuable as AI increases the importance of practical problem-solving, collaboration, and adapting knowledge to real-world situations.

Growing STEM participation and diverse demographics

Several economies continue to expand participation in science, technology, engineering, and mathematics, while younger populations in parts of the region provide a substantial pool of new workforce entrants. Together, these create significant potential for developing AI capability at scale.

High levels of digital adoption

Widespread use of digital payments, e-commerce, online services, and platform-based business models means many workers and businesses already operate in technology-enabled environments, providing a foundation for broader AI adoption.

Growing investment in AI capability

Governments, education providers, employers, and technology companies are investing in AI infrastructure, digital skills, teacher capability, research, and workforce development. The scale and maturity of these initiatives vary significantly, but the direction is clear: workforce capability is becoming a strategic priority alongside technology investment.

These strengths provide a solid foundation for accelerating workforce capability. The priority is now to adapt existing institutions, partnerships, and learning models so they can respond more quickly to changing workforce requirements. A growing number of education systems are already demonstrating practical approaches to doing so.



6.

Emerging models for AI workforce development

Governments, education providers, and employers are beginning to rethink how workforce capability is developed. Emerging approaches from across Asia Pacific and internationally demonstrate how curriculum, capability development, industry engagement, and lifelong learning are evolving to support an AI-enabled workforce.

No education system has fully adapted to the workforce implications of AI. However, governments, education providers, and employers are beginning to implement approaches that address many of the challenges identified.

While these initiatives differ in scale and maturity, they illustrate practical ways to modernise curriculum, teaching, industry engagement, and

lifelong learning.

Across these approaches, a common pattern is emerging. Rather than preparing learners for specific AI tools or technologies, education and training systems are focusing on developing transferable capabilities that remain valuable as technologies evolve. These capabilities can be viewed across three complementary layers.

Figure 18: Three layers of workforce capability

LAYER	FOCUS
Foundational capabilities	Digital literacy, data fluency, AI literacy, regulatory awareness and professional communication that enable participation in AI-enabled workplaces.
Durable Capabilities	Critical thinking, analytical reasoning, judgement, creativity, and problem-solving that allow workers to apply AI effectively within their profession.
Continuous capability development	Modular learning, micro-credentials, work-integrated learning and employer-supported reskilling that allow capability to evolve as technologies change.

The emerging practices that we see globally and in the region strengthen one or more of these capability layers.

Adaptive curriculum approaches

Workforce requirements are changing more quickly than traditional curriculum review cycles can accommodate. Rather than relying on major curriculum reforms every several years, some education systems are introducing more adaptive approaches that allow learning outcomes, assessment, and qualifications to evolve continuously alongside technological change.

- **Denmark** is exploring more agile approaches to curriculum and assessment through recommendations from the Ministry of Children and Education, allowing learning outcomes and assessment to be refined more frequently as technology evolves.⁴³
- **The OECD-European Commission AI Literacy Framework for Primary and Secondary Education (2026)** provides a common reference for curriculum reform. Rather than defining

AI as a technical subject, it identifies four capability domains – engage with AI, create with AI, manage AI, and shape AI – that can be embedded across learning.⁴⁴

- **PISA 2029** will introduce its Media and Artificial Intelligence Literacy (MAIL) assessment, recognising that evaluating AI-generated information, reasoning critically, and using AI responsibly are becoming core educational capabilities alongside literacy and numeracy.⁴⁵
- **Australia** will review its Framework for Generative AI in Schools annually, keeping national guidance aligned with evolving AI capabilities while reinforcing critical thinking, accountability, and safety.⁴⁶
- **Japan** has embedded AI and data science across university disciplines through its Mathematical Science, Data Science, and AI Education Program Accreditation System (MDASH) certification, with curricula updated in 2024 to include generative AI. Periodic re-certification gives universities a mechanism to keep curricula aligned with technological change.⁴⁷

AI capability integration across education

Because AI and agentic systems will continue to evolve, capability development cannot be anchored to today's technologies alone. Education systems need to build capabilities such as digital fluency, data reasoning, AI literacy, critical thinking, and the ability to evaluate AI outputs that remain relevant as tools and applications change.

- **Estonia's AI Leap programme** combines AI tools with structured teacher development, embedding AI across classroom learning while emphasising critical thinking, ethical reasoning, and teacher-led pedagogy.⁴⁸
- **Singapore's National AI Strategy 2.0** establishes a progression from digital literacy through applied AI capability and lifelong workforce development, integrating AI across schools, higher education, and continuing education.⁴⁹
- **Malaysia's MyDigital Blueprint** incorporates AI and digital competencies across K-12 education, TVET, and higher education while strengthening teacher capability and industry collaboration.⁵⁰
- **The Philippines' Technical Education and Skills Development Authority (TESDA)** has begun incorporating AI modules into mechatronics, information technology, and digital services programmes, ensuring vocational graduates develop AI-enabled technical capability alongside occupational skills.⁵¹
- **South Korea** is expanding its network of AI-focused schools from 730 in 2025 to 2,000 by 2028, integrating AI across subjects alongside dedicated AI learning, ethics, teacher development, and practical experience.⁵²

Beyond national education strategies, practical initiatives are also demonstrating how AI capability can be integrated into work-readiness programmes. Pilot projects by Prestasi Junior Indonesia, a non-profit organisation focused on youth education and workforce readiness, have embedded AI into entrepreneurship learning, helping students apply AI in business planning, innovation, and problem solving while reinforcing critical thinking and responsible AI practices.⁵³

Industry-education partnerships

Stronger collaboration between employers and education providers helps ensure learning remains aligned with changing workforce requirements. Partnerships provide learners with access to current technologies, operational environments, and professional practice, while enabling curricula, qualifications, and industry-recognised credentials to evolve more quickly as workforce needs change.

- **Singapore's Institute of Technical Education (ITE)** works with NVIDIA to provide hands-on experience with robotics, computer vision, predictive maintenance, and AI-enabled manufacturing systems.⁵⁴
- **Malaysia's TVET Transformation Programme**, supported by Siemens and Huawei, has established smart factory environments and digital twin laboratories, complemented by the Five-Year TVET Global Recognition Roadmap launched in 2026.⁵⁵
- **Indonesia's Kampus Merdeka** enables university students to earn academic credit through industry placements, internships, and professional certifications delivered with companies including Google, Microsoft, and Tokopedia.⁵⁶
- **Vietnam's National Innovation Center**, working with partners including FPT, Viettel, and NVIDIA, provides access to AI infrastructure, research programmes, and industry-led innovation projects.⁵⁷
- **South Korea's K-Digital Training AI Campus** brings companies, universities, and training providers together to develop AI talent. Launched in 2026 with 44 participating organisations, at least 30% of training must involve projects based on real workplace problems, with companies contributing AI tools, business data, and industry expertise.⁵⁸

Global public-private-youth partnerships are creating scalable pathways from learning to earning. Programmes led by JA Worldwide and partners including UNICEF's Generation Unlimited (GenU), ETS⁵⁹, Microsoft⁶⁰, EY⁶¹, SAP⁶², Accenture⁶³, and McKinsey⁶¹ integrate AI, digital, sustainability, and durable skills through industry-designed curricula, mentoring, recognised assessment, and direct links to employment.

Work-integrated learning models

As AI automates routine work, workplace experience plays a critical role in developing judgement, problem-solving, and professional capability. Structured work-integrated learning enables learners to apply technical knowledge in real-world environments while developing the practical experience that AI cannot easily replicate. Professional judgement is built through exposure to authentic workplace challenges rather than repetitive tasks. Apprenticeships, simulation laboratories, industry projects, and dual-training models are therefore vital for preparing talent for AI-enabled workplaces.

- **Germany's Dual Vocational Training System** combines vocational education with paid employment, allowing learners to develop technical knowledge alongside practical workplace experience.⁶⁴

- **Malaysia's National Dual Training System** applies similar principles by combining classroom learning with structured employer-based training to strengthen applied capability.⁶⁵
- **Vietnam's FPT University** embeds extended industry placements into degree programmes, with students spending up to half of their study time working in technology companies.⁶⁶
- **China's Jinhua Polytechnic** works with EV manufacturer Leapmotor to prepare students for AI-enabled manufacturing using real production processes, quality standards, and workplace data. Students undertake practical industrial tasks with support from an AI process mentor, which has reportedly reduced operational errors by nearly 60%.⁶⁷
- **MIT D-Lab and Stanford d.school** demonstrate project-based learning models where students solve real-world problems through multidisciplinary collaboration, industry engagement, and experiential learning rather than classroom instruction alone.⁶⁸
- **Oxford Saïd Business School's Human Leadership Development Programme** strengthens durable human capabilities – including judgement, communication, collaboration, adaptability, and ethical leadership – reflecting the growing importance of skills that complement, rather than compete with, AI.⁶⁹



Lifelong learning pathways

AI is shortening the lifespan of technical and professional skills, making workforce development a continuous process rather than a one-time investment at the start of a career. Education systems need to move beyond preparing workers for a single occupation and provide flexible pathways for people to build new capabilities throughout their working lives. Modular micro-credentials, employer-supported reskilling, stackable qualifications, and flexible pathways back into education are becoming essential mechanisms for keeping workforce capabilities aligned with technological change.

- **Singapore SkillsFuture** provides individual learning credits, modular programmes, and industry-recognised micro-credentials to support continuous workforce development and career transitions.⁷⁰
- **India's FutureSkills PRIME**, a joint initiative of the Ministry of Electronics and IT and NASSCOM, provides industry-aligned training and reskilling

in emerging technologies, including AI. By the end of 2025, 1.58 million people had enrolled or received training, with 85% from tier-2 and tier-3 cities, extending access beyond major technology centres.⁷¹

- **Indonesia's Digital Talent Scholarship** delivers training in AI, cybersecurity, cloud computing, and data analytics through partnerships with universities and technology companies, serving both students and working professionals.⁷²
- **Thailand's Digital Economy Promotion Agency (DEPA)** offers industry-aligned programmes in AI literacy, digital skills, and innovation for students, SMEs, and the wider workforce.⁷³
- **The Philippines' Digital Jobs PH** develops AI-enabled digital employment capabilities – including digital marketing, data annotation, platform services, and online business operations – with a particular focus on expanding opportunities outside major urban centres.⁷⁴

AI is changing the relationship between education and employment. The traditional boundary between learning before work and learning during work is becoming less relevant, as capability development becomes embedded throughout the employment lifecycle.



7.

Strategic essentials for education, policy, industry, and learners

Education providers, governments, employers, and learners each have distinct responsibilities, but all share a common objective: building workforce capabilities that remain relevant as technologies, occupations, and industries continue to evolve.

The transition to an AI-enabled workforce is not the responsibility of any single institution. It requires coordinated change across the education ecosystem, from curriculum and policy through to workplace learning and individual capability development.

While each stakeholder has a distinct role, progress depends on aligning these efforts around a shared objective: building workforce capabilities that remain relevant as technologies, occupations, and industries continue to evolve.

Education systems need to build adaptability into how they operate, not simply add AI to the curriculum. This means modernising curriculum, assessment, educator capability, and learning pathways around AI literacy, critical thinking, systems thinking, experiential learning, and continuous capability development, so that education can keep pace with changing workforce requirements rather than continually catching up.

"The challenge is not simply teaching AI, but ensuring education systems can adapt as quickly as the labour market they support."

Shanthi Kanthaswamy, Executive Director, JA Malaysia

Policymakers need to focus on the conditions that keep people employable as work changes, not only on creating jobs. This means establishing AI capability standards, modernising qualification and accreditation frameworks, investing in educator capability, strengthening industry-education partnerships, improving equity of access, and building the governance and labour market intelligence needed to respond to changing workforce needs.

"The responsibility that governments and employers have is to keep the number of unemployed to a minimum. So, it's not just about job creation; it's about ensuring people have the skills, know how to use the tools around them, and have the mindset to solve society's challenges."

Sam Majid, CEO, National AI Office (NAIO)

Industry needs to treat workforce capability as a shared responsibility between education and the enterprise. Education systems can build foundational AI fluency, but employers must develop the specialised skills their businesses require – redesigning roles around human-AI collaboration, embedding AI literacy across the workforce, investing in continuous reskilling and applied learning, and working with education providers to keep curricula aligned with changing workplace needs.

"There's a base level of AI fluency – prompt writing and so on – that we will rely on the education system to teach. But if your enterprise needs more specialised skills, you may have to teach your own staff."

Mahesh Uttamchandani, Regional Director for Digital Transformation, World Bank

Learners should focus on building adaptability rather than preparing for a single career. Alongside AI literacy, they need to develop durable human capabilities such as judgement, creativity, collaboration, ethical reasoning, and problem-solving, supported by practical experience, interdisciplinary learning, entrepreneurship, and a commitment to lifelong learning. The ability to question, validate, and take responsibility for AI-assisted work will be as important as knowing how to use the tools themselves.

"Industry will look for people who take responsibility for their work, not just for how they use AI, but for the quality and integrity of what they produce. Are you reviewing the report AI generated? Debugging the code? Or simply accepting it because AI produced it?"

Dinu Raheja, Executive Director, LEAD The Global Education & Leadership Foundation (tGELF)/JA India

Three horizons capability matrix: A pathway for a future-ready workforce

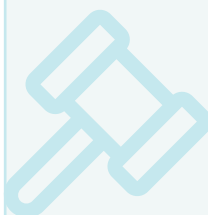
The horizon-based roadmap translates these strategic priorities into actions over time. It outlines how Education Systems, Policymakers, Employers, and Learners need to evolve their approaches as AI shifts work from productivity tools towards intelligent operations and, ultimately, adaptive human–AI ecosystems. These pathways illustrate how each stakeholder can contribute to building a workforce that remains adaptable as technologies, occupations, and industries continue to evolve.

HORIZON 1:

AI-driven productivity and early role redesign

Focus: Establish the foundational capabilities, policies, and partnerships required for AI adoption. During this period, organisations and education systems start embedding AI literacy, strengthening educator and workforce capability, redesigning early roles and curricula, and establishing the governance needed to support responsible AI adoption at scale.

Figure 19: Building the foundations for an AI-ready workforce (now–2028)

ECOSYSTEM PARTICIPANT	AI WORKFORCE STATUS	STRATEGIC PRIORITIES
Education systems 	- AI and data literacy are emerging, but access remains uneven. - Educator confidence and capability vary significantly. - Curricula and assessment remain largely designed around existing occupations and knowledge acquisition. - Industry exposure is inconsistent and often programme-specific.	- Establish AI, data, and digital literacy as core learning outcomes across education levels - Redesign curricula and assessment to develop critical thinking, problem-solving, judgement, and AI-enabled learning. - Establish minimum AI capability expectations for educators and provide continuous professional development. - Expand structured industry exposure through internships, simulations, projects, and apprenticeships. - Introduce modular and stackable pathways alongside traditional qualifications.
Policymakers 	- AI capability frameworks and qualification reforms are emerging. - Education, employment, and industry policies are not consistently aligned around AI workforce needs. - Skills intelligence remains largely periodic rather than continuous. - Industry participation depends heavily on individual programmes and partnerships.	- Establish national AI capability frameworks spanning schools, TVET, higher education, and workforce development. - Modernise accreditation to recognise micro-credentials, applied learning, and industry-based capability. - Connect education, labour, and industry policy through coordinated workforce planning. - Incentivise employers to participate in curriculum development and work-integrated learning. - Establish mechanisms to identify emerging skills demand earlier.

ECOSYSTEM PARTICIPANT	AI WORKFORCE STATUS	STRATEGIC PRIORITIES
Employers 	- AI adoption is concentrated in selected functions and use cases. - AI literacy and technical training are expanding but remain fragmented. - Some roles are being augmented or redesigned, but workforce planning rarely accounts systematically for AI. - Education partnerships are not yet consistent talent pipelines.	- Establish baseline AI capability across the workforce, differentiated by role. - Identify tasks and roles where AI can augment or automate work and redesign them deliberately. - Build specialist capability in areas such as AI governance, risk, data, model oversight, and security. - Develop structured talent pipelines with education providers, including internships, apprenticeships, and industry certifications. - Recruit for learning agility, analytical thinking, and domain expertise alongside technical skills.
Learners 	- AI is already widely used, particularly generative AI, but capability and critical evaluation vary. - Many learners have limited understanding of how AI is used in actual workplaces. - Formal qualifications remain the primary signal of employability.	- Develop foundational AI, data, digital, critical-thinking, and ethical capabilities. - Learn to evaluate AI outputs and understand their limitations rather than simply use AI tools. - Combine AI capability with meaningful domain expertise. - Gain practical exposure through industry projects, internships, simulations, and work-integrated learning. - Build evidence of applied capability alongside formal qualifications.

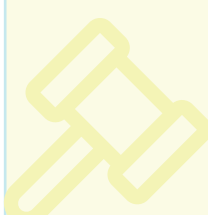


HORIZON 2:

AI-orchestrated work and intelligent operations

Focus: As AI adoption matures, organisations move beyond individual productivity gains towards AI-enabled workflows, intelligent operations, and human-AI collaboration. Education, policy, and workforce development shift from establishing foundational capability to embedding AI into curriculum, organisations, and industries. Success depends on systems thinking, interdisciplinary collaboration, governance, and the ability to supervise, optimise, and work alongside intelligent systems.

Figure 20: Horizon 2: Embedding AI into work, learning, and operations (2028–2031)

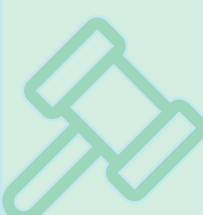
ECOSYSTEM PARTICIPANT	AI WORKFORCE STATUS	STRATEGIC PRIORITIES
Education systems 	- AI is embedded across disciplines rather than treated primarily as a standalone capability. - AI agents, simulations, and real-world datasets are becoming part of learning environments. - Industry problems and platforms shape learning experiences. - Educators are moving from users of AI tools to designers and supervisors of AI-enabled learning.	- Redesign programmes around human-AI collaboration, systems thinking, and workflow orchestration. - Use AI agents and simulations to expose learners to complex, dynamic work environments. - Shift assessment towards problem-solving, decision-making, collaboration, and outcomes rather than task completion. - Establish continuous curriculum updates based on labour-market and industry intelligence. - Expand co-delivery between educators and employers around live business problems
Polymakers 	- AI is becoming embedded across sectors, creating occupation-level rather than isolated skills impacts. - Governments have better visibility into changing skills demand. - Workforce transition is becoming a recurring policy issue as roles are redesigned. - Professional standards are beginning to account for AI-enabled practice.	- Move from defining AI skills to actively managing workforce transition. - Establish sector-level capability programmes for occupations undergoing AI transformation. - Develop standards for professionals supervising AI-enabled processes. - Fund shared AI capability infrastructure across education, industry, and government. - Use workforce intelligence to anticipate rather than react to skills shortages.
Employers 	- AI operates across business workflows rather than individual applications. - Human-AI teams become standard in selected functions. - Managers supervise AI-enabled processes and exceptions. - Career progression begins to depend on the ability to work across AI-enabled systems.	- Redesign workflows around human and machine responsibilities, not existing job descriptions. - Develop managers capable of supervising AI-enabled teams and autonomous workflows. - Build capability in agent supervision, workflow orchestration, exception management, and model oversight. - Redesign performance and career frameworks around outcomes rather than task execution.

ECOSYSTEM PARTICIPANT	AI WORKFORCE STATUS	STRATEGIC PRIORITIES
Learners 	- Graduates enter work with experience using AI in realistic environments. - AI is integrated into most professional practice. - Routine task execution becomes less important than managing complex workflows and decisions.	- Learn to supervise, validate, and improve AI-enabled workflows. - Develop systems thinking and cross-functional problem-solving. - Build capability to work with multiple AI systems and agents. - Demonstrate experience managing complex problems and outcomes, not simply using AI tools.

HORIZON 3: Adaptive human-AI ecosystems

Focus: AI becomes embedded across industries, economies, and society, with intelligent systems operating as interconnected networks rather than isolated organisational tools. The workforce shifts from using and managing AI within defined processes to shaping, governing, and innovating within adaptive human-AI ecosystems. Competitive advantage depends on ecosystem orchestration, socio-technical leadership, cross-sector collaboration, and the ability to anticipate and influence how intelligent systems evolve.

Figure 21: Horizon 3: Moving from AI-enabled organisations to adaptive human-AI ecosystems (2031–2035+)

ECOSYSTEM PARTICIPANT	AI WORKFORCE STATUS	STRATEGIC PRIORITIES
Education systems 	- AI-enabled learning is adaptive and continuously informed by industry and labour-market change. - Learners move across formal education, industry, and digital learning environments. - Education combines AI systems, human educators, industry platforms, and real-world data. - Traditional boundaries between learning and work become less distinct.	- Build adaptive education systems that continuously respond to changes in technology and workforce demand. - Develop advanced interdisciplinary programmes combining domain expertise, AI, systems thinking, ethics, and strategic decision-making. - Create permanent education—industry intelligence networks. - Enable learners to move more fluidly between education, work, and reskilling throughout their careers.
Policymakers 	- Workforce disruption becomes a continuous policy issue rather than a periodic skills-gap exercise. - AI systems create dependencies across sectors and borders. - Governance addresses interconnected AI infrastructure, agents, platforms, and data ecosystems. - International coordination becomes more important.	- Build dynamic national capability systems that continuously adjust education and workforce investment. - Govern interconnected AI ecosystems, including accountability, interoperability, sovereignty, and systemic risk. - Develop cross-border frameworks for AI-enabled work and digital infrastructure. - Direct investment towards capabilities that have strategic economic and societal importance.

ECOSYSTEM PARTICIPANT	AI WORKFORCE STATUS	STRATEGIC PRIORITIES
Employers 	- Organisations operate networks of people, agents, platforms, and external partners. - Work becomes less structured around fixed roles and more around outcomes and capabilities. - Organisations manage portfolios of AI capabilities rather than individual applications. - Competitive advantage depends on how effectively organisations orchestrate internal and external AI ecosystems.	- Redesign organisational structures around human-AI ecosystems rather than fixed job functions. - Develop capability architectures centred on strategic judgement, ecosystem coordination, governance, and innovation. - Govern multi-agent environments, including accountability, escalation, and inter-organisational dependencies. - Make continuous workforce redesign part of business strategy.
Learners 	- Careers become fluid across roles, industries, and human-AI configurations. - AI becomes embedded in professional practice rather than treated as a separate skill. - Differentiation shifts towards domain depth, judgement, creativity, and the ability to shape complex systems. - Individuals need to manage their own capability portfolio over multiple career transitions.	- Develop the ability to shape AI-enabled work, rather than simply adapt to changes introduced by employers or technology. - Combine deep domain expertise with systems thinking, strategic judgement, creativity, and AI capability. - Identify emerging opportunities and redefine professional practice as AI changes industries. - Maintain a continuously evolving portfolio of capabilities rather than rely on a single qualification or occupational identity. - Develop judgement about where AI should augment, delegate, or remain subordinate to human decision-making.



Spotlight: The human capabilities that persist across AI horizons

AI will change the technical capabilities required in education and work, but some human capabilities will remain central across every stage of AI adoption.

Critical thinking, problem-solving, collaboration, adaptability, and ethical judgement will determine how effectively people apply AI, make decisions, and create value in AI-enabled environments.

The role of these capabilities will shift over time. In Horizon 1, they enable students to use AI effectively, assess outputs, communicate ideas, and solve problems with new tools. In Horizon 2, they become essential for working within human-AI teams, adapting to changing roles, and making decisions where technology supports but does not replace judgement. In Horizon 3, they become the capabilities that distinguish human contribution as AI takes on more routine analysis and execution, enabling people to frame complex challenges, navigate uncertainty, and guide the responsible use of intelligent systems.

“Whatever you learn today will be somewhat obsolete tomorrow. It’s the growth mindset, the resilience, the ability to reinvent, that matter more.”

Cathy Knezevic, Group Chief Corporate Affairs Officer, FWD Group

There is also a broader challenge emerging. As more learning, communication, and social interaction

moves onto digital platforms, some learners may have fewer opportunities to develop capabilities through real-world experiences: working through setbacks, collaborating with different people, building confidence through practical problem-solving, and applying judgement in uncertain situations. As AI becomes more capable, education systems and employers will need to deliberately create opportunities to develop these human capabilities.

There are lessons to draw from existing workforces that have already navigated significant technological and organisational change. Many experienced workers have developed resilience, practical judgement, and adaptability through repeated transitions in tools, processes, and ways of working. At the same time, younger generations bring strong digital fluency, experimentation, and comfort with emerging technologies. The workforce of the future needs both: the ability to adopt new technologies quickly and the judgement to apply them well.

Across all three horizons, AI readiness will depend on combining technical capability with human capability. The advantage will not come from knowing more tools. It will come from knowing how to use them, question them, and shape what happens next.

The central workforce challenge is shifting from preparing people for specific roles to building the capacity to adapt as roles themselves change. AI will continue to reshape occupations, but competitive advantage will come from ecosystems that combine technical capability with human judgement, adaptability, and continuous learning.



Spotlight: Financial services and manufacturing

Financial services and manufacturing follow different AI workforce pathways from the broader industry trajectory. Financial services is shaped by regulatory requirements, risk management, and trust. Manufacturing is shaped by automation, physical operations, and workforce transition.

Financial Services

Figure 22: Financial services workforce evolution: From AI-assisted decisioning to AI governance

HORIZON	AI WORKFORCE STATUS	STRATEGIC PRIORITIES
Horizon 1 (Now–2028)	- AI is primarily used to augment existing roles, particularly in data-intensive functions such as risk, fraud, compliance, underwriting, customer service, and operations. - Employees use AI to analyse information, identify patterns, prepare recommendations, and automate routine work, but remain responsible for decisions. - The immediate workforce impact is uneven: some roles gain AI capabilities while others continue to depend heavily on manual processes and legacy systems.	- Redesign priority roles around human judgement supported by AI, rather than simply adding AI tools to existing workflows. - Define which decisions can be AI-assisted and which require human review or approval. - Build AI capability within business functions, not just specialist technology teams. - Use early productivity gains to redesign jobs and redeploy capacity towards higher-value analytical and customer-facing work.
Horizon 2 (2028–2031)	- AI moves from assisting individuals to coordinating end-to-end financial processes such as onboarding, claims, lending, payments, fraud investigation, and regulatory reporting. - Multiple AI systems and agents work across applications, data sources, and operational steps, reducing the need for people to coordinate routine activities manually. - Human roles shift towards orchestrating workflows, managing exceptions, validating outcomes, and handling cases that fall outside defined parameters. - Operating models begin to change as work is organised around AI-enabled processes rather than traditional functional boundaries.	- Redesign processes around human-AI operating models, rather than automating individual tasks within existing structures. - Establish new roles and controls for AI supervision, exception management, model performance, and workflow accountability. - Train managers to allocate work between people and AI systems and intervene when automated processes fail or behave unexpectedly. - Reorganise selected operations around AI-enabled workflows, with clear ownership of end-to-end outcomes.
Horizon 3 (2031–2035+)	- AI becomes part of the financial system's operating fabric, connecting institutions with customers, fintechs, market infrastructures, technology providers, and potentially regulators. - Autonomous systems can coordinate activities across organisational boundaries, while machine-initiated transactions and decisions become more common. - The workforce shifts from managing individual AI processes to governing interconnected financial systems and their outcomes. - Competitive differentiation depends less on the ability to deploy individual AI applications and more on how effectively institutions manage AI dependencies, partnerships, data flows, and systemic risks.	- Develop organisational capability to govern AI-driven financial ecosystems, including accountability across institutional and technology boundaries. - Build expertise in systemic risk, scenario planning, AI ecosystem governance, and the consequences of autonomous financial activity. - Redefine senior leadership roles around decisions that cannot be delegated to AI: strategic direction, risk appetite, accountability, and institutional trust. - Build mechanisms for continuously reshaping organisational structures and workforce models as AI changes how financial markets and services.

Manufacturing

Figure 23: Manufacturing workforce evolution: From digital operations to AI-enabled production systems

HORIZON	AI WORKFORCE STATUS	STRATEGIC PRIORITIES
Horizon 1 (Now–2028)	- Automation and digital capability remain concentrated in engineering, maintenance, and higher-skilled technical roles, while many frontline workers continue to operate in semi-digital environments. - Manufacturers are adding connected equipment, machine vision, robotics, and AI-enabled tools, but adoption varies significantly by site, production line, and workforce capability. - AI primarily augments existing work, supporting quality inspection, maintenance, process monitoring, and production decisions rather than changing the structure of work. - Reskilling existing workers becomes a constraint as manufacturers introduce more connected and automated equipment.	- Build practical digital and AI capability across frontline and technical roles, linked directly to production processes. - Expand hands-on learning through robotics, automation, simulation, and connected production environments. - Redesign selected roles around human-machine collaboration, particularly in quality, maintenance, safety, and process improvement. - Build stronger pipelines between manufacturers, TVET providers, universities, and technology partners.
Horizon 2 (2028–2031)	- Adoption of integrated automation and AI-enabled production remains uneven across manufacturers, with leading sites moving faster than smaller or less digitally mature operations. - Digital twins, predictive maintenance, robotics, machine vision, and AI-supported planning become more established in priority production environments. - Workers supervise connected production systems rather than individual machines, but many operations continue to rely on human coordination across disconnected systems. - New roles emerge around production analytics, automation supervision, systems maintenance, and exception management.	- Build capability to operate and maintain integrated production systems, not just individual technologies. - Develop technicians and engineers who can work across operational technology, IT, data, robotics, and AI. - Create structured transition pathways for workers whose tasks are reduced or redesigned by automation. - Use common skills frameworks and training environments across sites to accelerate adoption without assuming that all facilities will progress at the same pace.
Horizon 3 (2031–2035+)	- Leading manufacturers operate adaptive production ecosystems connecting factories with suppliers, logistics networks, equipment, inventory, and customer demand. - AI systems coordinate production planning, maintenance, quality, resource allocation, and supply decisions across these connected environments. - Human roles move beyond supervising individual processes towards orchestrating production systems, resolving complex problems, managing trade-offs, and driving innovation. - Workforce capability becomes differentiated by the ability to understand and influence interactions across physical production, AI systems, supply networks, and business operations.	- Redesign workforce models around adaptive production ecosystems, rather than individual plants or functions. - Develop advanced capability in systems engineering, operational intelligence, AI supervision, optimisation, and cross-system decision-making. - Prepare leaders to manage trade-offs between automation, resilience, cost, sustainability, workforce capability, and supply-chain risk. - Establish continuous transition pathways that allow workers to move into new technical, supervisory, engineering, and innovation roles as production systems evolve.

8.

Conclusion: Asia Pacific's capability advantage

Asia Pacific's AI workforce challenge is not simply a shortage of AI skills. It is whether education, industry, and policy can adapt fast enough as the nature of work changes.

The capabilities required today will not remain fixed. As AI systems become more capable and industries reorganise around them, education systems will need to update curricula and learning pathways, employers will need to redesign roles and work, and governments will need to keep skills and qualification systems aligned with changing demand. Workforce readiness will not depend solely on how many people are trained in today's AI tools; but on how quickly economies can build new capabilities as those tools evolve.

This will shape Asia Pacific's competitive position. Access to models, compute, infrastructure, and investment will continue to expand across the region. The greater differentiator will be whether economies can convert these assets into productivity, innovation, and higher-value work.

That requires capability beyond technology specialists. Educators need to integrate AI into how people learn. Employers need to redesign work around human-AI collaboration and develop the capacity to govern AI-enabled decisions. Workers need to combine AI capability with domain expertise, judgement, and the ability to move into new roles as industries change.

The region starts from very different positions. Singapore, Japan, South Korea, Australia, and New Zealand have more established digital and education systems, while China is actively building AI capability at national scale. Elsewhere, younger workforces

and rapid digitalisation create opportunities to build new capabilities as industries evolve. **There is no single workforce model for the region, but every economy faces the same test: can its education, workforce, and industry systems adapt faster than skills become obsolete?**

Industry-education partnerships, work-integrated learning, modular qualifications, and continuous reskilling will become infrastructure for workforce competitiveness, not supplementary programmes.

The strategic priority is therefore not another round of AI training. It is a workforce system that can detect changing demand, update learning and qualifications, connect education with employers, and help workers transition between roles.

AI adoption will spread faster than AI capability. The advantage will go to economies that can close that gap **repeatedly**, turning technological change into new skills, new forms of work, and higher-value economic activity.

For Asia Pacific, the opportunity is to build workforce systems that not only prepare people for AI, but continuously develop the capabilities needed as technology, industries, and jobs evolve.

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