

Singapore's AI-Driven Economic Future

How AI will reshape Singapore's labour market, industries and competitive position.

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Executive Summary

In **Chapter 1.1.2** we explore how 3 factors – customer-facing orientation, R&D spending and whether the tasks automated are revenues or costs – determine AI's impact on Singapore's 10 biggest industries.

High R&D intensity industries like Manufacturing, ICT and Healthcare will emerge as big beneficiaries as AI accelerates value-discovery, resulting in revenue growth.

Conversely, because the tasks AI automates in the Professional Services industry are revenue-generating, the industry will likely contract. Within Professional Services, customer-facing sub-industries are insulated, whilst non-customer-facing sub-industries will be disrupted.

The remaining 6 industries will benefit from AI as AI automates administrative tasks.

In **1.1.3** the AI value-chain is split into 5 layers. Singapore has a right-to-win in the Cloud, Semiconductor and Application layers.

In **1.2** we explore how two factors – AI exposure and AI complementarity – will affect different segments of Singapore's workforce. High exposure, high complementarity roles (e.g. PMETs) will be augmented by AI. High exposure, low complementarity roles (e.g. clerks) will be replaced by AI. Low exposure, low complementarity roles (e.g. plumbers) are unaffected.

In **1.3** we explain why Singapore's competitive advantages, human capital, financial hub status and rule of law continue remaining important.

In **Chapter II** we discover that though total economic output will increase, it will be unequally distributed amongst businesses and Singaporeans. Singapore has also not capitalized on its right-to-win on the Application layer.

In **Chapter III** we propose the government create structured pathways to transition displaced workers into skilled blue-collar roles and to expand AI-literacy outreach to women and less-educated people.

We also propose the government create CTOSingapore, a statutory board tasked with leading the AI transformation of Singaporean SMEs.

Finally, we propose that the government create a fast-track pre-approval pathway onto grant vendor lists for Singaporean startups, and a S\$5b growth-VC fund, to accelerate the development of Singaporean application-layer AI startups.

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Introduction

Artificial intelligence (AI) refers to computer systems that “simulate human intelligence - such as learning, reasoning and problem-solving.- to perform tasks autonomously”.¹ Dual advancements in computing power and access to data facilitated recent developments in Generative AI.

With its unprecedented ability to generate new content (from text, images to audio) based on user prompts, AI creates new possibilities for industries and nature of work. Given the current state of technology, we will focus primarily on Generative AI.

¹ International Organization for Standardization, “Artificial Intelligence — What Is AI?,” ISO, accessed May 1, 2026, <https://www.iso.org/artificial-intelligence/what-is-ai>.

Chapter I — Analysis

1.1 Industries

1.1.1 Framework: Three Factors

Whether AI benefits or disrupts Singapore’s industries can be evaluated using three factors.

EXHIBIT · CHAPTER 1 · INDUSTRIES

Three factors determine whether AI benefits or disrupts each of Singapore's industries

The interplay of customer-facing intensity, the role automated tasks play in revenue versus cost, and R&D investment shapes how each industry will fare.

S/N	FACTOR	EXPLANATION
1	Customer-facing orientation	Industries with greater customer-facing orientations are more insulated from disruption : human relationships cannot be replicated by AI, especially where high-stakes decisions are involved (e.g. law, banking, medicine) and clients demand human accountability.
2	Whether the tasks being automated are revenues or costs	Industries whose core revenue-generating tasks are automated by AI will see client demand eroded and are disrupted. Industries that purchase those same tasks as a cost input will see their cost base fall and are beneficiaries
3	R&D spending	Industries with higher R&D spending will benefit from AI-augmented research processes, which shorten product-development cycles and accelerate value-discovery.

1.1.2 Singapore's Industries by AI Impact

Using this framework, Singapore's ten biggest industries can be segmented into three buckets.

Group A — AI creates new opportunities: sectors likely to expand

These sectors benefit because AI expands what they can produce — accelerating drug discovery, chip design, and diagnostics rather than simply replacing their workforce.

S/N	INDUSTRY ²	F1 CUSTOMER-FACING ³	F2 REVENUE OR COST ⁴	F3 R&D INTENSITY ⁵
1	Manufacturing 17.7% of GDP ⁶ <i>incl. biomedical</i>	Low	Cost	High ⁷⁸
6	ICT 5.4% of GDP	Low	Cost	High ⁹
8	Health & Social Svcs 2.4% of GDP	High	Cost	High ¹⁰

²Singapore Department of Statistics, "Gross Domestic Product at Current Prices, By Industry (SSIC 2020), Annual," 2023, <https://tablebuilder.singstat.gov.sg/>. GDP shares derived from total nominal GDP of S\$673.3 billion.

³Ministry of Manpower, Manpower Research and Statistics Department, "Labour Force in Singapore Advance Release 2023" (Singapore: MOM, November 2023). Customer-facing orientation assessed from PMET distribution and occupational structure by sector.

⁴Daron Acemoglu, "The Simple Macroeconomics of AI," NBER Working Paper No. 32487 (Cambridge, MA: National Bureau of Economic Research, May 2024), <https://doi.org/10.3386/w32487>; published as Daron Acemoglu, "The Simple Macroeconomics of AI," *Economic Policy* 40, no. 121 (2025): 13–58. Factor 2 applies Acemoglu's core distinction: industries that sell the tasks AI automates lose revenue; those that purchase them as inputs save cost.

⁵National Research Foundation Singapore, Research, Innovation and Enterprise 2025 Plan (Singapore: NRF, 2021), <https://www.nrf.gov.sg/rie-ecosystem/rie2025-plan/>.

⁶ Industry GDP shares throughout this table are nominal value-added shares for 2024 from Singapore Department of Statistics, "Gross Domestic Product at Current Prices, by Industry (SSIC 2020), Annual," accessed April 2026, <https://tablebuilder.singstat.gov.sg/>.

⁷Singapore Department of Statistics, "Business Expenditure on R&D by Industry (SSIC 2020)," accessed April 2026, <https://tablebuilder.singstat.gov.sg/>. Engineering and technology R&D (2021): approximately S\$7.1 billion; biomedical and related sciences (2019): S\$579.5 million.

⁸Singapore's SSIC 2020 classifies biomedical manufacturing — pharmaceuticals, medical devices and biological products — under Manufacturing.

⁹Singapore Department of Statistics, "Business Expenditure on R&D by Industry (SSIC 2020)."

¹⁰Singapore Department of Statistics, "Business Expenditure on R&D by Industry (SSIC 2020)."

Industries with high R&D spending will be the biggest beneficiaries of AI as AI accelerates product discovery. For instance, in the biotech industry, tools like Google's AlphaFold can digitally simulate intermolecular interactions, accelerating target identification and lead optimisation.¹¹ AI-enabled drug discovery workflows can cut discovery timelines from five years to one year and reduce costs by 40%.¹²

Group B — AI reduces input costs: sectors likely to remain stable

These sectors purchase knowledge work as an input. As AI reduces the cost of that input, profit margins improve without their core product being threatened. Applies to majority of Singapore's industries (51% of GDP).

S/N	INDUSTRY ¹³	F1 FACING ¹⁴	CUSTOMER- F2 COST ¹⁵	REVENUE OR F3 R&D INTENSITY ¹⁶
1	Wholesale Trade 21.1% of GDP	Low	Cost	Low
3	Finance & Insurance 13.1% of GDP	Med	Mixed	Med
4	Transport & Storage 6.5% of GDP	Low	Cost	Low
7	Construction & RE 6.3% of GDP	Med	Cost	Low

¹¹ Sai Sandeep Singh Rowhan et al., "AI-enabled Drug and Molecular Discovery: Computational Methods, Platforms, and Translational Horizons," *Discover Molecules* 1, no. 1 (2025), <https://doi.org/10.1007/s44345-025-00037-5> (AI-enabled workflows compress discovery timelines from five years to 12–18 months and reduce costs by up to 40%).

¹² Springer Nature, "AI-enabled drug and molecular discovery: computational methods, platforms, and translational horizons," *Discover Molecules*, 2025, <https://link.springer.com/article/10.1007/s44345-025-00037-5>; Access Partnership and Singapore Economic Development Board, *The Next 60 Years: How AI Can Power Singapore's Future* (Singapore: EDB, 2025), <https://www.edb.gov.sg/content/dam/edb-en/business-insights/market-and-industry-reports/the-next-60-years-how-ai-can-power-singapores-future/Singapore%20AI%20Opportunity.pdf>. AI-enabled drug discovery workflows are estimated to compress development timelines from five years to 12–18 months and reduce costs by up to 40%.

¹³ Singapore Department of Statistics, "Gross Domestic Product at Current Prices, By Industry (SSIC 2020), Annual," 2023.

¹⁴ Ministry of Manpower, "Labour Force in Singapore Advance Release 2023."

¹⁵ Acemoglu, "The Simple Macroeconomics of AI."

¹⁶ National Research Foundation Singapore, *Research, Innovation and Enterprise 2025 Plan*.

S/N	INDUSTRY ¹³	F1 FACING ¹⁴	CUSTOMER-	F2 COST ¹⁵	REVENUE OR	F3 R&D INTENSITY ¹⁶
10	Tourism & Hospitality 1.6% of GDP	High		Cost		Low
9	Education 2.4% of GDP	High		Mixed		Med

Group C — AI automates core revenue tasks: sectors at risk of contraction

S/N	INDUSTRY ¹⁷	F1 CUSTOMER-FACING ¹⁸	F2 REVENUE OR COST ¹⁹	F3 R&D INTENSITY ²⁰
5	Professional Services 5.4% of GDP	Med	Revenue ²¹	Low

Industries, like Professional Services, whose core services AI automates, and particularly non-consumer-facing sub-industries such as Business Process Outsourcing will be disrupted. Conversely, customer-facing sub-industries like law may be partially insulated from complete disruption due to the value of human relationships in these sub-industries.

¹⁷Singapore Department of Statistics, "Gross Domestic Product at Current Prices, By Industry (SSIC 2020), Annual," 2023.

¹⁸Ministry of Manpower, "Labour Force in Singapore Advance Release 2023."

¹⁹Acemoglu, "The Simple Macroeconomics of AI."

²⁰National Research Foundation Singapore, Research, Innovation and Enterprise 2025 Plan.

²¹Joseph Briggs and Devesh Kodnani, "The Potentially Large Effects of Artificial Intelligence on Economic Growth," Goldman Sachs Global Economics Analyst, 26 March 2023, <https://www.gspublishing.com/content/research/en/reports/2023/03/27/d64e052b-0f6e-45d7-967b-d7be35fabd16.html>. Legal occupations show approximately 44% workload exposure to generative AI, with roughly 40% of legal tasks substitutable.

1.1.3 The AI Value Chain

Applications

Enterprise SaaS Copilots, agents	Consumer AI ChatGPT, search	Healthcare Dx, drug discovery	Financial services Risk, fraud, trading
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Models & platforms

Foundation models GPT-4o, Claude, Gemini	Inference APIs Anthropic, Together	Data & RLHF Scale AI, Surge, Appen	MLOps tooling W&B, Ray, Kubeflow
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Cloud & compute infrastructure

Hyperscale cloud AWS, Azure, GCP	Specialised AI cloud CoreWeave, Lambda	Networking fabric InfiniBand, RoCE	Storage & data Distributed object stores
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Semiconductor manufacturing

GPU / ASICs Nvidia, AMD, TPUs	Chip fabrication TSMC, Samsung	EUV lithography ASML	Adv. packaging CoWoS, HBM
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Physical foundations

Energy supply Grid, renewables, nuclear	Critical minerals Silicon, cobalt, rare earths	Water & cooling Datacentre thermal mgmt	Land & real estate Datacentre campuses
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Figure 1: The AI Value Chain: Five interdependent layers, physical foundations to end applications

The global AI market is growing rapidly and is projected to reach US\$4.8 trillion by 2033.²² As a small island-nation, Singapore should focus its efforts on selected layers of the value-chain where it can leverage existing competencies to develop sustainable competitive advantages, or a ‘right-to-win’.

Physical foundations

	Resource endowment	Energy cost & abundance	Water availability	Land at industrial scale
01 Physical foundations	Absent ²³	Absent ²⁴	Absent ²⁵²⁶	Absent ²⁷

Singapore’s lack of minerals, energy, water and land translates to a weak right-to-win in the physical foundations layer.

²² UN Trade and Development (UNCTAD), Technology and Innovation Report 2025 (Geneva: UNCTAD, April 2025), <https://unctad.org/news/ai-market-projected-hit-48-trillion-2033-emerging-dominant-frontier-technology>.

²³Smart Nation Singapore, National AI Strategy 2.0 (Singapore: Smart Nation Group, December 2023), <https://www.smartnation.gov.sg/nais/>. Singapore has no domestic deposits of silicon, cobalt, lithium, rare earth elements or copper.

²⁴Peter Judge, "Singapore Lifts Data Center Moratorium — but Sets Conditions," Data Center Dynamics, 25 July 2022, <https://www.datacenterdynamics.com/>. Singapore's grid is approximately 96% natural gas-powered; industrial electricity prices rank among the highest in Southeast Asia.

²⁵Public Utilities Board, Our Water, Our Future (Singapore: PUB, 2023), <https://www.pub.gov.sg/>. Singapore is among the world's most water-stressed countries, relying on desalination, NEWater recycling and imports from Malaysia.

²⁶Judge, "Singapore Lifts Data Center Moratorium." Data centres consume approximately 7% of Singapore's national electricity.

²⁷Singapore Land Authority, Singapore Land Statistics 2023/24 (Singapore: SLA, 2024), <https://www.sla.gov.sg/>. Total land area is approximately 728 km², precluding large-scale mining, smelting or refining operations.

Semiconductor manufacturing

	10-year fab Total Cost of Ownership ²⁸	Engineering talent density	Ecosystem & supply chain synergy	IP & geopolitical stability
02 Semiconductor manufacturing	Competitive	Present ²⁹³⁰	Present ³¹³²	Strong ³³

Singapore's right-to-win on the semiconductor layer is mixed.

Though Singapore is a major chip producer, the chips produced here are mature-nodes not used in AI. Economists broadly agree Singapore cannot compete with larger developed economies like America in offering huge subsidises to attract semiconductor manufacturers to open cutting-edge fabrication plants. Thus, Singapore has a weak right-to-win in the advanced chip vertical.³⁴

²⁸Boston Consulting Group and Semiconductor Industry Association, Government Incentives and US Competitiveness in Semiconductor Manufacturing (Washington, DC: SIA, September 2020), <https://www.semiconductors.org/>. The report identifies 10-year total cost of ownership (TCO), ecosystem synergy, access to skilled talent and IP protection as the four primary fab-location factors; Singapore's TCO is approximately 30% below the United States.

²⁹Built In Singapore, "20 Semiconductor Companies in Singapore to Know," 2024, <https://builtinsingapore.com/companies/type/semiconductor-companies>. GlobalFoundries, Micron Technology, STMicroelectronics, ASE Group and JCET collectively employ over 20,000 semiconductor workers in Singapore across wafer fabrication, OSAT and R&D.

³⁰ASEAN Briefing, "Why Singapore is the Top Choice for Semiconductor Companies in 2024," 2024, <https://www.aseanbriefing.com/>. The Singapore government committed approximately S\$18 billion (US\$13.6 billion) between 2021 and 2025 for semiconductor R&D and manufacturing.

³¹TrendForce, "Explore the Foundry Landscape in Singapore," January 2024, <https://www.trendforce.com/>. GlobalFoundries completed a US\$4 billion expansion in 2023, raising Singapore capacity to 1.5 million 300mm wafers per year.

³²McKinsey & Company, "Strategies to Lead in the Semiconductor World," April 2022, <https://www.mckinsey.com/industries/semiconductors/our-insights>. Ecosystem synergy is identified as a top-three site-selection criterion for new fab investment decisions.

³³Mordor Intelligence, "Singapore Semiconductor Market Size, Share & 2025–30 Outlook," 2025, <https://www.mordorintelligence.com/industry-reports/singapore-semiconductor-market>.

³⁴ Singapore Economic Development Board, "Is Singapore Losing Out on the AI Chip Boom?," EDB Business Insights, accessed April 2026, <https://www.edb.gov.sg/en/business-insights/insights/is-singapore-losing-out-on-the-ai-chip-boom.html>.

However, Singapore has a strong right-to-win in mature-node³⁵ chip production, with an existing critical mass of manufacturers (e.g. Global Foundries; UMC).³⁶

The trickle-down effect of growing AI demand will boost demand for databases and high-speed communication networks, which are powered by mature-node chips.

Furthermore, Singapore is a major hub for advanced semiconductor assembly, packaging and testing. Demand for such services will grow as AI chips become more complex. With its existing cluster of assembly facilities, A*STAR research capabilities and established talent pipelines, Singapore is well-placed to capture surging demand.³⁷

Overall, Singapore's semiconductor industry is estimated to grow at 7% CAGR.³⁸

³⁵ Mature nodes, or legacy chips, are semiconductor devices manufactured using established process technologies, generally defined as 22nm, 28nm, or larger. Broad-based application: powering everyday electronics, automotive systems, industrial automation, and medical devices. Mature nodes remain essential for power components, sensors, and microcontrollers. Advanced nodes used for AI training are 7nm and below.

³⁶ Singapore Economic Development Board, "Big Hopes as Singapore Gears Up to Ride EV Microchip Boom," EDB Business Insights, February 6, 2024, <https://www.edb.gov.sg/en/business-insights/insights/big-hopes-as-singapore-gears-up-to-ride-ev-microchip-boom.html>.

³⁷ A*STAR, "Grasping the Trend: Chip Wars Escalate in the AI Era, Singapore's Semiconductor Sector Emerges Strong," April 2025, <https://www.a-star.edu.sg/News/astarNews/news/features/singapore-semiconductor-rise-ai-chip-wars>; Micron's US\$7B HBM advanced-packaging facility (opening 2026) and the NXP–Vanguard US\$7.8B joint fab (production 2027) anchor the cluster.

³⁸ Mordor Intelligence, "Singapore Semiconductor Market Size, Share & 2025–30 Outlook," 2025 (6.9% CAGR 2025–30, USD 10.16B → 14.15B), <https://www.mordorintelligence.com/industry-reports/singapore-semiconductor-market>; consistent with McKinsey's 7% global CAGR projection cited by SSIA.

Cloud & compute infrastructure

	Land, Power access & cost	Financial capital deployment	Network connectivity	Regulatory clarity & permitting
03 Cloud & compute infrastructure	Constrained ³⁹⁴⁰	Strong ⁴¹⁴²	Dominant ⁴³⁴⁴	Leading ⁴⁵

Singapore is Southeast Asia’s data-centre hub and has a strong right-to-win in the cloud and compute infrastructure layer. Yet strict green-mandates and limited land released for data centres by the government has prevented Singapore from fully capitalizing on its right-to-win.

Singapore’s data-centre CAGR projected at just 8%, nearly ½ of Southeast Asia’s 14%.⁴⁶

³⁹McKinsey & Company, "The Cost of Compute: A \$7 Trillion Race to Scale Data Centers," McKinsey Quarterly, April 2025, <https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights>. Global data centre capacity demand is projected to grow at 22% CAGR, reaching 220 GW by 2030.

⁴⁰Reed Smith, "Singapore's Data Centre Expansion: Jurong Island and the Next Phase of Sustainable Growth," Reed Smith Client Alerts, February 2026, <https://www.reedsmith.com/>. Singapore's data centre vacancy rate is below 2%.

⁴¹Boston Consulting Group, "Breaking Barriers to Data Center Growth," October 2025, <https://www.bcg.com/publications>. Global data centre construction requires US\$1.8 trillion by 2030.

⁴²Mordor Intelligence, "Singapore AI-Optimised Data Center Market," January 2026, <https://www.mordorintelligence.com/>. STT GDC closed an SGD 1.75 billion round led by KKR (June 2024); Blackstone acquired AirTrunk at AUD 24 billion valuation (2024).

⁴³TeleGeography, Submarine Cable Map (Washington, DC: TeleGeography, 2024), <https://www.submarinecablemap.com/>. Singapore hosts the largest concentration of submarine cable landings in Southeast Asia.

⁴⁴BCG, "Breaking Barriers to Data Center Growth."

⁴⁵King & Wood Mallesons, "Singapore Launches 200MW Data Centre Call for Application (DC-CFA2)," KWM Insights, December 2025, <https://www.kwm.com/>; Infocomm Media Development Authority, Green Data Centre Roadmap (Singapore: IMDA, May 2024), <https://www.imda.gov.sg/>. Singapore mandates a PUE of 1.25 at full IT load and 50% green energy sourcing.

⁴⁶ ResearchAndMarkets.com, "Southeast Asia Data Center Landscape Report 2025–2030: \$30+ Bn Market Booms as Malaysia, Indonesia, Thailand, and Vietnam Emerge as Prime Investment Destination," Yahoo Finance, July 1, 2025, <https://finance.yahoo.com/news/southeast-asia-data-center-landscape-131600486.html>.

Models & platforms

	Frontier scale	compute data	Proprietary training	ML research talent	Fine-tuning iteration speed	&
04 Models & platforms	Absent ⁴⁷ 48	Partial ⁴⁹	Thin ⁵⁰ 51	Emerging ⁵² 53		

Singapore, as a small and resource-constrained city-state, has a weak right-to-win on the model layer⁵⁴.

⁴⁷Brookings Institution, "Market Concentration Implications of Foundation Models," September 2023, <https://www.brookings.edu/>. Compute scale and proprietary data quality are the two primary determinants of foundation model competitiveness.

⁴⁸Boston Consulting Group, "AI in the Era of Large Language Models," 2024, <https://www.bcg.com/>. Frontier LLM training runs cost US\$50–100 million or more.

⁴⁹McKinsey Singapore, "Generative AI and the Future of Work: A Singapore Perspective," 2024, <https://www.mckinsey.com/sg/our-insights>. Singapore's multilingual environment — Bahasa Indonesia, Malay, Tamil and Southeast Asian Mandarin — provides a regional corpus advantage.

⁵⁰Sebastian Krakowski et al., "Competition between AI Foundation Models: Dynamics and Policy Recommendations," Industrial and Corporate Change, November 2025, <https://academic.oup.com/icc>. Leading AI labs such as Mistral AI and xAI operate with fewer than 50 employees, indicating that talent quality is the critical input.

⁵¹Center for Security and Emerging Technology (CSET), Examining Singapore's AI Progress (Washington, DC: Georgetown University, March 2023), <https://cset.georgetown.edu/publication/examining-singapores-ai-progress/>; AI Singapore, "PhD Fellowship Programme Guidelines," 2025, <https://aisingapore.org/>. The AISG AI Apprenticeship Programme admits 25–35 applicants per batch every nine months; PhD stipends reach S\$6,700/month.

⁵²Foundation Capital, "Meta's Bet on Scale & the New AI Data Paradigm," June 2025, <https://foundationcapital.com/>. Speed of reinforcement learning loop iteration is identified as a critical competitive advantage.

⁵³AI Singapore, "100 Experiments Programme," accessed April 2026, <https://aisingapore.org/innovation/100e/>; Monetary Authority of Singapore, "MAS AI-in-Finance Grants," 2024, <https://www.mas.gov.sg/>.

⁵⁴Ng Wei Kai, "Governments Must Invest More in Preparing Workers for AI, 'Cannot Leave It to the Market': PM Wong," Straits Times, 1 November 2025, <https://www.straitstimes.com/singapore/politics/governments-must-invest-more-in-preparing-workers-for-ai-cannot-leave-it-to-the-market-pm-wong>.

Applications

	Enterprise data & feedback loops	Regulatory trust for deployment	Developer & integrator ecosystem	Market demand scale & diffusion
05 Applications	Strong ⁵⁵	Unique in SEA ⁵⁶	Present ⁵⁷⁵⁸	Bifurcated ⁵⁹⁶⁰

Singapore has a medium to strong right-to-win on the application layer.

Due to the density of enterprises and developers in the city-state, and Singapore’s status as a launch pad for Asia-Pacific, large application-layer companies, like Harvey and Manus have opened offices in Singapore. Similarly, 60 companies have set up AI Centres of Excellence in Singapore.⁶¹

Still, Singapore has yet to produce sizable AI startups of its own, elucidating the untapped potential that remains.

⁵⁵McKinsey & Company, "Exploring Opportunities in the Generative AI Value Chain," April 2023, <https://www.mckinsey.com/capabilities/quantumblack/our-insights>. Proprietary data combined with user feedback loops is identified as the primary source of competitive advantage at the applications layer.

⁵⁶McKinsey & Company, "Sovereign AI Ecosystems for Strategic Resilience and Economic Impact," March 2026, <https://www.mckinsey.com/>. Regulatory trust — encompassing data governance, IP protection and political stability — is identified as a precondition for enterprise AI deployment at scale.

⁵⁷TechNode Global, "NUS and Google Ink New Partnership to Advance Applied AI Research and Talent Development in Singapore," August 2025, <https://technode.global/>.

⁵⁸McKinsey, "Sovereign AI Ecosystems."

⁵⁹Infocomm Media Development Authority, Singapore Digital Economy Report 2025 (Singapore: IMDA, October 2025), <https://www.imda.gov.sg/resources/press-releases-factsheets-and-speeches/press-releases/2025/singapore-digital-economy>. Non-SME AI adoption rose from 44% (2023) to 62.5% (2024); SME AI adoption tripled from 4.2% to 14.5%.

⁶⁰Ministry of Trade and Industry, Singapore Economic Survey 2024 (Singapore: MTI, 2024), <https://www.mti.gov.sg/>. SMEs represent approximately 99% of all enterprises and 72% of total employment in Singapore.

⁶¹Harvey, "Harvey to Open Singapore Office in June," March 2026, <https://www.harvey.ai/blog/harvey-to-open-singapore-office-in-june>; Coco Feng, "Chinese Firm behind AI Agent Manus Relocates to Singapore amid US Chip Curbs," South China Morning Post, June 19, 2025, <https://www.scmp.com/tech/tech-trends/article/3317568>. On the more than sixty AI Centres of Excellence, see Singapore Economic Development Board, "Singapore: Where AI Vision Becomes Reality," March 2026, <https://www.edb.gov.sg/en/business-insights/insights/singapore-where-ai-vision-becomes-reality.html>.

In conclusion, Singapore's strongest right-to-win are likely on the Application, and Cloud and Compute Infrastructure layers, as well as in certain verticals of the Semiconductor layer. With appropriate policy support, industries operating on these layers are likely to be huge beneficiaries of the AI boom.

1.1.4 Startup Ecosystem

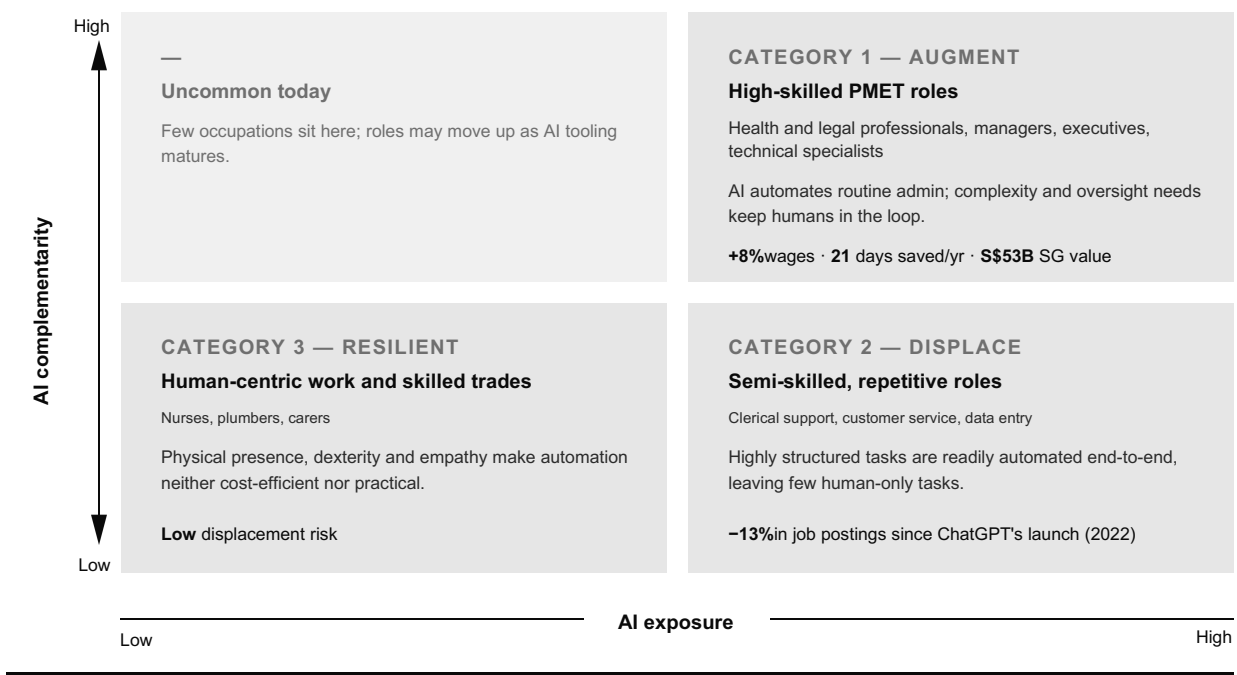
Simultaneously, AI has collapsed the cost of starting a business, compressing what once required large teams into a single founder with the right tools. In doing so, AI has shifted the value accrued from business activities from labour to ownership, making entrepreneurship not only more accessible but more financially attractive than ever. Singapore's startup ecosystem may therefore emerge as an unexpected engine of Singapore's growth story.

1.2 Workforce

Whether automation by AI enhances productivity or displaces workers depends on the extent of AI integration (“AI exposure”) and how it complements human labour (“AI complementarity”) in different occupations. Occupations largely fall into 3 categories:

AI's job-market impact depends on exposure and complementarity

Whether AI augments or displaces a worker depends on two variables: how much of the role AI can touch (**exposure**) and how well it complements human judgement (**complementarity**).



Source: PublicFirst consultancy estimates (productivity, wage uplift, S\$53B value, Singapore); post-Nov 2022 job-posting decline for clerical and customer-service categories.

1.2.1 Three Categories of AI Exposure

Firstly, high exposure and high complementarity roles.

High-skilled PMET roles involve both routine administrative tasks, easily automated by AI (high exposure), and complex knowledge-based work requiring judgment, creativity, and interpersonal skills that AI cannot replicate (high complementarity). AI can therefore enhance productivity by automating the former, freeing workers for the latter. AI is estimated to boost productivity by 8% and save workers nearly 21 days annually. Additionally, due to the complexity of work and significance of decision making, it is likely that AI will augment, not

replace workers. This suggests that AI may create higher-paying roles in the future, benefiting workers in high exposure, high complementarity roles⁶².

Secondly, high exposure and low complementarity roles.

These include, semi-skilled roles like clerical support or customer service that are highly structured and repetitive, making them easily automated (high exposure); and unlike PMETs, they do not involve complex judgment or interpersonal skills that AI cannot replicate, offering little complementarity. After ChatGPT's launch in 2022, job postings for such occupations decreased by 13%, elucidating how vulnerable this segment is to disruption.⁶³

Thirdly, Low exposure and low complementarity roles.

These include, human-centric occupations and skilled trades - such as nurses and plumbers which are less vulnerable to displacement as automation is not cost-efficient or practical.

⁶² Access Partnership and Singapore Economic Development Board, *The Next 60 Years: How AI Can Power Singapore's Future* (Singapore: EDB, 2025), <https://www.edb.gov.sg/content/dam/edb-en/business-insights/market-and-industry-reports/the-next-60-years-how-ai-can-power-singapores-future/Singapore%20AI%20Opportunity.pdf> (estimating that AI could free 21 working days per year per worker and lift wages by over 8%).

⁶³ Ana Elena Azpúrua, "Enhance or Eliminate? How AI Will Likely Change These Jobs," Harvard Business School Working Knowledge, 20 February 2026, <https://www.library.hbs.edu/working-knowledge/enhance-or-eliminate-how-ai-will-likely-change-these-jobs>.

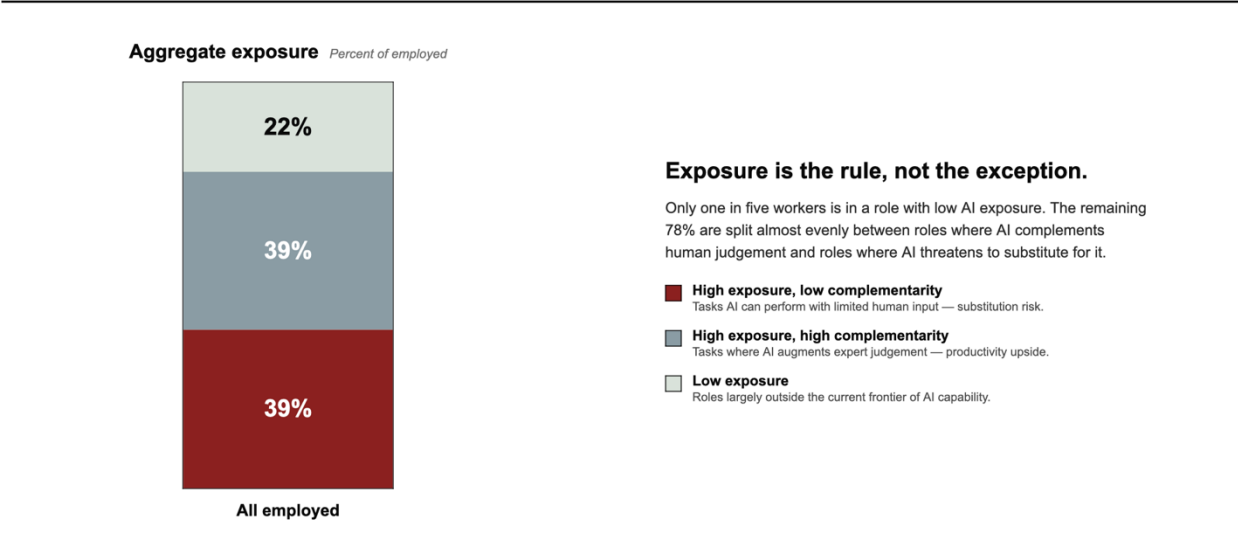
1.2.2 Singapore's Workforce

IMF estimates that 77% of Singapore’s resident workforce is highly exposed to AI due to the concentration of **high and semi-skilled** workers. **64.2% of Singapore’s resident workers hold PMET roles**. These PMET occupations are divided equally into roles exhibiting high (38.9%) and low AI complementarity (38.6%). This means Singapore's workforce is almost evenly divided between those primed to benefit from AI augmentation and those at risk of displacement, making policy response critical.⁶⁴

EXHIBIT · AGGREGATE AI EXPOSURE

78% of Singaporean workers are exposed to AI

Half of those exposed face high complementarity (AI augments their work); the other half face low complementarity (AI substitutes their tasks).

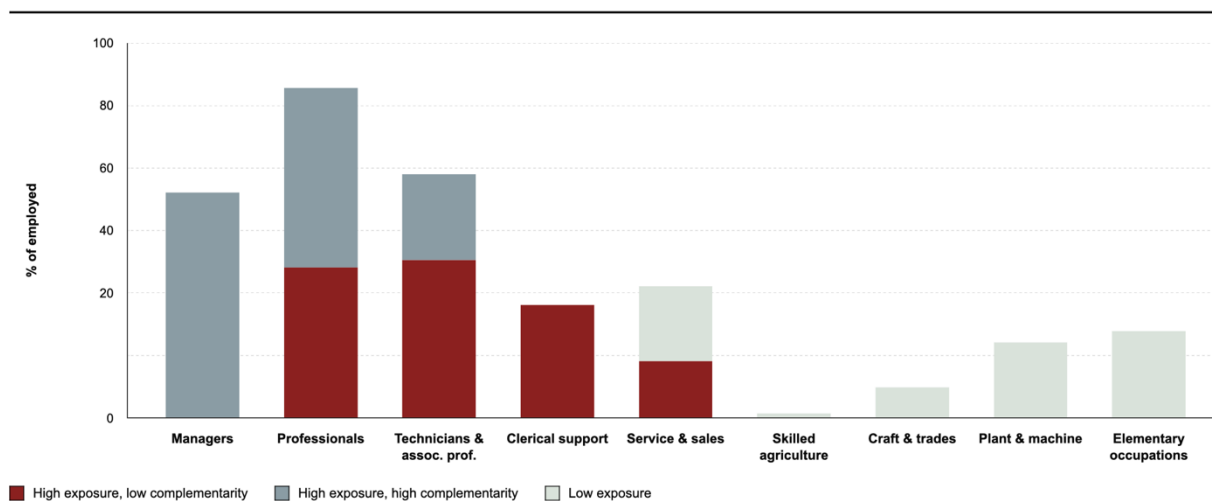


Source: IMF staff calculations based on Singapore's 2022 labour force survey.

⁶⁴ Shujaat Khan, "Impact of AI on Singapore's Labor Market," IMF Selected Issues Paper SIP/2024/040 (Washington, DC: International Monetary Fund, August 2024), <https://www.imf.org/-/media/files/publications/selected-issues-papers/2024/english/sipea2024040.pdf>. The 64.2% PMET share is from Ministry of Manpower, Labour Force in Singapore 2025.

High-skill roles carry the most exposure — and the most upside

Managers, professionals and technicians show the highest AI exposure. The colour split shows whether AI is more likely to augment (grey-blue) or substitute (red) for the work.



Source: IMF staff calculations based on Singapore's 2022 labour force survey.

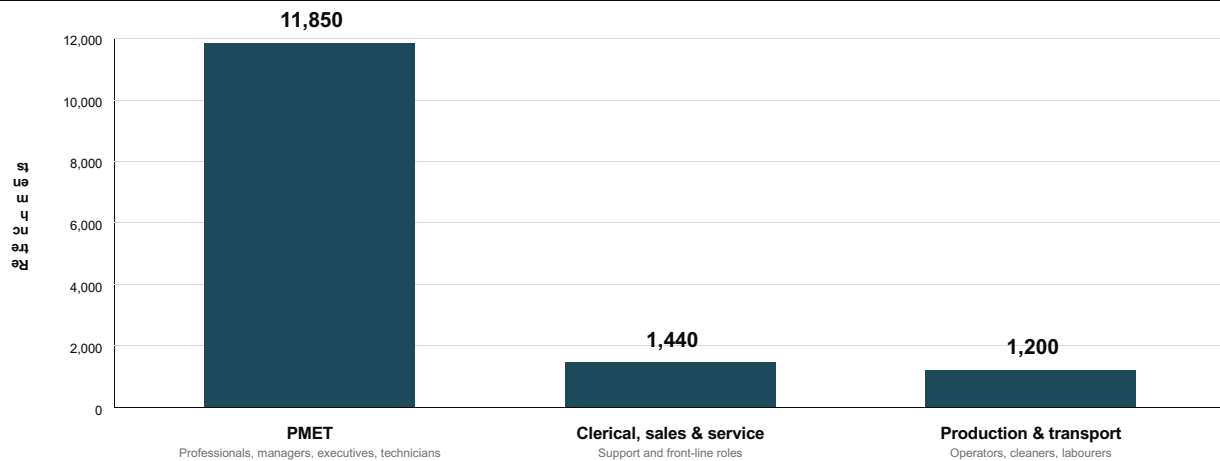
In 2025, PMETs comprised 82% of total retrenchments. Yet the 3 sectors with highest retrenchments had among the most PMET vacancies⁶⁵. This trend of higher retrenchments amidst high job vacancies suggests “ongoing restructuring and skills transition” – with older jobs displaced and redesigned – rather than declining demand for PMETs.⁶⁶

⁶⁵ The three sectors are Financial Services, Information & Communications, and Professional Services.

⁶⁶ Ministry of Manpower, Manpower Research and Statistics Department, Labour Market Report Fourth Quarter 2025 (Singapore: MOM, March 2026), https://stats.mom.gov.sg/iMAS_PdfLibrary/mrsd-Labour-Market-Report-4Q-2025.pdf.

PMET retrenchments dwarfed those of other occupational groups in 2025

Despite high AI complementarity, professional, managerial, executive and technical workers experienced an order of magnitude more retrenchments than clerical or operational groups.



Source: Ministry of Manpower retrenchment data, 2025.

Thus, recent restructuring has primarily resulted in mismatch between employees' current skills and skills required for alternative, AI-augmented roles, rather than an overall reduction in employment.⁶⁷

MOM data corroborates this mismatch directly: PMET vacancies are rising while the share unfilled for at least 6 months has reached 16%, confirming a shortage not of jobs but of workers with the right skills. This structural mismatch is reflected in hiring behaviour: employers are placing increasing emphasis on skills over academic qualifications and there currently exists a shortage of workers with specialised skills across both technical and non-technical roles.⁶⁸

Beyond specialised skills, AI literacy was also cited as the most in-demand skill among employers, with complementary soft skills like creative thinking also emphasised. Together,

⁶⁷ This report focuses on generative AI rather than agentic and other AI applications, as generative AI is the most developed at present. It also focuses on PMET, white-collar jobs over blue-collar jobs (manufacturing, construction, etc.), as such jobs are disproportionately occupied by residents and experience high AI exposure.

⁶⁸ Ministry of Manpower, Labour Market Report Fourth Quarter 2025, March 2026 (PMET vacancies unfilled for at least six months rose from 14.4% in 2024 to 16% in 2025), https://stats.mom.gov.sg/iMAS_PdfLibrary/mrsd-Labour-Market-Report-4Q-2025.pdf.

these demand signals highlight the skills mismatch in Singapore's workforce, and the importance of upskilling programmes in closing it.⁶⁹

Overall, with the concentration of highly-skilled PMETs, Singapore's workforce is well-positioned to benefit from augmentation by AI, provided there is adequate upskilling and job transition support to minimise displacement and facilitate AI adoption by each worker.

⁶⁹ Ministry of Manpower, Labour Market Report Fourth Quarter 2025 (Singapore: MOM, March 2026), https://stats.mom.gov.sg/iMAS_PdfLibrary/mrsd-Labour-Market-Report-4Q-2025.pdf (employers cite AI literacy as the most in-demand skill across PMET roles).

1.3 Competitive Advantages

EXHIBIT · SINGAPORE · COMPETITIVE ADVANTAGES

Singapore's structural strengths shape how AI lands in its economy

Three competitive advantages — human capital, financial-hub status, and regulatory credibility — each shape how AI will affect Singapore differently from its peers.

S/N	SINGAPORE'S ADVANTAGE	COMPETITIVE	IMPACT OF AI
1	Human capital		Mixed impact. AI commoditises lower-value knowledge work, raising the bar for what constitutes valuable human capital. Workers must integrate AI into their workflows and continuously develop higher-order skills like judgement, creativity and leadership that AI cannot replicate easily. If government and workforce adapt effectively, this advantage is sharpened; if not, skills mismatches erode it.
2	Financial and business hub status		Singapore's status as Asia's financial hub makes it uniquely positioned to fund the buildout of AI infrastructure in both SEA and APAC, which is highly capital-intensive. Its high enterprise density both attracts leading AI players seeking an APAC launchpad and makes Singapore a compelling place to build AI startups.
3	Rule of law and robust regulatory standards		Singapore's trusted regulatory environment is increasingly valuable as AI governance becomes a global priority. Clear AI frameworks attract companies seeking stable, compliant deployment environments, reinforcing Singapore's position as Southeast Asia's preferred launchpad and differentiating it from less-regulated regional competitors.

Chapter II — Evaluation

Two tensions reveal themselves.

Firstly, though total economic output will increase, growth will be unevenly distributed. For enterprises, MNCs with more funding, talent and existing capabilities can access better AI tools and capture disproportionately more value than SMEs. Within the workforce, adoption gaps and demand for certain skillsets also unevenly impacts workers of different genders, ages and educational backgrounds - potentially worsening existing inequalities.⁷⁰

Secondly, Singapore has yet to fully capitalize on its strong right-to-win on the Application layer.

⁷⁰ Adoption gap data from Infocomm Media Development Authority, Singapore Digital Economy Report 2025 (October 2025); on differential exposure for women and younger workers, see Khan, "Impact of AI on Singapore's Labor Market," IMF SIP/2024/040 (August 2024).

Chapter III — Policy Recommendations

3.1 Transforming our workforce

AI can either augment or replace workers - calling for upskilling or job transition policies respectively. Though Singapore's upskilling initiatives are well-developed, job transition support is underdeveloped

Singapore's current programme for transitioning workers, the Career Conversion Programme (CCP), overwhelmingly focuses on white-collar placements.⁷¹

The white-collar roles of the future, are likely to require exceptionally high skill and capability. In contrast, the 9% of Singaporeans whose jobs will be automated presently work low-skill jobs.⁷²

Pragmatically the jobs that will absorb these individuals are not the exceptionally high-skill white-collar jobs created by AI, but rather skilled-trades in the AI value-chain and industries with thematic tailwinds, such as healthcare and renewable energy.

We therefore propose that the government revamp the CCP, creating structured pathways, through courses, on-the-job training and guaranteed placements, for displaced workers to transition into roles like nursing and data centre technicians.

Simultaneously, we propose that the government extend targeted outreach to underrepresented groups, particularly women and lower-educated workers, through SkillsFuture's existing outreach infrastructure, tailored to specific vocational contexts and daily use cases to close adoption gaps.

⁷¹ Workforce Singapore, "Career Conversion Programmes for Individuals," accessed April 2026, <https://www.wsg.gov.sg/home/individuals/attachment-placement-programmes/career-conversion-programmes-for-individuals> (CCPs target Professionals, Managers, Executives and Technicians transitioning into growth roles).

⁷² World Economic Forum, The Future of Jobs Report 2025 (Geneva: WEF, January 2025), <https://www.weforum.org/publications/the-future-of-jobs-report-2025/>. The report projects 92 million jobs displaced globally by 2030 — equivalent to roughly 8–9 percent of current employment — concentrated in routine, low-complementarity occupations.

3.2 Helping our SMEs transform themselves

Only 14.5% of Singaporean SMEs adopted AI in 2024, lower than the 62.5% of MNCs due to high costs, a lack of in-house expertise, and difficulty in identifying return on investment (ROI).⁷³

The government offers a suite of grants, consultancy services, and resources for businesses seeking to implement AI.

Yet despite efforts like the Business Grants Portal, these resources are still fragmented across multiple agencies and portals, creating a discovery problem that makes planning AI transformation projects difficult. It is hence critical that the government create a truly comprehensive Whole-of-Government resource database, listing all available grants, consultancy services and tax credits to increase utilization.

Though the government has heavily subsidized AI tools and transformation projects, without dedicated advisory support, SMEs lack the in-house expertise to scope transformation opportunities and construct credible ROI cases to justify adoption.

We therefore propose the government spin out IMDA's CTO-as-a-Service initiative into an independent statutory board, CTOSingapore, tasked with leading the transformation of Singaporean enterprises by proactively reaching out to SMEs, mapping their workflows, and architecting tailored AI solutions whilst pairing these with the optimal combination of grants and tax incentives to minimize costs.

⁷³ Infocomm Media Development Authority, Singapore Digital Economy Report 2025, October 6, 2025, <https://www.imda.gov.sg/-/media/imda/files/about/resources/corporate-publications/annual-report/imda-sgde-report-fy2024-2025.pdf>.

3.3 Strengthening our startup ecosystem

Singapore has yet to produce globally renowned AI startups of its own due to its small domestic market, and the lack of growth funding.

Whilst Singapore's market size is fixed, the government can accelerate domestic market penetration for homegrown AI startups by creating a fast-track pre-approval pathway onto grant vendor lists, which are currently dominated by foreign MNCs and local resellers, directly channelling SME AI adoption spending toward Singaporean startups.

Due to Singapore's market size, startups here need to think globally from Day 1. This requires building global development and sales teams, which requires huge amounts of capital. At Series A, Singapore's ecosystem is well-served by local VCs, and at the unicorn scale, global capital markets step in. Yet in between lies a Series B & C cliff wherein Singaporean VCs cut checks at valuations nearly 1/3 of those in the US, leaving homegrown AI startups unable to raise enough funds to pursue the international expansion critical for their success⁷⁴⁷⁵. We therefore propose the government establish a S\$5 billion dedicated growth-stage fund through Temasek's Vertex Ventures, mandated to lead Series B & C rounds in Singapore, filling in the structural gap that has long hampered Singaporean startups.

⁷⁴ Silicon Valley Bank, "The State of US Early-Stage Venture & Startups: 2022" (Santa Clara: SVB Financial Group, 2023), <https://www.svb.com/globalassets/featured-reports/the-state-of-us-early-stage-venture-and-startups-2022.pdf>.

⁷⁵ Cento Ventures, "Southeast Asia Tech Investment 2023–2024" (Singapore: Cento Ventures, 2025), 19, <https://cento.vc/reports/southeast-asia-tech-investment-2024/>.

Conclusion

AI's potential to create new industries and boost productivity can unlock billions in additional economic output for Singapore's economy. Whilst the collective, long-term impact of AI will be positive, AI will inevitably disrupt segments of our industries and workforce. Ultimately, Singapore should leverage its tripartite model, balancing pro-worker and pro-business policies, to promote inclusive economic growth, where all Singaporeans have effective access to AI and benefit from better job opportunities.

Word Count: 1921

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