FACTORS AFFECTING APPLICATION OF AI IN COST MANAGEMENT ACCOUNTING IN VIETNAM'S TEXTILE AND GARMENT ENTERPRISES TODAY

PhD. Nguyen Thanh Trang* - PhD. Le Hong Nhung* - MSc. Vu Thi Viet Thanh*
Nguyen Ba Anh Duy**

Abstract: ***Cost management accounting in Vietnamese textile and garment enterprises has been applying artificial intelligence (AI) in several areas such as input-output cost data analysis, planning, cost standardization, and cost estimation. However, AI applications have not yet fully leveraged the value of AI and still face various risks and challenges. Authors conducted a survey of 150 textile and garment enterprises in Vietnam to evaluate the factors influencing AI application in cost management accounting, aiming to help reduce costs, improve cost control efficiency and ensure compliance with professional ethics.***

• Keywords: *AI, application, influencing factors, cost management accounting, textile and garment enterprises.*

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1. Introduction

Over the past years, Vietnam's textile and garment industry has experienced strong growth and played an important role in economic development and sustainable growth orientation. Vietnam is currently among the world's top 10 textile and garment exporters. The United States is the largest market, followed by the EU, South Korea, China, and Japan. According to the Vietnam Textile and Apparel Association (VITAS), exports reached approximately USD 40.3 billion in 2023 and around USD 44 billion in 2024 and around USD 47 billion in 2025. However, amid increasingly strict green and sustainability standards, global geopolitical fluctuations, and changes in U.S. tariff policies, the Vietnamese textile and garment industry faces numerous difficulties such as production contraction, weak demand, reduced orders, high interest rates, large exchange rate fluctuations, rising input material prices, high international logistics costs, low product pricing, and unstable markets. One key solution is the application of AI in both general operations and cost management accounting. Specifically, in cost management accounting, AI can automate data entry, analyze information, build cost standards, automatically review cost items, and generate alternative cost scenarios. Textile and garment enterprises view AI application in cost management accounting as both an opportunity and a challenge. On the one hand, AI helps optimize production processes, control standards, reduce input costs and resources, lower emissions, and build a solid foundation for a circular economy. On the other hand, enterprises face challenges related to technology investment costs, selecting suitable AI applications, identifying appropriate accounting stages for AI adoption, ensuring data security, and training human resources. Therefore, studying the factors affecting AI application in cost management accounting will help Vietnamese textile and garment enterprises reduce production costs, improve resource efficiency, and enhance cost control in the textile and garment sector.

2. Theoretical Framework

This study is based on the following theoretical foundations:

According to the ***International Federation of Accountants (IFAC)****,* "Management accounting is defined as the process of identifying, controlling, measuring, summarizing, analyzing, presenting, interpreting, and communicating financial and non-financial information related to an organization's

** Hanoi Open University; email: thanhtrang.kt@hou.edu.vn*
*** 12I1, Chu Van An*
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operations to managers, enabling them to plan, evaluate, control, and operate the organization effectively to ensure the responsible and efficient use of its economic resources." In management accounting, **cost** is a core component and is considered the value of resources that have been or will be consumed in the course of performing an organization's activities to achieve specific objectives.

According to **Tran Thi Van** in *"Current situation and some solutions to improve cost management accounting for garment enterprises in HaiPhong"*, garment enterprises are continuously improving their financial and economic information systems, especially cost management accounting systems. Thus, **cost** management accounting in textile and garment enterprises includes the following basic contents: Identifying and classifying costs; developing cost standards and budgets; monitoring cost processes from input resources to cost outcomes; analyzing cost fluctuations; providing cost management accounting reports, with a primary focus on production cost management.

According to **Nguyen Thi Hoang Yen**, in *"Applying Artificial Intelligence (AI) in Accounting Practices in Vietnam"*, AI is defined and analyzed in terms of its current application status in Vietnamese enterprises' accounting practices. The findings of this study serve as a foundation for identifying the factors influencing AI application in cost management accounting for textile and garment enterprises.

Research team also selected Mindsponge-based Technology Acceptance Model (MTAM) was chosen for this study. MTAM integrates TAM with the Mindsponge Theory and the Bayesian Mindsponge Framework (BMF), forming a comprehensive theoretical foundation. This model allows the authors to explore factors related to the perceived usefulness and perceived ease of use of AI in cost management accounting within textile and garment enterprises, as well as the influences of cultural-social factors, personal values, and ethics associated with AI adoption in this field. Beside, Unified Theory of Acceptance and Use of Technology (UTAUT), developed by Venkatesh et al. (2003), serves as another theoretical framework explaining factors that influence individuals' acceptance and use of technology. Accordingly, for AI applications in cost management accounting in textile and garment enterprises, the research team considers the following influencing factors: performance expectancy of AI, infrastructure readiness, and costs associated with AI implementation.

Authors focused on the following key factors affecting the application of AI in cost management accounting within textile and garment enterprises: Awareness of AI**,** expectations regarding AI's benefits**,** enterprise infrastructure for AI application**,** competence of management accountants and related personnel**,** cultural-social factors and ethical values.

3. Research Methodology and Preliminary Results

3.1. Research Methodology: Using Both Quantitative and Qualitative Methods

Based on the theoretical framework, the research team conducted interviews with accountants and managers from major textile and garment enterprises in Vietnam, such as May 10, Đức Giang Garment Corporation, and Vinatex, as well as experts from software companies including MISA, FPT, SAP, and FAST. Additional insights were gathered from specialists at VITAS (Vietnam Textile and Apparel Association) and the General Statistics Office regarding the factors influencing the application of AI in management accounting within Vietnam's textile and garment enterprises. At the same time, the team distributed survey questionnaires to textile and garment enterprises.

3.2. Results

3.2.1. Expert Interview

Cost management accounting in textile and garment enterprises has already incorporated AI applications and achieved certain levels of effectiveness. Experts strongly agreed that optimizing the value of AI is essential to improve cost control efficiency in management accounting and to steer the operations of textile and garment enterprises toward sustainable development. During interviews, experts from major software companies shared a common observation that approximately 80% of AI projects fail, which is twice the failure rate of other IT implementation projects. The main causes include: Overly high expectations of AI outcomes, lack of clear implementation processes, absence of performance measurement, erosion of trust due to inconsistent and unverified AI results.

The expert interview results indicate that most textile and garment enterprises currently apply AI in accounting, particularly in cost management accounting, due to its low cost and relatively high effectiveness. Free AI applications such as ChatGPT

and DeepSeek are widely used. Common cost management accounting tasks utilizing AI include establishing cost standards, price forecasting, production planning, and supplier search. Despite the benefits AI provides, textile and garment enterprises also have certain concerns, such as production data security, integration with existing enterprise resources, and the ability to fully leverage data. While AI has been applied to multiple stages of cost management accounting in the textile sector, its use is not yet fully effective or comprehensive.

3.2.2. Survey Results

The number of surveyed enterprises was 150, selected from over 7,000 textile and garment enterprises in Vietnam which listed under the Sustainability Committee of VITAS, with priority given to companies with high export revenues. The focus was on companies implementing digital transformation and green production for sustainable development, such as May 10, Dugarco, TNG Thainguyen, LGG Bacgiang, Canifa, Phong Phu, May HoaThọ, and May 29/3… from 1/7/2025 to 30/10/2025. All 150 survey questionnaires were collected. Of these, 60 questionnaires were conducted on-site at enterprises in Hanoi, Bacninh, HungYen, NinhBinh, HaiPhong, QuangNinh, DaNang, QuangNgai and Ho Chi Minh while the remainder were conducted online.

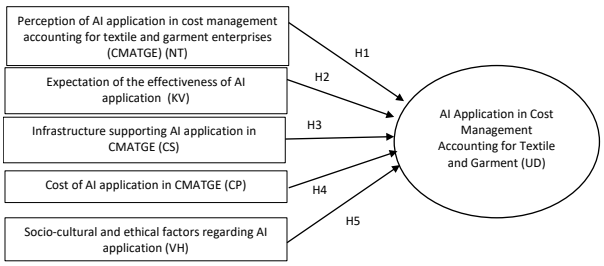
Regarding the respondents: 53.3% were accountants, 20% were IT staff and 26.7% were senior managers (directors, board members, etc.). In the analyzed dataset, management accountants represented the largest proportion of respondents.

In the research sample, small and medium-sized enterprises (SMEs) accounted for the largest proportion at 70%, while large enterprises made up 30%.

Regarding the use of AI tools in cost nagement accounting within textile and garment enterprises, the majority of companies now consider **AI** as a key tool in their cost management accounting processes, representing the highest usage rate. This reflects a shift from traditional technology-based accounting methods to AI applications aimed at enhancing efficiency and accuracy. Traditional cost management accounting software still exists but is used at a significantly lower rate compared to AI. This indicates that there is still a lag in digital transformation, or a preference for the stability and reliability of traditional methods.

Deepseek, SAP Online, FPT.ePIT, Misa AMIS integrated with AI, Truewind, GenAI... The high rate of AI accounting tool usage indicates a potential future trend among textile and garment enterprises toward more efficient accounting processes and advanced management accounting methods. Qualitative data collected from the survey questionnaires were cleaned and processed using SPSS software, producing the following key results:

Figure 1: Proposed research Model



Source: Authors

Research hypotheses:

H1: Perception of AI application in cost management accounting for textile and garment enterprises (CMATGE) positively affects AI application in CMATGE in Vietnam. (NT)

H2: Expectation of the effectiveness of AI application in CMATGE positively affects AI application in CMATGE in Vietnam. (KV)

H3: Infrastructure supporting AI application in CMATGE positively affects AI application in CMATGE in Vietnam. (CS)

H4: Cost of AI application in CMATGE positively affects AI application in CMATGE in Vietnam. (CP)

H5: Socio-cultural and ethical factors regarding AI application in CMATGE positively affect AI application in CMATGE in Vietnam.(VH)

Table 1: Measurement Scale Coding

No.	Code	Measurement Scale Description
I - PERCEPTION OF AI IN TEXTILE AND GARMENT COST MANAGEMENT ACCOUNTING (NT) (included: NT1, NT2, NT3, NT4, NT5)		
II - EXPECTATION OF THE EFFECTIVENESS OF AI APPLICATION IN TEXTILE AND GARMENT COST MANAGEMNT ACCOUNTING (KV) (included: KV1, KV2, KV3, KV4, KV5,KV6)		
III - INFRASTRUCTURE OF TEXTILE AND GARMENT ENTERPRISES FOR AI APPLICATION IN ACCOUNTING (CS) (included: CS1, CS2,CS3,CS4,CS5,CS6,CS7)		
IV - COST FOR AI APPLICATION IN COST MANAGEMENT ACCOUNTING (CP) (included: CP1, CP2,CP3,CP4)		
V - SOCIO-CULTURAL AND ETHICAL FACTORS IN AI APPLICATION (VH) (included: VH1, VH2, VH3, VH4, VH5))		
VI -AI APPLICATION IN COST MANAGEMENT ACCOUNTING IN TEXTILE AND GARMENT ENTERPRISE (UD)		
1	UD1	AI application meet the requirements for quality information of textile cost management accounting.
2	UD2	AI application meet expectations of cost management accounting.
3	UD3	Enterprises will continue to apply AI in cost management accounting.

Source: Authors

Scales and Code:

Independent variables: NT, KV, CS, CP, VH

Dependent variable: UD

Analysis results: The analysis and reliability tests show that all five independent variables meet the criteria for reliability and suitability. Specifically:

Test for Model Suitability and Correlation

The research team conducted Exploratory Factor Analysis (EFA) for both the independent and dependent variables. The results are as follows:

The KMO measure has a value of 0.686, satisfying the condition: $0.5 \leq KMO \leq 1$; the Bartlett's test shows a significance level of Sig = 0.000 < 0.005. Therefore, the Exploratory Factor Analysis (EFA) is suitable for the research data.

The variance explained test results indicate that 5 factors were extracted with the Eigenvalue = 4.683 > 1 and a total cumulative variance of 67.115% > 50%, meeting the standard criteria. Thus, 67.115% of the variation of the 5 factors is explained by the observed variables. Additionally, since the Eigenvalue > 1, the 5 extracted factors provide a good summary, confirming that the EFA model is appropriate.

Regression analysis results:

Table 2: Regression analysis table

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.711[a]	.506	.592	.51528	1.770

a. Predictors: (Constant), VH, KV, CS, NT, CP

b. Dependent Variable: UD

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.226	.315		-.718	.474
	NT	.266	.049	.288	5.462	.000
	KV	.260	.036	.379	7.242	.000
	CS	.220	.037	.311	5.954	.000
	CP	.205	.052	.206	3.928	.000
	VH	.255	.039	.336	6.485	.000

a Dependent Variable: UD

b Predictors: (Constant), VH, KV, CS, NT, CP

Source: Data analysis results from SPSS

The table above shows the hypothesis testing results using SPSS: all Sig. values are < 5%, indicating that all five independent variables have a statistically significant effect on the dependent variable. This means that all five hypotheses are accepted. The factor NT has the largest coefficient, meaning it has the highest level of influence in the research model, followed by the factors KV, VH, CS, and CP. The regression analysis results indicate the relationship between the dependent variable and the five independent variables, which can be expressed in the following regression equation:

Unstandardized regression equation:

UD = -226 + 0.266NT + 0.260KV + 0.220CS + 0.205CP + 0.255VH

The regression analysis results demonstrate that hypotheses H1, H2, H3, H4, and H5 are all accepted and have been appropriately tested. According to the regression equation, there is a linear relationship with the factors.

3.3. Discussion

The survey and interview results confirm the widespread awareness and acceptance among Vietnamese textile enterprises regarding the value and potential of AI in cost management accounting for textile and garment enterprises. This consensus stems from the benefits AI brings to the accounting process. AI can analyze large volumes of cost data automatically and quickly, providing accurate and timely information to support business decisions, monitor fluctuations in exchange rates and tax policies, promptly update standards and budgets, and comprehensively control costs. Additionally, expectations regarding AI also significantly influence its adoption. Particularly in the current context of information security warnings and ethical concerns in AI usage, socio-cultural and ethical factors play a more critical role than cost and infrastructure considerations.

Overall, textile enterprises and experts agree that AI as a tool to make cost management accounting faster and more accurate. However, AI application in CMATGE presents both opportunities and risks. Enterprises need a responsible AI usage framework that emphasizes fairness, transparency, explainability, accountability, and data security. Experts also recommend that all AI-generated outputs in CMATGE must be carefully verified by management accountants and production managers and approved by the chief accountant and enterprise leadership. Many companies follow the trend of using AI in accounting generally and CMATGE specifically but they have not yet established clear control mechanisms, impact evaluation procedures, or selected the most appropriate AI applications. While AI saves time, it also blurs the line between human and machine tasks especially in roles requiring professional judgment and in-depth CMATGE analysis. Survey results further indicate

that CMATGE is entering a period of profound transformation. Technology adoption is inevitable but it demands careful and strict control. Without it, the risk of losing control may undermine trust in cost information provided by management accountants and affect the long-term operations of textile enterprises.

From an opportunity perspective, AI promises unprecedented breakthroughs: the ability to process millions of transactions in a short time and detect sophisticated fraud that humans may miss. Consequently, many textile enterprises are investing in paid AI systems to enhance information efficiency. However, these opportunities only translate into real value when paired with responsibility. AI may change work processes, but it cannot replace the ethics and professional expertise of management accountants or accountants in general. These findings also emphasize that to maximize AI's effectiveness in CMATGE, appropriate solutions and strategic directions must be implemented.

4. Conclusion

Authors propose following conclusions on enhancing the effectiveness of AI applications in cost management accounting for the textile industry:

First, enterprise leadership must ensure absolute transparency in the use of AI. Any content created or supported by AI tools in CMATGE such as budget preparation, cost standard setting, or analysis of production scenarios should be clearly disclosed to all relevant stakeholders within the company. Enterprises need to simultaneously evaluate both the capabilities of AI and the complexity of CMATGE tasks, as well as the characteristics of their production processes, in order to develop an AI application strategy that is well-suited to their specific operations.

Secondly, Vietnamese garment enterprises need to further strengthen training on AI and AI supervision skills, as well as cultivate proper thinking about AI application in managerial cost accounting to avoid information risks that could mislead management accountants and negatively impact business operations. Management accountants need to thoroughly understand how AI operates in the specific tasks where it is applied, recognize the technology's limitations, and be able to evaluate the reasonableness of its outputs. They must learn how to "supervise AI," analyze results, and assess technological risks, understanding the way AI "thinks." Management accountants must also uphold accounting professional ethics; regardless of technological advancement, the core principles of accounting honesty and objectivity must always be maintained. The authors propose the following model for applying AI in managerial cost accounting for garment enterprises:AI adoption: Use AI to support basic tasks in cost accounting. Leverage AI: Proactively apply AI to complex, repetitive, and large-data processes in managerial cost accounting. Monitor AI: Always thoroughly understand AI before implementing it in managerial cost accounting tasks, and supervise for transparency.

Thirdly, some specific solutions for optimizing value of AI are as follows:

- Organize workshops and internal training to help cost accountants get familiar with AI and applying AI in managerial cost accounting.

- Develop an AI-first training program to encourage cost accountants to actively apply AI in their work.

- Reward individuals/teams with creative AI initiatives that help optimize work.

- Remind cost accountants who do not comply with AI application.

- Train cost accountants on AI tools and how to apply AI in CMATGE.

- Develop sample documents, organize short-term courses, and practices.

The above conclusions provide guidance for Vietnamese textile enterprises to base on their actual situation in order to enhance the effectiveness of AI application in managerial cost accounting, aiming at cost savings, cost optimization, and compliance with green standards in the textile industry.

References:

Dao Xuan Tien (2009), Enterprise Management Accounting, Finance Publishing House

Mantello P, et al (2023), Machines that feel: behavioral determinants of attitude towards affect recognition technology upgrading technology acceptance theory with the mindsponge model, Humanities and Social Sciences Communications, 10, 430.

Zhaoshan Wu & partners (2022), Knowledge roadmap of sustainable development in the textile and apparel industry: a scientometric analysis, Fashion and Textiles, Knowledge roadmap of sustainable development in the textile and apparel industry: a scientometric analysis | Fashion and Textiles | Full Text

Davis FD (1989), Perceived usefulness, perceived ease of use, and user acceptance of information technology, MIS Quarterly, 13(3), 319-340.

Viswanath Venkatesh, Michael G. Morris, Gordon B. Davis and Fred D. DavisSource, User Acceptance of Information Technology: Toward a Unified View, 2003, MIS Quarterly, Vol. 27, No. 3 (Sep., 2003), pp. 425-478

Minh Hung (2021), A new vision for sustainable development of Vietnam's textile industry before the pandemic, VietnamPlus, Tầm nhìn mới phát triển bền vững ngành dệt may Việt Nam trước đại dịch | Vietnam+ (VietnamPlus)

Nguyen Thi Hoang Yen (2024), Applying Artificial Intelligence (AI) in accounting work in Vietnam, Economic and Forecast Journal, Áp dụng trí tuệ nhân tạo (AI) trong công tác kế toán tại Việt Nam | Tạp chí Kinh tế và Dự báo