CADT

KONRAD ADENAUER STIFTUNG

Profiling the AI Readiness Baseline in Cambodia's Manufacturing SMEs

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THE FUTURE OF AI FOR DEVELOPMENT

PROFILING THE AI READINESS BASELINE IN CAMBODIA'S MANUFACTURING SMEs

Chanty Pisal and Sean Mouy Ing

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DISCLAIMER

The opinions and ideas presented in this paper represent those of the participating SME owners or employees. Their presentation does not entail any endorsement of these views either by Konrad-Adenauer-Stiftung Cambodia, the Cambodia Academy of Digital Technology, or the authors. All policy recommendations are based on the sources highlighted in this document.

If the presentation of the results contains any errors or omissions, responsibility rests solely with Konrad-Adenauer-Stiftung Cambodia and the Cambodia Academy of Digital Technology.

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FOREWORD

Cambodia stands at a pivotal moment in its digital transformation journey. With the adoption of the *Digital Economy and Society Policy Framework 2021–2035* and the *Digital Government Policy 2021–2035*, the country has articulated an ambitious vision to harness digital technologies. These policy frameworks signal not only political commitment, but also a recognition that Cambodia's future competitiveness will increasingly depend on its ability to adapt to rapid technological change.

Within this evolving digital landscape, AI has emerged as a transformative force. Beyond its technical applications, AI has the potential to reshape productivity, decision-making, and service delivery across both the public and private sectors. Yet, despite growing interest and policy attention, reliable evidence on how AI is being adopted and used in Cambodia remains limited. This gap between ambition and empirical understanding underscores the importance of *Digital Insights*.

We at KAS Cambodia and CADT believe strongly that this publication is timely and necessary. While Cambodia has made notable progress in expanding government e-services and firm-level IT adoption since the digital economy was prioritized under the *Rectangular Strategy Phase IV*, significant challenges persist. Constraints related to infrastructure, skills, data governance, and organizational readiness continue to influence how businesses can integrate advanced technologies into their operations. Without grounded analysis, discussions on AI remain detached from the realities faced by enterprises, particularly small and medium-sized enterprises (SMEs) that form the backbone of the Cambodian economy.

Digital Insights seeks to address this gap by providing evidence-based perspectives on the current state of AI adoption, with a specific focus on the SME sector. Early observations suggest that AI uptake remains uneven, with the financial sector leading in terms of speed and sophistication, while many other industries are still at an exploratory stage. Understanding these disparities is essential for designing effective policies, targeted capacity-building programs, and responsible innovation frameworks that do not leave segments of the economy behind.

The high relevance of this publication is further reinforced by ongoing national and international initiatives. The Ministry of Post and Telecommunications is in the process of drafting Cambodia's first National AI Strategy, emphasizing ethical use. At the same time, UNESCO's AI Readiness Assessment offers a comprehensive evaluation of Cambodia's preparedness across legal, social,

educational, economic, and technical dimensions. *Digital Insights* complements these efforts by grounding strategic discussions in empirical realities.

Produced by Konrad-Adenauer-Stiftung Cambodia in collaboration with the Cambodia Academy of Digital Technology, this publication aims to inform policy debates, support private sector decision-making, and contribute to a more inclusive and informed dialogue on AI.

We would like to express our sincere appreciation to the Ministry of Industry, Science, Technology & Innovation for their valuable support throughout the data collection process and up to the finalisation of this report. We also extend our sincere appreciation to the Ministry of Post and Telecommunications for their ongoing support and commitment to making this initiative successful. Lastly, we offer special thanks to our colleagues Pisal Chanty and Mouying Sean, the CADT team, as well as all contributors and partners whose expertise, insights, and commitment have made this publication possible.

We hope that this publication sparks reflection and dialogue, and I wish you a rewarding read.

Dr. Sopheap SENG

President
Cambodia Academy of Digital Technology (CADT)

Daniela Braun

Country Director
KAS Cambodia

CONTENT

1. EXECUTIVE SUMMARY

Micro, small, and medium enterprises (MSMEs) play an essential role in Cambodia's economic structure, accounting for about 70% of employment and 58% of the country's GDP. According to the result of the SME Promotion Committee (SMEPC) at the Council of Ministers of Cambodia in January 2021, SMEs are categorized into three sectors: (1) agriculture, (2) Industry, and (3) Services and Trading. Specifically, in the Industry or Manufacturing sectors, SMEs and large enterprises operate in subsectors such as food, beverage, tobacco products, fabricated metal products, textile, clothing, and leather-related, non-metallic mineral products, chemical and rubber products, as well as paper-related manufacturing (Khmer SME, n.d.).

Nonetheless, these SMEs' ability to adopt cutting-edge technology, particularly in manufacturing, remains relatively low. The implications of this issue for the country's economic plan are significant, as it has set an ambitious target of becoming a high-income country by 2050, which requires significant improvements in productivity and competitiveness. Across international and regional contexts, the role of artificial intelligence (AI) has been seen as a game-changer in enhancing productivity. However, in reality, SMEs, in particular, still lag behind larger enterprises in adopting this technology. In the Southeast Asian context, other countries such as Indonesia, the Philippines, and Thailand are advancing the formulation of their national AI strategies, and, as UNESCO states, Cambodia is the fourth ASEAN country to finalize its national AI readiness assessment (UNESCO, 2025).

This research helps to fill the gap in this debate by providing the first empirical baseline of AI readiness in Cambodia's manufacturing SMEs. A survey of 273 enterprises, including food and beverages, water and production, chemical product, and other subsectors, was carried out in December 2025 to assess organizational and operational readiness, rather than advanced technical capability, across five areas: Digital maturity or baseline use of IT, data and organizational practices, awareness and attitudes to AI, current use of AI applications and tools, and perceptions of barriers and support needed. Contrary to most studies, which rely on assumptions or indirect measures, the research directly asked company owners and managers to provide data on their own use and plans for technology. In this way, it provides original data on AI readiness rather than treating AI adoption as an intangible concept. The results are threefold: first, as a baseline to monitor the spread of AI usage and awareness in SMEs; second, to highlight the specific capabilities that are needed in terms of skills, data practices, and access to finance and standards to support the spread of AI; and third, to allow Cambodia to compare its own readiness with other ASEAN nations as other countries begin to monitor their own SME data on AI readiness. In other words, the research fills an important gap in the debate by shedding light on the specific barriers and needs reported by SMEs in the manufacturing sector, thereby ensuring that policies and initiatives align with the realities of enterprises.

The results provide a straightforward characterization: the manufacturing SME sector in Cambodia is mostly at the early stage of digital and AI readiness. When it comes to digital maturity, 68.50% of firms reported using only basic digital applications (such as mobile phones, email, social networking, and paper-based files), with only about 30.77% reporting moderate use of business software (such as spreadsheets or specialized software). Not one firm reported using advanced, fully integrated systems, and only two firms (0.73%) reported their operations to be "advanced" with fully IT-integrated systems throughout. Advanced enterprise software usage is close to non-existent: about 6.76% reporting any core business in use, and fully functional warehousing software

usage is virtually non-existent. The results unequivocally show the presence of a "digitization deficit," in which the adoption of AI technology without first addressing basic ICT infrastructure is inefficient, if not simply premature. A pithy encapsulation of the survey results states, "The surveyed manufacturing SMEs in Cambodia show very low digital maturity, with most still in infantile stages of IT usage. Manual processes, paper records, and systematic data management are the norms, with little systematic data management." To sum it all up, it appears that these firms have invested very little, if anything, in infrastructure, systems, or personnel to support any level of advanced digitalization — a fact that represents a fundamental, insurmountable barrier to adopting AI solutions.

This lack of digital development is also evident in data and information management practices. More than half of the enterprises (58.61%) state that they do not regularly track any key business metrics. While 41.39% of enterprises record data, the focus is on the most fundamental commercial data, such as the total number of sales, with relatively few companies tracking operational key performance indicators, including inventory, production quality, delivery, or feedback. In other words, many SMEs are not even collecting the most fundamental data to support data-driven improvements in the first place (i.e., process and performance data like defect rates to raise throughput). This indicates that the most fundamental barrier to AI implementation is not access to the algorithm itself, as it would be unavailable in most firms anyway. But the lack of data governance in the first place: without fundamental key performance indicators, companies simply cannot quantify or justify improvements in any AI-related processes. In contrast, nearly all companies lack in-house staff with positions in IT and data. The overwhelming majority state that there are no in-house staff with any connection to data or AI; data analysts, machine learning engineers, or data scientists are found in only a few firms. Taken together, all of the above results indicate that the root causes of the lack of readiness are again data practices and human resources. The SMEs in Cambodia's manufacturing sector, therefore, lack the most fundamental prerequisites for successfully implementing AI.

The awareness level and attitude toward AI among Cambodians are also low. Just about 53.85% of respondents claim they understand what AI means. The remaining respondents report a very low level of understanding: one-third state they do not understand AI at all, and 12.82% strongly do not. None of the firms report a strong level of understanding of AI. This makes it very difficult for them to assess the value of AI; half of the managers answered questions with a cloudy understanding of AI concepts, leading to very divergent understandings of "AI." This means most companies do not consider AI important at this point. In the survey, over 56.41% of companies ranked AI as "not applicable" to their business, while 23.08% ranked it as "not very important." Altogether, over 79.49% of companies see very little relevance of AI to their business. Just about 20.51% of companies consider AI important to their business at this time.

Given this, it is no wonder that the extent of actual AI use remains low. A total of 75.76% of the firms reported not using any AI tools or applications. However, only 24.24% have attempted to use at least one AI tool. Of these, usage remains in simple areas, including customer interaction and communication. A total of 6.80% of all firms use generative AI tools (such as those for creating or marketing). A total of 5.83% use language or translation tools (such as Khmer-English chatbots). The third top AI tool is image and video AI at 4.85%. Advanced tools are rare. Forecasting, analytics, and robotics-related tools account for 6.14% of total tool selections in this multi-select item. Of these, usage remains within a single department or area. A total of 4 firms in the sample indicated that AI integrates over half of their usage. The report encapsulates the situation as follows: "AI

adoption among Cambodia's manufacturing SMEs remains in an early, growing stage. A few firms have translated their interest into implementation, and those who have are experimenting on a small scale."

Additionally, there is a large "adoption gap": 28.21% of firms intend to adopt AI in the future but with an unclear timeline. On the other hand, "over 56.04% of companies report they will not yet implement AI in the foreseeable future." This may be because they do not see enough value or are not ready for a change, or because it is simply the nature of their firm where AI is not applicable. There is a large gap between intention and action. SMEs think using AI is a good idea, but they lack the confidence and ability to follow through.

Who exactly are the exceptions? There tend to be a few early adopters who are slightly larger manufacturers by size and more ready to use digital technology. For instance, they already use more advanced digital tools rather than the simplest ones. These manufacturers tend to use more of their own funds to develop AI/data solutions and receive support from personnel at the foreign company. Essentially, the current experimenting SMEs tend to possess more capabilities and connections with the international world. Only 4 of the sample manufacturers were engaged in "AI-centric" business activities (using AI for more than half of their activities), underscoring just how exceptional this remains at this point in time. The survey also reveals what's standing in the way of adoption.

The most significant challenge is skills: Among the firms that have adopted AI in some ways, the most cited challenge is "No staff with AI skills" at 24.47%, though we are not sure whether they are actively seeking one. Such a finding aligns with cross-country evidence that SMEs' uptake of digital technologies is commonly constrained by digital skills shortages and limited time and resources for training (OECD 2024, 7). Cost concerns follow: the adopted firms frequently cited high startup costs at 14.89%, while another frequently cited challenge is return on investment at 10.64%. Data-related issues also come up: 8.51% rate a lack of Khmer-language data as an AI adoption issue.

On the bright side, AI-adopted SMEs are aware of what they need. Over 59.57% of them reported that they have not used any public or private support services (training, consulting, etc.) related to AI. This can be interpreted as indicating that early adoption often occurs without structured support, which may reflect limited awareness of available programmes, uncertainty about their relevance, or a mismatch between programme offerings and SMEs' practical needs and time constraints. Of the very few who have availed themselves of available resources, the primary activity was taking part in AI workshops and training programs (approximately 19.15% of selections by firms). When SMEs are allowed to voice their needs, they appear to require more staff training, consultation with AI experts, and financial support to move forward. They require affordable technical advice and capacity building suitable for small manufacturing businesses. The "wishlists" reveal that with proper coordination, many SMEs are ready to take advantage of available resources. Almost none of the firms are aware of the national AI strategy.

In conclusion, Cambodia's manufacturing SMEs have a low baseline of AI readiness, which is still considered a starting point. This summary of results covers the following points: a significant digital divide; restricted data usage; a skills and knowledge gap; minimal AI usage; and substantial financial and technical obstacles. There are also positive points: several more advanced companies, and awareness of the need to train and support SMEs. This is a foundation for moving forward: improve the digital foundation, improve data use, and build human capacity, and it can place

Cambodia's SMEs on a trajectory toward enabling future AI adoption. Improving AI readiness of SMEs is a move towards greater inclusion: it can allow more businesses to grow more productively, keeping Cambodia competitive within the region.

The brief recommendations that aligned with this study include:

- Build minimum digital operating systems before scaling any AI programs through:
    - Developing fundamental digital operating systems before expanding any AI-related programs
    - Using simple and free software applications available for accounting, inventory, sales orders, and production, since 68.50% use phone, email, social media, and paper-based communication, with no system in place
    - Leveraging time-bound co-funding based on usage milestones, including the first setup, three months of usage, and simple monthly KPI reporting, to prevent one-time payments that do not alter existing practices.
- Support practical AI literacy for SMEs through:
    - Treating AI literacy as practical business coaching, not just general awareness
    - Keeping content in Khmer and centered on tasks SMEs already do, since claimed understanding is fragile and sometimes reflects tool misclassification, such as confusing CCTV with AI camera inspection
    - Pairing AI basics with data habits, spreadsheet discipline, simple databases, and minimum cybersecurity steps, since most firms are still operating without strong data practices, and AI is not yet operationally salient for many.
- Start with low-barrier digital/AI use cases through:
    - Starting with low-barrier AI use cases, then document the results for replication.
    - Prioritizing communication and content use cases first, where current uptake is concentrated, before pushing complex factory automation
    - When pilots are funded, SMEs shall be asked to have a basic digitization step and a small set of outcome metrics to enable comparison and sharing of results.
- Make governance usable for SMEs through:
    - Focusing on simple checklists, model clauses for vendors, and clear accountability expectations, because most SMEs report low awareness of policy actions, and also signal uncertainty around accountability
    - Keeping requirements proportional to firm size so compliance does not become a barrier to early experimentation

2. BACKGROUND

2.1. Introduction

The Cambodian manufacturing sector is at a critical crossroads, where its future competitiveness could be significantly influenced by AI adoption. The Cambodian government has recognized the urgent significance and, in 2025, became one of the few Southeast Asian nations to begin assessing AI readiness and drafting the National AI Strategy (UNESCO, 2025). This is a sign of growing policy awareness that AI is likely to affect future economic performance. Much of this conversation thus far has contributed to the discourse that primarily emphasizes national strategies. In the private sector, especially among manufacturing SMEs, the perspective on AI readiness is primarily theoretical and understudied. In this context, AI readiness could be framed as a clear, easily identifiable benchmark that reflects the necessary capabilities and the ability to adopt AI (OECD, 2024). These would include data quality, the skills of employees, and greater organizational competency to adapt to and resist technological change (Konrad Adenauer Stiftung Japan, Regional Economic Programme Asia, 2025). Essentially, it would be a firm that has built its infrastructural, human, and data capabilities while managing and governing them, making such an enterprise easily able to implement AI technology or solutions. A baseline profiling AI for providers is needed on this front.

SMEs in manufacturing are particularly significant for Cambodia. This is mainly because they comprise the majority of the business sector and account for more than 70% of employment in the country, and a large share of them is in manufacturing (Layhy, 2019, slide 4). Although the major exporting sector, namely the foreign-owned giant manufacturing units specializing in garment and footwear exports in Cambodia, the support base constituted by the manufacturing and related SME sectors remains a major complementary sector to the entire industry. Thus,

upgrading these smaller manufacturers is a major tool for improving productivity, quality employment, and a future diversified export base with higher added value. In fact, Cambodia's Industrial Development Policy 2015 to 2025 sets a vision to transform and modernize Cambodia's industrial structure from a labor-intensive industry to a skill-based or skill-driven industry by 2025 (Royal Government of Cambodia, 2015). The policy also seeks to strengthen skilled human capital and technology support systems while advancing Industrie 4.0-aligned innovation to build a competitive manufacturing and technology base. To avoid being "left behind," Cambodian manufacturing SMEs should also adopt Industrie 4.0 technologies, with special emphasis on AI, to improve productivity and product quality. This is because, as stated in a recent study, Cambodia is still at a preliminary stage of AI adoption, and given the government's target to achieve high-income status by 2050, there will be a greater emphasis on applying technology, including AI, to increase economic productivity and realize economies of scale (US ASEAN Business Council 2023, 3).

Yet, as of now, AI adoption in Cambodian industries has hardly begun, and significant barriers, including a scarcity of human capital and financial constraints, continue to impede its adoption. In particular, no more than 10.7% of the labor force in Cambodia works in medium- and high-skilled technical jobs, representing a pool of human capital that is, in fact, not abundant in Cambodia to fuel future growth through advanced manufacturing (Asian Development Bank 2022, 5). This explains why and how there is a timeliness of preparing a baseline of 'readiness related to AI for the manufacturing SMEs in Cambodia. This is because, though more important for Cambodia with a bright economic future, manufacturing SMEs now lack many of the elements needed to realize AI-enabled economic growth.

Crucially, progress in basic digital adoption does not equate to AI readiness. Over the past decade, Cambodian enterprises have gradually increased their use of digital tools, from simple accounting software and e-commerce pages to cloud-based messaging and inventory management. However, the leap from using general digital technologies to implementing AI solutions is considerable. AI applications require far more sophisticated capabilities in data analytics, automation, and algorithmic decision-making than what basic IT tools demand. This pattern is evident globally: even in advanced economies, SMEs' uptake of AI remains much lower than that of simpler digital technologies and far below the adoption levels seen in large firms (OECD, 2025). In other words, many businesses that are comfortably online and computerized are still a long way from being "AI-ready."

In Cambodia, this gap is reflected in mindsets and technology. Studies on digitalization have found that many SME managers view "digital transformation" as something distant or overly complex. In one recent assessment, some Cambodian SME owners admitted that digitalization sounded like a buzzword, too expensive, and not relevant to their day-to-day business (Royal Government of Cambodia, 2021). If basic digital tools are seen as daunting or peripheral, one can imagine that AI, with its requirements for large datasets, specialized skills, and new workflows, might seem practically out of reach. The risk, therefore, is that a segment of firms could be left behind even as digital adoption widens, creating a new divide between those on the technology frontier and those remaining analog. This report builds on the critical insight that adopting computers or internet connectivity is only a first step; true AI readiness demands deeper capacities and a strategic vision for using data and intelligent systems in the enterprise.

This creates a dilemma for policymakers and industry leaders. Cambodia cannot afford to postpone assessing AI readiness until adoption becomes unavoidable, yet acting too early or too superficially can also misdirect resources and lock in ineffective approaches.

As a consequence, it is imperative to act swiftly. If the Cambodian manufacturing sector takes too long to enable AI to have widespread applications in global value chains, it risks being left far behind. This can help create awareness and assess how AI works, so SMEs in Cambodia are ready when these technologies become more widely available and needed for competition. At the same time, early-stage readiness findings must be interpreted with discipline. Because meaningful AI uptake among Cambodian SMEs remains limited, low scores across many dimensions are to be expected. The danger is treating low adoption as proof that AI is irrelevant. Near-zero use is more plausibly a symptom of binding constraints such as skills gaps, weak data and digital infrastructure, limited investment capacity, and inadequate support systems, rather than a verdict on the value of AI for SMEs.

However, it is crucial to define the extent of what this baseline will and will not be able to claim. The baseline will assess current capabilities (skills, data, systems, and so on) at the current state of affairs, not their maximum capabilities or how quickly they will adapt to AI. This serves as a reference point for how much ground will be gained, but in no way shapes expectations for a massive integration of AI in the immediate future. With this baseline, it is recognized that Cambodia's manufacturing sector of SMEs is in its infancy, and at the same time, it is asserted that this current state represents the right time to begin planting the seeds of preparation. The bottom line is this: the nation must start somewhere, and, in effect, measuring the current stage of AI readiness of its manufacturing sector SMEs allows everyone involved to identify key areas for improvement rather than being led by hype and complacency. At the same time, it provides an opportunity to track SMEs' broader level of digitalization, such as whether they still rely on paper-based records, which is a core diagnostic for SME Go Digital readiness.

The remainder of this introduction and study clarifies that this baseline is intended to profile readiness across the dimensions identified in our literature review. It is not a quantitative diagnostic instrument designed to deliver definitive judgments about the trajectory of Cambodia's industrial development. The value lies in resolving the tension between urgency and caution: assessing readiness proactively while interpreting the results soberly and within their limits, so Cambodia can chart a balanced path into the AI era. Future research could strengthen this contribution by developing a more diagnostic approach that translates these dimensions into measurable indicators suitable for concrete policy design and prioritization.

2.2. Research Objectives and Significance

Several Cambodia-focused studies have examined how SMEs digitalize through internet use, e-payments, e-documents, and basic business software (Vutha, Sumontheany, and Bossba 2023a, 2); (Vutha, Sumontheany, and Bossba 2023b, 6, 27); (World Bank 2016). However, there remains limited dedicated baseline evidence that measures business-oriented AI awareness, readiness, and usage at the firm level, in a manner specific to manufacturing SMEs and practical for industrial policy and enterprise support. Digital indicators are valuable, but they cannot tell decision-makers whether a manufacturing SME is already using AI, preparing to use AI, or lacking

the prerequisites for adoption. Treating general digital progress as a proxy for AI readiness risks policy by assumption, either by overestimating readiness because some digital tools exist, or by dismissing AI as premature because current use is still limited.

A fair challenge follows. If digital depth remains uneven, why measure AI now? The first reason is that policymakers and ecosystem actors need targeted evidence to sequence support for manufacturing SMEs so that firms can move from basic digital practices toward more complex, AI-enabled tasks. The second reason is that a baseline, even if it captures an early stage of adoption, is still better than no measurement, as it enables tracking over time and supports assessing whether capability-building programs are working. The third reason is comparability. As other economies begin to track SME AI metrics, Cambodia risks losing the ability to benchmark progress and signal investment readiness if it cannot produce comparable evidence for its manufacturing base.

Within this logic, the purpose of this study is to generate primary evidence by profiling an AI readiness baseline for Cambodia's manufacturing SMEs, covering awareness, current use, readiness conditions, barriers, and support needs. This baseline is designed to inform practical policy and program choices, rather than to create headline adoption claims. It is anchored in the idea that readiness is multidimensional and must be assessed through firm-level information, not inferred from broad indicators.

The study pursues four main objectives. Firstly, it measures AI awareness, current use, and near-term intent at the firm level within manufacturing SMEs, rather than treating AI adoption as an extension of general digitalization. Secondly, it maps variation within manufacturing by firm size and location, and, where relevant, by manufacturing subsector, so that interventions can be targeted rather than generic. Thirdly, it identifies drivers, deterrents, and readiness gaps using an instrument aligned with established adoption constructs, including the technology, organization, and environment lens and perceived usefulness, perceived ease, and intention. Lastly, it documents early outcomes, use cases, and support needs reported by firms to inform policy and industry action grounded in enterprise realities rather than expectations.

The significance of the findings is practical. First, the book will establish a baseline for monitoring AI diffusion and readiness progress over time within the manufacturing SME segment. Second, it will provide policy inputs for programs that strengthen capabilities commonly underpinning AI readiness, including skills, data practices, financing, and standards, with a focus on the constraints and needs that manufacturing SMEs actually report. Third, it will contribute to regional comparability for ASEAN benchmarking and investor due diligence by making the state of manufacturing SME readiness more legible and measurable. Finally, the book will offer timely empirical grounding that can complement Cambodia's evolving AI policy agenda, helping ensure that strategy and support instruments are rooted in the conditions firms face on the ground rather than inferred from general digital economy narratives.

2.3. Research Questions

Despite the growing attention around AI, Cambodia still lacks firm-level evidence on how manufacturing SMEs understand, prepare for, and use AI in practice. Without such data, discussion easily shifts into two unhelpful extremes: assuming AI is already reshaping industrial competitiveness, or dismissing it as irrelevant because adoption appears limited. For manufacturing policy, both assumptions are costly. Cambodia's ability to move up the manufacturing value chain depends not only on capital and markets, but also on whether enterprises can build the skills, data discipline, and operational systems that enable advanced technologies to be usable and productive. This study, therefore, asks a main research question: What is the current state of AI awareness, readiness, and adoption among Cambodia's manufacturing SMEs?

To answer this, the study examines five sub-research questions as follows:

1. How digitally mature and prepared are Cambodian manufacturing SMEs for adopting AI solutions?
2. What is the extent of AI adoption within this sector?
3. What types of digital and AI tools are SMEs currently using, and for what purposes?
4. What benefits or improvements do business leaders perceive from AI adoption, and how significant is AI viewed within their subsector?
5. What challenges are limiting AI adoption in Cambodian sector-specific enterprises, and what would help them move from early-stage digitalization to AI adoption and to a more advanced use of AI solutions?

Cashew production facility in Cambodia.
Source: Cambodia Investment Review

3. CONTEXTUALIZATION

3.1. Typology of Cambodia's Manufacturing SMEs and Artificial Intelligence

This study risks becoming too broad unless its scope is anchored from the outset. Three boundary questions, therefore, matter: 1) what counts as a Cambodian business for the purpose of this baseline; 2) how SMEs are defined; and 3) what is meant by artificial intelligence.

First, the study must clarify what qualifies as a Cambodian business. For this baseline, the most defensible approach is to treat a business as an enterprise operating in Cambodia and formally registered with the competent authority (i.e., the Ministry of Industry, Science, Technology & Innovation). This choice is practical for sampling and verification, but it should also be stated as a limitation, given Cambodia's large informal economy. The Economic Census 2022 counts roughly 753,000 MSMEs across all sectors, indicating that a substantial share of enterprise activity lies outside formal registration and is therefore harder to capture through standard enterprise lists (Khmer SME, n.d.). In manufacturing, this matters because informal production and semi-formal workshops can be economically significant, yet their operating conditions, record-keeping, and access to support differ sharply from those of registered SMEs. The report should therefore be explicit that it profiles registered manufacturing SMEs and does not claim to represent the full informal group.

Second, how SMEs are defined for the manufacturing category. The Royal Government endorsed Cambodia's current SME definition used in SME policy work through the decision of the SME Promotion Policy Committee on 21 January 2021. It classifies firms by sector and size using two criteria: number of employees and either annual turnover or productive assets, with land excluded from the asset measure (see table below).

Table 1. Manufacturing SME Size Criteria

Sector	Number of Employment		Turnover (US Dollar)		Or	Asset (US Dollar)	
	Small	Medium	Small	Medium		Small	Medium
Manufacture	5 – 49	50 – 199	62,500 – 400,000	400,001 – 2,000,000		50,000 – 500,000	500,001 – 1,000,000

Source: Ministry of Industry, Science, Technology & Innovation

Third, what "AI" means in the survey context. The study uses a functional definition consistent with the OECD's definition of an AI system as "a machine-based system that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments. Different AI systems vary in their levels of autonomy and adaptiveness after deployment" (OECD, 2024). In manufacturing SMEs, this definition can cover a wide spectrum, from software features that automate classification or anomaly detection to more visible tools such as generative AI for drafting, translation, customer communication, or basic analytics. The baseline, therefore, treats

AI as a set of capabilities and applications rather than a single product category, and anticipates that respondents' understanding may vary.

These explanations help clarify the study's limitations rather than making them easier to disregard. The results depend on respondents' self-perceptions, which may lead to either overreporting or underreporting, depending on the firms' interpretations of AI-related concepts. Given the current state of adoption of the technologies, the results may represent a shallow start with the technologies and/or the technologies implemented via software rather than actual AI investment on the part of the firms. The results are based on the registered firms in the sample and may not generalize to informal or small firms. Thus, the benchmark should be understood as a realistic view of the current state of affairs and a starting point for more targeted future research, rather than as the final measure of which firms are "ready" and which are not.

4. METHODOLOGY

4.1. Study Design

This study employed a cross-sectional survey using a quantitative approach, conducted between December 15 and 26, 2025. This study targets the manufacturing sector, with the unit of analysis being formally registered SMEs. The sampling frame originates from the registration data maintained by the Ministry of Industry, Science, Technology & Innovation. The survey instrument consists largely of closed questions, administered in both Khmer and English to facilitate an easy interview process.

Conceptual Framework and Instrument Development

The questionnaire was developed through a literature review and the use of measures from existing methodologies for assessing enterprises. To make the results comparable, the questionnaire contains items drawn from three sources: the Eurostat model enterprise survey on the use of ICTs, including AI modules, a survey on AI adoption in the UK, which is linked to the Department for Digital, Culture, Media and Sport (DCMS), and an Organisation for Economic Co-operation and Development (OECD) pilot tool developed with partners for researching AI adoption in enterprises. These sources align with how other geographies measure AI use in enterprises. The items were modified for Cambodia using local definitions, terms, and references, while maintaining the same underlying concepts necessary for describing awareness, readiness, adoption, perceived benefits, and risks. The questionnaire is mostly closed-ended and can be used for a telephone survey; further information is provided in the technical appendix.

Sampling Frame and Selection

The sampling method relied on the telephone contacts of formally registered SMEs provided by MISTI. Since not all business telephone numbers were specific to predefined sectors, a random selection of enterprises was made from the pooled telephone list, and the subsectors were defined after the interviews. For this book, the analysis will be conducted on enterprises selected for screening in the manufacturing sector. This ensures that a probabilistic selection remains within the defined data in the registry, but it has to be carefully interpreted. The results can be taken as representative of the registered frame that could be reached through selection, and not a representation of all manufacturing SMEs, including the informal sector.

Data Collection Procedures and Quality Assurance

Fieldwork took about two weeks in December 2025. Structured telephone interviews with a standard script and questionnaire, including spot checks and back checks, were conducted by trained student enumerators. To reach as many enterprises as possible, the survey was also distributed online via Telegram, although our analytical sample is limited to telephone interviews.

Ethics, Confidentiality, and Data Protection

The contact information from government sources was used solely by the KAS and CADT teams for this study. Respondents were asked to answer on behalf of their enterprise wherever possible, rather than from personal use, or to provide their professional judgment when firm-wide information was not available. Responses were analyzed in aggregated form and were not reported using names, identifiable details, or direct quotes. Before the survey began, researchers read a standardized Khmer script and obtained informed consent from each respondent.

4.2. Sample Size & Strategy

The proposed sample size was estimated at roughly 381 for the study, based on a population of 43,970 registered SMEs in the manufacturing sector (Ministry of Industry, Science, Technology & Innovation, 2025). Following standard norms for estimating sample size for proportions, this would equate to roughly a 5% margin of error at a 95% confidence level, according to the Cochran formula for sample size estimation as a planning guideline (Bartlett, Kotrlik, and Higgins 2001, 45).

However, in reality, the actual sample obtained was short of the target sample. During data collection, contact and response rates were undermined by external events, including border clashes that affected mobility and accessibility in enterprises across the border areas. The actual project achieved a completed response rate of 278 enterprises. After removing missing and inconsistent data, the analysis sample comprised 273 enterprises.

4.3. Questionnaire Development & Validation

The survey was developed through a focused review of the literature and the use of existing enterprise survey tools that have been employed globally to assess the adoption of digital technologies and AI initiatives. For the purpose of improving the validity of the results through enhanced comparability, the survey is composed of modified questions from three existing frameworks or tools:

> (1) Eurostat's model questionnaire is employed within the European statistical system in the assessment of the use of ICT in enterprises. The Eurostat framework includes the use of advanced digital technologies, namely Artificial Intelligence (Eurostat, 2021).
>
> (2) The evidence base established by the United Kingdom government in the context of the use of Artificial Intelligence in businesses. The base includes survey research undertaken by Capital Economics and the UK Department for Digital, Culture, Media and Sport (Capital Economics and UK Department for Digital, Culture, Media and Sport, 2022).

(3) The pilot survey tool for the adoption of Artificial Intelligence in enterprises jointly established by the OECD, Boston Consulting Group, and INSEAD (OECD, Boston Consulting Group, and INSEAD, 2025).

Such a questionnaire was not directly quoted. The questions were chosen and modified to fit the context of Cambodia, using definitions and terms specific to the sector, to maintain the constructs and enable identification of awareness, readiness, early adoption, observed benefits, perceived risks, and support needs for AI. When the reference instruments did not fully cover the study's objectives, new questions were added to address sector-specific topics, including manufacturing, data sources and practices, skills and training, and perceptions of governance.

This is necessary because a baseline measure must meet two conditions: it must correlate with established measurement frameworks and be locally intelligible so that a respondent can give consistent answers. The questionnaire is mostly closed, with a single open-ended question for suggestions, and took a feasible 20 minutes per respondent for telephone interviewing. The survey was conducted in Khmer due to language barriers. The complete questionnaire can be obtained upon request from the KAS Cambodia or CADT team.

4.4. Data Analysis

Once the raw closed-ended data were collected, they were cleaned and summarized using descriptive statistics in Power BI, with Excel for data preparation and Canva for visualization design. All data are descriptive, with no inferential or causal studies; however, the data can be used for further studies and are available upon request to our team.

Through thematic analysis, within data collection, the interpretation attempts to shed light on:

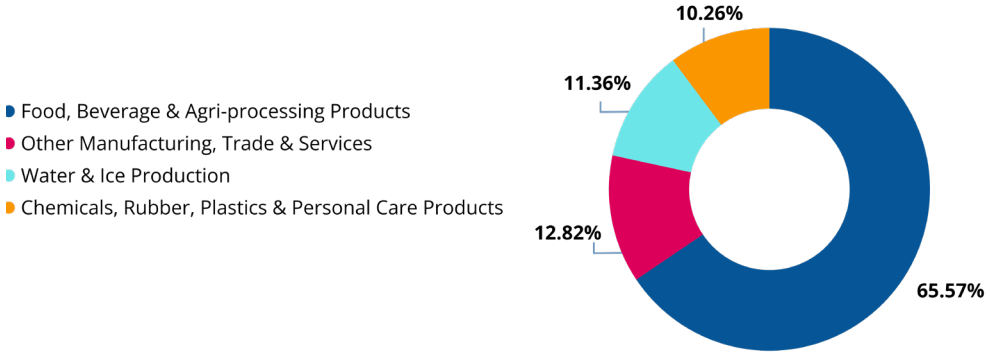
1. The extent, depth, and pattern of AI adoption among formally registered SMEs in manufacturing
2. The factors that drove the adoption of AI in their firm, or are going to drive AI adoption in their firm
3. The positive impacts and the negative impacts of the perceived ones from adopting AI
4. Comparative insights from numbers 1 and 2 —meaning how adoption rates, readiness levels, perceived benefits, and barriers vary by sector, firm size, and location.
5. Policy actions to guide all relevant stakeholders to help uptake adoption among the SMEs.

"Khmer Can Do" Exhibition at Koh Pich
Source: Union Youth Federations of Cambodia (UYFC)

5. FINDINGS

5.1. Enterprise Profile

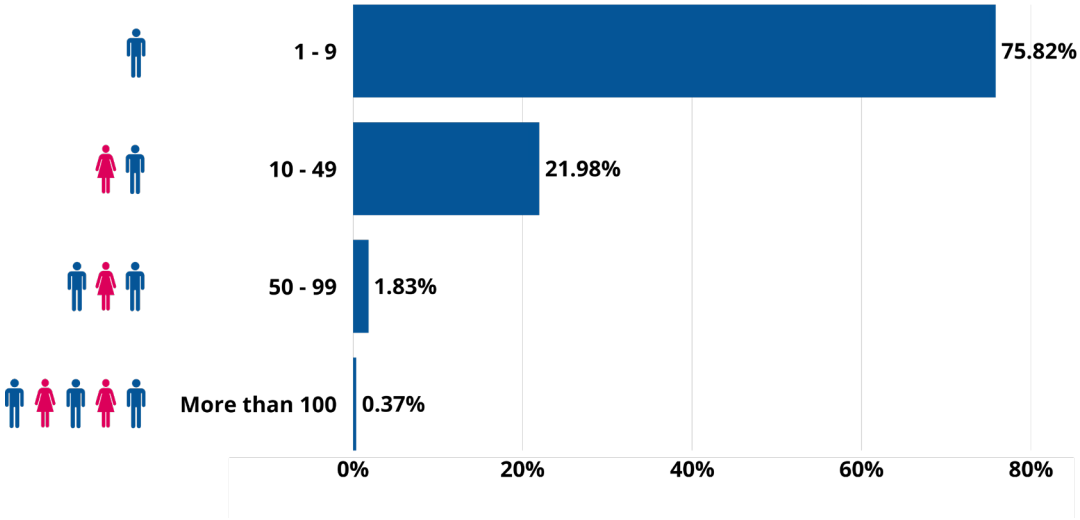
Figure 1. Manufacturing Subsectors Represented by Surveyed Enterprises



Within the manufacturing industry, which subsector does your SME operate in? (N=273)

Almost two-thirds of the respondents come from the food, beverage, and agri-processing product industries, at 65.57% (n=179). The next largest subsector is the production of water and ice at 11.36% (n=31), followed by the production of chemicals, rubbers, plastics, and personal care at 10.26% (n=28). A further 12.82% (n=35) of the respondents are classified under the "Other Manufacturing/Trade/Services" category, as there are fewer than 10 respondents in the constituent subcategories required for visualization. The subcategories within this category include the production and trade of steel; the production and sale of construction materials; the manufacture and sale of furniture; the sale and trade of electronic devices and machinery; the sale of transport materials; and related activities.

Figure 2. Enterprise Size by Number of Full-Time Employees

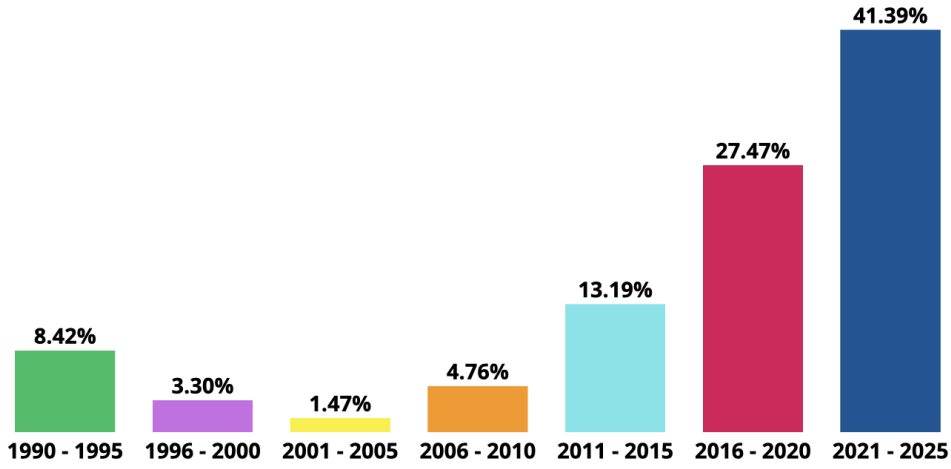


How many full-time employees does your enterprise have? (N=273)

Enterprises are small-scale and dominated by microenterprises with 1 to 9 employees, which account for 75.82% (n=207) of the respondents. A further 21.98% (n=60) employ 10 to 49 workers, indicating that a substantial minority fall into the small enterprise band. Only a very small share reported 50-99 employees, totaling around 1.83% or 5 enterprises, and there is only one enterprise that employs more than 100 employees.

Overall, the distribution is broadly consistent with an SME-focused sample in the contextual framing, though the presence of only one firm with more than 100 employees should be noted when citing the Ministry of Industry, Science, Technology & Innovation definition of SMEs.

Figure 3. Year of Enterprise Establishment



When was your enterprise founded? (N=273)

Most enterprises in the sample are relatively young. Among 273 respondents, most enterprises (41.39%, n=113) were created between 2021 and 2025. It is followed by another closed year interval, 2016-2020, with 27.47% (n=75) of enterprises. Together, these two cohorts show that roughly two-thirds of surveyed firms are recent entrants, created during a period when digital tools and connectivity have become more widely available, even if actual usage and capability remain uneven.

Enterprises established between 1990 and 2015 account for 31.14% (n=85) and represent the older segment of the sample.

The distribution also indicates a young central tendency. The median enterprise falls in the 2016 to 2020 interval, meaning that at least half of the firms were created in 2016 or later, and at least half were created in 2020 or earlier.

Figure 4. Diversification Across Firm Age and Subsector

Years in operation	Chemicals, Rubber, Plastics, & Personal Care Products	Food, Beverage, & Agri-processing Product	Water & Ice Production	Other Manufacturing, Trade & Services
1990 - 1995		8.06%	0.37%	
1996 - 2000		2.93%		0.37%
2001 - 2005		0.73%		0.73%
2006 - 2010	0.37%	3.66%	0.37%	0.37%
2011 - 2015	0.37%	9.16%	1.47%	2.20%
2016 - 2020	2.56%	17.58%	2.93%	4.40%
2021 - 2025	6.96%	23.44%	6.23%	4.76%

When was your enterprise founded, given its subsector within the manufacturing industry? (N=273)

Food, beverage, and agri-processing products are the dominant subsectors across the sample at 65.57% (n=179). The remaining firms are distributed across Other Manufacturing, Trade and Services (12.82%; n=35), Water and Ice Production (11.36%; n=31), and Chemicals, Rubber, Plastics, and Personal Care Products (10.26%; n=28). In the heatmap, each cell represents the share of the full sample (N=273) located in a given year band and subsector intersection.

The sample is skewed toward recently established enterprises. Firms created between 2016 and 2025 account for 68.86% (n=188), including 41.39% (n=113) founded between 2021 and 2025 and 27.47% (n=75) founded between 2016 and 2020. Firms created between 1990 and 2015 account for 31.14% (n=85). Breaking that down: 13.19% (n=36) founded between 2011 and 2015, 4.76% (n=13) between 2006 and 2010, 1.47% (n=4) between 2001 and 2005, 3.30% (n=9) between 1996 and 2000, and 8.42% (n=23) between 1990 and 1995.

Food, Beverage, and Agri processing Product remains the largest subsector in every year band, except for a tie between 2001-2005. Still, this subsector is more concentrated among older firms than among newer ones. Among enterprises founded between 1990 and 2015 (N=85), food-category accounts for 78.82% (n=67, base N=85), followed by Other Manufacturing, Trade and

Services at 11.76% (n=10, base N=85), Water and Ice Production at 7.06% (n=6, base N=85), and Chemicals, Rubber, Plastics, and Personal Care Products at 2.35% (n=2, base N=85). Among enterprises founded between 2016 and 2025 (N=188), Food remains the largest group at 59.57% (n=112, N=188), while Chemicals, Rubber, Plastics, and Personal Care Products account for 13.83% (n=26, N=188), Water and Ice Production for 13.30% (n=25, N=188), and Other Manufacturing, Trade and Services for 13.30% (n=25, N=188). This indicates that newer cohorts are more diversified across subsectors, even though food remains the dominant activity overall.[1]

Figure 5. Geographic Distribution of Surveyed Enterprises

Where is your enterprise located? (N=273)

As noted above, the telephone survey sampling was randomized by province rather than pre-determined. In the achieved sample, respondents came from 21 provinces and Phnom Penh city, with deliberate emphasis on major industrial and commercial centers.

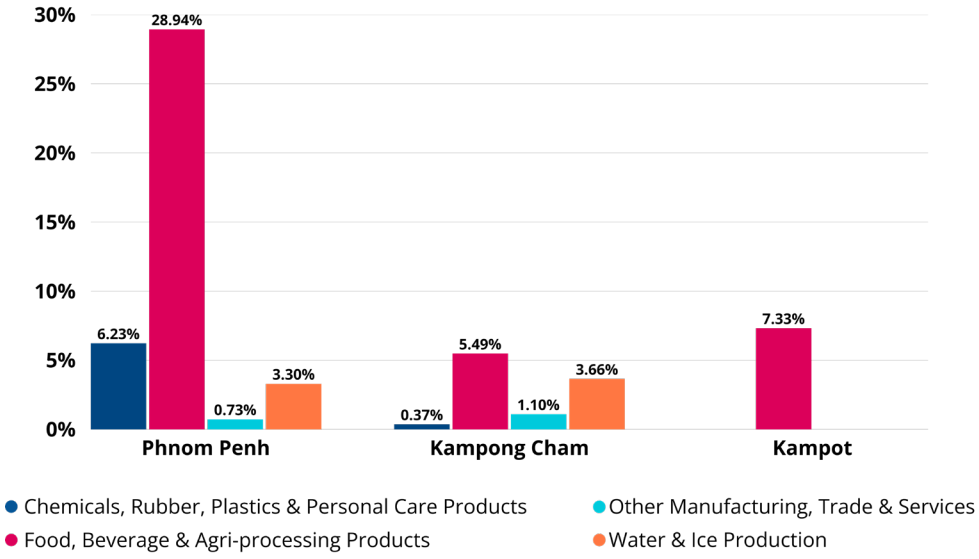
Based on Figure 5, the sample is unevenly distributed across geographies, with Phnom Penh representing the largest share at 107 enterprises, indicating a strong concentration in the capital. The next-largest contributions come from Kampong Cham (29 enterprises), Kampot (20 enterprises), and Kandal (16 enterprises), while the remaining enterprises are spread across many provinces in smaller numbers. The three missing provinces include: Kratie, Preah Vihear, and Mondulkiri.

This distribution matters for interpretation because firms based in more urban and better-connected areas typically have greater access to connectivity, services, training, and institutional contacts, including exposure to government initiatives, the private sector, and development

1 It is important to note that both older and younger enterprises in the sample are currently operating, as confirmed during the survey. As a result, the findings reflect surviving firms only and may be subject to survivorship bias. Enterprises that have exited the market, including any related digitalisation or AI experiences, are not captured in this study and would require separate investigation.

partners. At the same time, geographic location should be treated as an important potential confounder in the analysis, and comparisons such as Phnom Penh versus the other provinces, or more connected versus less connected provinces, should be interpreted carefully, as vendor presence, support, training access, and enabling infrastructure are not evenly distributed across provinces.

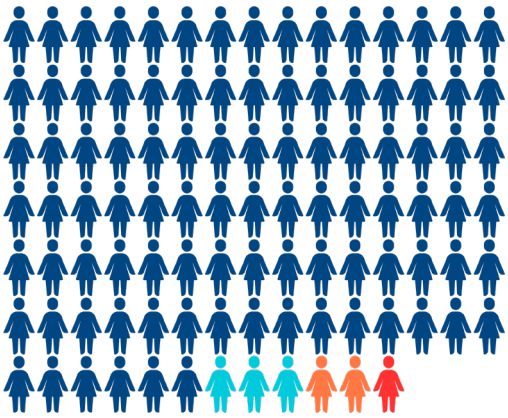
Figure 6. Enterprise Location by Manufacturing Subsector



Where is your enterprise located, given it›s subsector operation inside the manufacturing industry? (N=156)

Additionally, it is important to note the subsector mix across the top three locations by number of enterprises in the sample. Compared with other provinces, Kampong Cham shows the broadest mix across subsectors, indicating a more diversified profile: food (5.49%), water (3.66%), other manufacturing (1.10%), and chemical production (0.37%). Phnom Penh also covers all four subsectors, but it is far more concentrated in one subsector, which is food and beverage and agri processing at 28.94%, which makes its location mix less diversified in practice. Kampot is entirely food-focused in this sample, standing at 7.33%. This variation can inform more targeted training delivery, vendor outreach, and pilot use cases by location and industrial cluster.

Figure 7. Enterprise Ownership Structure



96.34%
Locally-owned

2.20%
Foreign-owned

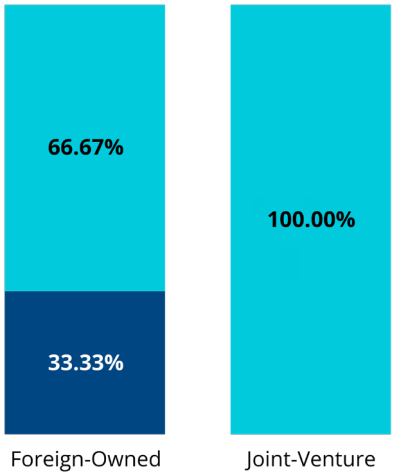
1.10%
Joint-venture

0.37%
Not sure

Which of the following best describes your enterprise ownership? (N=273)

Almost all surveyed firms are locally owned Cambodian enterprises, at 96.34% (n=263). Only 2.20% (n=6) reported any foreign ownership stake, while 1.10% (n=3) of enterprises are joint ventures, and one enterprise was unsure.

Figure 8. Subsectors of Foreign-Owned and Joint-Venture Manufacturing SMEs



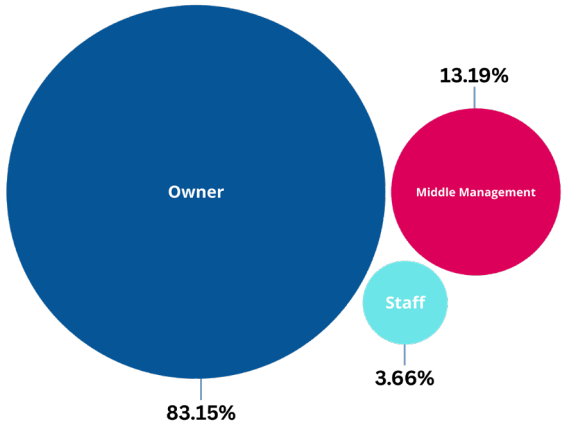
Which subsector does your SME operate in, given your enterprise's ownership structure? (N=9)

Among firms reporting either foreign ownership or joint Among firms reporting either foreign ownership or joint venture status, there exist only two subsectors. Foreign-owned firms have 4 firms (66.67%, N=6) in Other Manufacturing, Trade & Services, and 2 firms (33.33%, N=6) in Chemicals, Rubber, Plastics & Personal Care Products. Of the 3 Joint-Ventures that responded in the survey, they all operate in Other Manufacturing Trade & Services. None were observed in food, beverage, and agri processing or water and ice.

This cross-sectional analysis indicates 2 inferred statements: 1) SMEs with full/partial foreign ownership are relatively rare, and 2) they exist mostly in subsectors that are advanced (Chemicals, Rubber, Plastics & Personal Care Products) or not commonly found in Cambodia (hence, other). This can be interpreted as a need for specialized expertise when it comes to more advanced manufacturing processes, especially those that are less common and not listed in the survey.

Figure 9. Respondent Role Within the Enterprise

The survey primarily captured the views of enterprise owners. Fully 83.15% (n=227, N=273) of respondents are enterprise owners, with 13.19% (n=36, N=273) in middle management and 3.66% (n=10, N=273) in other employee roles. This strengthens decision-level relevance because the responses largely reflect leadership perspectives, but it also increases the risk of optimism bias and uneven technical understanding.



SUMMARY

The enterprise profile specifies three fundamental constraints that underpin all else: concentration, size, and owner-driven decision-making. The sample is concentrated in several manufacturing categories, with food, beverages, and agri-processing leading, while the remaining ones are dispersed over several activities. This is important findings because results on digital systems, data practices, and AI adoption should be indicative of the most prevalent SME manufacturing activities, not a representative balance.

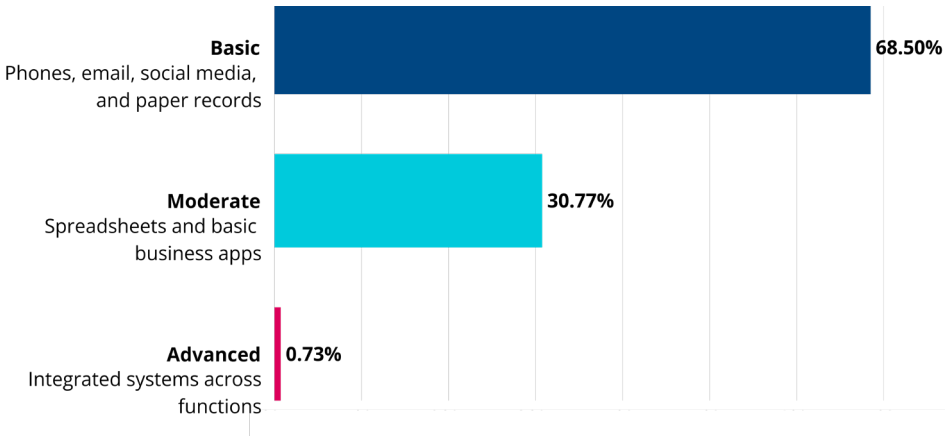
The majority are micro and small enterprises, with a few medium-sized ones. This is not background noise but a reflection of limited management resources, small cash reserves, and a possible tendency towards informal business processes, making low digital maturity and low AI experimentation more likely outcomes. The low spending and system usage reflected later are consistent with company size limitations.

The surveyed enterprises are relatively young, with most businesses established in the last decade and a median in the late 2010s. This is important because it lessens the concern that a lack of readiness is simply a path-dependency problem. Although younger groups with better connectivity have been shown to have poor levels of readiness, this shows that the lack of digitalization is both a path dependency problem and a problem of today in SME formation and activity. The age and sector patterns indicate that diversification is more a result of new businesses entering a more diverse set of activities than of existing businesses changing. This means strategies for diversification should be different for established businesses and new businesses.

Next, there is another variable that might be considered a confounder. The sample area is focused on large industrial and business centers with improved infrastructure; even if preparedness is low in such areas, it will not be high in other provinces with poor connectivity. Finally, the ownership pattern remains local, and the answers will come primarily from the owners. This indicates that the success of the adoption will depend on the local environment rather than on spill-over effects in the global supply chain, and that the answers in the surveys will reflect leadership's point of view, with possible inconsistent technical interpretations. In practice, the interpretation of the latter findings will reflect the leadership's perspective on constraints, priorities, and feasibility, rather than the technical interpretation of the systems in place.

5.2. Digital Readiness

Figure 10. Overall Level of Digital Technology Use

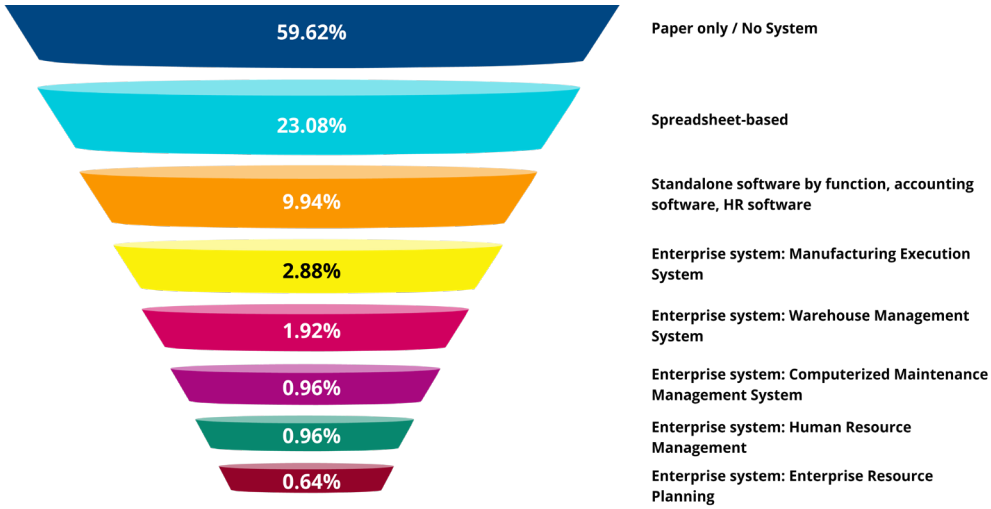


Which best describes your enterprise's overall use of digital technology? (N=273)

An overwhelming 68.50% (n=187) of firms report only a basic level of digital technology use, typically limited to phones, email, social media, and paper records. Fewer than 30.77% (n=84) have progressed to moderate use, including some business apps such as spreadsheet recording, and have used at least one standalone business app/software. From the interview survey, the business apps/software include accounting software and inventory management apps. However, only two enterprises (n=2) reported describing their operation as advanced with integrated systems across functions.

This pattern suggests that AI adoption is downstream of a broader bottleneck, as basic digitization is not yet in place for most firms. In practical terms, the central constraint is a digitization deficit, meaning that pushing AI adoption ahead of foundational digital systems is likely premature and inefficient.

Figure 11. Core Business Systems in Use



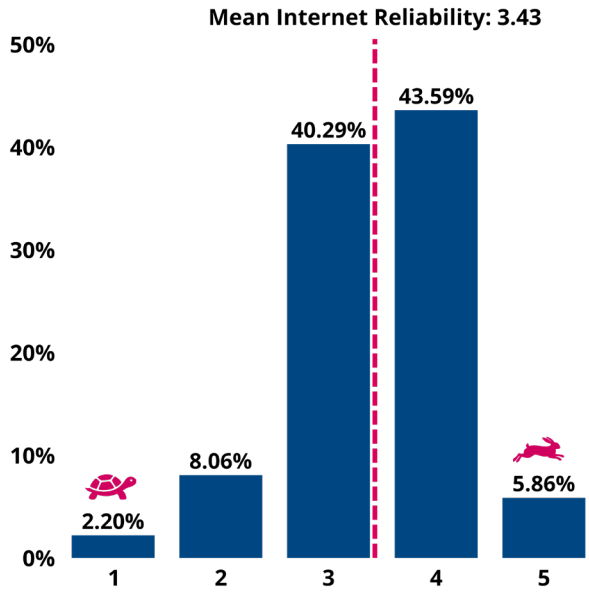
Which core systems does your enterprise use? (Multi-select, N=312)

Consistent with the broader digital baseline, reported non-system and low system approaches dominate core system use. Based on 312 total selections, the largest share is Paper only or No System at 59.62% (n=186 selections), followed by Spreadsheet-based at 23.08% (n=72 selections). A smaller minority report Standalone software by function, such as accounting software or HR software, at 9.94% (n=31 selections), suggesting some functional digitalization without movement toward enterprise-wide integration. Enterprise type system are rare in the sample and appear as a thin tail of responses: Manufacturing Execution System at 2.88% (n=9), Warehouse Management System at 1.92% (n=6), Computerized Management System at 0.96% (n=3), Human Resource Management System at 0.96% (n=3), and Enterprise Resource Planning at 0.64% (n=2).

Taken together, these results indicate that most firms are operating with manual records or spreadsheets, while formal enterprise systems remain exceptional. Given the Khmer terminology and varying respondent familiarity, these system labels should also be interpreted cautiously, since some respondents may be describing general operational practices rather than confirmed deployment of integrated enterprise software.

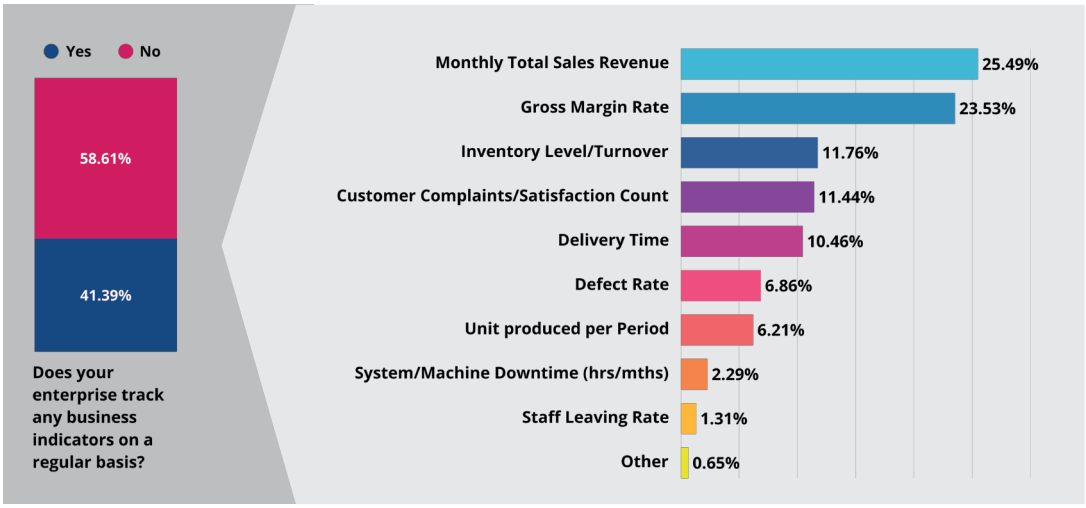
Figure 12. Internet Reliability at the Main Operating Site

While not a primary barrier, internet connectivity is not universally strong. About 83.88% (n=229) rated their internet reliability as moderate to good, scoring 3 or 4 on a five-point scale, while only 5.86% (n=16) reported excellent connectivity at 5. A minority of around 10.26% (n=28) experience poor or very poor service, scoring 1 or 2. This concentration around 3 to 4 suggests connectivity is generally adequate for basic digital tasks but potentially fragile, and not a strong foundation for cloud-dependent workflows at scale.



How would you rate internet reliability for operations at your main site? (N=273)

Figure 13. Business Performance Indicators Tracked by Enterprises



Which of the following business indicators does your enterprise currently track on a regular basis? (N=273 for Yes/No; N=306 for the various business indicators)

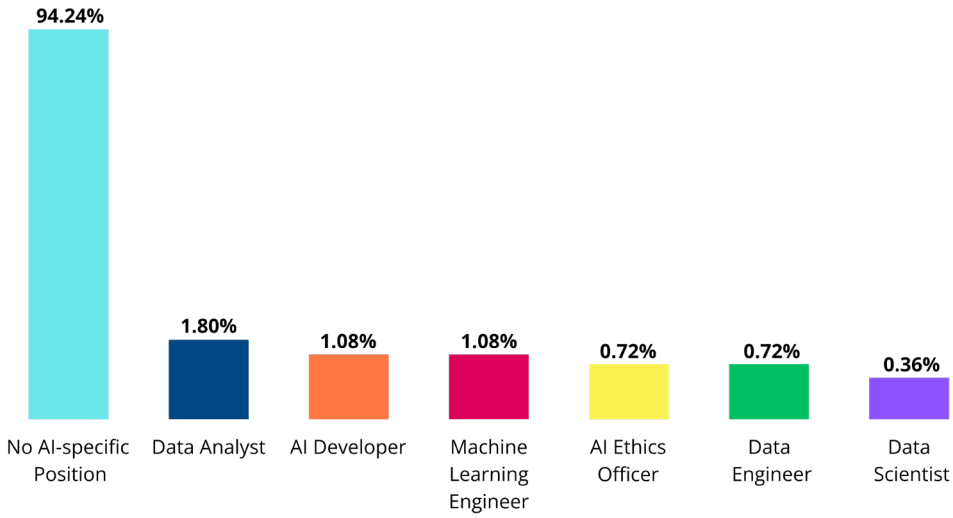
According to the figure, data management is not yet fully practiced. A large number of firms (58.61%, n=160) do not currently monitor any key performance indicators (KPIs), while 41.39% (n=113) do monitor at least one indicator, and an average of 2.70 indicators per firm. This means that while KPI indicators are applied in a limited number of firms, they have not yet become a common management practice.

In the group tracking KPIs, the two most frequent indicators of business operations are total monthly sales revenue (25.49%; n=78 selections) and gross margin rate (23.53%; n=72 selections). Operational and customer-related indicators, in contrast, are tracked less often, with the inventory level or turnover rate at 11.76% (n=36 selections), the customer complaints or satisfaction rate at 11.44% (n=35 selections), and the delivery time at 10.46% (n=32 selections).

Comparatively fewer production control and personnel-related indicators are found. Defect rate contributes 6.80% (n=21 selections), units produced per period 6.21% (n=19 selections), system or machine downtime 2.29% (n=7 selections), and staff leaving rate 1.31% (n=4 selections).

It appears that there is a trend indicating that most companies measure their performance in terms of sales and profit, and, to a certain extent, the reliability, quality, and efficiency of their processes. This has important implications for adoption because the limiting factor for more advanced digital and AI adoption is not always algorithmic, but rather the stable and proper management of a core set of KPIs that can enable adoption and learning.

Figure 14. Presence of AI-Related Roles Within Enterprises



Do any of the following positions exist in your enterprise? (Multi-select, N=278)

Dedicated IT and data roles are virtually nonexistent across the sample. Consistent with low digital adoption, almost 95% (n=262 selections, base N=278 selections) of enterprises report having no staffing positions related to AI or data, indicating that the vast majority have no in-house data or AI talent and would need to rely on general staff or external support if they pursue more advanced digital tools. The few exceptions are limited to a very small number of firms reporting specialist roles such as data analyst (1.80%, n=5 selections), machine learning engineer (1.08%, n=3 selections), AI developer (1.08%, n=3 selections), AI ethics officer (0.72%, n=2 selections), data engineer (0.72%, n=2 selections), and data scientist (0.36%, n=1 selections), underscoring that capability constraints are primarily structural rather than incremental.

SUMMARY

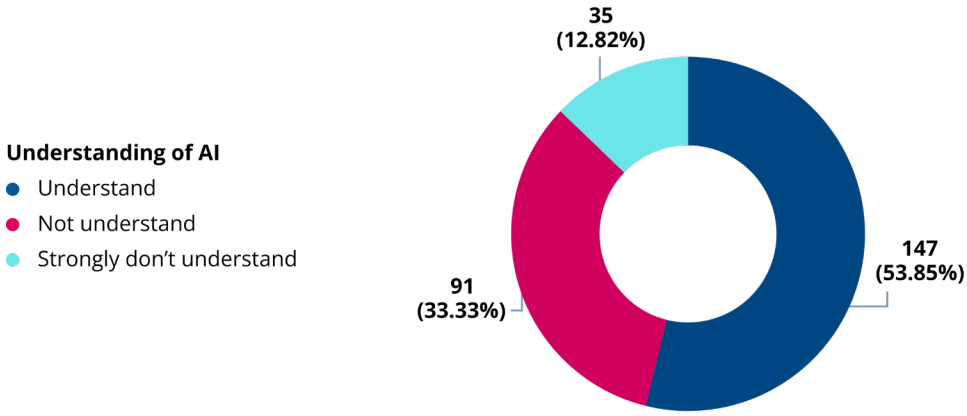
The digital readiness outcomes reveal the baseline in which the typical company finds itself in the pre-systems, low-data environment. Instead, the typical trajectory would not be 'partial digitalisation towards AI' but rather the co-existence of cell phones, social media, paper documentation, and informal routines. Very few would be using the more advanced tools of spreadsheets and a few standalone apps, and even fewer would be using fully integrated systems. It's significant because it positions AI as the next phase in the evolution of digitalisation, rather than an available, separate solution.

The system usage further cements this position. The general progression would be from paper or no system to spreadsheets. There are standalone applications, but these are fragmented (accounting, simple inventory management), and they do not establish a unified data framework. The enterprise system is a small tail here. Even with self-reporting, most SMEs do not have organized digital processes that provide a consistent flow of information, making AI applications beyond simple communication and content difficult.

Connectivity is not a limiting factor for most people, but neither is it a factor to disregard. Many clusters have moderate to good connectivity reliability, although very few have excellent reliability, and a non-trivial portion have poor reliability. This means that for some people, cloud-dependent work patterns might be feasible, but overall connectivity is not necessarily assured. Moreover, data on management information practices is limited, and most systems do not monitor KPIs beyond sales and margins; they do not monitor process KPIs such as defects, downtime, and employee turnover. This may be more than a matter of preference, as it indicates a lack of process in place to improve through the use of data. Without a baseline of KPIs, it is difficult to determine the ROI of investing in AI. Lastly, the company's staff structure confirms that this constraint is structural. The roles of data and AI are almost non-existent in this company, which means that even if they are interested, they do not have the capacity to analyze vendors or manage data.

5.3. AI Awareness and Attitude

Figure 15. Self-Assessed Understanding of AI

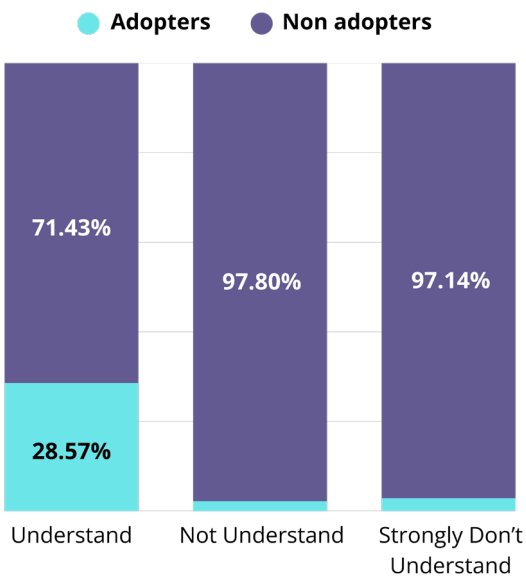


How would you rate your understanding of AI? (N=273)

Just over half of respondents reported understanding what artificial intelligence is (53.85%; n=147) while the remainder admitted limited or no understanding. About one-third said they do not understand AI (33.33%; n=91), and a further 12.82% (n=35) strongly do not understand the term. Notably, virtually no one rated their understanding as strongly understood.

This is a credibility constraint for interpreting attitudes and self-reported adoption, as nearly half answer with low concept clarity, increasing the likelihood of misclassifying what counts as AI and inconsistent response patterns. Interpretation should therefore separate claimed understanding from demonstrated behaviors, such as the tools used, spending patterns, and staffing indicators, and use correlation checks across these variables to validate whether higher claimed understanding aligns with more concrete enabling practices.

Figure 16. Understanding of AI by AI Adoption Status

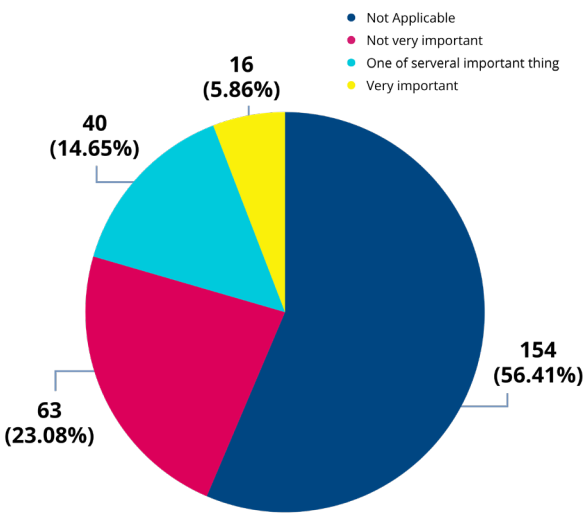


Do you understand AI, given that your enterprise adopts it? (N=147 for Understand; N=91 for Not Understand; N=35 for Strongly Don't Understand)

Earlier results show that 53.85% (n=147, base N=273) of enterprises report a self-acclaimed understanding of AI. When this self-reported understanding is cross-tabulated with AI adoption status, the pattern is informative. Among firms that say they understand AI, only 28.57% (n=42, base N=147) report adopting AI, while 71.43% (n=105, base N=147) do not adopt despite claiming understanding. Among firms that report not understanding or strongly not understanding AI, they are consistently non-adopters, with only 3 adopters.

From this analysis, it can be inferred that an understanding of AI can be present, but does not necessarily lead to implementation. In the case of firms that understand AI but do not use it, the limiting factors seem to be more about feasibility and relevance than about grasping the basics. These factors would include implementation costs and required skills, as well as understanding where AI can make an impact. In some cases, the nature of the business itself may make the application of AI seem less relevant or valuable. This group, therefore, requires further qualitative research to understand exactly what needs to change for implementation to be possible

Figure 17. Perceived Importance of AI in Enterprise Activities



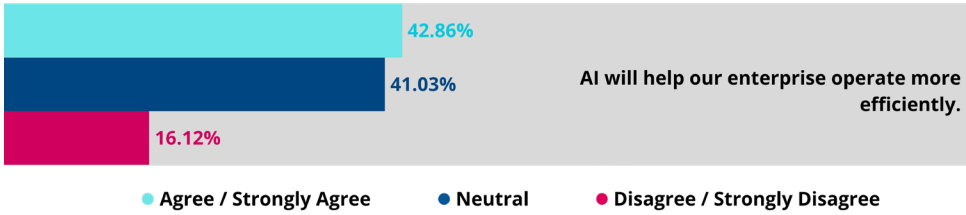
Based on your current practices, how important is AI for your enterprise activities? (N=273)

When asked how important artificial intelligence is to current business activities, a majority indicated that it is not on their operational radar. 56.41% (n=154) selected "Not applicable," consistent with not using AI at all, and a further 23.08% (n=63) rated it as "Not very important." Only 14.65% (n=40) considered AI as one of several important factors, and 5.86% (n=16) viewed it as very important.

Overall, about one in five enterprises (n=56) attach meaningful importance to AI in their current operations, aligning with the broader low adoption profile. Because respondents may otherwise answer based on personal exposure rather than enterprise-level practice, interpretation should assume the measure reflects enterprise operations as clarified by enumerators. This salience pattern supports a more defensible framing: most firms are still addressing basic operational digitization rather than treating AI as an immediate competitive lever.

Overall, fewer than one in five enterprises attach meaningful importance to AI in their current operations, aligning with the broader low adoption profile. Because respondents may otherwise answer based on personal exposure rather than enterprise-level practice, interpretation should assume the measure reflects enterprise operations as clarified by enumerators. This salience pattern supports a more defensible framing: most firms are still addressing basic operational digitization rather than treating AI as an immediate competitive lever.

Figure 18. Perceived Efficiency Gains From AI

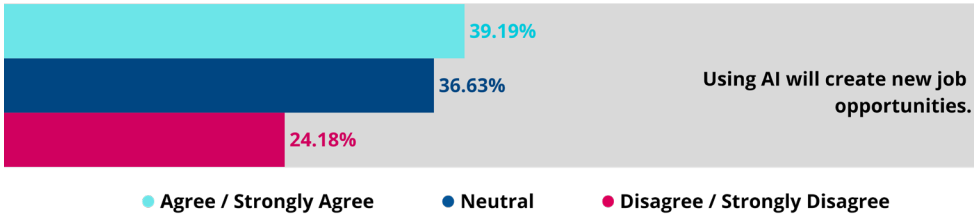


On a scale of 1-5, please indicate your position. 1: Strongly disagree; 5: Strongly agree (N=273)

Despite low usage, respondents express cautious optimism about AI's potential benefits. A combined 42.86% agree that "AI will help our enterprise operate more efficiently" (38.46% agree and 4.40% strongly agree), compared with 16.12% who disagree (with only a very small share strongly disagreeing), while 41.03% select a neutral response.

This pattern suggests that many firms expect efficiency gains from AI in principle, but a large middle group remains noncommittal, consistent with low practical exposure and limited evidence from implementation.

Figure 19. Perceived Job Creation Effects of AI

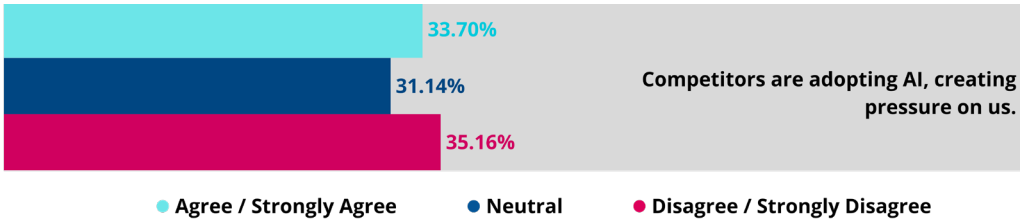


On a scale of 1-5, please indicate your position. 1: Strongly disagree; 5: Strongly agree (N=273)

A combined 39.19% (n=107) believe that "Using AI will create new job opportunities" in their business (37.73% agree and 1.47% strongly agree), compared with 24.18% (n=60) who disagree (including a small share who strongly disagree). At the same time, 36.63% (n=100) select a neutral response, indicating that many owners are not yet certain how AI would affect staffing in practice.

Overall, the pattern suggests that expectations lean modestly toward job creation rather than job displacement, but views remain unsettled and should be interpreted as perceptions rather than observed outcomes.

Figure 20. Competitive Pressure From AI Adoption

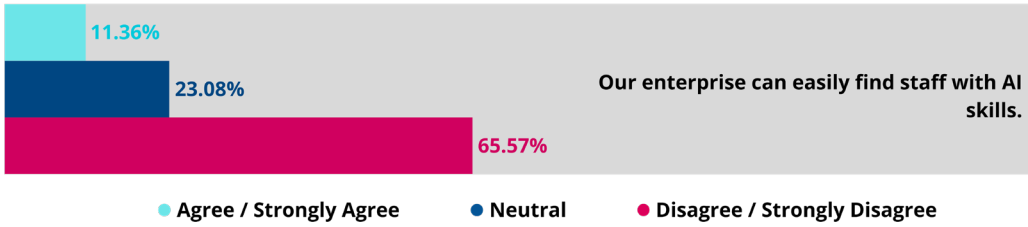


On a scale of 1-5, please indicate your position. 1: Strongly disagree; 5: Strongly agree (N=273)

At present, competitive dynamics do not appear strong enough to drive widespread AI adoption. Responses to the statement "Competitors are adopting AI, creating pressure on us" are broadly split, with 33.70% (n=92) agreeing, 35.16% (n=96) disagreeing, and 31.14% (n=85) selecting a neutral response.

This near-even distribution suggests that for many SMEs, competitive pressure related to AI is not yet clearly felt, either because industry uptake remains limited or because firms have not yet observed direct competitive impacts.

Figure 21. Availability of AI Skilled Staff

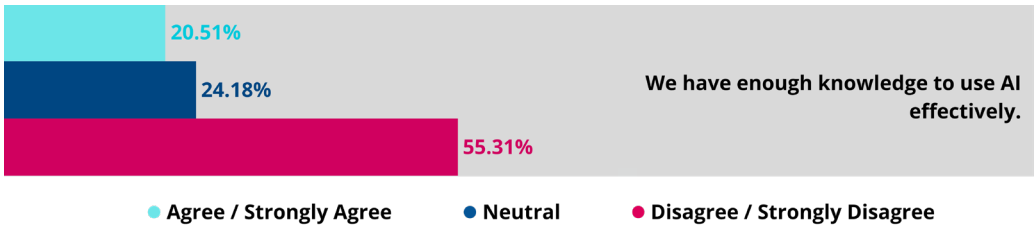


On a scale of 1-5, please indicate your position. 1: Strongly disagree; 5: Strongly agree (N=273)

Notably, there is widespread disagreement with the statement that "Our enterprise can easily find staff with AI skills." In total, 65.57% (n=179) disagree (including a minor 7.33% of "strongly disagree"). Only 11.36% (n=31) agree that they can find such talent, while 23.08% (n=63) select a neutral response.

This pattern indicates that perceived AI talent availability is a major constraint for most firms, with only a small minority expressing confidence and a sizable share remaining uncertain.

Figure 22. Internal Capacity To Use AI Effectively

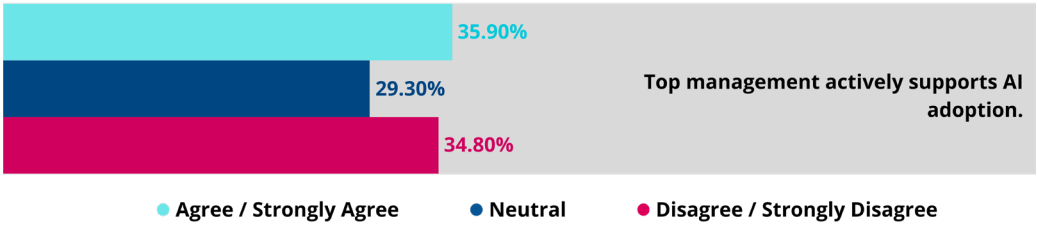


On a scale of 1-5, please indicate your position. 1: Strongly disagree; 5: Strongly agree (N=273)

Likewise, over half do not believe that "We have enough knowledge to use AI effectively." In total, 55.31% (n=151) express disagreement strongly and lightly. Only 20.51% (n=56) agree, while 24.18% (n=66) select a neutral response.

These perceptions align with earlier evidence of skills constraints and indicate limited internal confidence in engaging with AI. Overall, the responses suggest that human capital limitations in AI understanding are widely recognised among SME owners, with a sizable share also remaining uncertain rather than confident.

Figure 23. Top Management Support for AI Adoption

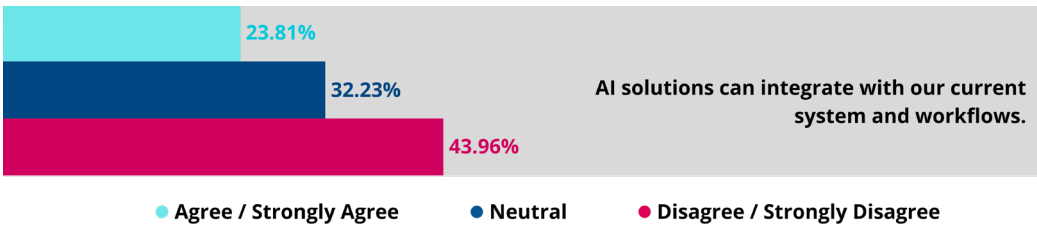


On a scale of 1-5, please indicate your position. 1: Strongly disagree; 5: Strongly agree (N=273)

Within firms, leadership support for AI is moderate. About one-third (35.90%, n=98) agreed that "Top management actively supports AI adoption." While another one-third (n=95) disagreed with the statement, about 29.30% (n=80) preferred a neutral stance.

Given that the respondents are typically top management, this finding likely reflects internal ambivalence, suggesting that many owners are not yet actively championing AI projects. Those already using AI tend to report higher management support (unsurprisingly, since they themselves drove adoption), whereas non-users often have not yet prioritized it.

Figure 24. AI Integration With Existing Systems

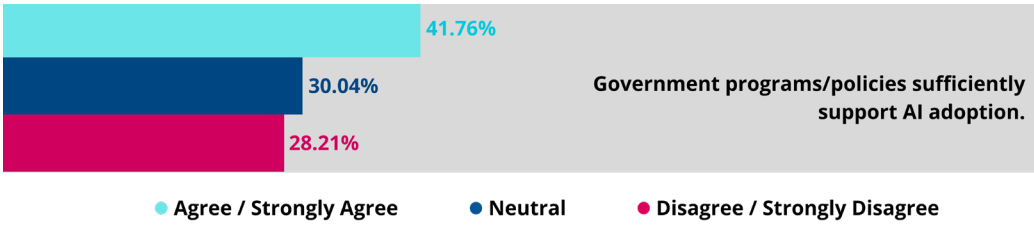


On a scale of 1-5, please indicate your position. 1: Strongly disagree; 5: Strongly agree (N=273)

Responses are mixed, leaning slightly toward disagreement. A combined 23.81% (n=65) agreed that AI can integrate with our current system and workflows. On the contrary, a majority of enterprises (43.96%; n=120) disagree with such AI integration in their operations. On the neutral side, there are about one-third or 32.23% (n=88) of enterprises.

This pattern suggests that most enterprises are uncertain or skeptical that AI tools can be integrated into existing systems, reflecting both limited technical readiness and a lack of confidence in how integration would work in practice. It also likely points to gaps in digital infrastructure, interoperability, and internal ICT support, meaning that even where interest in AI exists, implementation is constrained by practical integration barriers.

Figure 25. Perceived Adequacy of Government Support for AI Adoption

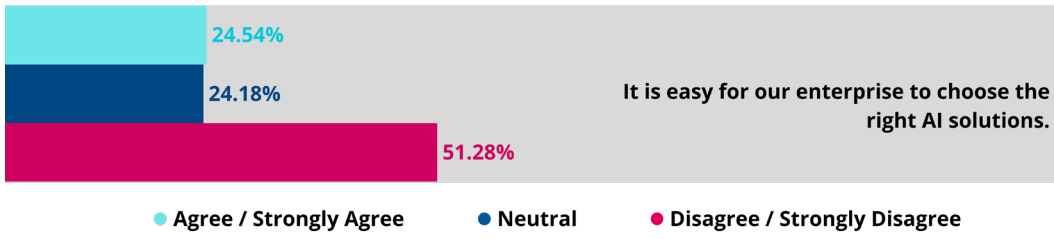


On a scale of 1-5, please indicate your position. 1: Strongly disagree; 5: Strongly agree (N=273)

Perceptions of the sufficiency of government support lean moderately positive, but remain mixed. A total of 41.76% of respondents agree that government support is sufficient, comprising 36.63% who agree (n=100) and 5.13% who strongly agree (n=14). In contrast, 28.21% express a disagreeing view, comprising 26.01% who disagree (n=71) and 2.20% who strongly disagree (n=6). A further 30.04% are neutral (n=82).

Overall, the pattern suggests that some firms perceive government support as available. Still, it is not consistently experienced across the sample, and the sizable neutral share may reflect limited engagement with programmes from the enterprise's side or a lack of tangible support that influences adoption decisions.

Figure 26. Ease of Selecting Appropriate AI Solutions



On a scale of 1-5, please indicate your position. 1: Strongly disagree; 5: Strongly agree (N=273)

Enterprises' views regarding their ability to choose the right AI solutions lean more toward disagreement and uncertainty rather than confidence. This is shown in the 51.28% of enterprises (n=140) who disagree or strongly disagree with the statement. Among the groups that agree and stay neutral, the percentages are similar: 24.54% (n=67) and 24.18% (n=66), respectively.

This suggests that solution selection is a practical barrier, consistent with low digital maturity and limited in-house expertise, as firms struggle to evaluate vendors, match tools to use cases, and assess costs, risks, and implementation requirements.

SUMMARY

AI awareness and attitudes among surveyed manufacturing SMEs point to low salience, low confidence, and a cautiously optimistic environment. Just more than half of the respondents claimed to have understood the meaning of AI, with a considerable number not understanding, and almost none claimed to have a strong understanding. In terms of methodological implications, the respondents' understanding tends to be imbalanced; thus, the attitude and understanding need to be measured in conjunction with other indicators, such as the use of tools, expenses, personnel, and level of use.

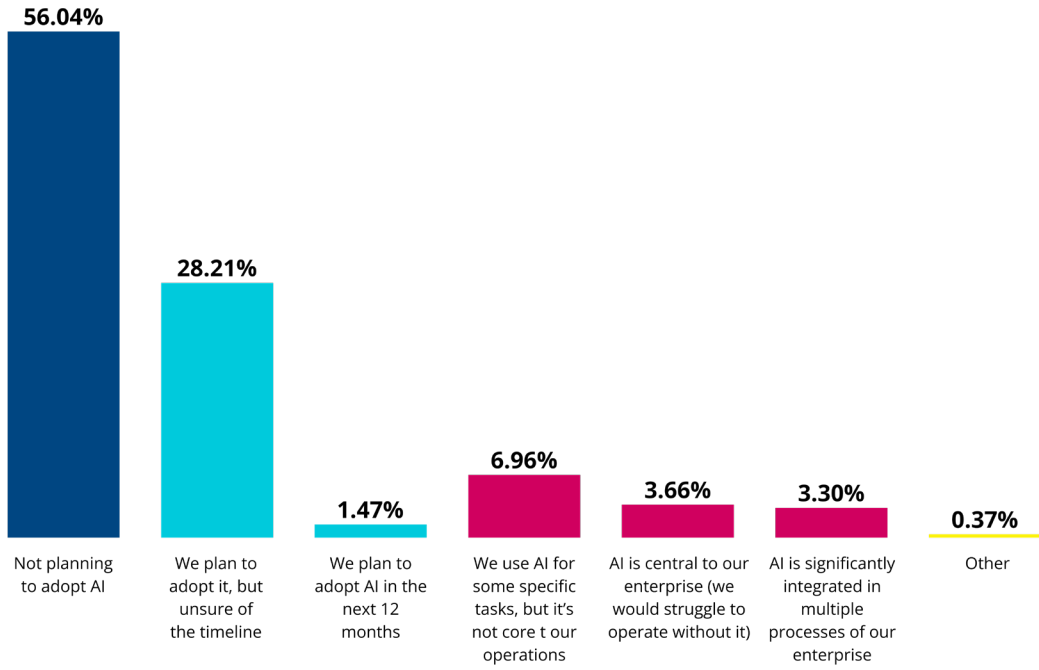
Cross-tabulation analysis shows that there is no direct relationship between the perceived level of understanding and adoption. A majority of the firms that understand AI have not adopted it, and firms that have not understood AI have not adopted it either, and the likelihood of adoption is almost nil. In the category of firms that have understood but have not adopted, the barriers to adoption would tend towards feasibility and fit, including cost, skills, and the nature of the business itself in terms of the relevant applications to be pursued.

The perceived importance is low. A large majority either find the application of AI not relevant to their current practices or of little importance, although fewer than one-fifth find it of great importance. At the same time, the level of expectation regarding benefits is moderately positive. They feel that AI can improve efficiency and may offer job opportunities, although the large number of neutral groups indicates limited direct experience and a lack of proof through implementation. Competitive pressure is not a strong motivator, as views are evenly divided between agreement, disagreement, and neutrality, suggesting that the need for AI is not a general competitive requirement across most subsectors.

The strongest factor in attitudes is capability. Most companies feel that they would not be able to hire individuals capable of working in AI, and more than half feel that their in-house knowledge is not sufficient to properly implement AI. This lack of confidence is further fueled by the hurdles in the implementation process. Most companies feel that AI solutions cannot work within their existing infrastructure, and most are not confident in their ability to choose the right solutions. Perceptions of government support are slightly positive, but a large neutral group may indicate disengagement or ambiguity regarding the programme experience. In general, the results support a plausible interpretation: SMEs are not hostile to AI, it is the case that AI is not yet operationally pressing, and the imperative constraints are capability, readiness, and support for use-case decisions.

5.4. Extent of AI Adoption

Figure 27. Current Stage of AI Use in Enterprises

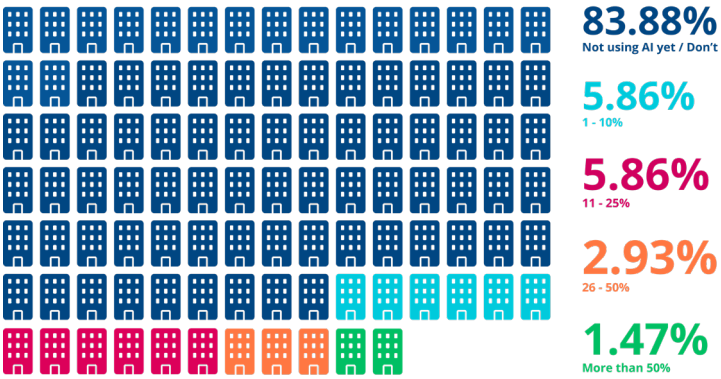


Which statement best matches your enterprise's current use of AI? (N=273)

AI adoption among surveyed manufacturing SMEs remains limited to a small minority, only about a combined 13.92% of firms, approximately 38 out of 273, report currently using AI in their operations, whether for specific tasks or more substantial integration. The remaining 56.04% (n=153) are non-adopters who do not plan to adopt AI in the foreseeable future. However, 28.21% (n=77) of enterprises plan to adopt but are unsure of the timeline, while about 4 enterprises plan to adopt in the next 12 months.

In practical terms, AI use remains the exception rather than the norm, and the forward pipeline is weak because intentions are often not paired with clear timeframes or concrete preparatory steps.

Figure 28. Depth of AI Adoption in Enterprises

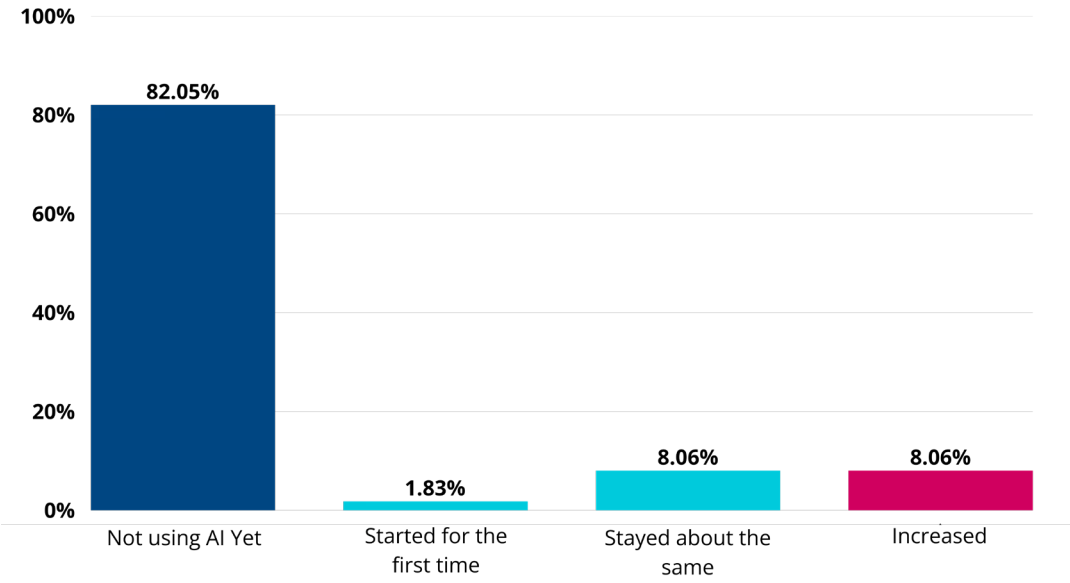


How deeply has your enterprise used AI? (N=273)

Overall, the level of AI adoption across the whole sample set remains shallow. As depicted in Figure 28, the majority, at 83.88% (n=229), have not yet implemented AI into their business operations. Only 5.86% (n=16) have implemented AI into 1 to 10% of their business operations, and an equally small 5.86% (n=16) have implemented AI into 11 to 25% of their business operations. A further 2.93% (n=8) have implemented AI into 26 to 50% of business operations. Only 1.47% (n=4) have implemented AI into more than 50% of their business operations.

Overall, where AI is used, it is largely peripheral, and a very small number of outliers drive claims of transformative implementation.

Figure 29. Recent Changes in Enterprises' AI Use in the Last 12 Months

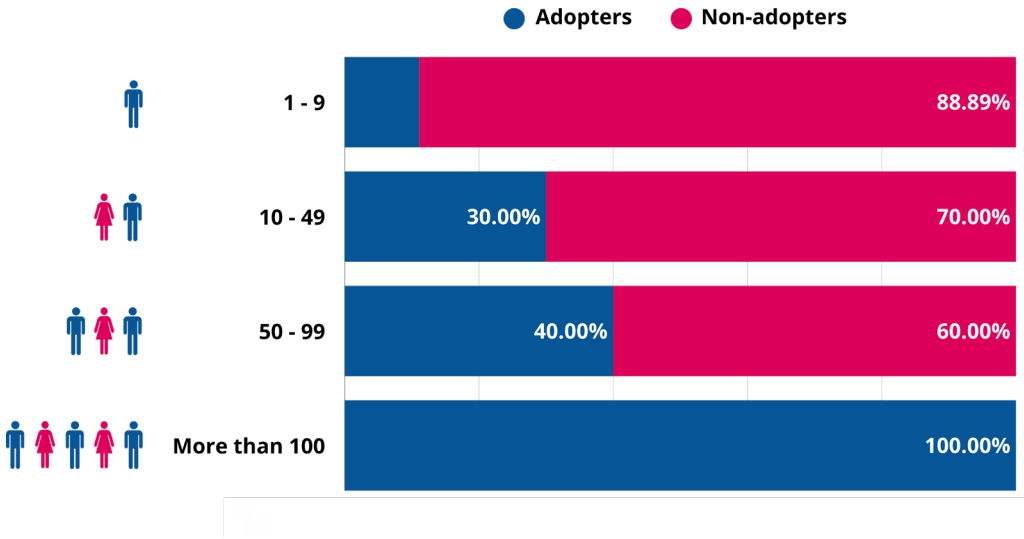


In the last 12 months, how has your enterprise's use of AI changed? (N=273)

Over the past 12 months, enterprises reported an increase in AI use, either starting to use AI for the first time (1.83%, n=5) or increasing their use (8.06%, n=22). In contrast, the majority remained non-users at 82.05% (n=224), while 8.06% (n=22) reported that their usage stayed about the same, indicating continued use but without expansion.

Overall, the net direction is positively upward, with no meaningful contraction visible. Still, the magnitude remains small, reinforcing that the pipeline of prospective adopters is progressing slowly and that wider uptake is likely to be gradual unless enabling conditions change.

Figure 30. Enterprise Size and AI Adoption Status



How many full-time employees does your enterprise have, regardless of whether it is currently adopting AI? (N=207 for 1-9 employees; N=60 for 10-49 employees; N=5 for 50-99 employees; N=1 for 100 employees)

Within each enterprise size range, AI adoption is an exception, though it increases with enterprise size. In micro-enterprises with 1 to 9 employees (N=207), the percentage of AI adoption is 11.11% (n=23), and the remaining 88.89% (n=184) are non-adopters, indicating that AI adoption is exceptional in the smallest enterprises. In enterprises with 10 to 49 employees (N=60), AI adoption increases to 30.00% (n=18), with the remaining 70.00% (n=42) non-adopters, indicating a mixed situation with around 3 in 10 enterprises adopting AI. In enterprises with 50 to 99 employees (N=5), AI adoption is 40.00% (n=2), with the remaining 60.00% (n=3) non-adopters, consistent with the trend by enterprise size, though based on a very small sample. The final range with more than 100 employees consists of a single case (N=1), and it is an adopter with 100.00% (n=1). Hence, it should also be treated as a descriptive statistic instead of a stable pattern.

Taken together, the figure suggests a size-related gradient in adoption likelihood. Larger firms may be better positioned to trial tools, allocate staff time, and absorb cost and implementation risk. However, beyond the 10 to 49 group, the evidence is fragile because the 50-plus categories are extremely small, so a change of one firm would materially shift the percentages.

In absolute terms, adopters are still predominantly found among small enterprises because the sample itself is dominated by micro and small enterprises. Of the 44 adopters shown in this graph, 52.27% (n=23) fall under the 1 to 9 employees category, 40.91% (n=18) fall under the 10 to 49 employees category, 4.55% (n=2) fall under the 50 to 99 employees category, and 2.27% (n=1) fall under more than 100 employees.

SUMMARY

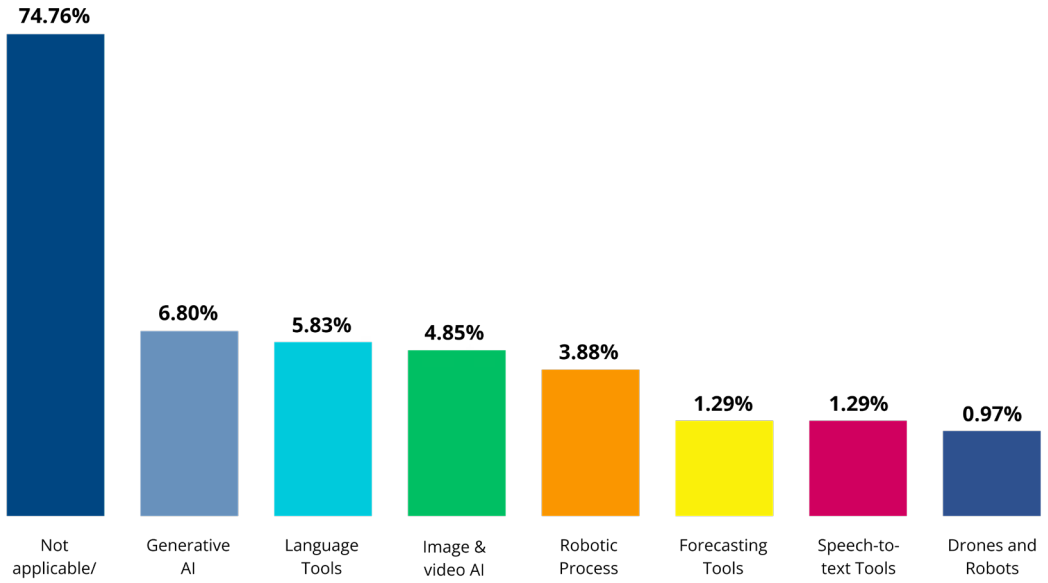
In summary, the use of AI in manufacturing SMEs surveyed is in its infancy. The majority of firms surveyed have not adopted this technology, nor are they likely to in the next 12 months. While a significant number of firms are interested in adopting this technology, this interest is not necessarily tied to a timeline.

Where AI is used, adoption is superficial. This is because the use of AI is usually limited to a narrow pilot or a specific use case, which has only a small impact on the company, with deep integration into the company being the exception rather than the rule, among a very small number of companies. This means that the adoption of AI is still at the exploration stage.

The trend over the last 12 months indicates modest but positive progress, with the majority of firms remaining non-users. The probability of adoption is greater for larger enterprises, which is consistent with their greater ability to allocate personnel time and resources to cope with implementation risk. However, caution should be exercised when interpreting results for larger firms due to the small sample size..

5.5. Current Use of AI

Figure 31. AI Tools Currently Used by Enterprises



Which of the following AI tools does your enterprise use? (Multi-select, N=309)

Figure 32. Top 3 Popular AI Tools Across Enterprises

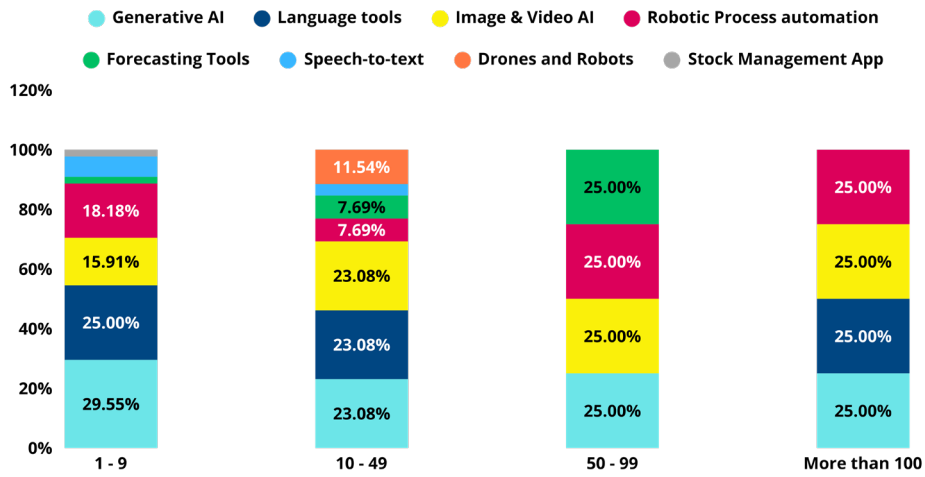
Most responses indicate no use of any AI tool category. "Not applicable or not using AI yet" accounts for 75.76% (n=231 selections).

Generative AI is the most frequently selected AI tool category among those reporting any tool use. It accounts for 6.80% (n=21 selections), indicating that adoption, where it exists, is concentrated in low-barrier content and language services that are easy to access through consumer platforms and require limited integration with enterprise systems.

Language tools are the second-most-common category. They account for 5.83% (n=18 selections) and cover uses such as Khmer-English chatbots and automated translation. This reinforces that early tool use is oriented toward general communication and information tasks rather than operational integration.

Image and video AI is the third-most-selected category. It accounts for 4.85% (n=15 selections), but this category carries a higher risk of misclassification based on fieldwork observation. Some respondents appear to interpret image and video AI as ordinary CCTV rather than computer vision systems that perform automated analytics such as detection, counting, recognition, or quality inspection. As a result, reported uptake should be treated as an upper-bound indicator of AI-enabled vision use rather than confirmed deployment, and should be triangulated with more concrete indicators such as spending, staffing, and reported depth of use.

Figure 33. AI Tools Adoption by Enterprises' Size



What are the AI tools that your enterprise uses, given its size? (Multi-select, N=228 for 1-9 employees; N=70 for 10-49 employees; N=7 for 50-99 employees; N=4 for More than 100 employees)

The figure reports the mix of AI tool categories within each enterprise size band, expressed as the share of total tool selections made by that size group. Because the underlying question is multiple-choice and most enterprises selected "Not applicable or Not using AI yet," the large Ns shown in the caption (for example, N=228 for 1 to 9 employees and N=70 for 10 to 49 employees) should be read as total selections in each size band, not as the number of enterprises. The stacked bars, however, are normalized only over the subset of selections that are actual AI tool categories, excluding "Not applicable." This is why the effective bases for the plotted distributions are much smaller: 44 tool selections for 1 to 9 employees, 26 tool selections for 10 to 49 employees, and 4 tool selections each for 50 to 99 employees and more than 100 employees.

Among micro enterprises with 1 to 9 employees, the plotted base is 44 tool selections. Generative AI is the most frequently mentioned tool category at 29.55% (n=13), followed by language tools at 25.00% (n=11). Robotic process automation accounts for 18.18% (n=8), and image and video AI accounts for 15.91% (n=7). The remaining selections are speech to text at 6.82% (n=3), forecasting tools at 2.27% (n=1), and a stock management application at 2.27% (n=1). This profile is consistent with low barrier tools that can be used with minimal integration, while the presence of image and video AI and robotic process automation should be treated as indicative, given the observed risk that respondents may conflate these categories with CCTV or mechanization.

For enterprises with 10 to 49 employees, the plotted base is 26 tool selections, and the distribution is flatter. Generative AI, language tools, and image and video AI each account for 23.08% (n=6 each). Drones and robots account for 11.54% (n=3). Forecasting tools and robotic process automation each account for 7.69% (n=2 each), while speech-to-text accounts for 3.85% (n=1). Relative to micro enterprises, this suggests a broader experimentation portfolio, including a small number of higher friction categories, although the counts remain small.

For 50 to 99 employees, the plotted base is only 4 tool selections, split evenly at 25.00% each across generative AI, image and video AI, robotic process automation, and forecasting tools (n=1 each). For more than 100 employees, the plotted base is also 4 tool selections, split evenly at 25.00% each across generative AI, language tools, image and video AI, and robotic process automation (n=1 each). These equal splits are artifacts of extremely small bases and should be treated as descriptive of the achieved sample rather than evidence of stable size-related differences.

Overall, the most defensible interpretation is that tool use in smaller firms concentrates on accessible, general-purpose categories, and that apparent diversification with size is visible mainly in the 10 to 49 group. Beyond that, the sample is too thin to support firm conclusions, and the categories most prone to concept drift should be triangulated with more concrete indicators such as spending, depth of use, and staffing.

SUMMARY

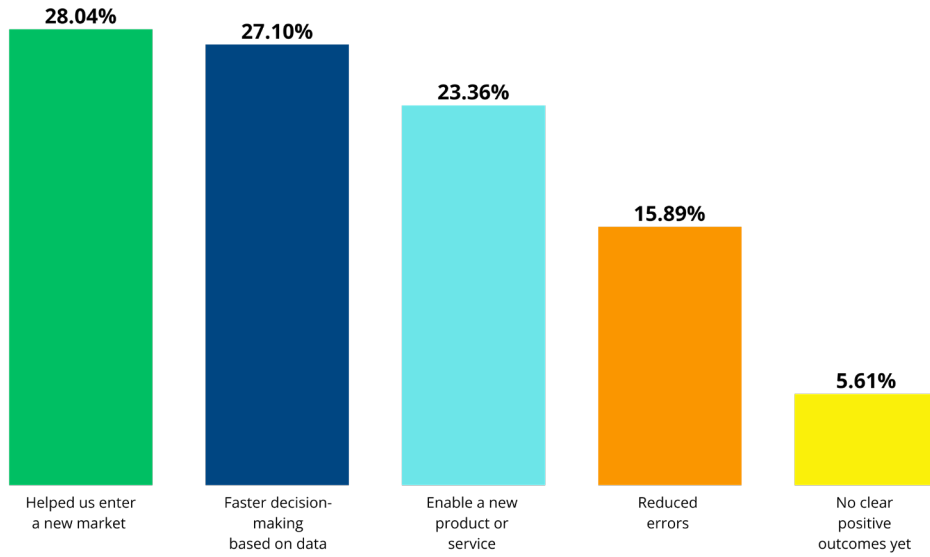
The use of the AI tool remains limited. Most answers reflect little or no use, mirroring the typical enterprise's lack of use across any AI tool category. For users, the primary categories of tools available are generative AI tools and language tools, accessible through consumer platforms and not requiring integration with the enterprise. It indicates that initial use will focus on communication, translation, writing, and simple

content, rather than on managing operations or business processes. Image and video tools follow, but with caution, as some may consider standard CCTV an example of an AI tool; consider this the upper bound until more evidence emerges on spending, personnel, or more detailed use patterns.

The tools used differ by firm size, but remain dominated by simple tools. For micro businesses, citations focus on generative AI and language tools, but are fewer for robotic process automation and image/video AI tools. For businesses with 10 to 49 employees, citations are relatively evenly distributed across the different types of tools. This indicates that slightly larger businesses are trying different applications and even higher-friction tools that require coordination or resources. For businesses with more than 50 employees, the number of citations is too low to draw meaningful conclusions about patterns; they should be viewed only as descriptive. In general, the data support a tentative conclusion: when businesses use AI tools, they are typically using simple tools and not integrated systems, and even reports of advanced tools should be viewed with caution for the risk of misclassification.

5.6. Observed Benefits of AI Adoption

Figure 34. Observed Benefits of AI Adoption



Which of the following positive outcomes have you observed after using AI?
(Multi-select, N=43 Applicable / Using AI; N=107 selections)

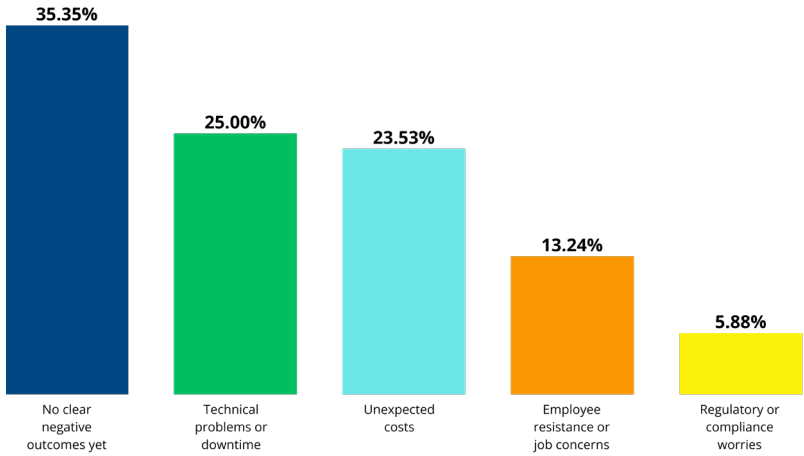
Of the 273 firms surveyed, 43 have adopted AI in some way. The number of selected outcomes for adopters is a multiselect question with 107 outcomes, averaging 2.48 positive outcomes per adopting firm. The figure shows the frequency of outcome mentions among adopters, not the number or proportion of firms that have experienced each outcome.

Outcomes that are most often reported are related to decision support and growth. “Helped us enter a new market” represents 28.04% (n=30 selections), while the positive outcome of “Faster decision-making based on data” stands similarly at 27.10% (n=29 selections). “Enable a new product or service” comes in third, representing 23.36% (n=25 selections). Improved operations are reported in terms of “Reduced errors” and represent 15.89% (n=17 selections). A lower number reports “No clear positive outcomes yet” and represents 5.61% (n=6 selections) even after using AI in some way.

Overall, however, it appears that the initial perceived benefit from AI use is centered on business expansion and decision-making speed, with quality-based benefits emerging but not to the same extent. The low figure for those reporting no obvious benefit suggests that some adoption is more exploratory in nature, in that it has not yet resulted in obvious benefits, which is consistent with shallow levels of use.

5.7. Challenges and Barriers to AI Adoption

Figure 35. Observed Negative Outcomes of AI Adoption

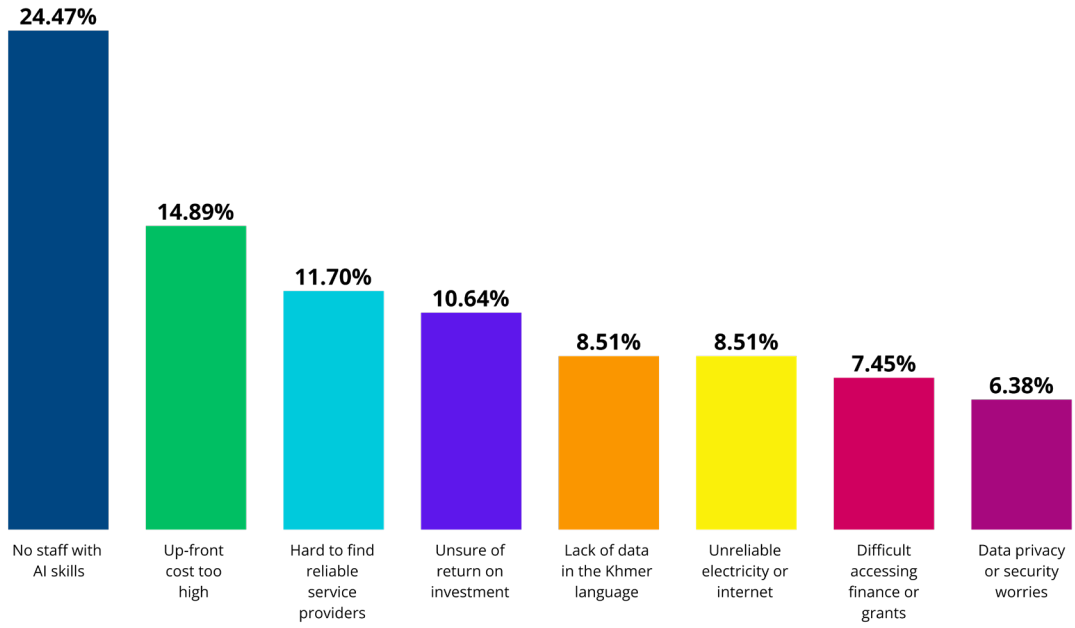


Which of the following negative outcomes have you observed after using AI? (Multi-select, N= 44 Applicable / Using AI; N=68 selections)

Reported negative consequences are based on AI-adopting firms that answered this item, and the question allows multiple selections. A cumulative total of 68 selections was gathered among the responding adopters. The most frequent response was “No clear negative outcomes yet,” contributing 35.35% to the total responses (n=24 selections). The following most frequently reported negative consequences include the implementation difficulties, specifically “Technical problems or downtime,” contributing 25.00% (n=17 selections), and “Unexpected costs,” also contributing 23.53% (n=16 selections). Human resource-related considerations are less frequently cited, specifically “Employee resistance or job concerns,” contributing 13.24% (n=9 selections), although “Regulatory or compliance concerns” are less frequent, contributing 5.88% (n=4 selections).

In summary, the trend suggests there is no yet significant negative impact from early use. When there is, it is operational and economic, not regulatory or people-related. This implies that the early risk has more to do with reliability, integration, and cost than with change, and is consistent with the finding that most use is shallow.

Figure 36. Key Barriers to AI Adoption



What are the main challenges your enterprise faces regarding AI adoption? (Multi-select; N=46; N=94)

Among firms that have adopted AI (n=46, N=273), they have selected a total of 94 selections of key barriers to successful AI adoption. This means that the adopted firm faced an average of 2.04 barriers per firm.

Among firms that did identify specific challenges, the most frequently cited constraint is human resources. "No staff with AI skills" represents 24.47% (n=23 selections). Cost and business case uncertainty follow. "Up front cost too high" accounts for 14.89% (n=14 selections) and "Unsure of return on investment" accounts for 10.64% (n=10 selections), indicating that affordability and confidence in returns remain material frictions even where interest exists.

A second cluster concerns the enabling ecosystem and data readiness. "Hard to find reliable service providers" is 11.70% (n=11 selections), while "Lack of data in the Khmer language" is 8.51% (n=8 selections). Access constraints are less common but still present, including "Difficulty accessing finance or grants" at 7.45% (n=7 selections) and "Unreliable electricity or internet" at 8.51% (n=8 selections). "Data privacy or security worries" is the least selected of the listed barriers at 6.38% (n=6 selection), suggesting that immediate practical constraints currently outweigh governance concerns in firms' reported adoption calculus.

Overall, once non-use responses are separated out, the barrier profile is led by skills, then by cost and ROI uncertainty, with smaller but consistent signals around service provider availability, Khmer-language data, and enabling infrastructure and finance.

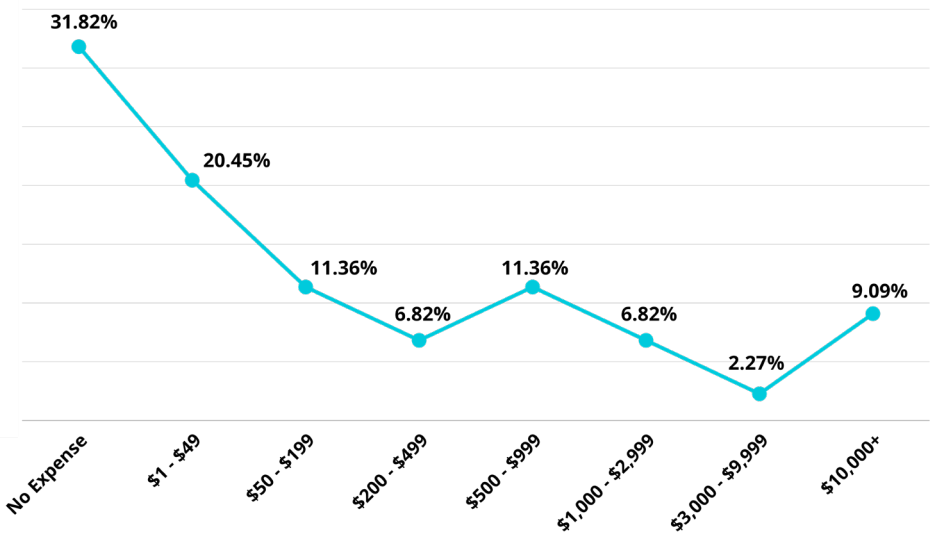
SUMMARY

Overall, there is no clear signal of widespread harm from the early deployment of AI, and the major near-term policy risk is not "AI misuse" but "weak implementation." The nature of the harmful outcomes observed is indicative of a risk of execution, as the solution does not work, does not integrate well, or presents unseen costs. This is important in that it suggests that the key to the initial trust-building phase in the SME sector is not sophisticated governance communication but reliability and cost visibility.

Turning to the adoption side, the key indicator is that most firms are early adopters. For this group, barriers are not just something to be overcome but themselves signals of immaturity in the adoption decision, to the point that they can be developed into a real project. The most limiting factors are therefore firmly upstream: firms lack the staff to drive adoption, the budget to experiment with, and the assurance to make informed judgments about which tools are likely to be credible. Ecosystem factors such as the lack of available tools and challenges in finding credible suppliers are likely to exacerbate this, since they increase the perceived risk of 'picking incorrectly' and then executing pilots. The lack of salience for privacy and regulatory issues should not be seen as their lack of importance, but is instead likely to be a signal that most firms are not yet far along enough to reach the stage where they are forced to consider issues of compliance. As one progresses further into adoption, issues around governance may increase, but the key leverage is to enable successful small-scale piloting to shift interest to hard evidence.

5.8. Readiness and Support Needs

Figure 37. Enterprise Spending on AI and Data in the Past Year



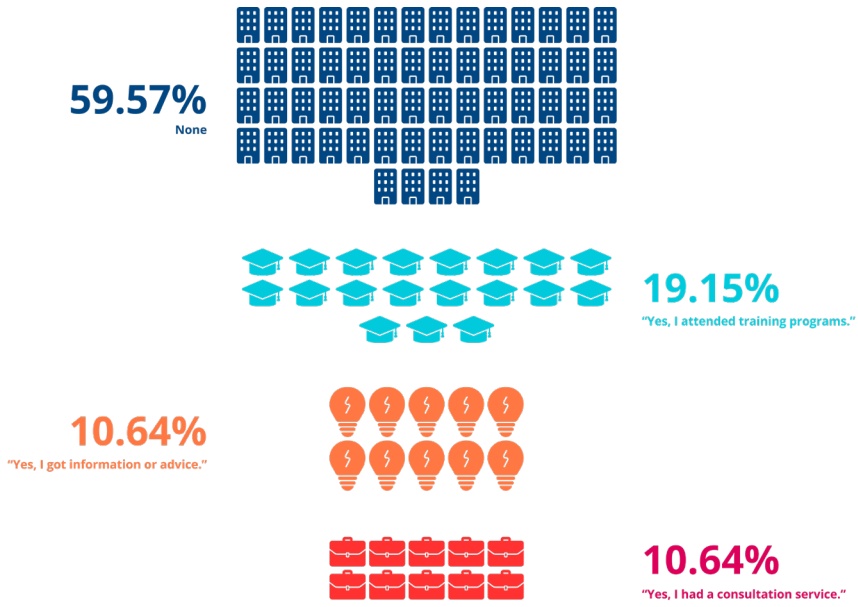
In the last 12 months, about how much did your enterprise spend on AI & data (tools, services/integration, data/licenses, training)? (N=44)

Among the 44 AI adopting enterprises, a sizable share reports zero spending on AI or data in the past 12 months. Specifically, 31.82% (n=14, base N=44) adopted AI but indicated no fee or expense, consistent with reliance on free tools or informal, low-intensity experimentation rather than paid deployment.

Where adopters reported spending, amounts remain modest and are concentrated in small outlays rather than in structured investment. About one-fifth spent less than $50 (20.45%, n=9, base N=44), which likely reflects incidental costs such as minor subscriptions, prepaid data, or paid features rather than a deliberate adoption program. A further 18.18% (n=8, base N=44) spent $50 to $499, consistent with small-scale trials such as basic software subscriptions or light service charges. Only 11.36% (n=5, base N=44) spent $500 to $999, suggesting that even among adopters, more substantive spending is still uncommon.

The higher spenders are rare but form a long, fat tail. Three firms (6.82%) spent between $1,000 and $2,999, but it is clear that few would be interested in a more formalized implementation, support, or deployment. Additionally, five firms spent more than $3000, with one firm spending between $3000-$9999 and four firms spending more than $10,000.

Figure 38. Use of External Support Services for AI Adoption



Has your enterprise used any public or private services to support AI adoption? (Multi-select; N=45 firms; N=47 selections)

When asked whether they had used any public or private sector services to support AI adoption, 45 firms reported adopting AI in some form (16.48%, base N=273). Because respondents could select more than one option, these 45 firms made a total of 47 selections across service and non-service responses.

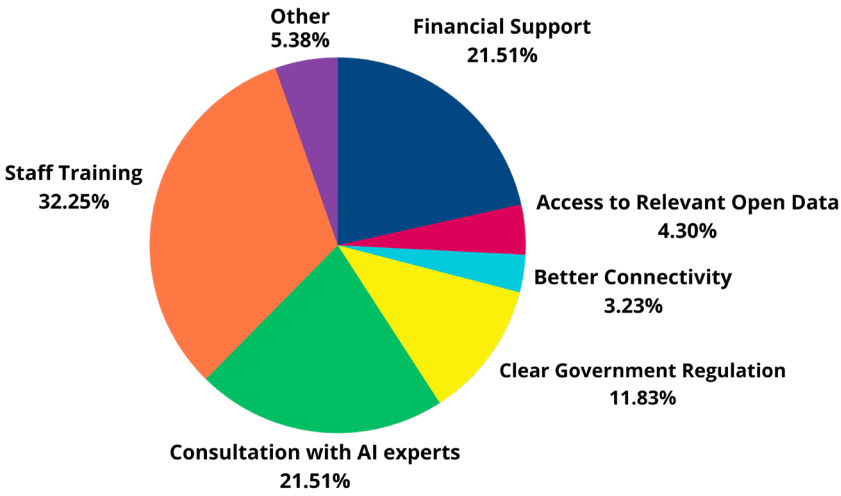
At the firm level, most adopters report adopting without support services. A total of 59.57% (n=27, base N=45) indicate they have not used any public or private services despite adopting AI, which is consistent with low-barrier use cases such as using off-the-shelf generative AI tools independently.

The remaining 40.43% (n=18, base N=45) report using at least one form of support.

Looking at the selection level, the most frequently cited support is attending training programs at 19.15% (n=9 selections, base N=47). Seeking information or advice accounts for 10.64% (n=5 selections, base N=47), and using consultation services also accounts for 10.64% (n=5 selections, base N=47).

Overall, the pattern suggests that support mechanisms are not yet a standard pathway for SME adoption. Most adopters appear to be progressing through self-directed experimentation rather than structured assistance, while a smaller subset is engaging with training and advisory services. This may reflect limited awareness, limited availability, or a mismatch between program design and SMEs' time and cost constraints. It also suggests some self-selection, where firms that are already motivated to adopt are also more likely to seek training or advice, while others adopt at a basic level without engaging formal support channels.

Figure 39. Support Needs for Successful AI Adoption



What types of support or resources would help your enterprise to adopt AI successfully? (Multi-select; N=45 firms; N=93)

For the question of which support or resource would best facilitate successful AI adoption, the results shall be interpreted as the frequency of each option rather than the percentage of enterprises. It is a multi-select question, and the figure shows the share of total selections for the question among the 93 selections made across the 45 adopting enterprises.

The most common enabling factor cited was that of staff training at 32.25% (n=30 selections). This supports the skill-constraint concept previously noted and appears to reinforce the idea that firms generally see the problem of AI adoption as a matter of skill and human capital rather than technology. The next most common need was that of consultation with AI experts regarding AI at 21.51% (n = 20 selections), followed by that of financial assistance at 21.51% (n=20 selections).

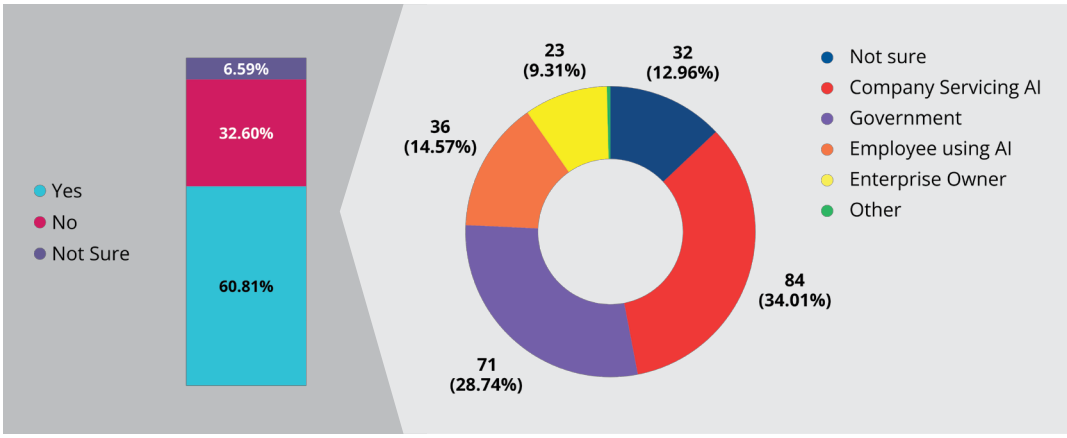
Another set of needs involves the enabling environment and inputs. Clear government regulations were cited at 11.83% (n=11 selections). This suggests that clarity in regulations is seen as helpful but not as critical as training, advice, and money. Access to data was cited at 4.30% (n=4 selections).

The least cited category was for 3.23% (n=3 selections) for better connectivity.

Overall, the distribution suggests that the most commonly referenced enablers are people, operating support, and finance. Governance and data are referred to somewhat less commonly.

Policy & standards: 8.43% (n=37, base N=439 selections), suggesting a recognition of the importance of having rules in place, although the immediate provision of operating support is the key characteristic of the mentioned profile. Digital infrastructure: 6.61% (n=29, base N=439 selections), although awareness is rarely cited, 0.23% (n=1, base N=439 selections). The mentioned distribution suggests a concentration of perceived enabling factors around people, operating support, and financing, followed by a tier of governance & infrastructure.

Figure 40. Need for Clear Accountability in AI Use



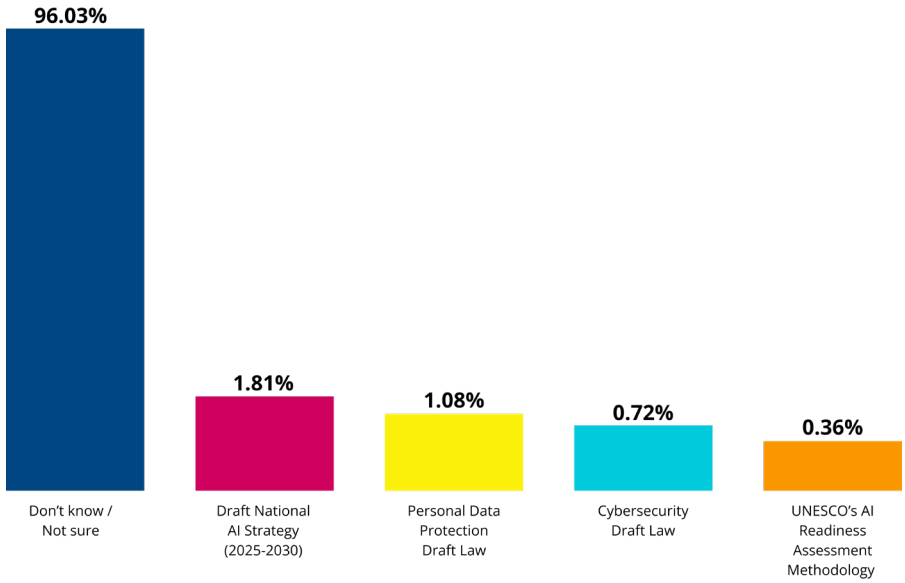
Should there be a clear rule about who is responsible if AI does something wrong to your enterprise? If yes, who should be responsible? (N=273; Multi-select N=247)

Responses show a clear appetite for accountability rules even at an early stage of AI uptake. Out of 273 surveyed manufacturing SMEs, 60.81% answered Yes (n=166, base N=273) when asked whether there should be a clear rule on who is responsible if AI does something wrong to their enterprise. At the same time, uncertainty remains substantial, with 32.60% selecting "Not sure" (n=89, base N=273), while only 6.59% answered No (n=18, base N=273). The distribution signals that most firms want clarity and protection, but some are not yet confident about what an accountability rule would mean in practice, which aligns with low AI familiarity and limited policy awareness elsewhere in the survey.

When firms were asked who should be responsible, views were fragmented. This item is recorded as 247 total selections, given that they selected "Yes" to the first question, indicating a multiple-choice question rather than a single choice. "Not sure" accounts for 12.96% (n=32 selections, N=247 selections). Among substantive choices, responsibility is most often placed on the company servicing AI at 34.01% (n=84 selections) and on government at 28.74% (n=71 selections), suggesting that many SMEs expect accountability to be anchored outside the enterprise through vendor obligations and public rules. Fewer selections point to the employee using AI at 14.57% (n=36 selections) or to the enterprise owner at 9.31% (n=23 selections), suggesting limited confidence that responsibility can be managed solely through internal discipline. Taken together, the two figures convey a consistent message: firms want a rule, but they are still negotiating

where accountability should sit, and the system they implicitly imagine is one in which providers and regulators (the government) share a large part of the responsibility for clarity, standards, and remedies

Figure 41. Awareness of AI Policy and Strategy Discussions in Cambodia



Are you aware of any of the following AI-related strategies being discussed in Cambodia? (Multi-select, N=277)

When asked whether they are currently aware of any AI-related strategies being discussed in Cambodia, awareness is extremely low. In this item, 96.03% (n=266) of enterprises report that they do not know or are not sure. Only small numbers could name any relevant document or process, most commonly the Draft National AI Strategy (2025-2030) at 1.81% (n=5 selections), followed by the Personal Data Protection draft law (n=3 selections) and the Cybersecurity Draft Law at 0.72% (n=2 selections). UNESCO's AI Readiness Assessment Methodology appears in 0.36% of responses (n=1 selections). Overall, the distribution indicates a wide gap between national-level policy activity and SME level awareness.

Taken together, the results imply that Cambodia's SMEs are currently not engaged with AI policy discussions, yet many still value clarity on responsibility and liability if AI is used. As adoption grows, this disconnect between low awareness and high preference for safeguards is likely to become more pronounced, reinforcing the need for practical, accessible guidance that translates policy-level developments into enterprise-relevant terms.

SUMMARY

Readiness indicators indicate a strong trend: most manufacturing SMEs are stuck in the pre-investment/pre-support stage, with the crucial bottleneck being the lack of basic AI testing capabilities. Budgeting for AI-related projects is persistently underfunded, with zero or minimal budgets being most common. The relatively low level of spending evident in the few cases suggests more potential in Cambodia.

Support from the external environment is also restricted. Deficiencies in internal capability would normally be addressed by training, advice, or pilot guidance. Of those with some degree of access to support, this access consists only of training, lack of advice, and pilot support, suggesting that the point of entry is only awareness and that the adoption process remains restricted to actors predisposed to innovation.

To answer the question of how the adoption could be supported, the most obvious needs are related to capability and risk in the process of adoption, training and advice, and financial incentives. Infrastructure and policy act as the secondary enablers. These results suggest that the SMEs view AI more as a skills and delivery challenge, with cost and risk-reward, than as a policy and technology choice challenge in itself.

The findings from the governance analysis support the above explanation. There is a lack of awareness of policies, yet the demand for accountability in the case of negative AI outcomes, coupled with the assignment of that accountability to providers or the government, indicates a demand for protective governance rather than a full understanding of AI governance. From a policy and initiative perspective, awareness is not enough

6. DISCUSSION AND RECOMMENDATIONS

This baseline profiles the starting point of AI readiness in Cambodia's manufacturing SMEs by measuring what firms are already able to do before AI can be used meaningfully, namely their basic digital systems, data practices, skills, and exposure to support and policy. The evidence shows that most enterprises are still operating with foundational digital constraints. Core business systems remain predominantly manual or spreadsheet-based, KPI tracking is not yet a routine management practice for a majority of firms, and dedicated IT or data roles are virtually absent. In that context, AI adoption is predictably limited and tends to be shallow.

If the question is "how much is AI used," the strongest denominator depends on the definition of "use." The most conservative and defensible baseline is operational adoption, where 13.92% of firms report currently using AI in their operations. A broader tool-based baseline yields a higher figure, where 20.88% report using at least one AI tool category, but this measure is more exposed to misclassification and to "light" use that may not affect operations, for example language or content tools used occasionally. Reporting both is useful: the operational measure anchors the baseline in enterprise practice, while the tool measure captures early exposure and experimentation.

With this background in mind, this section aims to discuss the implications and provide targeted recommendations for key stakeholders. It is grouped under five thematic areas identified from the study's outcomes. In this section, a brief discussion of key study outcomes and implications for each thematic area is presented, followed by targeted recommendations for government policymakers, SMEs, the private sector, and development partners, respectively.

Cambodian Prime Minister and the Minister of Post and Telecommunications (MPTC) at the Digital Government Forum 2025.
Source: EAC News

6.1. Strengthening Digital Foundations and Infrastructure

SMEs in Cambodia's manufacturing sector are found to have a remarkably low level of digital maturity. This is indicated by the fact that over 68.50% of these enterprises rely exclusively on fundamental technologies such as phones, email, social media, and paper records, without any fully integrated information technology systems or even a standalone software application to manage their business. Additionally, only about 41.39% of firms tracked business indicators daily; however, the data was stored mostly in Excel rather than in a big data management system such as a Data Lake. Moreover, internet connectivity is moderate rather than high. Overall, these factors indicate the clear absence of all three necessary prerequisites for the operation of artificial intelligence systems.

Without established digital systems and practices, even highly developed AI solutions remain inefficacious. The adoption of AI is inherently tied to digital transformation. SMEs that have not engaged in digital transformation remain unable to produce or access data relevant to AI applications. This root problem likely explains why only about 13.92% of firms (see Figure 27) have adopted any form of AI to date. Countries with relatively developed SME digital infrastructure experience faster AI adoption rates (OECD, 2025). This suggests that Cambodia faces a problem that will be left behind if such basics are not developed. It should be noted that there appears to be a somewhat developed digital base among the limited number of SMEs that access AI in Cambodia, suggesting that improved ICT readiness facilitates easier AI integration. If these constraints remain unaddressed, adoption is likely to be uneven. Firms with stronger digital foundations and easier access to skills, finance, and vendor support may be better positioned to test and integrate AI, while many others may postpone adoption because the costs, complexity, or expected returns remain unclear. Over time, this could lead to wider differences in technology

uptake and performance across the SME segment, with implications for overall competitiveness. Thus, establishing basic digital capabilities remains the primary step before adopting any AI strategy for SME applications.

Recommendations:

- **Government Bodies:** The goal would be to lay the foundation for digital systems in small-scale industries as a first step toward AI adoption. There would be specific targets for transitioning these companies from smartphones, social media, and paper-based systems to a fundamental digital system for accounting, inventory, sales orders, and production. Using time-bound co-funding or vouchers based on real usage milestones, such as beginning usage, three months of actual usage, and periodic reporting of a small set of key operating and beyond commercial metrics. This mitigates one-off software investments that do not alter the business's operating dynamics. Design a network of accredited marketplaces that provide Khmer-language solutions at an affordable price with the help of implementation partners. It ensures that SMEs have reliable alternatives and that providers are held accountable. This step-by-step plan can be integrated into the delivery of the National AI Strategy by developing readiness levels and associating them with support tools, and by using the same indicators for monitoring. This ensures that the gap between the digitally able firms and the other firms in the industry does not widen.
- **Private Sector (SMEs & Associations):** This stakeholder should begin with minimal tech improvements and the exchange of best practices. Owners of SMEs should begin digitizing one to two key paper-based processes, such as inventory management or accounting, using a simple computer or online application. They can create very realistic and practical goals to work towards, like "digitize 50% of our documents in one year." Industry associations can assist their members by offering basic ICT skills training and even negotiating discounted rates on software or hardware. Large businesses can help smaller businesses in their supply chain by mentoring or teaching smaller suppliers to create an online inventory management system, or by providing access to a simple supply chain management system. This will make it more efficient for smaller businesses to integrate with more complex systems that incorporate AI.
- **Training & Education:** The aim is to improve the provision of fundamental ICT and data-handling skills to SMEs. Universities, technical institutes, and NGOs should provide short courses on computer use, spreadsheet analysis, and basic ICT tools such as accounting packages and cloud storage to SME owners and employees. Digital literacy modules should be added to business and entrepreneurship courses to teach data recording and its application in planning and problem-solving. Collaboration with ICT companies to conduct hands-on training workshops, such as "digital starter kit" workshops that teach SMEs the most popular software packages and provide support to learn them, would be beneficial. Finally, a stream of tech-savvy youth needs to be developed to assist SMEs; projects or internships in which an IT student would implement an automation of a local company's process would be a a great way to give the student experience and the company an affordable ICT solution to their problem. Developing such fundamental skills and habits in data use would ease the transition to AI for SMEs in the future.

6.2. Human Capital and AI Awareness Gap

The survey reveals a notable gap in AI knowledge and skills among SME owners and workers. Around 46.15% of SMEs do not understand AI, and only 5.86% consider AI to be very important to their businesses. Among the barriers to AI adoption, the most cited issue was the struggle to find qualified staff with AI skills within their enterprise. More than half of business owners feel their personal expertise does not include using AI technologies. Lack of awareness of the measures governments have taken in AI initiatives is widespread, with results showing that just about 96.03% of firms are unaware of national-level AI initiatives. Among the multiple response support needs items, staff training is the most frequently selected enabling resource, accounting for 32.25% of all selections.

Without basic AI literacy among decision-makers, the adoption process is very likely to stall, since they cannot adopt something they do not understand or appreciate. In fact, the human resource gap is the biggest inhibitor to adoption. Many SMEs still view AI as abstract or intimidating; therefore, demystification will be critical to its uptake. It also means that even an eager owner will lack the human resources to execute and sustain an AI system within the business. If left unchecked, the talent gap is also very likely to persist and may even contribute to the widening of the digital divide, where larger or more urban firms are very likely to close the knowledge gap much faster than smaller or more rural ones.

However, on the positive side, the high level of interest in training and the desire for clear, specific guidelines to be drawn up represent an upside that can and should be capitalized on immediately. For the long-term, successful adoption of AI systems and technologies, there will be a need for tech experts to build or customize AI solutions, and for managers/employees with AI literacy to properly utilize them for decision-supporting interpretations. Since not every SME will be able to afford or retain an employee or an employee with the capacity of a data scientist, some options include hiring these experts part-time or jointly employing them, providing and utilizing outside AI solutions, or training someone within the firm for basic data/IT work and operations, and through this, improvements in the digital and data literacy levels among the SMEs and their managers will be crucial for these firms to be able to undertake and successfully integrate AI within the short term future timeframe or soon.

Recommendations:

- **Government:** Launch the planned "National AI Literacy Campaign and AI Info Hub," with a specific SME track in manufacturing that builds on a foundation in digitalization rather than AI itself. Use messaging in Khmer via business firms and provincial networks, linking each AI example to the necessary digital workflows for digitized sales, inventory, quality management, and basic bookkeeping. Offer templates and toolkits that match the workflows. Attain scale in short-course training by standardizing modules across existing providers rather than creating a new program, where CADT would develop the underlying curriculum, and the delivery would be extended via the existing SME and skills platforms that now provide digital skills training for the digital economy. Instead, use a SME-supportive co-financing approach rather than general tax-deduction proposals, via existing institutions, and save the tax-based incentives for the more formal businesses that can take advantage of them via the current schemes. Finally, operationalize SME-readiness in the National AI Strategy via the development of a small number of specific,

measurable indicators, such as the percentage of SME manufacturers in the country using any standalone business software, the percentage digitizing their inventory and sales records, and the percentage that have completed basic data literacy training, and report annually to ensure continued focus on the lagging groups.

- **Private Sector:** Large firms and business associations can help smaller businesses learn how to use digital technology. For instance, large firms in manufacturing or retail can organize a seminar where suppliers or franchises can discuss how the large firm initially adopted an AI solution (e.g., forecasting software or an automated quality control checker) and how it has benefited them. Industry trade bodies can organize sessions where SME owners can learn from pioneers and openly discuss their personal experiences with technology. Tech firms and start-ups should consider SMEs as valuable customers and educate them through free webinars or demo sessions on how their AI solutions can be tailored for SMEs. At the same time, owners of SMEs can start by taking free online tutorials about the basics of AI (available in abundance, with some resources available in Khmer). Within firms, an "AI champion" needs to be assigned—a firm's employee with an interest in technology who learns about new digital technologies and implements small pilots. Thus, within the private sector, by creating an "ecosystem" where businesses learn together and from experts, bottom-up support can be mobilized for AI adoption.
- **Training & Education:** Universities and vocational schools can incorporate the application of data science and AI concepts across a wide range of educational areas, so that people who graduate with degrees in business, engineering, and IT, for instance, understand the basics of this skill set. This can be achieved by incorporating lessons in data-driven decision-making, coding, and analytics. For those who are already working, provide flexible short courses, like night or weekend classes, to suit SME needs, for example, "AI for Business Managers" or "Data Analytics for SMEs." Emphasize reading data, working with common AI tools, and handling small tech projects. Additionally, trainers should be trained as well: Teachers and vocational school instructors need opportunities to learn the latest technologies so they can properly train their students to use them. In addition, there should be more digital learning materials in Khmer, such as translations of popular online AI courses into Khmer or the creation of Khmer videos and tutorials.
- **Development Partners:** The development partners should fund Khmer-first SME learning packages based on the Digital, Media, and Information Literacy (DMIL) framework and reusable across the country to support Cambodia's proposed National AI Literacy Campaign and the ai.gov.kh hub (Ministry of Post and Telecommunications 2024). The content should be modular and application-focused, with links to concrete activities such as digitizing sales and inventory, improving spreadsheet hygiene, backing up data, and building dashboard habits. Then add "AI basics" modules that illustrate how AI applications are relevant after proper data practices are in place. For the provinces, use train-the-trainer methods through established channels, with light-touch coaching and refreshers, rather than one-off training. Ethics and appropriate use should be included in the minimum content, drawing on Cambodia's ongoing work in governance and ethics, and on its cybersecurity capacity development efforts, as references to ensure awareness remains in line with best practice. Lastly, the development partners should ensure that basic monitoring for reach and behavior change, not just attendance, is collected by tracking how many SMEs use key basic practices after training and use that information to target programs in the remaining provinces that need them.

6.3. Early AI Adoption: Business Case and Experiences

Only a limited number of manufacturing SMEs (around 25.24% of the surveyed SMEs) have begun adopting AI tools, which are showing promising early results. The most frequently selected benefits are growth and decision support: "helped us enter a new market" and "faster decision making based on data," each accounting for 28.04% and 27.10%, respectively, of all benefit selections, and "enabled a new product or service" is similarly prominent at 23.36%. Process quality improvement is less frequently selected, with "reduced errors" accounting for 15.89% of benefit selections. What is worth noting is that there has been no critical failure or grief associated with adopting AI tools among the firms surveyed.

These results demonstrate that a targeted and small-scale deployment of AI can deliver noticeable improvements for SMEs, boosting efficiency and quality control and opening new markets and consumer segments. Furthermore, they imply that some widely predicted problems are probably unwarranted: neither "catastrophic consequences" nor "bugging or training personnel" presented themselves as a problem in practice, though they might "take a little time." Most of these early adopters began by adopting a single service and implementing a step-by-step integration process to fine-tune the experience and achieve the best possible results. Another takeaway is competition: first-movers already have a head start, either by providing better "products or services" or by enjoying greater "operational efficiency." With widely adopted, increasingly affordable AI-based solutions expected in the not-too-distant future, what is now innovative can soon become the norm. In conclusion, the "early adopters" prove that investing in AI can be a good thing and show the way for others not to miss opportunities for significant gain by delaying too long.

Recommendations:

- **Government/Policymakers:** Highlight and support SME success stories with AI to inspire wider adoption. For example, publicly recognize pioneering firms (through awards or press releases) and share short case studies that illustrate how AI improved their business (in sales, quality, efficiency, etc.). Provide modest co-funding or technical assistance for new pilot projects in key sectors, then publicize the outcomes. Based on these experiences, develop simple "how-to" guides for AI adoption tailored to SMEs, and distribute them via industry associations and online channels. Also, create opportunities for peer learning such as workshops or roundtables where early adopters present what they did and answer questions from other SMEs —so knowledge is transferred directly from those who have done it.
- **Private Sector:** Use peer influence and collaboration to broaden AI uptake. SMEs that have benefited from AI should actively share their experiences through business forums or informal visits, so others can see an AI solution in action. Industry associations can facilitate mentorship networks that pair tech-savvy early adopters with SMEs interested in starting their own AI projects. In supply chains, large companies can encourage and assist their smaller suppliers in adopting digital tools. For instance, a manufacturer might give its suppliers access to an AI-driven inventory system or forecasting data to improve coordination. Tech providers should tailor affordable, easy-to-implement AI solutions for common SME needs and leverage local success stories to build trust (e.g., "Company X improved its output using our product").
- **Development Partners:** Scale up proven AI solutions and reduce the risk for new

adopters through targeted support. Donor programs can subsidize the replication of successful use cases: if one SME has demonstrated value from a certain AI tool (say, a predictive maintenance system), provide funding or expert support for a batch of similar SMEs to implement the same tool. This group approach not only helps those firms directly but also creates a community that can share experiences and validate results. Supporting rigorous evaluation and documentation of these pilot projects: publishing data on productivity gains, cost savings, or market expansion achieved via AI will strengthen the overall business case and persuade more SMEs (and lenders) that such investments pay off. Integrate AI adoption into existing SME development initiatives by earmarking some grants or technical assistance specifically for digital technology projects.

6.4. Policy and Governance Framework

There is a visible gap between SMEs and AI policy discussion. Around 96.03% of surveyed SMEs lack awareness of national AI policies or government actions related to AI. Notwithstanding this low level of awareness, a demand for more information is evident, with 60.81% agree that there is a need for clear accountability when AI causes errors. A significant proportion attributes accountability to either the government or the company that services AI, with some fractions holding employees who use AI accountable. A combined 41.76% agree that government programmes or policies sufficiently support AI adoption, but this should be interpreted alongside the high neutrality and disagreement observed elsewhere, which implies that support is not consistently visible or experienced across the sample.

Without enhanced communication and involvement, new AI policies could have little effect on SMEs' activities. From the perspective of business owners, there may be hesitation to adopt AI technology due to legal uncertainty. For example, the business owner's liability could come into question if the AI-powered machine malfunctions or the chatbot provides erroneous information to the customer. A clear liability framework that balances rights for AI developers and the user business could eliminate such legal uncertainties. Moreover, any policies and strategies formulated for AI companies could lead SMEs to ignore them and even avoid AI technology altogether. A supportive environment for AI technology could emerge if the policies and strategies formulated for AI companies are incorporated with SME input and if the guidelines can be readily communicated to SMEs.

Recommendations:

- **Government:** Engage small and medium enterprises (SMEs) when developing policies and ensure the guidelines are not too technical. Explain the AI strategy and other AI policies to SME representatives, incorporating their concerns. Once the policies are developed, communicate them in simple Khmer and use examples. For instance, when developing the data protection policy, create a simple one-page leaflet to help SMEs understand the steps they need to take to comply with the law, such as obtaining customer consent and storing data safely. Establish a set of rules regarding the liability of AI, perhaps in the form of a government directive or statute that illustrates the split liability between the provider and the organization that uses the AI in the case of a mishap. Ensure that the obligations (such as documentation or impact assessment) scale with the organization's size, perhaps offering simpler terms, pre-prepared forms, or

even exemptions depending on the organization's size. This would help the government alleviate any ambiguities that might hinder the organization's willingness to embrace AI technology.

- **Private Sector:** Offer feedback to regulators and follow light, voluntary best practices. Industry associations can gather feedback from small firms and suggest a few workable improvements to regulations that are unclear or overly complex to comply with. Examples include giving small firms more time to comply or providing simpler forms to fill out, so regulations are workable in practice. Instead of an industrial code of conduct, the technology and business sectors can begin with voluntary checklists and model contract clauses. Basic limitations, data requirements, and security expectations should be shared by the providers from the start. SMEs with AI technology should begin with a few minimum controls, including human review for critical decisions and logging of the use of the results. Large companies can reduce the risk of third parties by providing briefings on privacy and cybersecurity issues to their SME partners as part of the usual partnering process. Private law and consulting companies can help provide joint briefings at reduced cost through legal chambers on new tech laws, as well as simple steps and templates for SME use.
- **Development Partners:** Support SME-inclusive AI governance in ways that reduce confusion and the compliance burden. International organizations can offer technical input as Cambodia develops AI and data rules, with a focus on proportional requirements for smaller firms, practical templates, and options that allow safe testing of new approaches without forcing full compliance costs on early-stage adopters. Partners can also help translate new guidance into plain Khmer materials that SMEs can actually use, such as one-page checklists, model clauses for vendor contracts, and short explainers that clarify how to implement the changes in day-to-day practice. When digital transformation programs support e-commerce, data systems, or AI-related tools, include a light governance module that covers minimum privacy and security actions, basic vendor due diligence, and clear accountability between providers and users. Where pilots are funded, they require a simple documentation and learning loop so regulators and SMEs can see what worked, what failed, and what safeguards were necessary. This approach helps SMEs feel guided rather than exposed as AI use expands, and it supports wider uptake without lowering standards for responsible use.

7. LIMITATIONS

This study acknowledges several limitations. First, the final number of participants was smaller than the target. This number stood at around 381, and only 278 responded to the survey, with the final analysis including 273 after eliminating those that were incomplete or inconsistent. This could largely be attributed to the limited time available for data collection and the difficulty of reaching respondents, resulting in fewer people responding to the survey. There were also border clashes that limited access to some of the businesses.

Second, the sample frame was based on phone numbers of officially registered SMEs provided by the government, which were randomly selected from a combined list, and their manufacturing status was verified by screening. Thus, it can be concluded that this finding is best suited to registered SMEs that had access and agreed to participate in this survey, not all SMEs that manufacture in Cambodia, especially those that are informal or lack access to a phone.

Third, the data are based on practices collected through structured phone interviews and an online method. Since most practices have been collected from owners, they can be considered decision-making attitudes, but they may vary in technical knowledge and be influenced by optimism bias. Khmer translations of technical terms can be quite general, leading to the overrepresentation of formal systems or to varying interpretations of what is meant by "systems" and "AI tools".

Fourth, the research has been primarily quantitative, without the aid of focus groups or qualitative research to follow up on the findings. This prevents validating the exact accounting, inventory, or business apps used by the business, whether they are AI-powered or simply the most basic online assistance, and it says nothing of the reasons behind the identified obstacles faced by the business.

Fifth, in some figures, particularly the Likert scale statements in Section 5.3 on AI Awareness and Attitudes, the displayed percentages may sum to 100.01% or 99.99%. This is solely due to rounding errors and does not indicate any methodological or misinterpretation in the analysis.

Lastly, there are some subgroup analyses with smaller numbers in specific provinces and subsectors because the subsector categories were determined through interviews rather than prior to the selection process. Thus, any geographical or subsector breakdown would be considered suggestive rather than definitive.

8. LIST OF TABLES AND FIGURES

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