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Artificial Intelligence (AI) Adoption and Digital Readiness in the Corporate Sector: A Comparative Empirical Study of Selected Asian Countries

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ABSTRACT

Artificial intelligence (AI) has become an important component of corporate transformation, influencing decision-making, customer service, marketing, production, cybersecurity, logistics, finance and human-resource management. This paper examines the development and diffusion of AI in Asian economies using evidence published for or about 2025. The study uses secondary sources, including the Stanford Institute for Human-Centered Artificial Intelligence's 2025 AI Index, Microsoft's AI Diffusion Report covering the first and second halves of 2025 and Singapore's official digital-economy statistics. The evidence indicates substantial regional variation. In 2024, 67% of surveyed organizations in Asia-Pacific reported using generative AI in at least one business function. Singapore's official statistics show that AI adoption among small and medium-sized enterprises rose to 14.5% in 2024, from 4.2% in 2023, while adoption among non-SMEs reached 62.5%. Microsoft's population-level measure of generative-AI use in the second half of 2025 was 60.9% in Singapore, 30.7% in South Korea, 19.1% in Japan, 16.3% in China and 15.7% in India. These figures measure individual diffusion rather than corporate adoption and are therefore

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used only as contextual indicators. The paper concludes that digital infrastructure, skills, organizational readiness and policy support are important conditions for effective AI diffusion, while data protection, bias, cybersecurity, unequal access and workforce transition remain significant challenges. A key limitation is the lack of a single harmonized 2025 dataset measuring enterprise AI adoption across all Asian countries.

Introduction

Technological change has repeatedly transformed the organization of economic activity. Mechanization expanded physical productivity; electrification and assembly-line production enabled mass manufacturing; and computing automated information processing. The current phase of digital transformation combines cloud computing, large-scale data analysis, robotics, machine learning and generative AI. These technologies can help organizations automate routine tasks, identify patterns in large datasets, personalize customer interactions, improve forecasting and support managerial decisions.

AI is not a single technology. It includes systems that learn from data, classify information, generate text or images, detect anomalies, optimize processes and support prediction or decision-making. In corporate settings, AI may be embedded in enterprise software or used through specialized tools. Its business value depends not only on the model itself but also on data quality, employee skills, workflow design, leadership, governance and the ability to evaluate outcomes.

Asia is a particularly important setting for examining AI diffusion because the region includes advanced digital economies, large manufacturing centres, rapidly growing service markets and countries at different stages of digital infrastructure development. Economies such as Singapore, South Korea, Japan and China have significant technology ecosystems, while India and several Southeast Asian economies combine expanding digital markets with varied levels of organizational readiness. The region should not, however, be treated as a single uniform market.

Conceptual background and corporate applications

AI can create value in the corporate sector by improving speed, consistency, forecasting, personalization and the use of organizational knowledge. Its applications vary by industry and by the maturity of a firm's digital systems. Common applications include:

- Marketing and sales: customer segmentation, recommendation systems, campaign analysis, sales forecasting and content assistance.
- Production and operations: predictive maintenance, quality inspection, process optimization, robotics and demand planning.
- Administration and finance: document processing, reconciliation support, fraud detection, forecasting and workflow automation.
- Logistics and supply chains: route planning, inventory optimization, demand prediction and disruption monitoring.
- IT security: anomaly detection, alert prioritization, phishing detection and incident-response support.
- Human-resource management: skills matching, training support, workforce planning and assistance with recruitment administration.

These applications can reduce repetitive work and improve decision support, but they also introduce risks. AI-generated output may be inaccurate; training data may contain bias; confidential business information may be exposed through poorly governed tools; and automated decisions may be difficult to explain.

Research objectives and questions

The main objectives of this study are:

1. To describe AI diffusion and corporate adoption trends in selected Asian economies using evidence available for 2025.
2. To identify the business functions in which AI is being applied and the organizational conditions that support adoption.
3. To examine the relationship between digital readiness and AI diffusion at a descriptive level.
4. To discuss opportunities, employment implications, risks and policy priorities for Asian enterprises.

The study is guided by the following questions:

- How does AI diffusion differ across selected Asian economies in 2025?
- What do available enterprise statistics suggest about differences between SMEs and larger firms?
- Which corporate functions are commonly associated with AI use?
- What opportunities and challenges arise when Asian businesses integrate AI into their operations?

Data and methodology

This is a secondary-data, descriptive-comparative study. The evidence was drawn from the Stanford HAI 2025 AI Index, Microsoft's Global AI Diffusion Report 2025 and Singapore's Infocom Media Development Authority (IMDA) digital-economy statistics. The sources use different populations and definitions. The Stanford AI Index summarizes a survey of organizational use of generative AI by region, while IMDA reports enterprise adoption rates for Singapore. Microsoft's diffusion measure estimates the share of the working-age population using generative-AI products; it does not directly measure the share of companies adopting AI.

Accordingly, the analysis uses three separate evidence categories: (1) regional organizational-use estimates; (2) direct enterprise adoption figures where official country data are available; and (3) population-level diffusion estimates used only to contextualize broader public access and familiarity with AI. The study does not calculate a pooled correlation or regression across these non-harmonized measures.

Data availability is a material limitation. Some reports published in 2025 describe enterprise usage in 2024, while Microsoft's 2025 diffusion estimates refer to the first and second halves of 2025. Each table therefore states the period and type of indicator explicitly. Figures should not be interpreted as a ranking of corporate AI adoption unless they directly measure enterprise adoption.

Corporate applications and business functions

AI can be applied across the six functional areas used in the earlier study. However, the sources reviewed for this update do not provide a single harmonized 2025 country-by-country dataset covering every one of these functions for all Asian economies. The following table therefore presents a functional framework, not invented percentages or a numerical ranking.

Business function	Illustrative AI applications	Potential organizational value and key caution
Marketing and sales	Customer analytics, recommendations, campaign support, sales forecasting	More tailored communication; monitor privacy and misleading generated content.
Production and operations	Visual quality checks, predictive maintenance, process optimization	Reduced downtime and defects; requires reliable operational data and validation.
Administration and finance	Document processing, reconciliation support,	Faster workflows; retain review for financial and

	reporting assistance	compliance decisions.
Logistics and supply chain	Demand forecasting, inventory optimization, route planning	Improved planning; outputs can fail when supply conditions change unexpectedly.
IT security	Anomaly detection, phishing analysis, alert prioritization	Earlier detection; AI tools themselves require secure configuration and oversight.
Human resources	Skills mapping, training support, recruitment administration	Administrative efficiency; guard against bias and opaque automated decisions.

Source: Author's synthesis of common corporate AI applications. This table is a conceptual classification and does not represent measured 2025 adoption rates.

AI diffusion across selected Asian economies in 2025

Microsoft's AI Diffusion Report provides a comparable population-level measure across countries. It estimates the share of the working-age population that used a generative-AI product during the reporting period. The following figures are included as a contextual indicator of AI diffusion, not as corporate adoption rates.

Economy	H1 2025	H2 2025	Change (percentage points)
United Arab Emirates	59.4%	64.0%	+4.5
Singapore	58.6%	60.9%	+2.3
South Korea	25.9%	30.7%	+4.8
Taiwan	26.4%	28.4%	+2.0
Saudi Arabia	23.7%	26.2%	+2.5
Japan	16.7%	19.1%	+2.4
China	15.4%	16.3%	+0.9
India	14.2%	15.7%	+1.4
Malaysia	18.3%	19.7%	+1.4

Vietnam	21.2%	23.5%	+2.3
Philippines	17.1%	18.3%	+1.2
Indonesia	11.7%	12.7%	+1.1
Thailand	9.1%	10.7%	+1.6
Pakistan	9.7%	10.3%	+0.7
Nepal	12.3%	13.0%	+0.8

Source: Microsoft AI Economy Institute, Global AI Adoption in 2025. Percentages are population-level generative-AI diffusion estimates, not the proportion of firms using AI. Changes are reported by the source and may not exactly equal subtraction of rounded displayed values.

The table indicates considerable differences in population-level AI use across Asia. The United Arab Emirates and Singapore were among the leading economies in the global measure, while South Korea recorded a notable increase during 2025. Japan, China, India and Southeast Asian economies also showed measurable diffusion, but at different levels. These differences may reflect a combination of connectivity, language availability, skills, public awareness, affordability and the availability of locally relevant tools. The data alone do not establish which factor caused the differences, nor do they prove that firms in a country have adopted AI at the same rate as individuals.

Direct evidence of enterprise adoption

- **Asia-Pacific organizational use of generative AI**

The 2025 AI Index reports that 67% of surveyed organizations in the Asia-Pacific region used generative AI in at least one business function in 2024, compared with 30% in 2023. Across all geographies, the corresponding estimate rose from 33% to 71%. The figures suggest that organizational use of generative AI expanded quickly, although regional survey results should not be interpreted as a census of all firms.

- **Singapore: enterprise and SME indicators**

Singapore provides a useful example because its official IMDA statistics report enterprise-level adoption. AI adoption among SMEs rose from 4.2% in 2023 to 14.5% in 2024. Among non-SMEs, the rate increased from 44% to 62.5% over the same period. The figures show a substantial size-related difference: larger organizations were more likely to report AI adoption, while SME adoption was growing rapidly from a lower base.

Enterprise group	2023	2024	Change

Singapore SMEs	4.2%	14.5%	+10.3 percentage points
Singapore non-SMEs	44.0%	62.5%	+18.5 percentage points

Source: Infocom Media Development Authority (IMDA), Singapore digital-economy statistics, published in 2025.

IMDA also reported that firms used AI in multiple business functions. IT, customer service and finance and accounting were among the most common areas. This suggests that practical adoption is not confined to technology departments: AI can support customer-facing work and internal administration as well. However, the Singapore figures should not be generalized to all Asian economies because their digital infrastructure, business composition and policy environments differ.

- **Comparison of AI diffusion in 2025**

Figure 2 compares the first and second halves of 2025 for 15 selected Asian economies. Microsoft's indicator estimates the share of the working-age population using generative-AI products. It is not an enterprise adoption rate. The comparison is useful for describing broader diffusion, but cannot by itself establish how many firms have implemented AI.

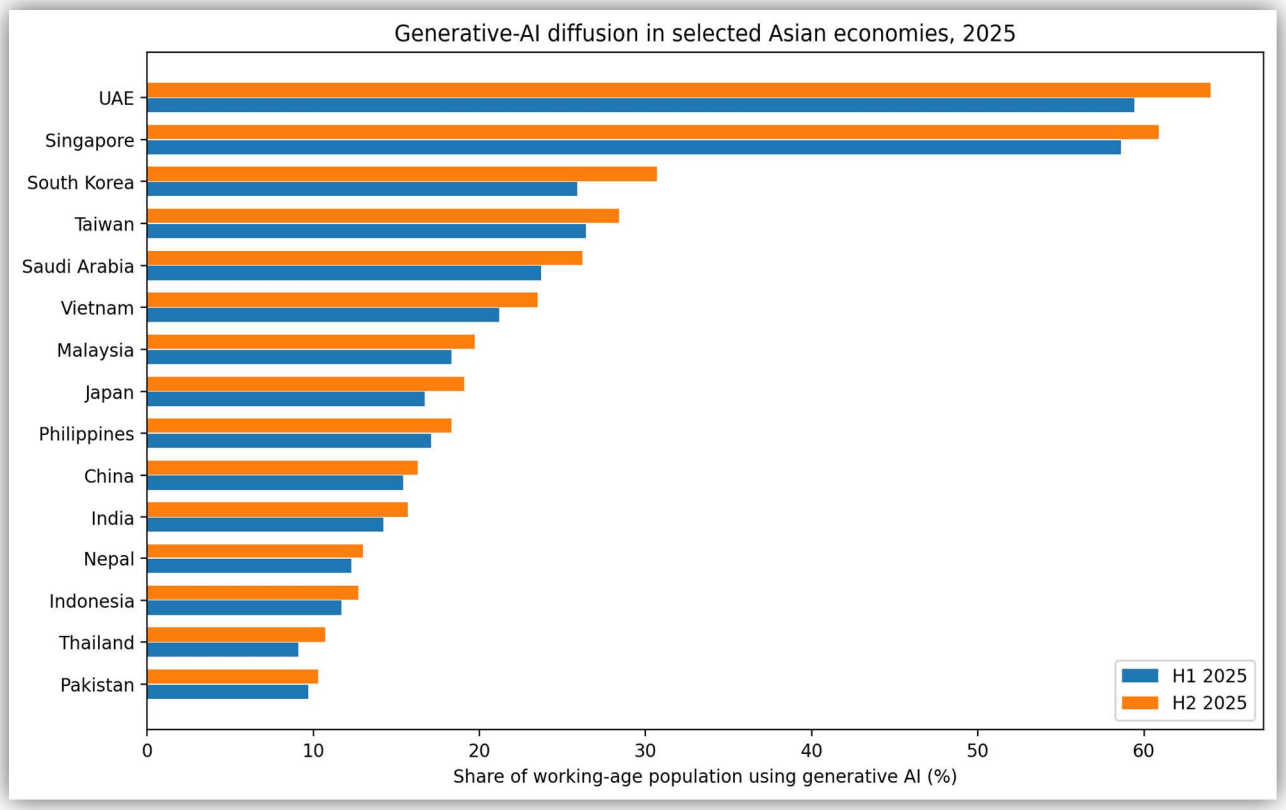

Figure 2. H1 and H2 2025 generative-AI diffusion in selected Asian economies.

- **Paired-samples t-test**

To test whether average population-level AI diffusion changed between H1 and H2 2025 in the selected economies, a paired-samples t-test was applied to the two observations for each of the 15 economies. The null hypothesis (H_0) states that the mean within-country change is zero; the alternative hypothesis (H_1) states that the mean change is not zero. The test uses country-level paired observations and should be interpreted as an exploratory descriptive comparison, not as a test of corporate AI adoption or a causal effect.

Statistic	Result
Number of paired economies (n)	15
Mean H1 2025 diffusion	22.65%
Mean H2 2025 diffusion	24.63%
Mean within-country change	1.99 percentage points
Standard deviation of changes	1.27 percentage points
95% confidence interval for mean change	[1.29, 2.69] percentage points
Paired t statistic	t (14) = 6.075
Two-sided p-value	0.00003
Decision at α = 0.05	Reject H_0

Interpretation: across these 15 selected economies, the average diffusion estimate increased by 1.99 percentage points from H1 to H2 2025. The paired test returned t (14) = 6.075, p = 0.00003. The increase is statistically significant at the 5% level. The confidence interval describes the mean change across this selected set of economies. Since the observations are rounded published estimates and the countries are not a random sample of all Asian economies, results should be treated as exploratory and not generalized mechanically to all Asia.

Assumptions and limitations: the paired t-test assumes that country-level differences are independent across economies and that the distribution of differences is reasonably suitable for inference. With only 15 selected economies and rounded secondary-source figures, the test has limited inferential scope. A Wilcoxon signed-rank test could be added as a robustness check. Most importantly, these figures measure population-level diffusion, not corporate adoption. The test therefore cannot validate a claim about the proportion of Asian companies using AI.

- **Statistical interpretation notes**

The statistical test in this revision is performed on the available H1/H2 2025 population-level diffusion values for the selected economies. It does not replace the need for a harmonized 2025 enterprise dataset. To test whether corporate AI adoption is associated with GDP per capita, internet access, firm size, or digital intensity, future research would need comparable country-level enterprise-adoption measures and matching explanatory variables for the same year. Regression estimates should not be calculated from mismatched indicators.

Digital readiness and AI adoption

AI adoption is likely to be supported by reliable internet access, cloud and computing infrastructure, digital skills, data availability, cybersecurity capacity and management commitment. Yet these conditions should be understood as enabling factors rather than proof of a statistical relationship. In the original European study, correlations were calculated using a particular country sample and indicators. Those coefficients cannot be transferred to Asia or reused for 2025.

For an Asian comparative study, a robust quantitative test would require a harmonized dataset with a common definition of enterprise AI use, matched 2025 economic and digital indicators and adequate observations. A subsequent study could examine GDP per capita, internet use, firm digital intensity, workforce skills, R&D investment and the share of enterprises using AI. It could then estimate correlations and regression models, test assumptions and report confidence intervals. Until such a dataset is assembled, descriptive comparison is the more defensible approach.

Opportunities and challenges

Opportunities

- Productivity and cost management: AI can automate repetitive tasks and help staff focus on work requiring judgment, creativity and relationship-building.

- Customer experience: language tools and recommendation systems can improve service responsiveness and personalization.
- Innovation and competitiveness: AI may help firms analyze markets, prototype products and respond to changing customer needs.

Challenges

- Unequal readiness: smaller firms may lack skills, quality data, funding, or specialist support.
- Employment transition: some tasks may be automated or redesigned, increasing the need for reskilling and job redesign.
- Privacy and confidentiality: staff may unintentionally disclose customer, employee, or proprietary information.
- Bias and accountability: automated outputs may reproduce bias or create decisions that are difficult to explain.

Recommendations

1. Develop an AI strategy tied to measurable business objectives rather than adopting tools only because they are popular.
2. Begin with bounded, lower-risk use cases and assess accuracy, cost, employee experience and business outcomes before scaling.
3. Invest in employee training, including critical evaluation of AI output, data protection, cybersecurity and responsible use.
4. Provide practical support for SMEs through shared training, advisory services, affordable infrastructure and sector-specific guidance.

Conclusion

The evidence reviewed in this paper shows that AI diffusion and corporate use are expanding across Asia, but the pace and depth of adoption vary by economy and firm size. The Stanford AI Index reports widespread organizational use of generative AI in Asia-Pacific in 2024, while Singapore's official data show a sharp rise in adoption among both SMEs and larger enterprises. Population-level diffusion estimates for 2025 provide additional context and show particularly high usage in Singapore and the UAE, as well as strong growth in South Korea. These individual-use figures must not be interpreted as corporate adoption rates.

AI offers businesses opportunities to improve operations, customer service, planning and cybersecurity. Its benefits are not automatic: firms need appropriate data, skilled employees, governance, security and meaningful evaluation. The paper's principal limitation is the absence of a harmonized enterprise-level dataset for all selected Asian countries and all six business functions in 2025. Therefore, the paper presents source-grounded comparisons and does not reproduce the original study's European correlation coefficients as if they applied to Asia. Future research should build a comparable firm-level dataset and test how digital readiness, economic development and organizational characteristics relate to AI adoption.

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