INFOCOMM MEDIA DEVELOPMENT AUTHORITY

SINGAPORE DIGITAL ECONOMY REPORT 2025

CONTENTS

EXECUTIVE SUMMARY

This is the third edition of the Singapore Digital Economy (SGDE) Report, which provides a holistic analysis of the state of Singapore's Digital Economy (DE) in 2024. Consistent with previous years' reports, it covers key aspects of Singapore's DE such as its size, the state of enterprise digitalisation, and the state of tech manpower. This report will also delve deeper into the adoption of Artificial Intelligence (AI) by enterprises and workers, and tech skills required for tech workers.

Singapore's Digital Economy continues to expand in 2024

We have adopted the same methodology to determine Singapore's DE size as in the previous two reports, namely the sum of value added (VA) of the Information & Communications (I&C) sector and the VA arising from digitalisation in the rest of the economy.

In 2024, the nominal VA of Singapore's DE reached S$128.1 billion, accounting for 18.6% of GDP, up from 18.0% of GDP in 2023. Thus, Singapore's DE now accounts for more than $1 of every $6 of GDP. Between 2019 and 2024, the VA of the DE grew at a compound annual growth rate (CAGR) of 12.0%, significantly faster than that of the nominal GDP (7.3%).

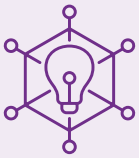
Similar to 2023, the VA arising from digitalisation in the rest of the economy made up two-thirds of the DE size. In turn, the key non-I&C sectors contributing to this component of the DE size were Finance & Insurance, Wholesale Trade, and Manufacturing. The remaining one-third of the DE size was contributed by the I&C sector. Both components of DE continued to grow in 2024.

Enterprise Digitalisation continues to deepen

Enterprises registered progress in their digitalisation journey in 2024. This was evident in several areas, such as:

The digital adoption rate among SMEs improved as 95.1% of SMEs adopted at least one digital area in 2024, up from 94.5% in 2023. Thus, the breadth of digitalisation among SMEs continued to widen.

Not only are more SMEs going digital, SMEs are also deepening their digitalisation, such as applying digitalisation in more areas and in adopting sector-specific digital solutions (not just digital solutions for generic business functions that apply across sectors). In terms of digital adoption intensity, SMEs adopted an average of 2.3 (out of six) digital areas in 2024, up from 2.0 digital areas in the preceding year. This was the largest annual increase in digital adoption intensity for SMEs in recent years and is driven largely by their AI adoption.



SMEs also ramped up their adoption of sector-specific digital solutions as recommended in IMDA's Industry Digital Plans (IDPs), with 97% of SMEs taking up at least one such solution in 2024, a step up from 85% in 2023.

AI Adoption spreads and strengthens among both firms and workers

The adoption of AI by both non-SMEs and SMEs accelerated notably in 2024. Among SMEs, the AI adoption level tripled from 4.2% to 14.5% in 2024, driven mainly by uptake of off-the-shelf generative AI tools. The share of non-SMEs that adopted AI also increased substantially, rising by around 20 percentage points from 44.0% in 2023 to 62.5%.

According to a recent pulse survey by IMDA of AI-using firms, AI was used across a range of business functions, with non-SMEs and SMEs implementing AI across an average of 5 and 3 functions respectively. The top business functions that firms used AI in were Information Technology, Customer Service, and Finance & Accounting.

These AI-using firms also plan to take proactive steps to deepen their AI capabilities over the next 1-2 years. Specifically, the three most common business strategies that firms are likely to implement are training and upskilling of their existing workforce's AI capabilities, redesigning of existing jobs to better integrate AI into their workflows and business processes, and enhancing their IT and data infrastructure and increasing AI-related investments. Thus, workforce and infrastructure readiness are among the priority strategies these AI-using firms plan to proactively focus on to deepen their AI capabilities.

According to a separate pulse survey by IMDA of individuals, Singapore workers have adopted AI widely, with about 3 in 4 workers surveyed (73.8%) using AI tools at work (i.e. AI users), most of whom used such tools several times a week or daily.

Among the surveyed AI users, the technology was most commonly used for brainstorming and ideation tasks (58%). This was followed by use cases like writing and editing (54%) and administrative tasks (42%).

AI is delivering benefits for workers across multiple dimensions. A large majority (85%) of AI users reported improvements in productivity, time savings, and work quality, i.e. doing work better. Beyond such efficiency gains, near half of AI users indicated using AI to enhance their creativity (i.e. doing better work), while one-third saw benefits in using AI for learning and capability development (i.e. for learning and growth).

About 7 in 10 AI-using workers receive support from their employers. This support most commonly took the form of internal and external training (62%), access to paid AI tools (42%), as well as relevant AI usage policies and guidelines (30%). Extending these support mechanisms to reach the remaining workers would be important in nurturing an AI-ready workforce.

Tech Manpower continues to grow, with increased demand for workers with skills in cloud and AI

Despite global uncertainties, demand for tech professionals continued to expand in 2024, led by demand for such professionals from especially the non-I&C sectors as these sectors continued to digitalise. The number of tech professionals rose by 2.7% from 208,300 in 2023 to 214,000 in 2024, making up 5.3% of total employment. Growth in the number of tech professionals was led by the non-I&C sectors, which grew by 3.9%, faster than the 1.1% in the I&C sector.

Tech jobs continued to offer good wages in 2024, with median wages (S$7,950, up from S$7,000 in 2023) higher than the overall resident median wages (S$4,860 in 2024).

Based on job postings data for tech professionals, the demand by firms for tech skills associated with cloud platform and scalable digital infrastructure, rose over the 2019-2024 period. In addition, programming skills such as Python and SQL remained highly sought after by employers. On the other hand, skills in web development such as JavaScript, HTML, and CSS became less prominent over time.

In tandem with rising AI adoption, the demand for tech professionals with AI skills grew between 2019 and 2024. The share of tech job postings requiring AI skills rose from 11% in 2019 to 14% in 2024. Firms in the I&C sector accounted for the largest increase in demand of AI skills among tech professionals.

This annual Singapore Digital Economy (SGDE) Report seeks to provide a holistic analysis of the state of Singapore's Digital Economy (DE).

OVERVIEW OF SINGAPORE'S DIGITAL ECONOMY

Using the same approach as outlined in SGDE Reports 2023 and 2024, we define Singapore's DE as comprising two components:

Value-added (VA) of the Information & Communications (I&C) sector

VA arising from digitalisation in the rest of the economy (i.e. excluding I&C sector)

There is a lack of consensus internationally on how to define and measure the digital economy. Various countries, organisations, and academics have used different definitions of digital economy, with different assumptions and methodologies. Therefore, estimates on the size of digital economy are not easily comparable across jurisdictions. Caution needs to be exercised with international comparison of estimates of the digital economy.

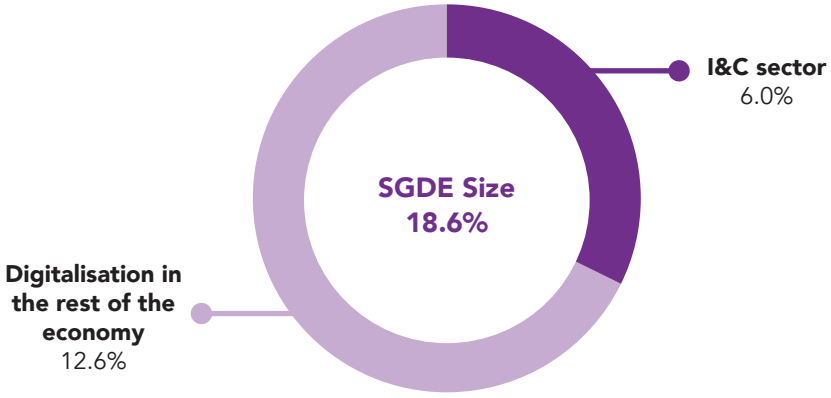
The I&C sector[1] is a key enabler of digitalisation, supplying digital services (e.g. telecommunication services, computer programming & IT consultancy, cloud computing, software developments), as well as production and distribution of content and media. The I&C sector is commonly used by National Statistical Offices for GDP sectoral classification purposes, including in Singapore.

For the second component i.e. digitalisation in the rest of the economy, we define it as the VA generated from investment in digital capital across all other sectors (i.e. excluding the I&C sector). Firms invest in digital technologies to better reach customers, optimise business processes, as well as for product and service innovation, which may in turn lead to improved economic outcomes. As such, part of the VA of the non-I&C sectors can be attributed to such digital investment. We estimate such VA based on the returns from digital capital investment and spending by different sectors using growth accounting technique[2].

In 2024, Singapore's DE continued to be a key driver of the economy, with the nominal DE VA reaching S$128.1 billion, accounting for 18.6% of Singapore's GDP, rising from S$116.1 billion, or 18.0% of GDP in 2023[3]. Over the period of 2019 to 2024, the nominal DE VA expanded at a compound annual growth rate (CAGR) of 12.0% per annum, significantly outpacing the overall nominal GDP CAGR of 7.3% during the same period.

The bulk of the nominal DE VA stems from digitalisation efforts across the broader economy. Specifically, VA arising from digitalisation across non-I&C sectors generated two-thirds of DE VA, contributing 12.6% to GDP in 2024, while the I&C sector accounted for the remaining one-third with a 6.0% GDP contribution [Infographic 1].

INFOGRAPHIC 1: **COMPOSITION OF SINGAPORE'S DIGITAL ECONOMY SIZE (% OF GDP), 2024**



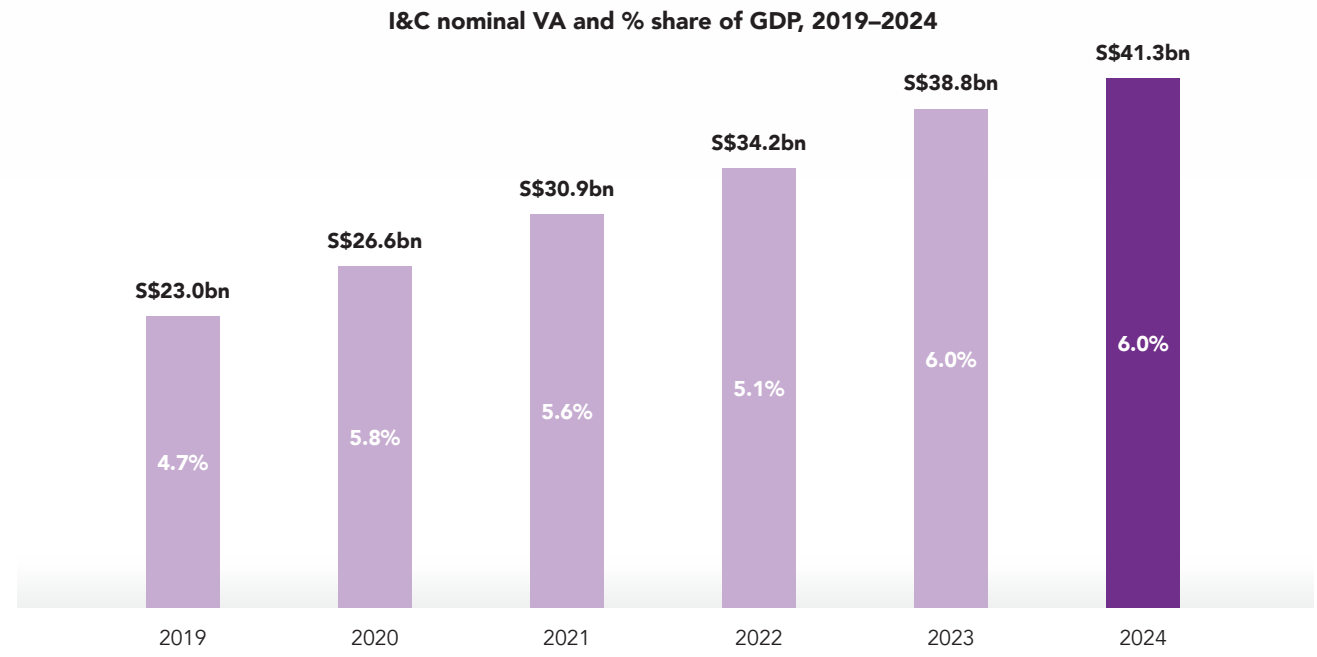
1 In the Singapore Standard Industrial Classification (SSIC) system, the I&C sector corresponds to SSIC 58-63.

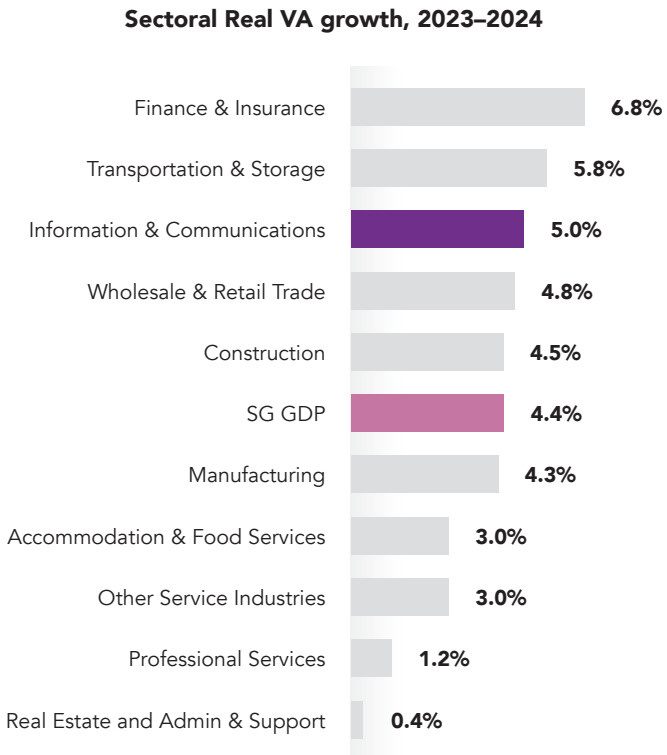
2 The growth accounting technique is used to estimate the portion of the VA in other sectors (Finance & Insurance, Wholesale Trade, Manufacturing, etc.) of the economy that is contributed by digital capital. In particular, it decomposes the total returns to capital owners, i.e. gross operating surplus (GOS) which is a major component of GDP accounting from income approach, into returns to digital capital and returns to non-digital capita. Details of the methodology is discussed in the Singapore Digital Economy Report 2023.

3 The DE VA for 2023 has been revised due to the annual revision to National Accounts statistics by Singapore Department of Statistics (DOS).

The I&C sector continued to demonstrate strong growth momentum in the Singapore economy [Fig 1]. In 2024, the sector's nominal VA reached S$41.3 billion, accounting for 6.0% of GDP. The sector also saw its real VA growing by 5.0% year-on-year (yoy) in 2024, outpacing the overall real GDP growth of 4.4%. Among various sectors, I&C was also ranked as one of the fastest-growing sectors, behind only Finance & Insurance (6.8%) and Transportation & Storage (5.8%).

FIGURE 1: **I&C SECTOR'S NOMINAL VA AND ANNUAL SECTORAL REAL VA GROWTH**



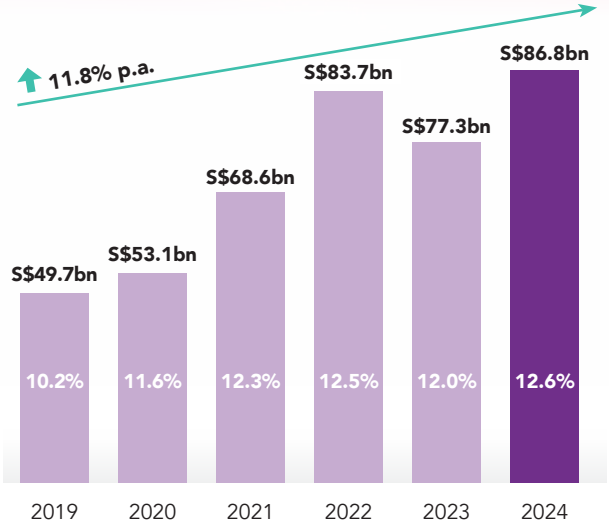


Source: DOS

The nominal VA from digitalisation in the rest of the economy also showed growth. In 2024, it rebounded strongly to reach S$86.8 billion [Fig 2], representing a yoy growth of 12.2%. As a share of the economy, VA from digitalisation accounted for 12.6% of GDP in 2024, up from the 12.0% in 2023. The VA from digitalisation in the rest of the economy grew at a CAGR of 11.8% between 2019 and 2024, reflecting the continued deepening of digital transformation across various sectors of the economy.

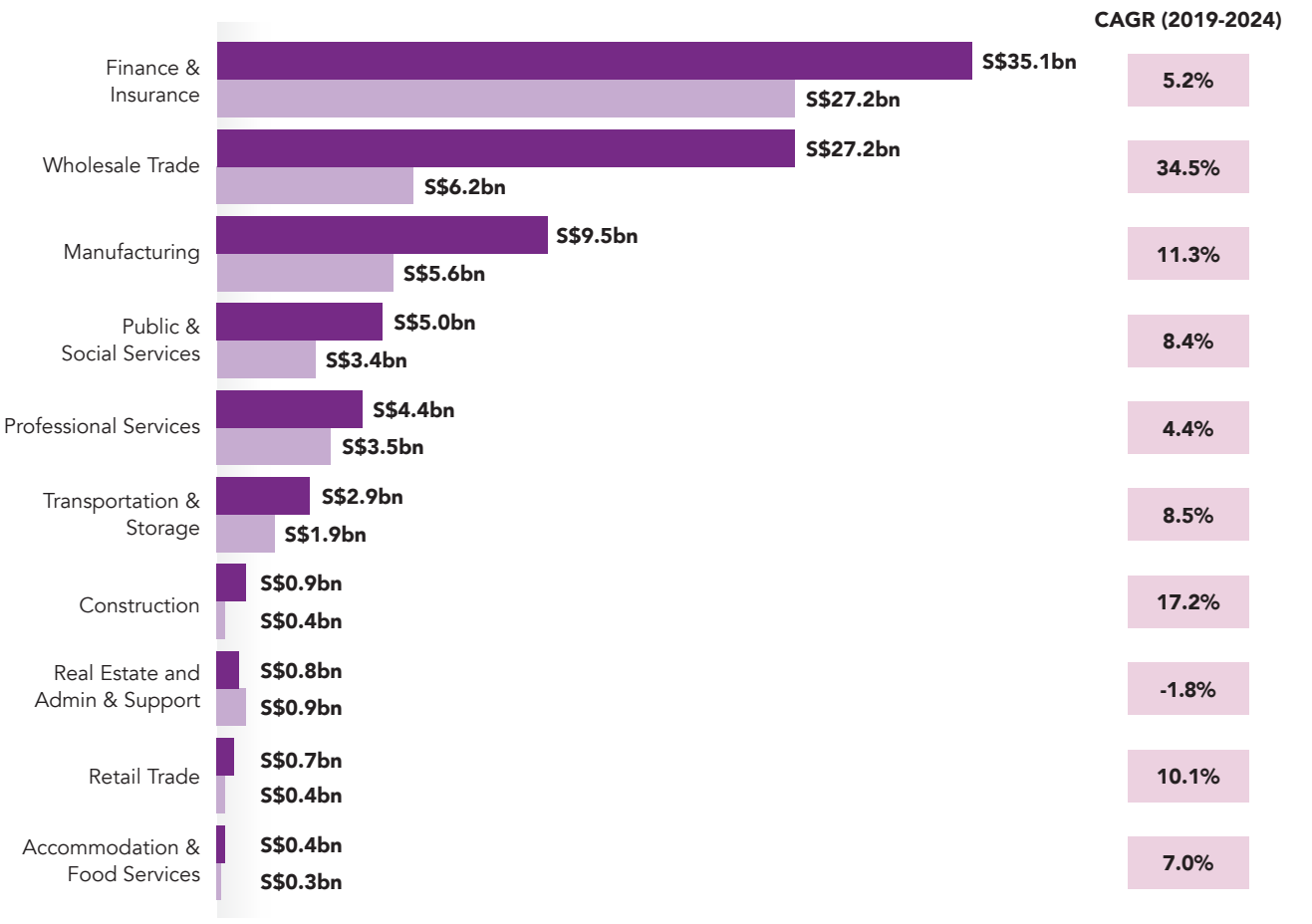
Looking at the sectoral breakdown of VA from digitalisation in 2024, the Finance & Insurance sector remained the largest contributor, followed by the Wholesale Trade sector and the Manufacturing sector [Fig 3]. Together, these three sectors contributed the majority of the VA from digitalisation, highlighting their significant role in driving Singapore's digital transformation.

FIGURE 2: **NOMINAL VA FROM DIGITALISATION IN THE REST OF ECONOMY AND % SHARE OF GDP, 2019-2024**



Source: IMDA

FIGURE 3: **NOMINAL VA FROM DIGITALISATION FOR SELECTED SECTORS, 2019 AND 2024**



Source: IMDA

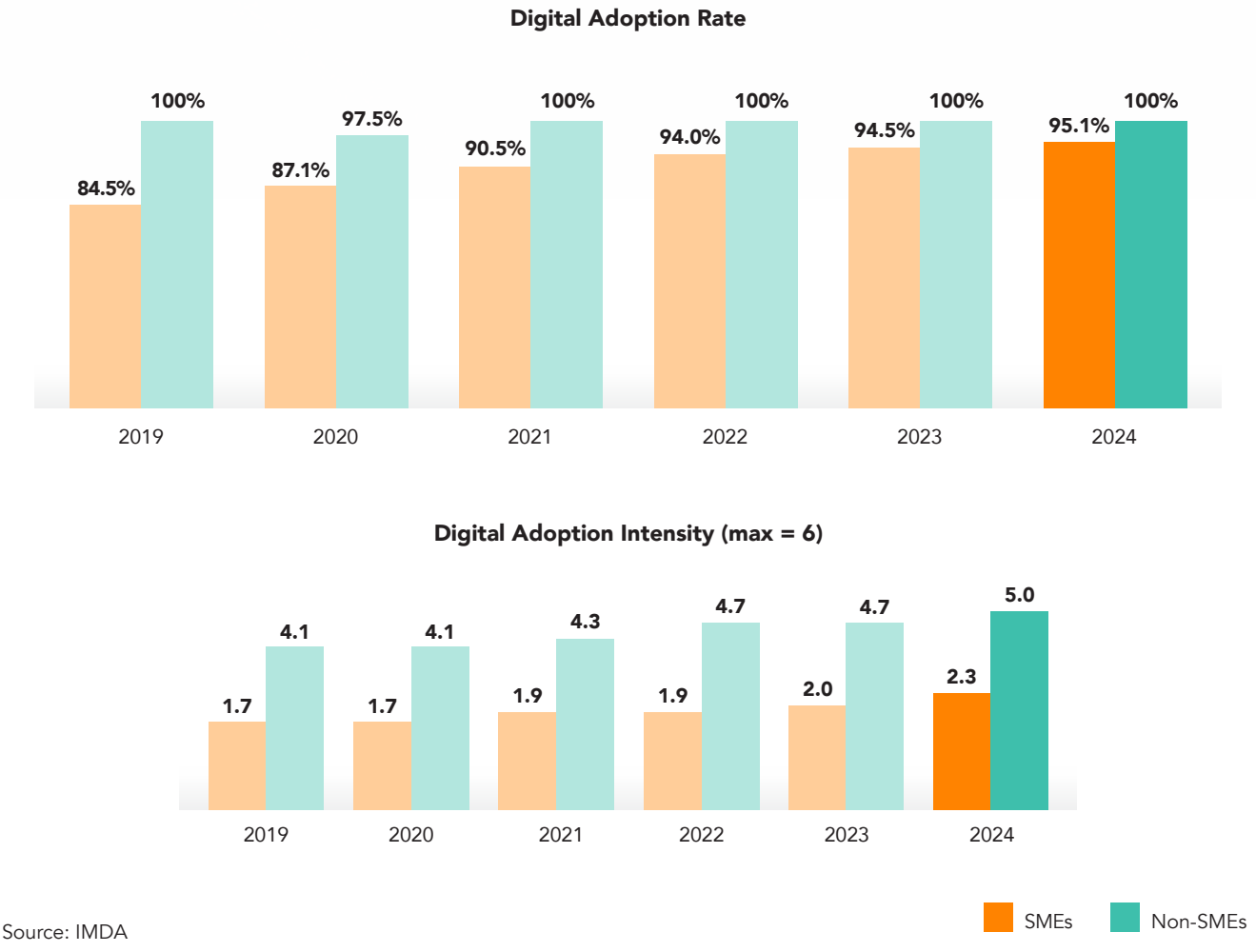
ENTERPRISE DIGITALISATION

Enterprises in Singapore sustained their digitalisation efforts in 2024, with both digital adoption rate and digital adoption intensity out of the six digital areas examined[4] registering steady gains. Specifically, **the digital adoption rate among all enterprises continued to increase** – 95.1% of all enterprises adopted at least one digital area in 2024, up from 94.6% in 2023. **Firms also made substantial progress in digital adoption intensity** – on average, a firm adopted 2.3 of the six digital areas in 2024, compared to 2.0 in 2023.

4 Digital adoption rate refers to the percentage of firms that adopted at least one out of the six digital areas, namely Cybersecurity, Cloud, E-payment, E-commerce, Data Analytics and AI. Digital adoption intensity refers to the average number of digital areas adopted per firm, out of the six areas examined.

Large enterprises (non-SMEs) maintained their lead in digitalisation [Fig 4]. These firms have adopted an average of 5.0 out of the 6 digital areas examined, an uptick from the 4.7 level registered in 2023, indicating their continued effort to digitalise. **SMEs have also made significant improvements in digitalisation**, with their digital adoption intensity rising from 2.0 to 2.3, the largest yoy increase in recent years.

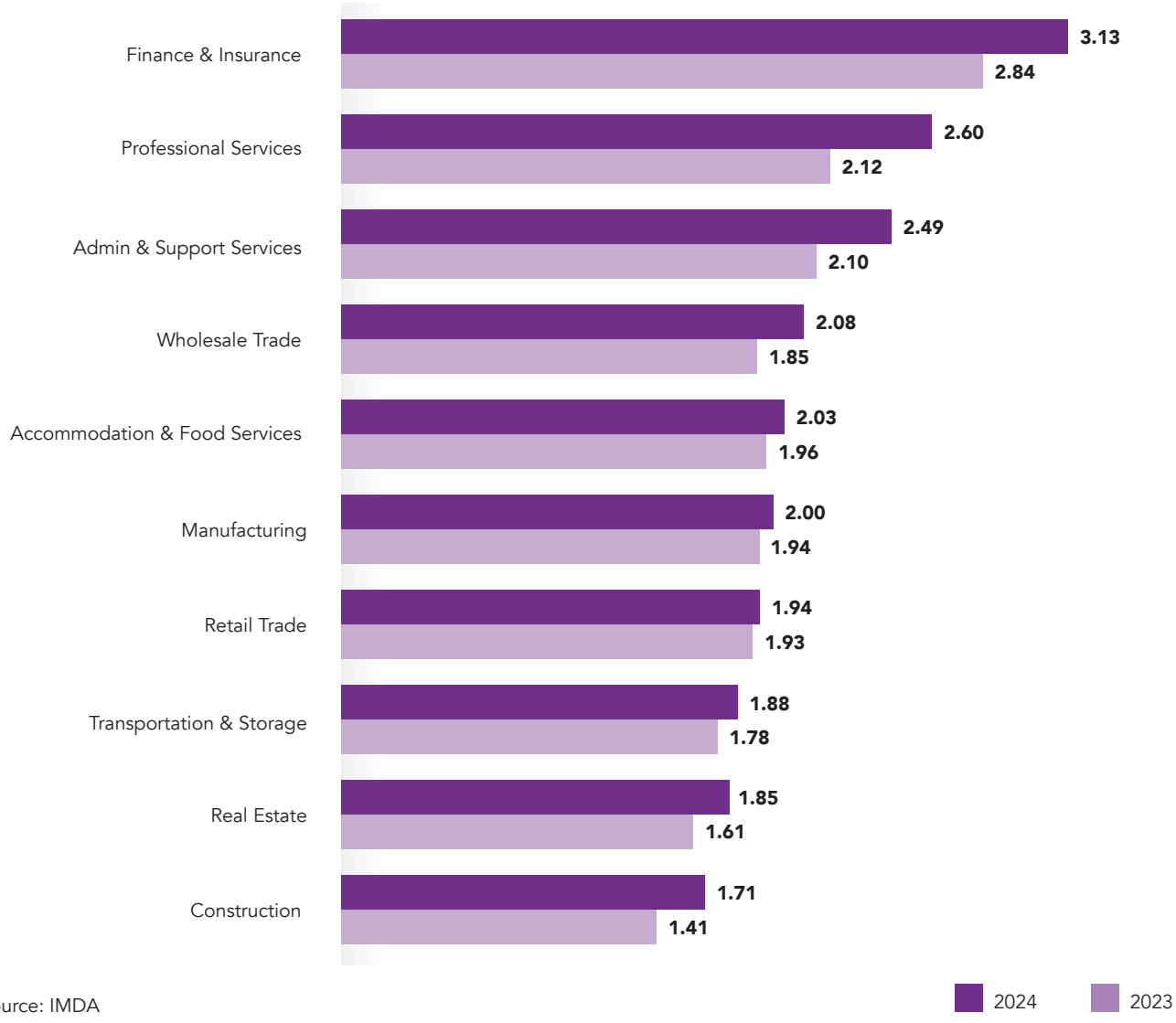
FIGURE 4: **DIGITAL ADOPTION RATE AND INTENSITY BY SMES AND NON-SMES, 2019-2024**



Source: IMDA

The improvement in digital adoption intensity was also evident across all sectors [Fig 5]. The Finance & Insurance sector maintained its position at the forefront of digitalisation with an adoption intensity of 3.13, while the Professional Services sector demonstrated substantial advancement, reaching 2.60. In contrast, sectors such as Construction, Real Estate, and Transportation & Storage registered lower digital adoption intensity levels, although each showed improvements compared to the previous year.

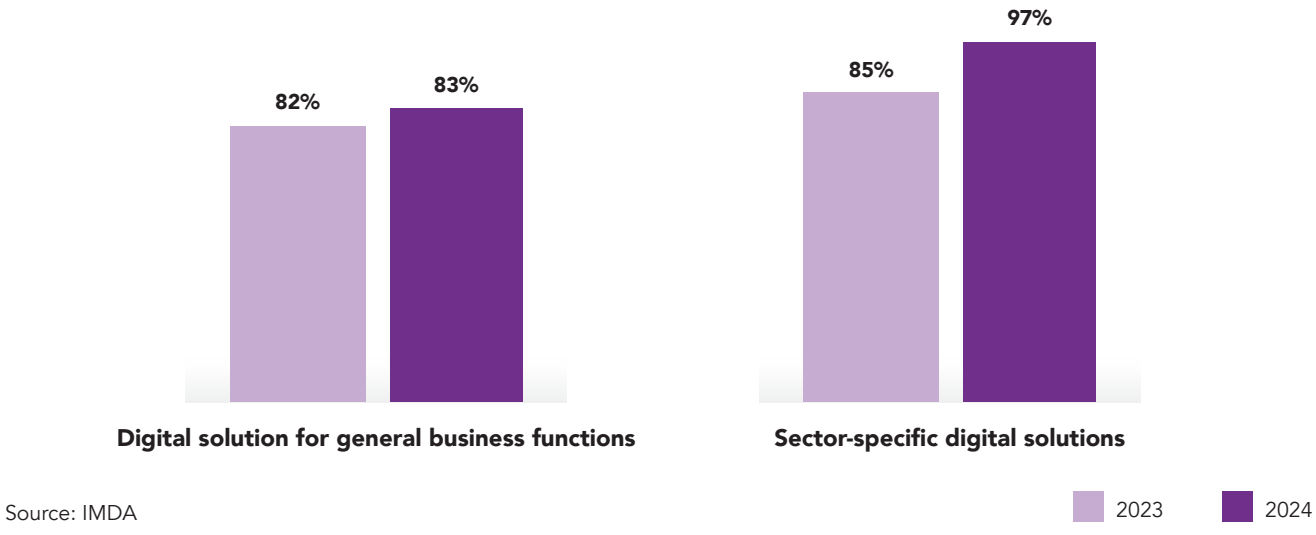
FIGURE 5: **DIGITAL ADOPTION INTENSITY FOR ALL ENTERPRISES BY SECTORS, 2023 AND 2024**



Source: IMDA

There has been encouraging progress in the adoption of different types of digital solutions among SMEs [Fig 6]. The share of SMEs that adopted at least one digital solution for general business functions[5] rose from 82% in 2023 to 83% in 2024, while **the adoption of sector-specific digital solutions as recommended in IMDA's Industry Digital Plans (IDPs)[6] among SMEs increased considerably** – 97% of SMEs adopted at least one sector-specific digital solution[7] last year compared with 85% in 2023. This suggests that SMEs are increasingly implementing digital solutions tailored to their industry needs.

FIGURE 6: **SMES' ADOPTION RATES OF AT LEAST ONE DIGITAL SOLUTION BY SOLUTION TYPES, 2023 AND 2024**



Source: IMDA

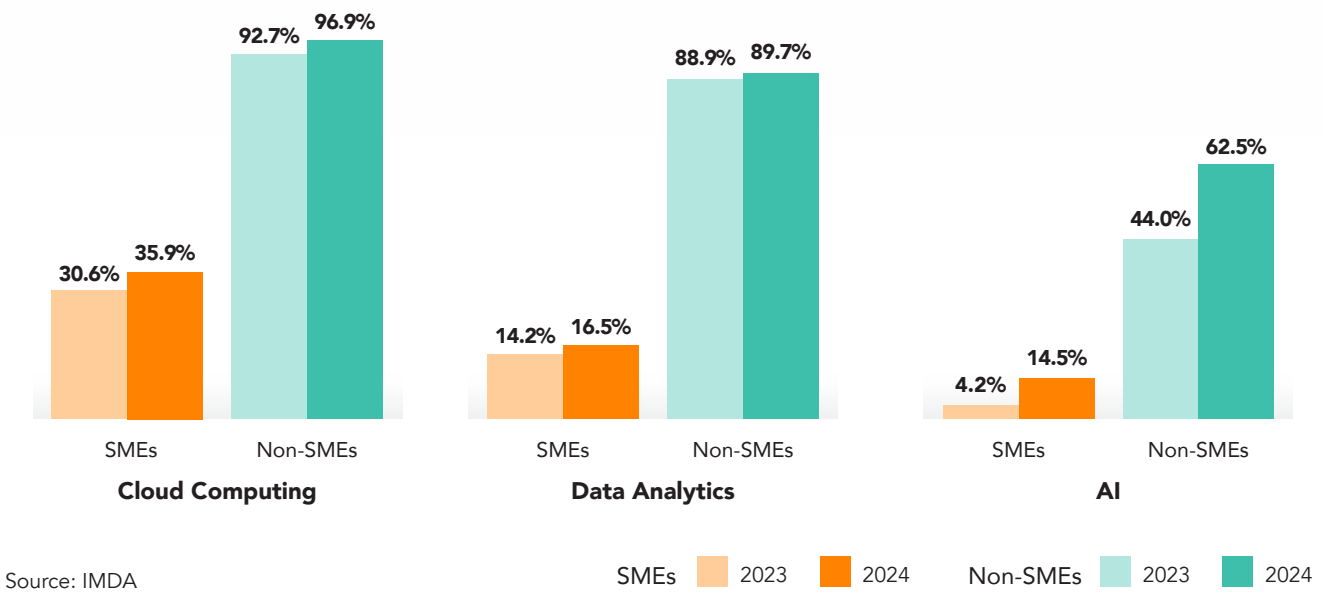
5 These digital solutions address general business functions and could be applied across sectors, such as resource management and revenue generation functions. Such digital solutions include Accounting Management, Human Resources Management, Customer Relationship Management, Collaboration Tools, etc.

6 Industry Digital Plans (IDPs) provide SMEs with a step-by-step digitalisation guide, which includes a tailored set of sector-specific digital solution categories for adoption by SMEs at different stages of their growth. Examples of sector-specific solution categories include Integrated POS (with mobile features) in the Retail sector, and Digital Ordering systems in the Food Services sector.

7 This statistic is based on the firms within 15 industry segments where IDPs were rolled out as of 2023.

In terms of advanced digital areas such as Cloud Computing, Data Analytics, and AI, both non-SMEs and SMEs made progress in 2024 [Fig 7]. **The uptick in adoption was most notable in the digital area of AI**[8]. For instance, the AI adoption rate among non-SMEs increased by almost 20 percentage points (pp), rising from 44.0% in 2023 to 62.5% in 2024, while that for SMEs more than tripled from 4.2% to 14.5% in 2024. For SMEs, the increase in AI adoption was mainly driven by micro and small SMEs[9], majority of whom are adopting off-the-shelf generative AI (Gen AI) tools such as ChatGPT, Gemini, Midjourney, Copilot, etc.

FIGURE 7: **ADOPTION RATES OF SELECTED DIGITAL AREAS BY SMES AND NON-SMES, 2023 AND 2024**



Source: IMDA

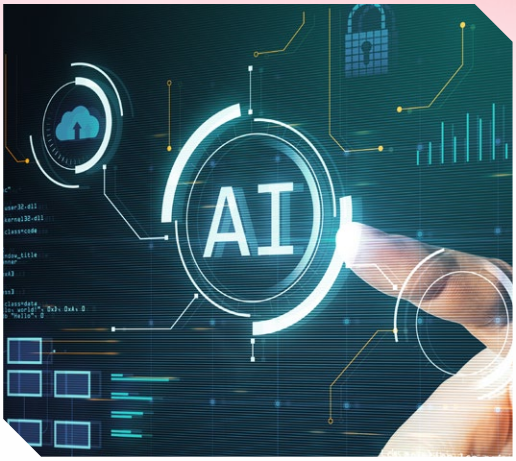
The adoption of AI has also brought about positive impact on firms. SMEs which adopted AI-enabled digital solutions under the Productivity Solutions Grant (PSG) reported average cost savings of 52%[10] in 2024. Notably, SMEs that adopted AI-powered cybersecurity solutions under the PSG achieved even higher average cost savings of 71%, highlighting the strong returns from investing in AI-enhanced security measures.

8 AI is defined as a set of tools that enable computers or machines to perform tasks which typically require human intelligence. Some applications of AI include content generation, customer engagement, analytics, and process automation. It also covers AI enabled digital solutions where AI is integrated with other software or platforms. The AI adoption rate refers to the percentage of firms which used AI according to the above definition.

9 Micro SMEs refer to firms with 10 or fewer employees, while small SMEs are firms with 11 to 100 employees.

10 Based on PSG applicants' self-declared business outcomes after adopting the digital solutions. The statistic represents the average cost saving per firm per PSG application of AI-enabled digital solution.

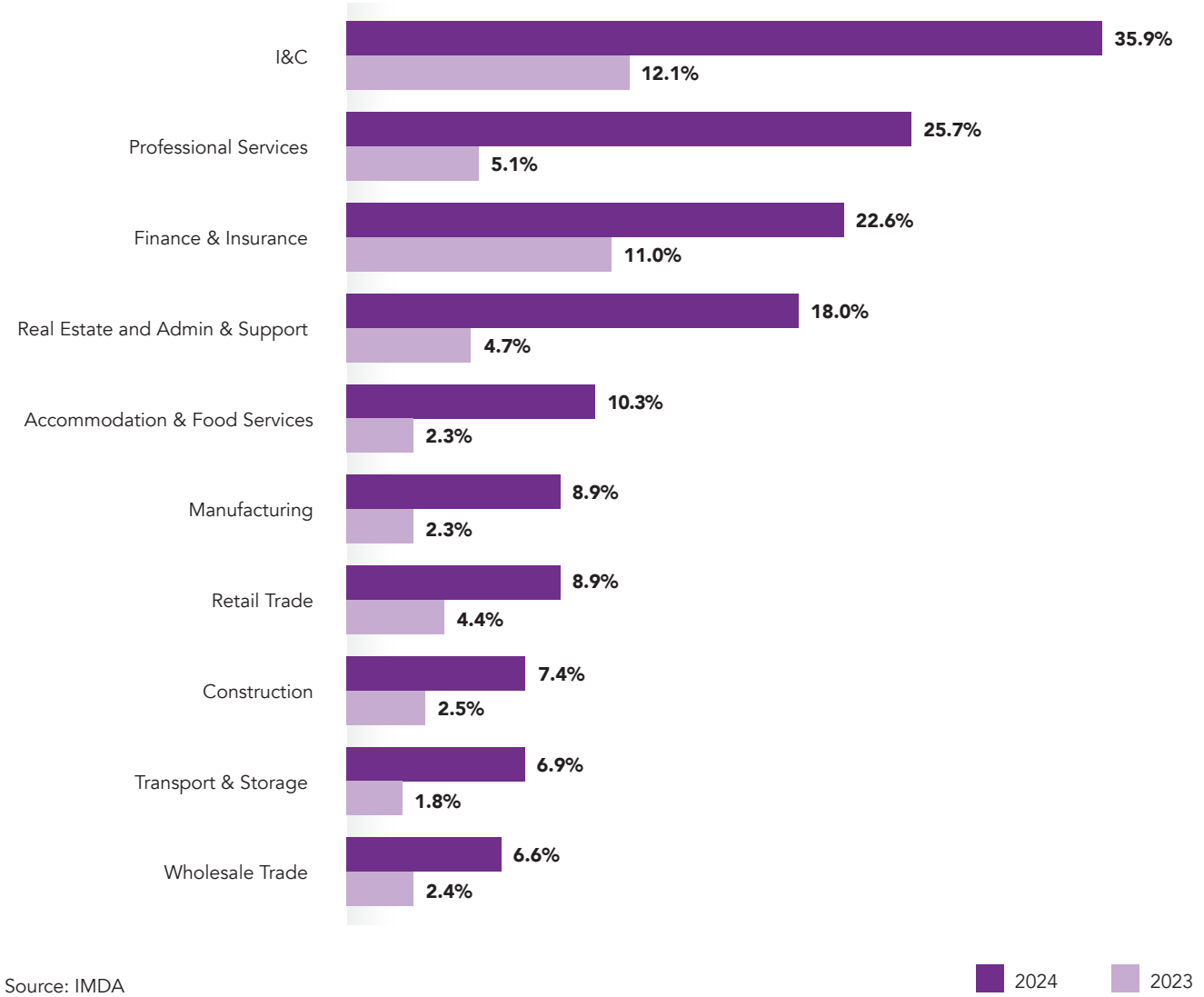
STATE OF AI ADOPTION



This section provides a deeper dive into AI adoption patterns among enterprises and workers in Singapore.

In 2024, all sectors recorded higher AI adoption rates as compared to last year, with the I&C and Professional Services sectors leading the advancement [Fig 8]. These two sectors also recorded the highest adoption rates of 35.9% and 25.7% in 2024 respectively. The Finance & Insurance sector followed with an adoption rate of 22.6%.

FIGURE 8: **AI ADOPTION RATES BY SECTORS, 2023 AND 2024**

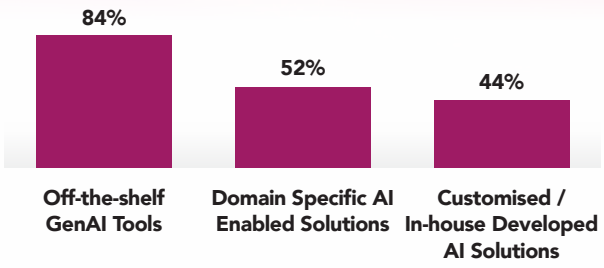


Source: IMDA

AI usage among enterprises

According to a recent IMDA pulse survey of enterprises[11], **AI-using firms in Singapore are demonstrating varying levels of AI maturity.** While the majority of AI-using firms (84%) reported using off-the-shelf Gen AI tools, more than half have adopted AI-enabled digital solutions (i.e. digital solutions with AI functionality for domain specific tasks such as human resource and accounting software[12]). Another sizeable 44% of AI-using firms have implemented customised or proprietary AI tools [Fig 9].

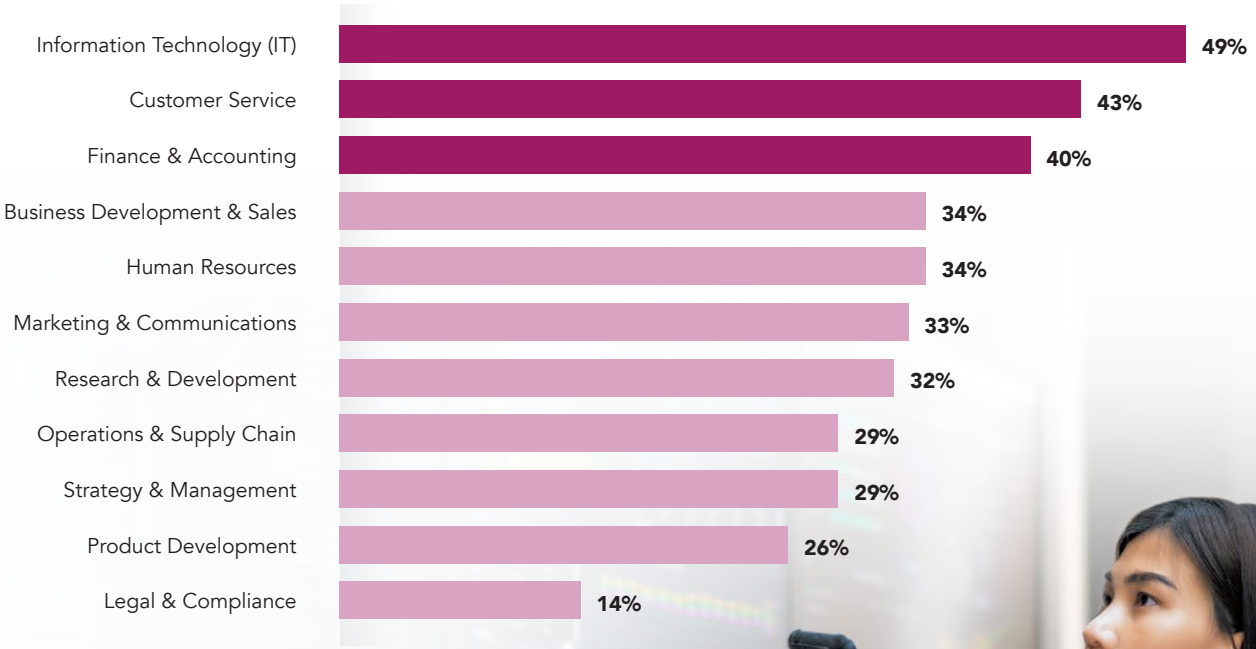
FIGURE 9: **TYPES OF AI TOOLS ADOPTED BY AI-USING FIRMS IN 2025**



Source: IMDA

The surveyed firms that have adopted AI are implementing the technology across a range of business functions, with SMEs using AI in an average of 3 functions and non-SMEs in 5 functions. AI was most widely used in IT (49% of AI-using firms), followed by Customer Service (43%) and Finance & Accounting (40%) [Fig 10].

FIGURE 10: **AI ADOPTION RATES BY BUSINESS FUNCTIONS AMONG AI-USING FIRMS IN 2025**



Source: IMDA

11 Analysis in this segment is based on an IMDA-commissioned pulse survey of about 500 AI-using firms, conducted in May and June 2025.

12 Examples of such digital solutions with AI functionalities include Xero Accounting, Marketo, Info-Tech Cloud HRMS, etc.

Different business functions leverage AI in distinct ways to meet their specific needs [Fig 11]. For example, IT function used AI for a variety of use cases, from data exploration & analytics use cases such as data visualisation and reporting, to process automation use cases such as workflow and task automation. Customer Service function predominantly used AI-powered chatbots and visual assistants to engage customers, whereas Marketing & Communications function mainly utilised AI for the creation of written and visual content. Finance & Accounting and Human Resources functions focused heavily on data exploration & analytics, using AI for predictive forecasting and automated data visualisation.

FIGURE 11: **AI USE CASES FOR SELECTED BUSINESS FUNCTIONS IN 2025**

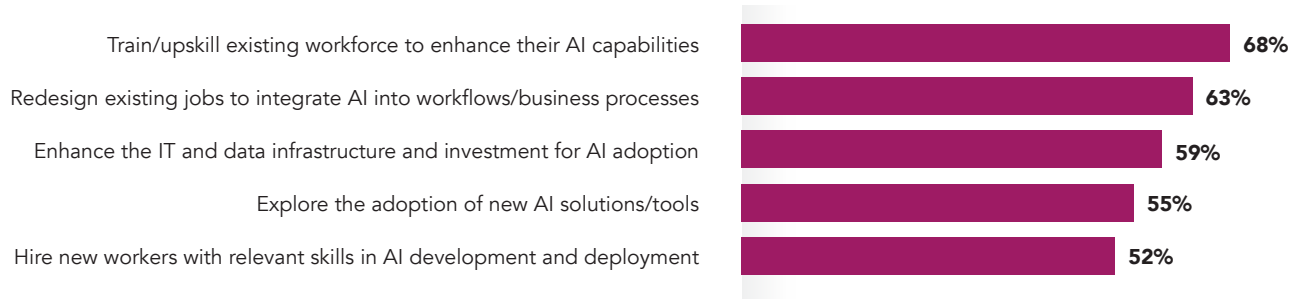
	Information Technology	Customer Service	Finance & Accounting	Human Resources	Marketing & Comms
Content Creation					
Generating and editing of written content	40%	32%	28%	42%	56%
Translation and language processing	33%	31%	25%	36%	42%
Creation and editing of images, videos, and other visual content	38%	29%	25%	39%	58%
GenAI in software development (coding, debugging, etc.)	41%	29%	29%	39%	35%
Data Exploration & Analytics					
Pattern identification and insights generation	51%	39%	46%	56%	50%
Risk assessment and fraud detection	45%	34%	51%	46%	37%
Automated data visualisation and reporting	56%	43%	57%	57%	52%
Predictive analytics and forecasting	53%	41%	60%	60%	45%
Process Automation					
Document processing and data extraction	46%	38%	45%	48%	38%
Workflow and task automation in business processes	50%	36%	55%	49%	39%
Inventory and resource management	35%	29%	31%	37%	28%
Automated quality control, monitoring, and inspection	48%	30%	41%	43%	39%
AI-powered autonomous systems for operations	45%	27%	38%	45%	33%
Engage with People					
AI-powered chatbots and virtual assistants for customer services	43%	59%	35%	58%	43%
Personalised marketing and recommendations	35%	47%	35%	42%	47%
Customer/employee feedback analysis and sentiment tracking	41%	55%	36%	51%	52%

Source: IMDA

Note: The percentage represents the share of firms selecting each AI use case, calculated based on firms using AI within respective business functions.

The surveyed AI-using firms show willingness to take proactive steps to deepen their AI capabilities over the next 1-2 years [Fig 12]. More than two-thirds of such firms (68%) plan to prioritise the training and upskilling of their existing workforce, likely reflecting enterprises' recognition that human capital development is crucial for the successful implementation of AI. A sizeable 63% of AI-using firms also indicated their intention to redesign existing jobs to better integrate AI into their workflows and business processes. Infrastructure readiness was also a key focus, with about 6 in 10 AI-using firms planning to enhance their IT and data infrastructure and increase AI-related investments.

FIGURE 12: **TOP BUSINESS STRATEGIES FOR AI IMPLEMENTATION BY AI-USING FIRMS IN THE NEXT 1-2 YEARS**



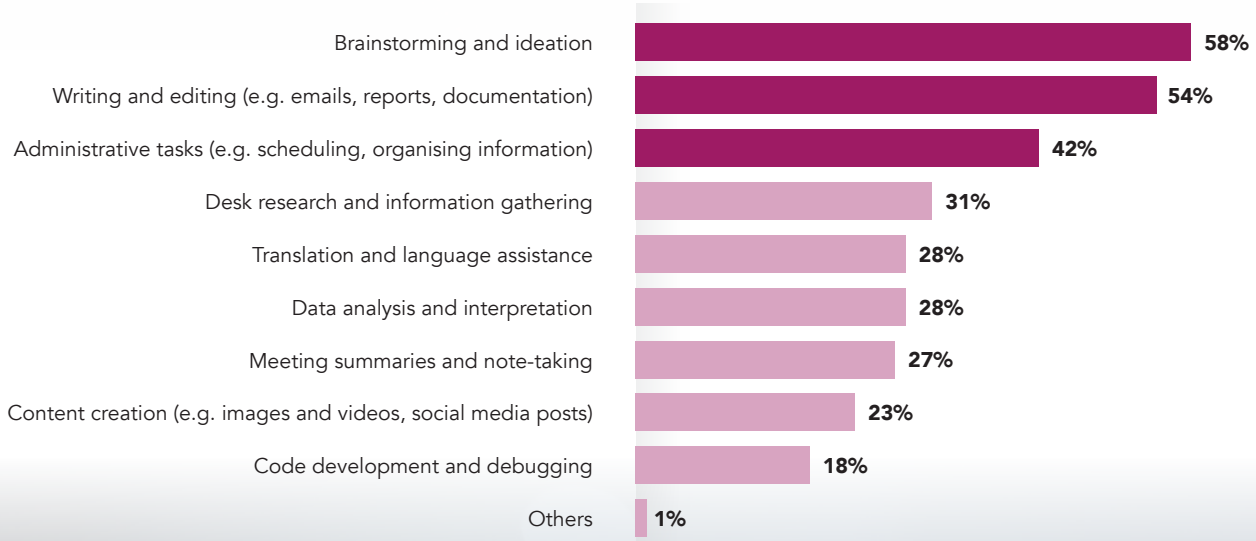
Source: IMDA

AI usage among workers

Based on a separate IMDA pulse survey among working individuals[13], **AI is widely used by workers, with 73.8% of working individuals surveyed using AI tools at work (i.e. AI users),** most of whom used the technology several times a week or daily.

Workers are turning to AI to support creative and knowledge work, going beyond routine tasks [Fig 13]. Among AI users, 58% leveraged it for brainstorming and ideation, surpassing use cases like writing and editing (54%) and administrative tasks (42%).

FIGURE 13: **PERCENTAGE OF WORKERS USING AI BY TYPES OF TASKS IN 2025**

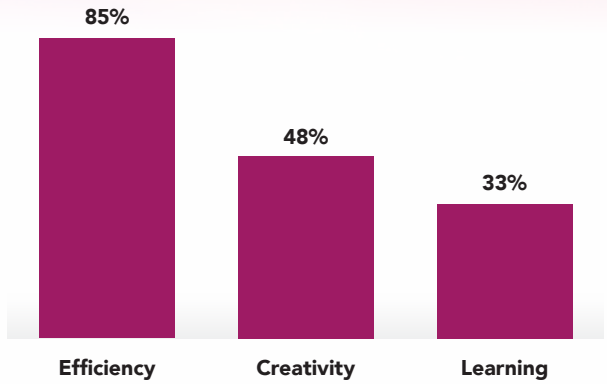


Source: IMDA

13 Analysis in this segment is based on a recent online pulse survey conducted by IMDA among about 320 working individuals in May and June 2025.

AI is delivering a variety of benefits to workers, extending beyond efficiency gains to foster creativity and learning [Fig 14]. For instance, efficiency benefits (doing things better) emerged as the most commonly cited advantage, with 85% of AI users reporting improvements in productivity, time savings, and quality of work. Beyond efficiency gains, nearly half of AI users also indicated that the technology is used to help enhance creativity and innovation in the workplace (doing better things), and a sizeable one-third of AI users reported benefits in leveraging AI for learning and capability development. These findings suggest that workers are not only using AI to work more efficiently, but also to work more creatively and to develop new skills and knowledge.

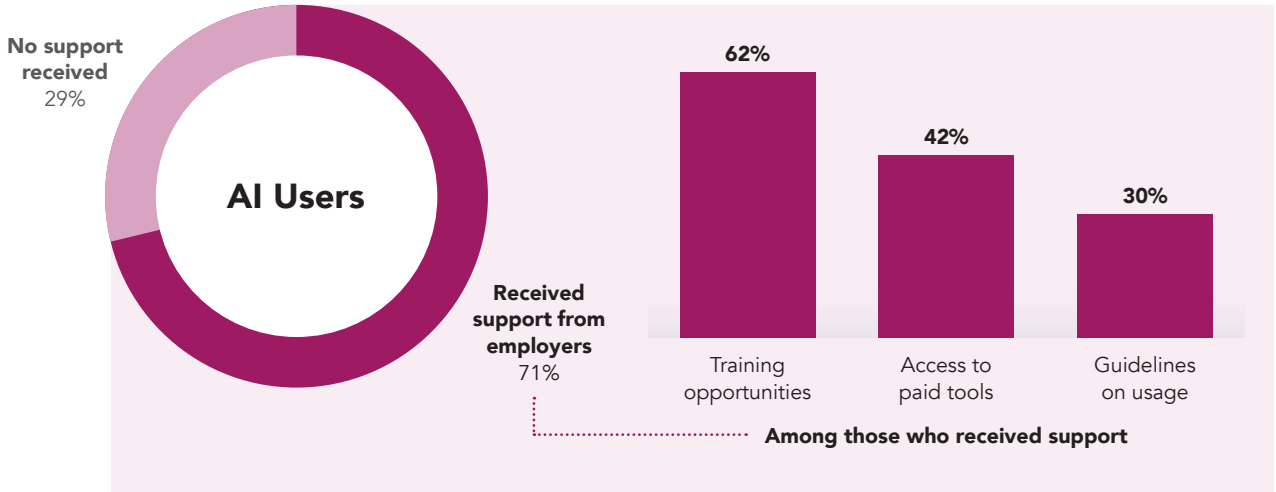
FIGURE 14: **PERCEIVED BENEFITS BY AI-USING WORKERS IN 2025**



Source: IMDA

Employers are playing an active role in supporting workers' use of AI, with about 7 in 10 AI users indicating that their employers provided such support [Fig 15]. This support most commonly took the form of internal and external training (62%), access to paid AI tools (42%), as well as relevant AI usage policies and guidelines (30%). Extending these support mechanisms to reach the remaining workers would be important in nurturing an AI-ready workforce.

FIGURE 15: **PERCENTAGE OF AI USERS RECEIVING SUPPORT FROM EMPLOYERS IN 2025**



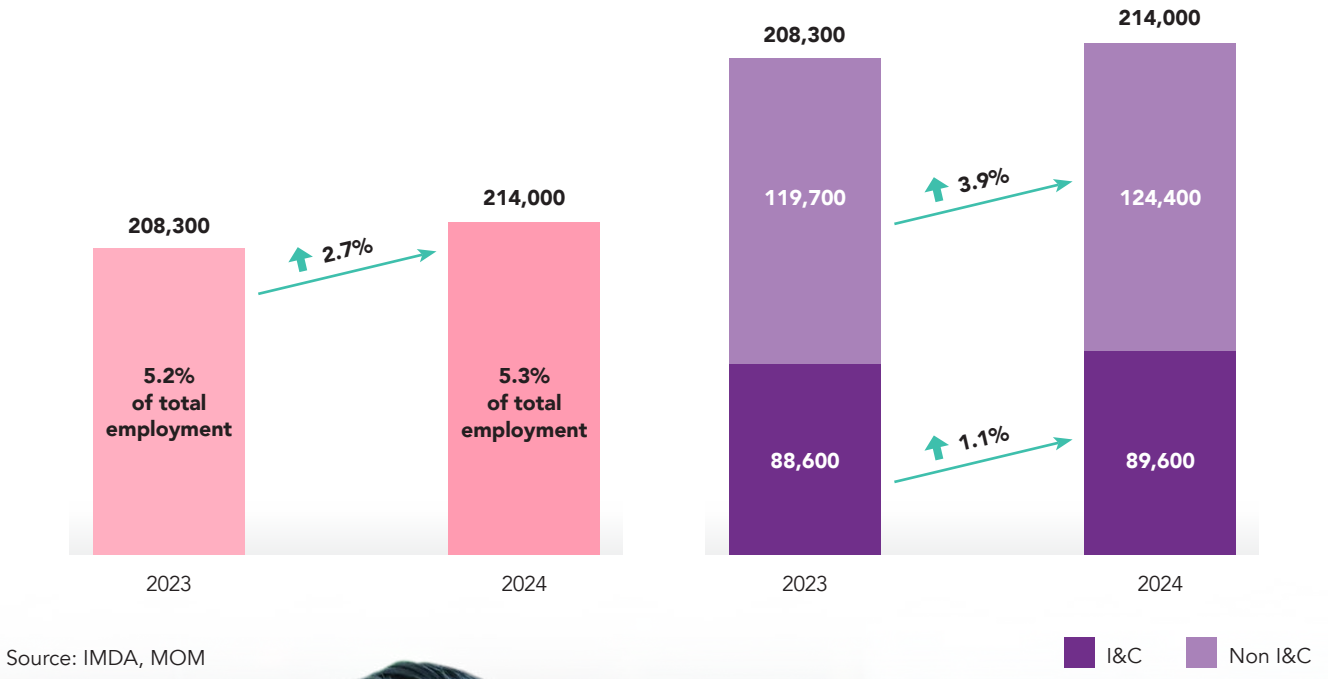
Source: IMDA

TECH MANPOWER AND TECH SKILLS

Despite the tech sector's cautious hiring outlook globally and domestically in 2024, the **number of tech professionals in Singapore continued to expand,** rising from 208,300 in 2023 to 214,000 in 2024 [Fig 16]. This represents a growth of 2.7%, moderating from the 3.4% increase in 2023. Job roles related to AI & Data and Cybersecurity were among tech jobs with the fastest growth in 2024.

This growth in the number of tech professionals was primarily driven by non-I&C sectors, which saw a 3.9% increase in tech jobs, outpacing the 1.1% growth observed within the I&C sector. Overall, tech jobs accounted for 5.3% of total employment in 2024, up slightly from 5.2% in 2023.

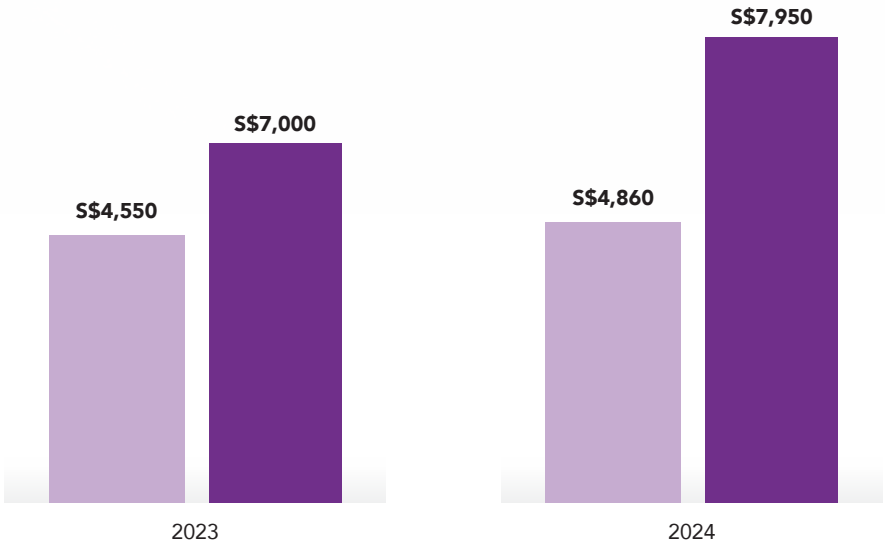
FIGURE 16: **NUMBER OF TECH PROFESSIONALS, 2023 AND 2024**



Source: IMDA, MOM

Tech jobs continued to offer good wages. The median monthly wages for resident[14] tech workers[15] grew by 13.6% yoy in 2024, faster than the yoy growth of 6.8% for overall resident workers' median monthly wages[16]. Median monthly wages for resident tech workers also remained much higher at S$7,950 compared to the median monthly wages for overall resident workers of S$4,860 in 2024 [Fig 17].

FIGURE 17: **RESIDENT MEDIAN WAGES BY OCCUPATIONS (S$), 2023 AND 2024**



Source: MOM

To get insights into the evolving needs of Singapore's DE, we analysed tech job postings data from Lightcast to understand the trends in the demand of tech skills[17] required among tech professionals. This analysis looked into the relative demand for individual tech skills, measured by the number of tech job postings requiring each tech skill as a proportion of total tech job postings. The findings offer insights into the change in tech skill requirements and reflect broader shift in how firms design, develop, and deploy digital solutions.

14 Residents refer to Singapore Citizens and Permanent Residents.

15 Data for "Tech Occupations" pertains to median gross monthly wages (excluding employer's CPF contribution & bonuses) of full-time resident employees from Occupational Wage Survey, Manpower Research & Statistics Department, MOM, supplemented with data from administrative records.

16 "Overall resident workers" refers to residents employed in all occupations. Data for "All Occupations" pertains to median gross monthly income from work (excluding employer's CPF contribution) of full-time employed residents from Comprehensive Labour Force Survey, Manpower Research & Statistics Department, MOM.

17 Tech skills refer to specialised skills that enable individuals to design, develop and manage digital and data systems and products. These include competencies in areas such as software development & engineering, network, cloud computing, data & analytics and cybersecurity.

Shift in demand of tech skills among tech professionals

Programming languages such as Python and SQL were the among the more highly sought-after tech skills in the past 5 years. In 2024, 24% of all tech job postings required Python (an increase of 9 pp from 2019), while SQL was required in 20% of tech job postings (an increase of 5 pp) [Fig 18]. The strong demand is likely a reflection of the applicability of these skills across a wide range of functions, such as data analytics, automated workflows, and development of machine learning models.

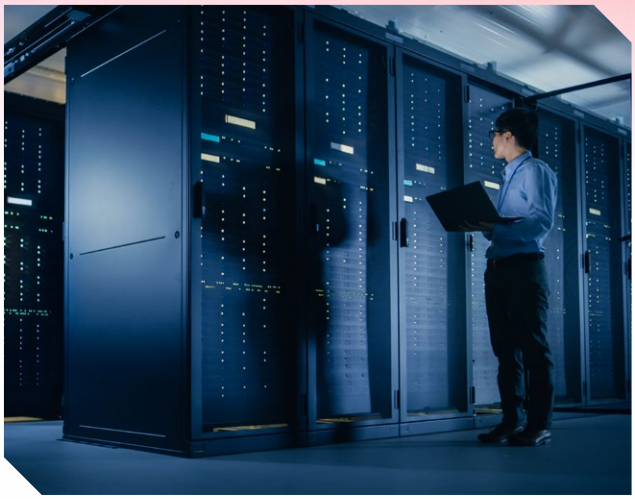
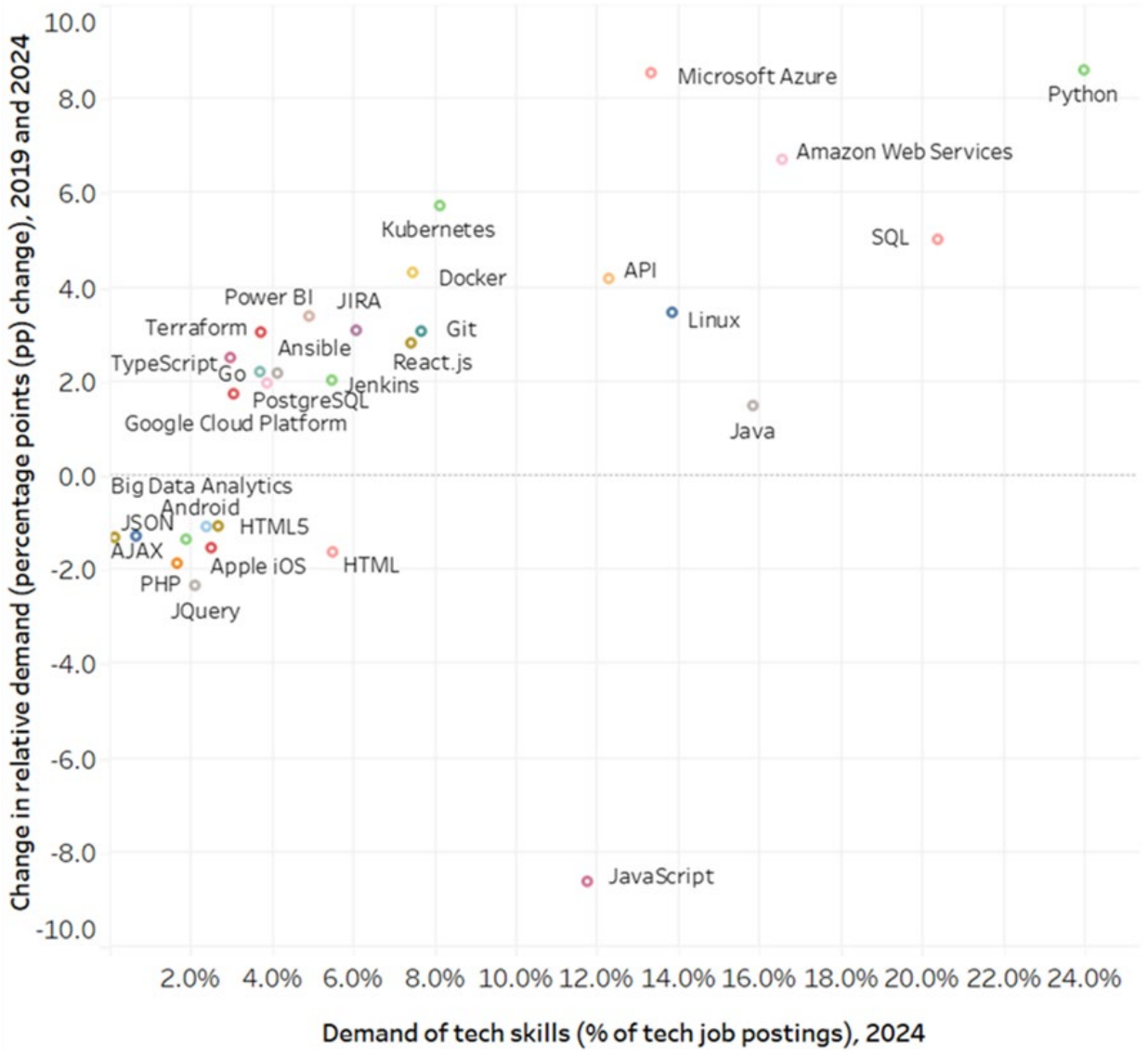


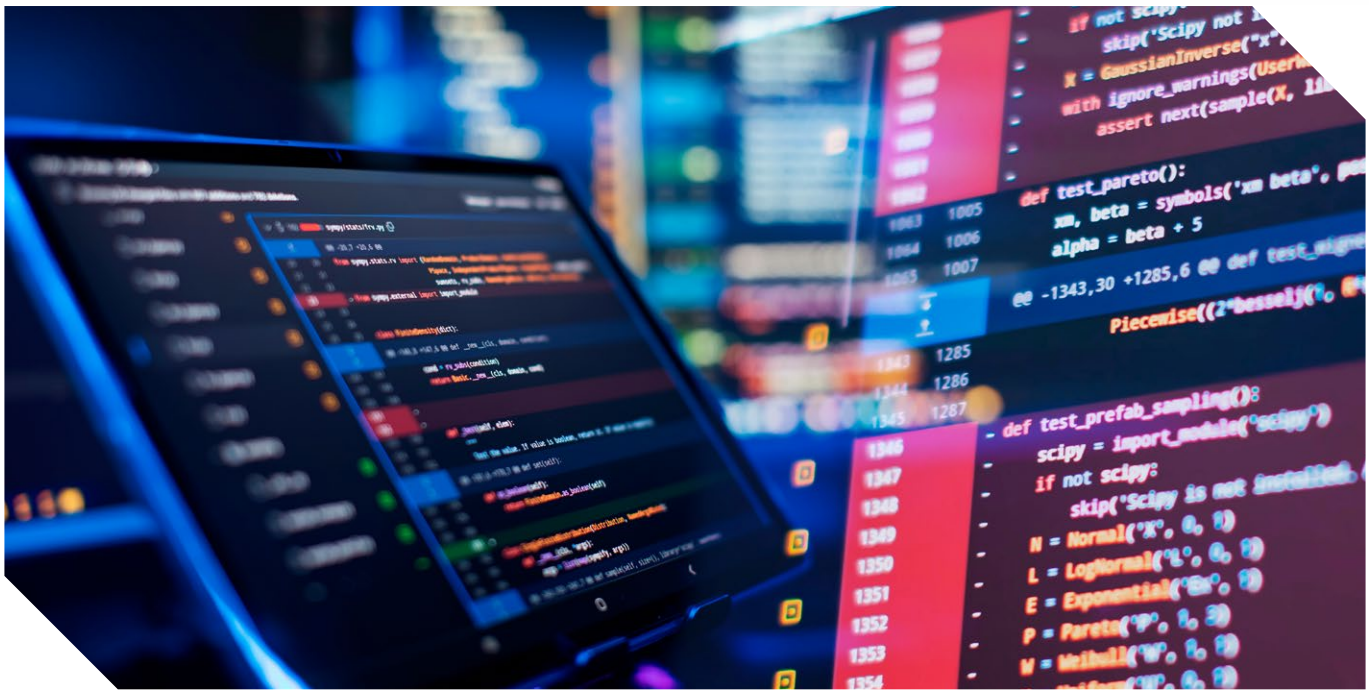
FIGURE 18: **TECH SKILLS WITH THE FASTEST GROWTH AND DECLINE IN DEMAND IN TECH JOB POSTINGS BETWEEN 2019 AND 2024**



Source: IMDA's analysis on Lightcast Data

Between 2019 and 2024, there was also a **marked increase in the share of tech job postings that demand skills associated with cloud platforms[18] and scalable digital infrastructure[19]**. Consequently, the share of tech job postings requiring tech skills associated with Microsoft Azure and Amazon Web Services (AWS) rose from 4.8% and 9.9% of tech job postings in 2019 to 13.4% and 16.6% of tech job postings in 2024 respectively. This aligns with the rising adoption of cloud-native infrastructure among firms and underscores the increasing need for tech professionals who can effectively harness cloud-based capabilities to develop and deploy digital solutions at scale.

In line with this transition to a cloud-native environment, **employers are increasingly seeking tech professionals who are proficient in skills associated with containerisation** (e.g., Docker), **orchestration** (e.g., Kubernetes), as well as **automation** (e.g., Ansible, Jenkins). These skills which enable the flexible, portable, and automated deployment of applications within cloud environments, have become more important as firms seek to scale their digital services more efficiently.



In contrast, **tech skills associated with web development became less prominent.** For instance, the share of tech job postings that required skills in JavaScript declined from 21% in 2019 to 12% in 2024, with similar trends observed for related skills such as JSON, HTML, and CSS. While still important in web development, these tools are now often embedded within broader development environments that automate much of the manual scripting. As a result, they are less frequently cited as distinct, standalone skills.

18 Cloud platforms refer to infrastructure that supports a range of services, including computing power, data storage, software, and related capabilities, that are delivered remotely over a network. These services are typically provided on-demand, with a measured resource usage that allowed charging on a pay-per-use basis.

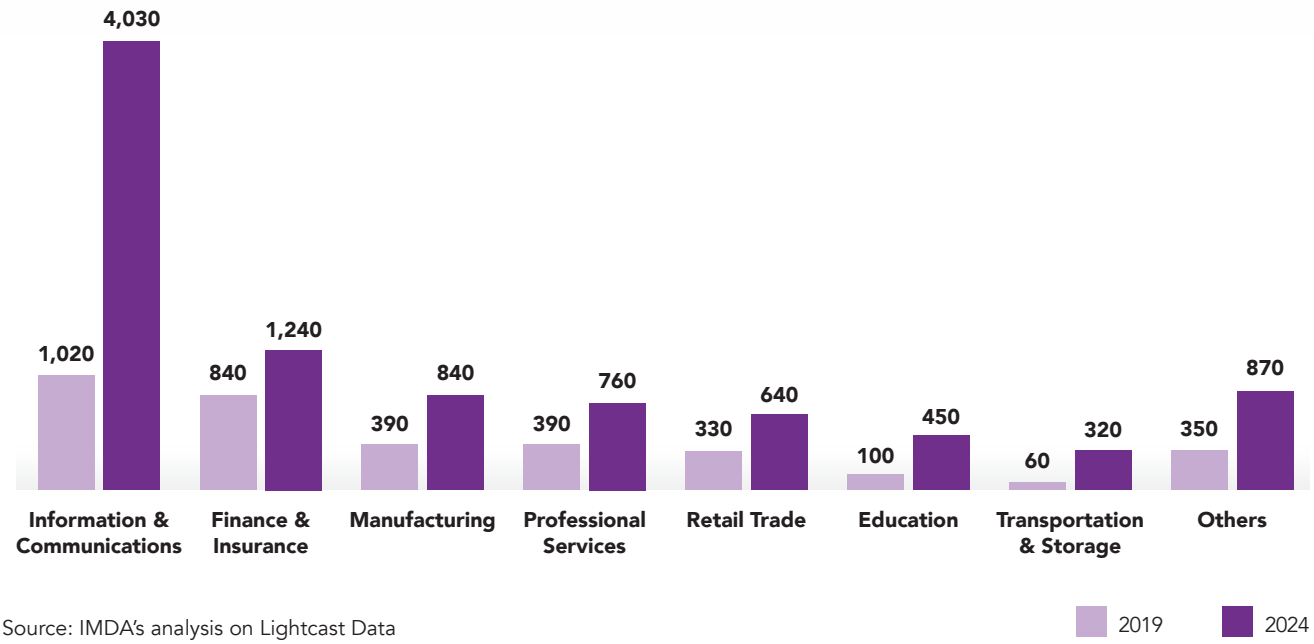
19 Scalable digital infrastructure refers to the ability of an organisation's technology environment (including hardware, software, and cloud services) to handle increased workloads or user demand without compromising performance, efficiency, or stability.

Trends in AI skills requirement in tech job postings

In tandem with the rise in AI adoption by firms in Singapore, the **number of tech job postings requiring AI skills[20] has grown steadily over time.** This contributed to an increase in share of tech job postings requiring AI skills from 11% in 2019 to 14% in 2024.

This growth was driven by increases in demand across all sectors [Fig 19]. In particular, the I&C sector which accounted for the bulk of tech job postings requiring AI skills, recorded a close to fourfold increase in such postings, from 1,020 in 2019 to 4,030 in 2024 (CAGR of 32%).

FIGURE 19: **NUMBER OF TECH JOB POSTINGS REQUIRING AI-RELATED SKILLS BY SECTORS, 2019 AND 2024**



Source: IMDA's analysis on Lightcast Data

Other sectors such as Finance & Insurance, Manufacturing, and Professional Services also saw strong growth in demand for AI skills, as reflected in their tech job postings. Between 2019 and 2024, tech job postings requiring AI skills rose from 840 to 1,240 (CAGR of 8%) in the Finance & Insurance sector, from 390 to 840 (CAGR of 17%) in the Manufacturing sector, and from 390 to 760 (CAGR of 14%) in the Professional Services sector. The expansion reflects the increased application of AI skills across the different sectors, such as the use of AI for fraud detection and risk modelling in the Finance & Insurance sector, for predictive maintenance and industrial automation in the Manufacturing sector, and for document preparation, audit, and compliance processes in the Professional Services sector.

20 AI skills refer to specialised skills that support the creation, use, and deployment of systems that simulate human intelligence. These include skills in areas such as machine learning, natural language processing, neural networks, visual image recognition, and robotics.

CONCLUSION

Singapore's Digital Economy remained a key driver of the domestic economy, contributing 18.6% to GDP in 2024, up from the 18.0% in 2023. Enterprise digitalisation continued to deepen, particularly among SMEs who made substantial progress in adopting sector-specific digital solutions.

In 2024, enterprises in Singapore accelerated their adoption of AI. The surge in AI adoption rates from 44.0% to 62.5% among non-SMEs and from 4.2% to 14.5% among SMEs, signals a transformative shift in how enterprises leverage AI technologies. The widespread use of AI among workers, with 73.8% of surveyed working individuals using AI tools at work, further reflects AI's growing integration into Singapore's workplace.

The tech workforce continued to expand despite global uncertainties, with the number of tech professionals growing from 208,000 in 2023 to 214,000 in 2024. This growth, which was primarily driven by non-I&C sectors, reflects the continued deepening of digitalisation across the economy.

With rapid advances in AI, cloud, and emerging digital technologies, there will be new opportunities to grow our digital economy. IMDA will continue to work closely with government agencies, industry partners, and the workforce to strengthen Singapore's position as a leading digital economy, focusing on deepening enterprise capabilities, supporting workforce transformation, and fostering innovation in emerging technologies.

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