THE IMPACT OF AI ON TAX COMPLIANCE BEHAVIOR AMONG SMALL AND MEDIUM-SIZED ENTERPRISES IN HANOI: A UTAUT-BASED APPROACH

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Abstract: ***This study examines the impact of artificial intelligence (AI) applications on tax compliance behavior of small and medium-sized enterprises (SMEs) in Hanoi, using the UTAUT model to analyze the factors influencing the acceptance and use of AI in tax compliance tasks. With the rapid development of digital technology, AI application in tax management can reduce errors, optimize the process of tax declaration and payment, enhance transparency, and lower compliance costs. The factors in the UTAUT model, including Perceived Usefulness of AI, Perceived Ease of Use of AI, Habit Use of AI, Facilitating Conditions, and AI Use Behavior, all affect the Tax Compliance of SMEs. The results indicate that these factors have a positive and statistically significant impact on AI Use Behavior, which in turn contributes to enhancing tax compliance among enterprises. The model also confirms that AI Use Behavior acts as a mediating factor in the relationship between Perceived Usefulness and Facilitating Conditions with Tax Compliance. The findings provide empirical evidence on the application of AI in tax management and offer policy recommendations to help SMEs effectively implement AI, thereby improving tax compliance and contributing to the digital transformation of Vietnam's tax system.***

• Keywords: *artificial intelligence, tax compliance, technology adoption model.*

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Introduction

Vietnam is undergoing a rapid digital transformation, and artificial intelligence (AI) is increasingly being adopted across a wide range of socio-economic domains. According to findings released by the Worldwide Independent Network of Market Research (WIN) in July 2025 on public awareness, use, trust, and concerns regarding AI, Vietnam has made a notable mark on the global AI landscape, ranking 6th out of 40 countries and territories, with a score of 59.2/100. Against this backdrop, small and medium-sized enterprises (SMEs) in Vietnam are facing both opportunities and challenges in adopting emerging technologies, particularly AI, in production, business operations, and financial management. Given their limited resources, partially non-standardized management systems, and uneven levels of technological capability, compliance with tax regulations remains a complex task for many SMEs. Errors in tax declaration, tax payment, and supporting document retention are still widespread, leading to higher compliance costs and increased risks of penalties or tax audits.

In this context, AI is emerging as a promising support solution, enabling firms to automate accounting and tax-related processes, forecast risks, detect errors, and enhance transparency in financial activities. However, SMEs' acceptance of and readiness to use AI depend not only on financial capacity and technological infrastructure, but also on users' perceptions, psychological factors, and expectations within the organization. Therefore, examining the determinants of AI acceptance and use in tax compliance practices is essential to promote effective and context-appropriate adoption among Vietnamese SMEs.

Drawing on the UTAUT model, a well-established theoretical framework in technology acceptance and use research, this paper investigates the factors influencing SMEs' intentions and behaviors in using AI for tax compliance, while also assessing the impact of AI adoption on the level of tax compliance. The findings are expected to provide empirical evidence for tax administration in the context of digital transformation and to offer implications for supporting SMEs in deploying AI more effectively.

1. Literature review and research hypotheses

International and domestic studies indicate that digitalization and the use of AI in taxation

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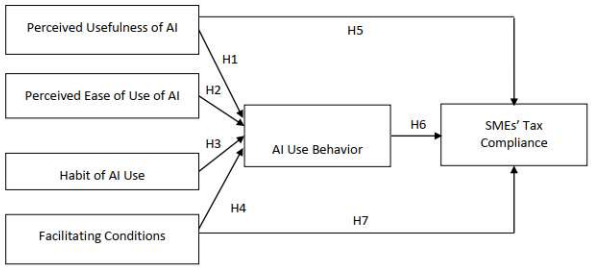
can improve monitoring, fraud detection, and risk identification, thereby enhancing tax compliance through deterrence and more targeted audits (Saragih et al., 2022). In addition, AI can reduce compliance costs by automating tax filing and payment procedures, providing taxpayer support and query resolution, and simplifying processes - particularly for SMEs (Belahouaoui & Attak, 2024). Moreover, AI adoption may strengthen firms' tax governance by forecasting tax liabilities, issuing error alerts, and supporting tax planning while remaining within a compliance framework (Barik & Ranawat, 2024).

In Vietnam, research on digital transformation and corporate tax compliance suggests that "digital transformation" has the strongest effect on compliance ($\beta \approx 0.58$), operating through changes in business models, the expansion of electronic payments, electronic tax filing and payment, and the future orientation toward more intelligent applications (Dao & Hang, 2022). This implies that when AI is more deeply integrated into the existing digital ecosystem, its potential to enhance compliance could be substantial.

Models of AI acceptance in taxation have also been examined in international research. Specifically, TAM/UTAUT-based models show that both perceived usefulness and perceived ease of use have positive and statistically significant effects on intention to use AI (Technology Acceptance Model-TAM) (Ambarwati et al., 2024). Extended variables may include trust in AI, concerns about data security, attitudes toward technology, organizational support, and subjective norms (UTAUT) (Leffew, 2024; Hakam et al., 2024). Similar approaches have been used to evaluate readiness for AI adoption in Indonesia's tax system, incorporating additional frameworks such as "AI readiness" and "IT governance success factors" (Saragih et al., 2022; Vivian et al., 2023).

In this study, the author adopts the UTAUT model (Venkatesh et al., 2003), one of the most widely used frameworks for explaining technology use intention and behavior. UTAUT synthesizes eight theories of behavior and technology, and in this research it is applied to identify key factors influencing SMEs' intention to adopt AI and the subsequent use of AI in tax compliance in Vietnam. Specifically, the proposed factors include: (i) perceived usefulness of AI, (ii) perceived ease of use of AI, (iii) habit of using AI, (iv) facilitating conditions, and (v) usage behavior. Accordingly, the hypotheses and the proposed research model are presented as follows:

Figure 1. The proposed research framework



Source: Authors' proposal.

Hypothesis H1: Perceived usefulness of AI has a positive effect on SMEs' AI use behavior.

Hypothesis H2: Perceived ease of use of AI has a positive effect on SMEs' AI use behavior.

Hypothesis H3: Habit of AI use has a positive effect on SMEs' AI use behavior.

Hypothesis H4: Facilitating conditions have a positive effect on SMEs' AI use behavior.

Hypothesis H5: Perceived usefulness of AI has a positive effect on SMEs' tax compliance.

Hypothesis H6: Facilitating conditions have a positive effect on SMEs' tax compliance.

Hypothesis H7: SMEs' AI use behavior has a positive effect on SMEs' tax compliance.

2. Research methodology

2.1. Measurement scales for research concepts in the model

All measurement scales for the factors in this model are clearly sourced and have been adapted and developed based on the original UTAUT model by Venkatesh et al. (2012).

Table 1. Summary of measurement scales for independent and dependent variables

Concept	Code	Measurement Description	References
Perceived Usefulness of AI (PU)	PU1	AI helps reduce errors in tax filing	Venkatesh, 2003, Davis et al.,1989, Ambarwati et al., 2024; Leffew, 2024; Hakam et al., 2024
	PU2	AI helps save time in processing tax data	
	PU3	AI supports optimization of tax filing procedures	
	PU4	AI helps reduce risks of tax penalties	
	PU5*	AI improves the ability to automate tax inspection and audits	
	PU6	AI increases transparency in tax filing	
Perceived Ease of Use of AI (PE)	PE1	The interface of AI is easy to understand and use	Venkatesh et al.,2008; Davis et al.,1989; Chan, 2004, Ambarwati et al., 2024; Leffew, 2024; Hakam et al., 2024
	PE2	AI installation process is simple	
	PE3	AI support tools are easy to use	
	PE4	No deep training is required to use AI effectively	
	PE5	AI integrates easily with existing systems	
Habit of AI Use (HU)	HU1	The enterprise uses AI regularly in tax operations	Limayem et al, 2007; Zhou, T. (2013); Venkatesh et al, 2012
	HU2	AI has become an indispensable tool in tax operations	
	HU3	The enterprise feels comfortable when using AI for tax purposes	
	HU4	AI helps save time, so enterprises frequently use AI	

Concept	Code	Measurement Description	References
Facilitating Conditions (FC)	FC1	The enterprise has sufficient financial resources to deploy AI	Venkatesh et al, 2012; Davis et al.,1989
	FC2	The enterprise's technology infrastructure is compatible with AI	
	FC3	Support from AI experts or service providers is available	
	FC4	The enterprise has human resources capable of applying AI	
AI Use Behavior (UB)	UB1	The enterprise uses AI to support regular tax filing	Tapanainen et al, 2019; Venkatesh & Davis, 2000
	UB2	The enterprise frequently uses AI to detect errors in tax filing	
	UB3	The enterprise uses AI to automate tax report generation	
	UB4	The enterprise uses AI to track tax policy changes	
	UB5	The enterprise uses AI to ensure accuracy in tax calculations	
Tax Compliance (TC)	TC1	The enterprise files taxes accurately and completely	Singh & Bhupalan, 2001, Kleven et al, 2011; Bùi Ngọc Toản, 2017, Kirchler et al, 2008
	TC2	The enterprise submits taxes on time and in full	
	TC3	The enterprise does not violate any tax regulations	

Source: Compiled by the author

2.2. Research data

- *Sample:* The study uses a purposive non-probability sampling method with systematic selection protocols. Although probability sampling is ideal, due to the specific nature of the positions in SMEs, it is necessary to select individuals with knowledge of AI applications in tax filing activities. The study uses primary data collected through surveys sent to managers of SMEs in Hanoi. The survey consists of two parts: Part 1 contains general information, and Part 2 includes questions using a 5-point Likert scale to assess the impact of AI on tax compliance among SMEs in Hanoi. To ensure objectivity and reliability, the author distributed 300 surveys and received 278 valid responses for analysis.

- *Data Collection:* Data was gathered by reviewing previous literature to identify measurement scales for the key variables in the UTAUT model. A structured questionnaire was sent to the target sample, with a 5-point Likert scale used, where 1 = "Strongly Disagree"; 2 = "Disagree"; 3 = "Neutral"; 4 = "Agree"; and 5 = "Strongly Agree". Additionally, "reverse-scored questions" were included to eliminate low-quality responses or those where respondents provided superficial answers.

- *Data Analysis:* The data analysis follows the recommendations of Hair, Risher, Sarstedt, and Ringle (2019), in which the measurement model is analyzed for internal consistency, convergent validity, and discriminant validity. Once the measurement model is validated, the structural model is used to test the statistical hypotheses and assess the quality of the PLS-SEM model.

3. Research Results

3.1. Measurement Model Analysis

According to Hair et al. (2019), the measurement model should be assessed based on criteria of reliability, convergent validity, and discriminant validity.

Table 2. Reliability and convergent validity assessment of constructs

No.	Research Concept	Observed Variables	Outer Loadings	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
1	Perceived Usefulness of AI (PU)	PU1	0.831	0.845	0.886	0.570
		PU2	0.866			
		PU3	0.815			
		PU4	0.751			
		PU5*	0.498			
		PU6	0.709			
2	Perceived Ease of Use of AI (PE)	PE1	0.721	0.820	0.874	0.581
		PE2	0.761			
		PE3	0.790			
		PE4	0.811			
		PE5	0.723			
3	Habit of AI Use (HU)	HU1	0.778	0.763	0.848	0.582
		HU2	0.744			
		HU3	0.762			
		HU4	0.768			
4	Facilitating Conditions (FC)	FC1	0.754	0.768	0.850	0.587
		FC2	0.778			
		FC3	0.802			
		FC4	0.730			
5	AI Use Behavior (UB)	UB1	0.806	0.862	0.901	0.645
		UB2	0.832			
		UB3	0.808			
		UB4	0.803			
		UB5	0.763			
6	Tax Compliance (TC)	TC1	0.782	0.760	0.862	0.675
		TC2	0.855			
		TC3	0.826			

** The variable PU5 was excluded due to its loading coefficient being lower than 0.708*

Source: Analysis results using SmartPLS 4

Reliability: The data analysis results in Table 2 show that all 27 observed variables have outer loadings greater than the threshold value of 0.708, as recommended by Hair et al. Additionally, the Cronbach's alpha values for the six research constructs range from 0.760 to 0.862, meeting the reliability requirement (greater than 0.7). Moreover, the composite reliability values for all six research constructs range from 0.848 to 0.901 (above 0.7). Thus, the measurement model demonstrates internal consistency reliability.

Convergent Validity: The results in Table 2 indicate that the Average Variance Extracted (AVE) values for all research constructs exceed 0.5. Specifically, the AVE values for the six constructs range from 0.570 to 0.675, which confirms that all constructs meet the required level of convergent validity.

Discriminant Validity: Discriminant validity reflects the uniqueness or differentiation of a

construct when compared with other constructs in the measurement model. The traditional approach for assessing discriminant validity is to use the square root of AVE, as proposed by Fornell and Larcker (1981). A more recent approach uses the HTMT correlation index to determine the discriminant validity of latent constructs.

According to Fornell and Larcker's (1981) recommendation, the discriminant validity of a construct is confirmed if its square root of AVE is greater than the correlations between that construct and the other constructs. The results from Table 2 indicate that all latent constructs meet the discriminant validity requirement, as the square root of AVE (shown in bold on the diagonal) is higher than the correlations outside the diagonal (in the corresponding rows and columns).

Table 3. Discriminant validity assessment of constructs

Concepts	AI Use Behavior	Habit	Perceived Ease of Use	Perceived Usefulness	Tax Compliance	Facilitating Conditions
AI Use Behavior	**0.803**					
Habit	0.489	**0.763**				
Perceived Ease of Use	(0.595) 0.577 (0.675)	0.527 (0.655)	**0.762**			
Perceived Usefulness	0.552	0.485	0.507	**0.755**		
	(0.612)	(0.578)	(0.600)			
Tax Compliance	0.621	0.519	0.514	0.587	**0.822**	
	(0.752)	(0.663)	(0.648)	(0.702)		
Facilitating Conditions	0.542 (0.645)	0.480 (0.617)	0.560 (0.708)	0.502 (0.561)	0.549 (0.699)	**0.766**

Note:

The square root of AVE values are displayed on the bold diagonal (Fornell & Larcker criterion).

The values in parentheses represent the HTMT index.

Source: Analysis results using SmartPLS 4

Additionally, according to Garson (2016), the discriminant validity between two related constructs is confirmed when the HTMT coefficient ($HTMT_{ij}$) is less than 1. This indicates that the discriminant validity requirement between the measurement pairs i and j is satisfied. It can be observed that all values in parentheses (HTMT index values) are below 0.90, with the highest value being 0.752, which is less than 1. Therefore, all six research constructs meet the discriminant validity requirement.

3.2. Structural model analysis results

a) Hypothesis testing results

The results of hypothesis testing are presented in Table 4 and Figure 2. The SEM model was analyzed using the Bootstrap method with 5000 bootstrap samples to accurately estimate the relationships between the research constructs.

Table 4 shows that all direct relationships are statistically significant at the 95% confidence interval (P-value < 0.05). This indicates that all the primary effects in the PLS-SEM model are confirmed to exist. Specifically, all four factors - perceived usefulness, perceived ease of use, habit, and facilitating conditions - positively influence AI use behavior, meaning that these positive factors contribute to increasing the likelihood of AI use. Additionally, both AI use behavior, perceived usefulness, and facilitating conditions also positively influence tax compliance in SMEs.

Table 4. Hypothesis testing results

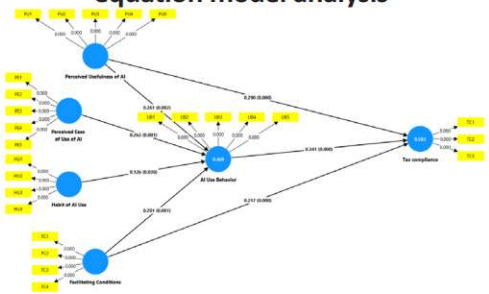
Relationships	Path Coefficient (O)	Standard Deviation	T-Value	P-Value	VIF Value	Effect	Hypothesis Conclusion
AI Use Behavior -> Tax Compliance	0.341	0.067	5.080	0.000	1.662	Positive Effect	Supported
Habit -> AI Use Behavior	0.126	0.061	2.072	0.038	1.575	Positive Effect	Supported
Perceived Ease of Use -> AI Use Behavior	0.263	0.079	3.329	0.001	1.760	Positive Effect	Supported
Perceived Usefulness -> AI Use Behavior	0.261	0.083	3.140	0.002	1.573	Positive Effect	Supported
Perceived Usefulness -> Tax Compliance	0.290	0.064	4.503	0.000	1.569	Positive Effect	Supported
Facilitating Conditions -> AI Use Behavior	0.201	0.063	3.211	0.001	1.666	Positive Effect	Supported
Facilitating Conditions -> Tax Compliance	0.217	0.056	3.888	0.000	1.546	Positive Effect	Supported

Source: Analysis results using SmartPLS 4 and compiled by the author

b) Mediation effect analysis

The PLS-SEM model analysis with the mediator variable reveals that "AI Use Behavior" plays a significant mediating role in the relationship between "Perceived Usefulness" and "Facilitating Conditions" on Tax Compliance. This is a type of mediation effect where both the direct and indirect effects are positive and statistically significant. Specifically, the direct effects of "Perceived Usefulness" and "Facilitating Conditions" on "Tax Compliance" are 0.290 and 0.217, respectively, both greater than 0 (P = 0.000 < 0.05), while the indirect effects through "AI Use Behavior" are 0.089 (P = 0.011) and 0.069 (P = 0.006), both positive. Therefore, both hypotheses regarding the mediator variable are supported.

Figure 2. Results of the PLS-SEM structural equation model analysis



Source: Results from SmartPLS 4 analysis

Note: The values on the corresponding paths are the path coefficients (outside the parentheses) and P-values (inside the parentheses); the values inside the blue circles represent the model fit coefficients (R^2).

Table 5. SEM model estimation with mediator variable

Relationships	Direct Effect		Indirect Effect		Mediation Effect Conclusion
	Path Coefficient	P - values	Path Coefficient	P - values	
Perceived Usefulness -> AI Use Behavior -> Tax Compliance	0.290	0.000	0.089	0.011	Mediation Supported
Facilitating Conditions -> AI Use Behavior -> Tax Compliance	0.217	0.000	0.069	0.006	Mediation Supported

Source: Results from SmartPLS 4 analysis

The mediation analysis reveals that the pathway through AI use behavior acts as an additional mediating mechanism to better explain the interaction from perceived usefulness and facilitating conditions to tax compliance in SMEs. This finding supports the mediation models based on AI use behavior in the context of the strong digital transformation within the tax sector.

c) Model quality assessment results

The usability of the constructed model also depends on phenomena such as its explanatory and predictive capabilities. The factors of Perceived Usefulness, Perceived Ease of Use, Habit, and Facilitating Conditions explain 46.6% of the variance in AI Use Behavior among SMEs. Meanwhile, the three factors - AI Use Behavior, Perceived Usefulness, and Facilitating Conditions - explain 50.3% of the variation in Tax Compliance among SMEs. Both R^2 coefficients for these two models are greater than 25%, indicating that the factors used are suitable for explaining the variation in Tax Compliance among SMEs.

Table 6. Evaluation of the explanatory power and predictive relevance of the SEM model

Concepts	R^2	Explanatory Power Rating	Q^2	Predictive Relevance
AI Use Behavior	0.466	Moderate	0.290	Moderate
Tax Compliance	0.503	Moderate	0.330	Moderate

Source: Analysis results using SmartPLS 4 and compiled by the author

Additionally, the Q^2 index is used to reflect the predictive accuracy of the model. Table 5 shows that the Q^2 coefficients for both structural models - "AI Use Behavior" and "Tax Compliance" - are greater than 0.25, with values of 0.290 and 0.330, respectively (falling within the range of 0.25 to 0.50). This implies that both structural models exhibit moderate predictive relevance.

Conclusion

This paper has examined the impact of AI applications on tax compliance among SMEs. By analyzing key variables, including perceived usefulness of AI, perceived ease of use, habit, and facilitating conditions, this study identifies factors contributing to SMEs' adoption of electronic tax compliance, ultimately supporting tax compliance in Vietnam, where SMEs make up over 90% of the total active businesses. The research explored factors influencing SMEs' acceptance of AI in tax filing. By considering these factors from various perspectives, the study highlights the reasons behind AI usage behavior in SMEs, which will ultimately assist in enhancing tax compliance in the country.

The results indicate that the UTAUT model is a useful framework to understand how AI technology for taxation is applied and used in Vietnam. SMEs are more likely to comply with taxes when they believe the tax system is favorable, efficient, and user-friendly. Key criteria such as perceived usefulness, perceived ease of use, habit, and facilitating conditions were found to be the main predictors of AI use behavior. Furthermore, since taxpayers are influenced by social norms as well as the availability of resources and support when using AI technology, perceived usefulness and facilitating conditions, including the resources and infrastructure of the enterprise, also play an important role in explaining tax compliance.

This study is significant for policymakers as it indicates that increasing perceived benefits and simplifying the use of the tax system, as well as enhancing social support and providing SMEs with access to adequate resources, could lead to higher tax compliance rates. The UTAUT model can be further improved in the context of digital transformation through future research.

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