

Managers' Perceptions of AI Applications in Business Operations

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Abstract: This study analyzes the role of managerial awareness in AI application in Vietnamese businesses based on an extended TAM model (Davis, 1989) with expanded risk perception and investment priority levels. Through the analysis, the results show that the AI application gap between large enterprises and SMEs stems from differences in decision-making awareness across four aspects: usefulness, ease of use, risk perception, and investment priority levels. The study proposes five sets of recommendations with specific roadmaps and costs to improve awareness and capacity for AI application.

Keywords: managerial awareness; AI application; TAM model; Vietnamese businesses.

1. Introduction

In 2025, FPT's pre-tax profit exceeded 13 trillion VND, the highest in its history. In the same year, thousands of small Vietnamese businesses still didn't know where to begin applying AI. The same technology yielded vastly different results. Why?

The answer doesn't lie in technology. FPT, Viettel, and Techcombank's AI solutions all have versions for small and medium-sized enterprises; price isn't the only barrier. The difference lies in how leaders perceive AI: not as a trend to be chased, but as a strategic capability requiring systematic investment, measurable and sustainable long-term development. The core issue is the managers' awareness.

According to ITviec (2025), 73% of businesses have integrated AI, but only about 9% have achieved a complete transformation. The rest remain at the stage of sporadic or trend-following experiments, lacking a clear roadmap. This is a decision-making challenge: how they evaluate AI, integrate AI into their business plans, and the level of risk they are willing to take.

From there, the research group chose the topic "Managers' perceptions of AI application in business operations", with three objectives: (1) systematizing the theoretical basis based on Davis's TAM model (1989); (2) analyzing the current situation through reports, surveys and business cases, pointing out achievements and limitations; (3) proposing recommendations with a specific roadmap and costs.

The scope focuses on Vietnamese businesses during the period 2023-2026, with data primarily up to 2025, including both large corporations (FPT, Viettel, Vinamilk, Techcombank) and SMEs. The methodology involves content analysis combined with thematic coding on secondary documents, suitable for a relatively new management phenomenon lacking representative quantitative data.

2. Theoretical Foundation

2.1. The concept of manager perception

According to the FMIT Institute, perception is the psychological process by which individuals receive, organize, and interpret stimuli from their environment to form an understanding of the world around them. Applied to the field of management, a manager's perception is the process by which they gather information, select, and interpret data from the business environment based on their experiences, personal values, and individual way of thinking. Perception is not simply a mechanical reflection of reality, but also a process of creating meaning for events, helping managers distinguish opportunities from challenges, thereby making strategic decisions and allocating resources effectively.

2.2. The concept of AI application in businesses

Artificial intelligence (AI) is a technology that enables computer systems to perform tasks previously requiring human intelligence, such as learning, reasoning, recognition, and decision-making. In businesses, AI is a core technology of digital transformation, helping to automate processes, analyze big data, and support faster and more accurate decision-making. Common types of AI include Machine Learning (trend forecasting, fraud detection), Deep Learning (image and speech recognition), Generative AI (content creation, creative support such as ChatGPT, Copilot), and NLP – natural language processing (chatbots, customer sentiment analysis). AI is widely applied from marketing, customer service, supply chain to human resources and strategic data analysis.

2.3. Characteristics of managers' perceptions of AI according to the TAM model

The Technology Acceptance Model (TAM), proposed by Davis (1989), is designed to explain technology acceptance behavior at the individual level—that is, the individual's awareness, attitude, and intention to use, not the collective decision of the organization. When applied to the topic "Managers' Perceptions of AI Applications in Business Operations," the object of analysis is not "how the business perceives AI," but rather each manager as an individual making direct decisions. As an organizational entity, the business does not directly form the perception; these assessments are reflected through the individual manager who directly considers and decides on the application of AI. Therefore, using TAM, an individual-level model, to analyze "the cognitive characteristics of managers" is theoretically appropriate, provided that the characteristics below are always understood as the individual decision-maker's perception, and not as the organization's "general perception."

Based on that foundation, the study analyzes managers' perceptions according to four characteristics. The original TAM focused only on perceived usefulness and perceived ease of use, both of which are subjective assessments of the technology by individuals. The study adds perceived risk and investment priority, because when considering AI applications at the enterprise level, managers' assessments go beyond benefits and costs like ordinary users, and are also linked to responsibility for risk management and long-term resource allocation.

Firstly, usefulness reflects the extent to which managers believe AI will improve work efficiency. They often ask themselves: In what areas will AI increase revenue, reduce costs, or shorten time, and is the improvement commensurate with the investment cost? They evaluate benefits against specific costs rather than simply following trends.

Secondly, ease of use reflects how simple or complex managers perceive learning, using, and integrating AI into existing processes to be. Solutions that integrate seamlessly with existing systems and require minimal changes are often preferred due to less disruption. A solution, however useful, that requires significant process changes is often delayed in implementation.

Thirdly, perceived risks include concerns about customer data leaks, unrecoverable investment costs, a lack of qualified personnel to operate the system, or inaccurate AI analytics results leading to incorrect business decisions. The level of risk varies greatly by industry: finance and banking typically have significantly higher security requirements than manufacturing, even with the same technology.

Fourth, the level of investment priority, as demonstrated by whether AI is categorized as an operating expense or a strategic investment, is the clearest indicator of genuine commitment—that is, the willingness to allocate budget to AI as a long-term investment rather than just a short-term expense.

Overall, the four characteristics are considered at the level of individual perception, consistent with the nature of TAM, but the assessment content is expanded to reflect the role of managers in AI investment and deployment decisions.

2.4. The Importance of Managerial Awareness to the Organization

Managerial perceptions directly impact three aspects of an organization. First, resource allocation: those who value the usefulness of AI tend to maintain stable budgets for many years, while those who view AI as an expense often cut back first when difficulties arise. Second, internal change management: accurately assessing the level of disruption AI causes helps in choosing a phased deployment approach, clearly communicating AI's non-replaceable supporting role, thereby reducing resistance. Third, decision-making quality: a high level of risk awareness drives the establishment of control processes before officially deploying AI results. Misjudging any of these four characteristics often leads to simultaneous consequences and is a direct cause of many AI projects in Vietnam stalling at the pilot stage.

3. Current State of Manager's Perception of AI Applications in Vietnam

3.1. Awareness of the usefulness of AI

Perceptions have shifted significantly: from viewing AI as an experimental technology to seeing it as a tool for generating measurable business results, aligning with the perceived usefulness in the TAM framework. According to ITviec (2025) and HPT (2025), 73% of businesses have integrated AI into their operations, moving beyond the "learning" phase, and 74.4% have reported improvements in product and service quality. Many businesses continue to expand AI into core areas such as forecasting, customer care, fraud detection, and supply chain optimization, demonstrating that leaders view AI as a long-term value-creating factor. A prime example is FPT, which continues to invest in AI as part of its DC5 strategy even after achieving record revenue and profits in 2025.

In manufacturing, some large corporations are also investing in smart factories, using AI to monitor equipment and predict failures, helping to reduce maintenance costs and downtime. In SMEs, this awareness has also emerged, albeit more modestly: approximately 61% reported an average revenue growth of 16% when implementing AI, but the results are mainly in specific processes and have not yet spread across the entire

enterprise. The most significant achievement is that subjective evaluations have gradually been replaced by linking AI to specific business performance indicators, creating a basis for sustained long-term investment.

3.2. Perceptions of AI's ease of use

Considering the ease of use characteristic, consistent with the original definition of the TAM model—that is, the degree to which a technology is perceived as requiring little effort to learn, operate, and implement—the current situation shows that the perceptions of Vietnamese managers revolve around three aspects: whether AI is easy to learn for the existing team, whether it is easy to operate in daily work, and most importantly, whether it is easy to integrate into existing systems and processes.

In businesses with a strong technological foundation, having an in-house AI engineering team or maintaining long-term partnerships with technology partners facilitates the learning and integration process, leading to a more positive perception of usability. Conversely, in small and medium-sized enterprises (SMEs), the majority outsource AI personnel at a high cost relative to their scale, resulting in slower learning and integration processes and a relatively lower perception of usability.

Besides technical factors, ease of use is also influenced by the degree of disruption that new technology causes to work habits – this is an impact factor, not an identical one. According to PwC Vietnam (2024), although 82% of young leaders are interested in AI, up to 61% face resistance to change in their organizations, especially in family businesses – showing that easy-to-operate technology does not necessarily mean easy to apply in practice. A notable achievement is that some businesses have chosen to integrate AI in stages instead of replacing everything, reducing retraining requirements and minimizing disruption, creating a model for other businesses to follow.

3.3. Risk Awareness When Applying AI

In terms of risk perception, the level of concern varies significantly by industry: financial and banking leaders generally place much higher security demands than those in the manufacturing sector. At Techcombank, high risk perception has driven the cross-checking process of AI results in credit scoring, contributing to maintaining a non-performing loan ratio of only 1.16% despite expanding the application of AI in fraud detection. Conversely, 68% of businesses and the majority of SMEs still worry about data security but have not translated this into specific control processes. PwC Vietnam's NextGen survey also shows that 58% of young leaders are concerned about data leaks when using Generative AI. Meanwhile, the number of businesses that have built a responsible AI governance framework remains very limited, reflecting the gap between risk perception and control actions.

Besides internal corporate factors, the legal environment also plays a role: Resolution 57-NQ/TW and the AI Law of 2025 have gradually created a clearer legal framework, helping to reduce concerns about legal risks and creating conditions for managers to confidently invest in the long term.

A notable achievement in this area is that some businesses have shifted from risk awareness to concrete management actions, contributing to improved operational efficiency, ensuring safety, and creating models that can be referenced and replicated.

3.4. Investment Priority Levels for AI

Considering investment priorities, the current situation reveals a clear differentiation in how AI is integrated into financial plans, which best indicates the level of genuine commitment. In some leading companies, notably FPT with its DC5 strategy, AI is classified as a strategic investment with a stable budget for many years, maintained regularly even after achieving record profits, demonstrating a long-term commitment rather than a reactive response to fluctuating business results.

Conversely, the majority of SMEs still view AI as an incidental expense rather than a planned investment: only about 18% of their technology budget is allocated to AI, and spending is done in installments, without a fixed budget line. A positive sign is that according to ITviec (2025), 65.1% of businesses expect to increase their AI budget in the next 12 months, not limited to large enterprises. The clearest achievement is that AI is increasingly being separated from the "regular technology expense" category and placed under the category of planned investment, creating a foundation for more sustainable budget expansion.

3.5. Existing limitations

Despite the achievements mentioned above, the current state of awareness in Vietnam remains limited in all four aspects:

Regarding usefulness, awareness of the specific value of AI is still uneven: according to PwC Vietnam (2024), only 55% of young leaders self-assess their understanding of AI, and nearly half (48%) find it difficult to identify how to use AI to create specific economic value, especially in SMEs.

In terms of usability, both technical and human factors present barriers: SMEs have to outsource AI personnel at high costs, slowing down learning and integration of the technology compared to those with in-house technical teams. At the same time, 61% of next-generation leaders face resistance to organizational change, higher than the global average.

Regarding risk awareness, the gap between concern and control capacity remains large: 58% of young leaders are concerned about data leaks when using Generative AI, 68% of businesses - mostly SMEs - are still worried about data security, but the number that have built a responsible AI governance framework is very limited.

Regarding investment priorities, most SMEs still view AI as an additional cost: AI only accounts for about 18% of the technology budget, is disbursed in installments, and has not yet identified priority areas. Many managers also only see AI as a tool for operational automation, failing to recognize it as a driver for business model innovation.

Overall, these four limitations show that the gap between Vietnam and countries with higher AI adoption rates lies in awareness, particularly among SMEs, rather than access to the technology.

4. Recommendations

Based on the five limitations analyzed, the research team proposed five corresponding sets of recommendations, each linked to a specific roadmap and cost to increase feasibility in practical implementation.

4.1. Enhancing AI knowledge and capabilities for leaders and employees.

Businesses need a three-tiered training roadmap: basic awareness (one session/quarter for all employees), practical application (2-3 day workshop for relevant departments), and small-scale project implementation with a core team (3-6 months). Estimated cost: 30-80 million VND/session depending on scale. Implementation time: 6-12 consecutive months.

4.2. Building a culture of acceptance of change through small-scale pilot projects.

For those hesitant to embrace change, the most viable solution is to start with a small-scale pilot project applying AI to a specific process within a department, lasting 2-3 months before scaling up across the entire enterprise. This approach allows employees to directly see the concrete benefits before implementing larger-scale process changes. Estimated cost: 50-150 million VND per project, depending on complexity and enterprise size. After the pilot phase, 1-2 internal sharing sessions should be held to gather feedback and make adjustments before scaling up.

4.3. Building a framework for ethical governance and data security in AI.

Businesses need to build a responsible AI governance framework comprising four components: data protection policy, algorithm bias testing process, basic cybersecurity training, and risk assessment every six months. Estimated cost: 100-300 million VND, significantly lower than the cost of handling a real-world data breach. Implementation time: 2-3 months.

4.4. Developing an AI application strategy aligned with long-term goals.

Businesses need to identify 1-2 priority areas instead of spreading themselves too thin. The roadmap is three-stage: testing one department (3-6 months) → expanding to 2-3 departments (6-12 months) → integrating into a fixed annual budget (from the second year). Total cost for the first two stages: 200 million - 1 billion VND depending on size and sector.

4.5. Incorporate AI content into regular strategic planning meetings.

To address the issue of AI decisions being entirely delegated to the IT department, a separate section on "AI application progress and effectiveness" should be included in the quarterly leadership meeting agenda, with three fixed points: measurement results of ongoing AI projects, proposals for expansion/adjustment, and decisions on budget allocation for the next phase. This approach incurs virtually no additional cost (only about 30-45 minutes of meeting per quarter) but ensures continuous AI monitoring at the highest level – a prerequisite for the four previous recommendations not to be abandoned. The five recommendations should be implemented sequentially: training & pilot - risk management - strategic expansion - maintenance through monitoring mechanisms. A medium-sized enterprise typically takes 18-24 months to complete this.

5. Conclusion

The study clarified the decisive role of managerial perception in the application of AI in businesses. Based on Davis's (1989) TAM model, the paper indicated that the gap between FPT or Viettel and the majority

of Vietnamese SMEs is not a technological gap but a cognitive gap: how managers evaluate AI, where they place AI in their strategy, and how willing they are to maintain AI investment when short-term financial pressures arise.

The current situation shows significant positive changes in large enterprises, while SMEs are still struggling with five main barriers: lack of knowledge, reluctance to change, security concerns, lack of strategy, and lack of strategic vision for AI. The five recommendations proposed are not just theoretical but linked to specific costs, roadmaps, and measurable indicators, enabling businesses to implement them in practice rather than simply reading and agreeing in principle.

The study has two limitations that need to be frankly acknowledged. Firstly, because it relies on the analysis of secondary documents, the study did not collect data directly from managers, so the perceptions are more interpretive than empirically measured. Secondly, the case studies (FPT, Viettel, Vinamilk, Techcombank) are all large, listed companies, while the SME group is only reflected through aggregated survey data without specific case studies. The next research direction should involve in-depth interviews with 10-15 SME managers from different industries, and simultaneously testing the expanded TAM model using quantitative survey data on a sufficiently large scale.

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