

THE ROLE OF PERCEIVED USEFULNESS, EASE OF USE AND AUDIT EXPERIENCE IN THE SUCCESSFUL ADOPTION OF CAATS IN VIETNAM

Do Thi Thu Thuy^{1,2,*}, Trinh Chi Tam³, Nguyen Thi Dien⁴

¹*The School of Finance and Accounting, Industrial University of Ho Chi Minh City*

²*Thuyloi University*

³*The School of Finance and Accounting at Industrial University of Ho Chi Minh City*

⁴*Thuyloi University*

*Email: dthuykt139@gmail.com

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ABSTRACT

This study analyzes the factors affecting the successful application of Computerised Assisted Audit Tools And Techniques (CAATs) in Vietnam, based on UTAUT theory and successful information system models. Data from 290 auditors were analysed using PLS-SEM. The results showed that the perception of usefulness had the strongest influence on the successful adoption of CAATs, followed by audit experience and ease of use. At the same time, the successful adoption of CAATs has a very strong impact on audit benefits. The research contributes by integrating UTAUT with the professional competency factor and extending it to the output according to the successful information systems model.

Keywords: CAATs, UTAUT, audit technology, perceived usefulness, audit experience, IS Success Model.

1. INTRODUCTION

Digital transformation and the development of big data have significantly changed auditing activities. Technologies in auditing such as CAATs are reshaping the way audit evidence is collected and processed. Recent research indicates that technology can significantly improve audit efficiency, financial reporting accuracy, and reduce information asymmetry [1]. However, despite the potential benefits, the adoption of CAATs has not yet reached expectations. Studies show that the use of CAATs is limited due to barriers related to awareness, skills, and the organizational environment [2]. In this context, it is important to study the factors influencing the adoption of CAATs, especially in developing countries such as Vietnam, where the level of technological readiness and audit capacity is uneven.

In the last decade, auditing has shifted from traditional methods to audits based on data and technology. CAATs play a central role in this process because they allow auditors: to analyze data as a whole instead of selecting patterns, automate the audit process, and detect anomalies in real time. Recent review studies show that the application of technology in auditing such as CAATs improves audit efficiency, transparency and quality [3] [4]. However, the level of adoption of CAATs is uneven across countries. In developing countries, barriers such as technological infrastructure, cost, and auditors' digital skills limit implementation. This suggests that the adoption of CAATs is not only a technology issue, but also a matter of people and organizations [5].

The UTAUT model developed by Venkatesh et al. in 2003 is considered one of the strongest models in explaining technology acceptance behavior. UTAUT identifies two core factors: Performance Expectancy and Effort Expectancy.

In the CAATs study, much recent empirical evidence shows that these two factors have a significant influence on the use of audit technology. Specifically, the study by Fülöp et al. [6] indicates that performance expectancy is the most important factor driving the use of CAATs in auditing. Similarly, many other studies have also confirmed that auditors tend to use CAATs when they perceive that technology improves work performance [7]. As for the effort expectancy, recent studies show that ease of use has a positive but inconsistent effect. Some studies recorded a significant impact, while others showed a weaker effect than expected [8]. This reflects the peculiarities of the audit environment, where work efficiency is often prioritized over convenience of use. In addition, modern studies have expanded UTAUT by adding personal factors such as experience, competence, and beliefs, in order to enhance the ability to interpret behavior in highly specialized areas such as auditing [9].

In the context of auditing, experience is an important factor to help auditors understand the audit process, assess risks, and apply professional judgment. Recent studies show that experience not only directly influences but can also regulate the relationship between technological factors and usage behavior [7]. In particular, experienced auditors are able to integrate CAATs into the audit process more effectively, thereby enhancing the use value of technology. This is in line with studies on digital transformation in auditing, where human capacity is considered a determinant of the success of technology application [5].

The information systems success model of DeLone and McLean [10] emphasizes that system use and user satisfaction will lead to net benefits. In the context of CAATs, successful adoption (manifested in practical use and satisfaction) will lead to increased audit efficiency, reduced implementation time, and improved quality of evidence. Recent studies confirm that the use of CAATs can improve audit performance and support better decision-making.

Although there is a lot of research on CAATs, there are still some gaps such as: Lack of UTAUT Integration Research and Successful Information Systems Model, few studies examine the role of audit experience, lack of empirical evidence in developing economies such as Vietnam. Therefore, this study was carried out to fill the above gaps.

2. THEORETICAL BACKGROUND AND LITERATURE REVIEW

2.1. Theoretical background

2.1.1. UTAUT theory and its application in auditing CAATs

The UTAUT (Unified Theory of Acceptance and Use of Technology) model, developed by Viswanath Venkatesh et al. [11], is considered one of the most comprehensive theoretical frameworks for explaining technology acceptance behavior. UTAUT integrates from the eight previous theories and identifies four core factors that influence the use of technology: performance expectancy, effort expectancy, social impact, and supportive conditions. In the context of auditing, UTAUT has been widely used to analyze the application of CAATs [12]. Recent studies show that performance expectancy and effort expectancy are the two factors with the strongest and most consistent influence on the use of CAATs [6] [12]. In particular, in the digital audit environment, where big data and remote audits are increasingly popular, the use of CAATs has become an essential requirement to maintain audit efficiency and quality. In addition, recent studies have also highlighted that personal factors such as experience and competence play an important complementary role to UTAUT, especially in highly specialized areas such as auditing [13].

From that foundation, the study inherits the UTAUT theoretical framework and makes adjustments to the audit context, in which the perception of usefulness is approached on par with the performance expectancy, ease of use reflects the effort expectancy, and at the same time complements the audit experience variable as a representation of individual competence, in order to clarify the role of professional factors in promoting technology adoption behavior.

2.1.2. Successful model of information systems

The information systems success model of DeLone and McLean [10] is an important theoretical foundation for evaluating the effectiveness of information systems.

This model assumes that the use of the system and user satisfaction will lead to the net benefit of the system.

In the context of CAATs, many recent studies confirm that the effective use of technology audit tools can improve audit efficiency, improve the quality of evidence, and support better decision-making. At the same time, recent empirical studies have also shown that the application of CAATs has a direct impact on audit quality and operational efficiency [3] [4].

Therefore, this study inherits and applies the logic of the information system success model, whereby the successful adoption of CAATs - reflected through the level of actual usage combined with user satisfaction - is seen as a direct premise for creating audit benefits.

2.2. Research Hypothesis

According to UTAUT, performance expectancy is the most important factor influencing the use of technology. In auditing, CAATs help automate processes, analyze big data, and detect errors more effectively than traditional methods. Recent studies [6] [7] are consistent that performance expectancy has a positive and strong impact on the use of CAATs. When auditors are aware of the practical benefits, they tend to adopt the technology more frequently. Therefore, the authors make the following hypothesis:

Hypothesis H1: Usefulness has a positive impact on the successful adoption of CAATs.

Effort expectancy reflects how easy it is to use technology. According to UTAUT, the easier the technology is to use, the more likely it is to be adopted. Recent research shows that ease of use has a positive effect on the adoption of CAATs, although the level of effect may be lower than the usefulness [12]. This is especially true in audit environments, where users are willing to accept complexity if the technology offers high value. From there, the authors make a hypothesis:

Hypothesis H2: Ease of use has a positive impact on the successful adoption of CAATs.

The extended UTAUT allows for the integration of personal factors such as experience to explain the behavior of using technology. In auditing, experience helps auditors understand the audit process, integrate CAATs with professional judgment, and exploit tools more effectively. Recent studies show that experience plays a regulatory role or directly influences the adoption of CAATs [7] [13]. The authors propose the following hypothesis:

Hypothesis H3: Audit experience has a positive impact on the successful adoption of CAATs.

According to the successful information systems model, the use of the system and user satisfaction are the prerequisites for net benefit [10]. In auditing, CAATs, when applied effectively, will help reduce audit time, reduce manual work, improve the reliability of evidence, and improve the quality of audit opinions. Recent research confirms that the adoption of CAATs has a positive impact on audit efficiency and quality [6] [7]. Therefore, the authors make the following hypothesis:

Hypothesis H4: Successful adoption of CAATs has a positive impact on audit benefits.

3. METHODOLOGY

The study was conducted with auditors currently working at auditing firms and using CAATs. The participating auditing firms are headquartered in Hanoi and Ho Chi Minh City. The questionnaire was designed using Google Forms and distributed to respondents via email and the Zalo application. The survey was conducted from December 2025 to February 2026.

The study employed a quantitative research approach with 290 observations from audit professionals in Vietnam. The sample consisted of certified auditors (52.8%) and audit assistants (47.2%), with diverse levels of work experience, of which respondents with more than 10 years of experience accounted for the largest proportion (31.4%). The measurement scales were adapted from prior studies by Davis [14] and DeLone and McLean [10]. Data were analyzed using the PLS-SEM method, as it is considered suitable for predictive and exploratory research according to Hair [15].

4. RESULTS AND DISCUSSION

4.1. Results

4.1.1. Evaluation of the measurement model

Table 1. Reliability and Convergent Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Ease of Use	0.921	0.922	0.950	0.864
Experience	0.917	0.918	0.947	0.857
Benefits	0.888	0.898	0.922	0.747
Usefulness	0.887	0.890	0.946	0.898
Successful adoption of CAATs	0.914	0.916	0.940	0.795

Source: Calculation by SmartPLS 4.11

The results show that the measurement model achieves high reliability and value. Cronbach's Alpha ranges from 0.887 to 0.921 indicating high intrinsic reliability. The AVE values are all greater than 0.7, proving that the latent variables explain most of the variance of the observed variable.

Table 2. Discriminant Validity (HTMT)

	Ease of Use	Experience	Benefits	Usefulness
Ease of Use				
Experience	0.881			
Benefits	0.521	0.513		
Usefulness	0.676	0.698	0.613	
Successful adoption of CAATs	0.737	0.752	0.736	0.775

Source: Calculation by SmartPLS 4.11

The results showed that the HTMT index was less than 0.9 confirming the differential value, and the VIF was less than 5, excluding the multi-linear problem. As such, the measurement model is suitable for further structural model analysis.

Table 3. Collinearity Assessment

	VIF
Ease of Use -> Successful adoption of CAATs	3.071
Experience -> Successful adoption of CAATs	3.173
Usefulness -> Successful adoption of CAATs	1.744
Successful adoption of CAATs -> Benefits	1.000

Source: Calculation by SmartPLS 4.11

First of all, for the measurement model, the indicators show that the scale is very reliable and valuable. Specifically, the outer loadings of the observed variables are high, ranging from 0.839 to 0.952, far exceeding the recommended threshold of 0.7, thereby confirming the strong level of convergence between the observed variable and the latent concept. The internal consistency reliability of the scales is also ensured when the Cronbach's Alpha coefficients of the variables are all between 0.887 and 0.921. At the same time, the average variance extracted (AVE) values of all factors were greater than 0.7, suggesting that the latent variables explain most of the variances observed. In terms of differentiation values, the HTMT indices are all less than 0.881, lower than the threshold of 0.9, confirming that the research concepts have a clear distinction. In addition, the VIF values were all less than 3.173, indicating that there was no significant multicollinearity in the model.

4.1.2. Structural model

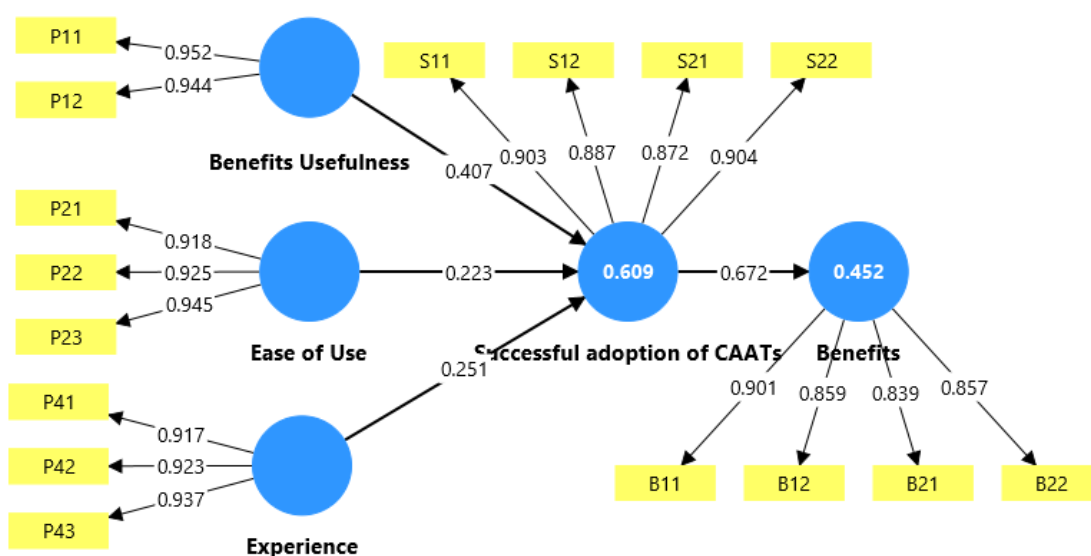


Figure 1. Overview of the relationship among variables.

Source: Calculation by SmartPLS 4.11

Figure 1 illustrates the relationships and the magnitude of the effects among the variables in the research model. To evaluate these relationships, the author summarizes the path coefficients (β), p-values, effect sizes (f^2), and hypothesis testing results in Table 4 as follows.

Table 4. Structural Model Results

Hypotheses		β	p-value	f^2	Results
H1	Benefits Usefulness -> Successful adoption of CAATs	0.407	0.000	0.242	Supported
H2	Ease of Use -> Successful adoption of CAATs	0.223	0.007	0.042	Supported
H3	Experience -> Successful adoption of CAATs	0.251	0.002	0.051	Supported
H4	Successful adoption of CAATs -> Benefits	0.672	0.000	0.826	Supported

Source: Calculation by SmartPLS 4.11

In terms of hypothesis testing, all relationships in the model are statistically significant. Specifically, the perception of usefulness had the strongest effect on the adoption of CAATs ($\beta = 0.407$; $p < 0.001$), followed by audit experience ($\beta = 0.251$; $p < 0.001$) and ease of use ($\beta = 0.223$; $p < 0.01$). This result shows that although all three factors have a positive impact, the degree of influence is different, with the perceived factor of benefits playing a dominant role. Notably, the application of CAATs has a very strong impact on audit benefits ($\beta = 0.672$; $p < 0.001$), suggesting the central role of this variable in transforming inputs into outputs.

Effect size (f^2) analysis provides further evidence of the relative importance of relationships. Specifically, usefulness had a moderate to strong effect on the adoption of CAATs ($f^2 = 0.242$), while audit experience ($f^2 = 0.051$) and ease of use ($f^2 = 0.042$) had only a small effect. In contrast, the effect of the application of CAATs on audit benefits is very large ($f^2 = 0.826$), suggesting that this is a decisive relationship in the model.

Table 5. Predictive Power

Variable	R^2	Q^2_{predict}
Successful adoption of CAATs	0.609	0.596
Benefits	0.452	0.318

Source: Calculation by SmartPLS 4.11

For the structural model, the results show that the model has a relatively high level of interpretation. Specifically, the R^2 value of the variable "successfully applied CAATs" reached 0.609, indicating that the independent variables in the model explained 60.9% of the variable's variability. Meanwhile, the R^2 value of the "audit benefit" variable is 0.452, reflecting a moderate to fair level of explanation in behavioral research. In addition, the Q^2_{predict} values of both dependent variables were greater than 0 (0.596 for CAATs and 0.318 for benefits), confirming that the model has good predictability.

Taken together, the empirical results not only confirm the research hypotheses but also indicate that the successful adoption of CAATs serves as an important intermediate variable, connecting the factors of auditors' perceptions and competencies with the audit benefits achieved in practice.

Table 6. Model fit

	Saturated model	Estimated model
SRMR	0.058	0.060
d_ULS	0.452	0.484
d_G	0.524	0.527
Chi-square	934.251	938.821
NFI	0.795	0.794

The model fit results indicate that the SRMR values for the saturated model (0.058) and estimated model (0.060) are both below the recommended threshold of 0.08, demonstrating a good model fit. In addition, the NFI values of 0.795 and 0.794 suggest an acceptable level of model fit for this PLS-SEM study.

4.2. Discuss and implications

This study aims to clarify the factors driving the successful adoption of CAATs and how to transform this adoption into audit benefits in the Vietnamese context. The experimental results not only confirm the proposed hypotheses but also provide important evidence of the relative role of each element in the UTAUT integrated model - a successful information system.

4.2.1 The dominant role of the perception of usefulness (H1)

The results showed that the perception of usefulness had the strongest effect on the successful adoption of CAATs ($\beta = 0.407$; $f^2 = 0.242$). This is fully consistent with the UTAUT theoretical foundation, in which performance expectancy is seen as the strongest predictor of technology behavior [11].

This finding is consistent with recent studies in the field of auditing. For example, Lutfi and Alqudah [16] and Atta et al. [12] both point out that auditors are only willing to adopt CAATs when they perceive that technology offers clear value in enhancing work performance and quality. Similarly, the study by Fülöp et al. [6] emphasizes that the ability to analyze data comprehensively and detect anomalies is a key driver of the adoption of technology in auditing.

However, this result also reflects an important feature of the Vietnamese context, pragmatism in technological behavior. Unlike the consumer or administrative fields, auditing is a highly specialized profession where decisions to use technology are weighed based on job efficiency rather than convenience. This explains why the impact factor of usefulness outperforms other factors.

From a theoretical perspective, this finding reinforces the argument that in highly specialized contexts, performance expectancy is not only the most important factor, but also plays a role almost as a prerequisite for technology adoption.

4.2.2. Ease of use, a necessary but not sufficient factor (H2)

Ease of use has a positive impact on the adoption of CAATs ($\beta = 0.223$), however the impact is significantly lower than usefulness. This result is consistent with many recent studies that show that the role of effort expectancy tends to decline in contexts where users are highly qualified [11] [6].

Some empirical studies in auditing have also recorded the same phenomenon. For instance, a study in Sri Lanka in 2024 showed that ease of use has an influence but is not a decisive factor, while usefulness remains a dominant role [8]. This reflects that the auditor is willing to accept complex technology if the benefits obtained are large enough.

This result can be explained through the specifics of the occupation. Auditors often have a high professional background and ability to learn, the pressure on audit quality and efficiency is greater than the cost of learning technology, CAATs tools are often used in environments with supportive training.

Ease of use thus becomes a sustaining factor - necessary to avoid hindrance, but not enough to promote adoption if there is a lack of practical value.

From a theoretical perspective, these results suggest that the role of the effort expectancy should be re-evaluated in specialized technology research, rather than assuming the effect is equal to the effort expectancy.

4.2.3. Auditing experience, a bridge between technology and practice (H3)

Audit experience has a significant positive impact on the adoption of CAATs ($\beta = 0.251$), with a greater impact than ease of use. This result extends UTAUT by demonstrating that the individual competency factor plays an important role in the audit context.

This finding is consistent with recent studies [13] [7], in which experience is considered a factor to help auditors understand the audit process, choose the right tools, and combine CAATs with professional judgment.

It is worth noting that the role of experience is not only direct but also transformative. Specifically, the auditor is experienced, capable of transforming technology from a technical tool into a practical value-creating tool. This is especially important in audits, where results are highly dependent on professional judgment.

Compared to previous studies that have primarily viewed experience as a regulatory variable, the results of this study suggest that experience can act as an independent variable that has a direct influence. This is an important theoretical contribution, especially in the context that recent research is shifting from technology-centric to human-centric.

4.2.4. Application of CAATs and Audit Benefits, Core Relationships (H4)

The results showed that the successful adoption of CAATs had a very strong impact on audit benefits ($\beta = 0.672$; $f^2 = 0.826$), confirming the central role of this variable in the model. This finding is consistent with DeLone and McLean's [10] model of successful information systems, in which system usage and user satisfaction are the prerequisites for net benefit.

Recent studies provide similar evidence. For example, the study by Fülöp et al. [6]; Alsarayrah et al. [7] show that the adoption of CAATs improves audit efficiency and the quality of evidence. Similarly, the study by Appelbaum et al. [17] highlights the role of technology in improving audit quality in a big data environment.

However, the notable point in this study is the very large level of impact ($f^2 = 0.826$), showing that the successful adoption of CAATs is not only a supporting factor but a decisive factor in generating audit benefits.

This leads to an important implication, that implementing technology is not synonymous with creating value, only when the technology is used effectively and regularly, the benefits are realized.

4.3. Theoretical implications

The study makes an important contribution to the flow of research that accepts and uses technology in auditing by affirming and at the same time expanding the role of factors in the UTAUT model by Venkatesh et al. [11] in a highly specialized context. Specifically, the perception that usefulness outweighs ease of use suggests that auditors' technology behavior is highly pragmatic, suggesting that technology adoption models need to be adapted to professional contexts rather than universally adopted. At the same time, the study repositions

the role of audit experience as a dynamic competency, capable of driving or inhibiting the adoption of technology depending on the degree of integration with IT skills. More importantly, by integrating UTAUT theory with DeLone and McLean's successful model of information systems, the study clarifies the mechanism of transformation from cognition to behavior and from behavior to benefit, thereby shifting the focus of research from technology adoption to successful use of technology in auditing.

4.4. Governance implications

From a practical perspective, the findings imply that audit organizations need to shift from a technology implementation mindset to technology behavior management, if they want to maximize the value of CAATs. First of all, since the perception of usefulness is the dominant factor, organizations need to focus on communicating and clearly demonstrating the practical benefits of CAATs on audit efficiency and quality, rather than just emphasizing the technical aspect. At the same time, although ease of use is not a decisive factor, user-friendly system design and real-world training still play an important role in reducing the barrier to initial adoption. In addition, it is necessary to develop human resources in the direction of integration between audit experience and technological capacity, through continuous training and a hands-on learning environment. Finally, to transform technology into concrete benefits, organizations need to promote the use of CAATs on a regular and systematic basis, by integrating them into the audit process and establishing appropriate incentive mechanisms, rather than just stopping at the level of formal implementation.

4.5. Research limitations and future research directions

While the study provides valuable empirical evidence on the factors influencing the adoption of CAATs, some limitations still need to be considered. First of all, the data is collected in the context of Vietnam, so the ability to generalize to countries with different levels of technological development and audit environment is still limited. In addition, the cross-sectional research design only reflects the relationship at a time, and does not capture the dynamics of the technology application process over time. In addition, the model mainly focuses on individual factors without fully considering the role of organizational and environmental factors, while these can be important factors shaping the behavior of using CAATs. The use of self-reported data can also lead to certain cognitive biases. Therefore, future studies should expand the scope of the survey in the direction of multi-country comparison, apply vertical research design, integrate multi-factor (individual - organization - environment), and use actual behavioral data and separate specific types of CAATs to improve the accuracy and generality of the research results.

5. CONCLUSION

The study clarifies the roles of perceived usefulness, perceived ease of use, and audit experience in driving the successful adoption of CAATs in Vietnam. The findings indicate that perceived usefulness exerts the strongest influence, reflecting the pragmatic behavioral orientation of audit professionals. Moreover, the successful adoption of CAATs serves as a critical mediating mechanism, transforming input factors into tangible audit benefits. These results not only reinforce the theoretical foundations of technology acceptance but also extend them toward effective utilization in practice. From a managerial perspective, the study highlights the importance of enhancing awareness of technological value and developing auditors' competencies. Overall, this study provides valuable empirical evidence supporting digital transformation in the auditing profession.

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