The Impact of Top Management Support on Computer-Assisted Audit Tools (CAATs) Adoption: Mediating Effects of Auditor IT Competency and Innovativeness with a Focus on Perceived Usefulness

HUSSAM MOHAMMAD ALI AL OMARI[1], MOHD RIZUAN ABDUL KADIR[1],
RAEDAH BTE. SAPINGI[1], AHMAD AL-DALAIEN[2]
[1]Business School,
Universiti Tenaga Nasional (UNITEN),
MALAYSIA

[2]Cyber Security Department, Faculty of Science and Information,
Irbid National University
JORDAN

Abstract: - The study intends to investigate the impact of Top Management Support (TMS) on adopting Computer-Assisted Audit Tools (CAATs). This study used the roles of Auditor IT Competency (ITC) and Innovativeness (AI) as mediating and Perceived Usefulness (PU) as moderators, which might influence the relationship between TMS and CAAT adoption. The comfort environment in the Jordanian conventional audit industry has raised the issue of the importance of moving towards CAAT utilization due to the shifted business environment toward automation. CAATs are known for their effectiveness in facilitating audits. The adoption of CAATS depends very much on the support of the top management. With auditor IT competency and innovativeness, it is expected to create a more favorable environment for CAATs' adoptions. This study adopts a quantitative approach using a questionnaire collected from personnel who work closely in the audit environment. They are selected from the company listed on the Amman Stock Exchange. The findings revealed a significant impact on TMS and CAATS by adding the effects of TMS and ITC on the relationship between TMS and CAAT adoption intention; again, a significant result is revealed. However, the PU showed mixed moderating effects. This study highlights the importance of top management support and the influence of certain auditor characteristics that would encourage the adoption of new audit technologies in the company. It provides valuable insights for audit firms and professionals on the possibility of switching to new technology to keep up with the changes in the business dynamic.

Key-Words: - Computer-Assisted Audit Tools (CAATs), Accounting Information System, Top Management Support, Auditor IT Competency, Auditor Innovativeness, Perceived Usefulness.

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1 Introduction

It is possible that auditors and other stakeholders who are used to manual audits will not be pleased by the incorporation of CAATs into the auditing operations of an organization. This is because CAATs are not as efficient as manual audits.

Accepting and accepting responsibility for these issues is one approach that may be used. Considering that CAATs might potentially replace them or provide more significant security challenges, it is probable that they will not adopt new technology. Particularly CAATs are prepared for any and all situations, [1]. We should also be concerned about the prospect that CAATs may take advantage of their position, which is another factor that should worry us. Some individuals are sluggish to adopt new technology because they are afraid of the risks involved. Assuming that CAATs were to assume control of their position, it would result in a significant level of terror among the people. As a consequence of this, there is a risk that one or more individuals would be reluctant to adopt new technology. It is impossible to completely rule out the chance of undesirable outcomes. You must acquire and put into practice the required skills in order to guarantee that CAATs are installed and operated correctly. Furthermore, the addition of another factor makes solving this problem considerably more challenging. It is only via the use of this particular methodology that the assurance of

a solution is possible. Despite the fact that the organization has the necessary skills, there can be a learning curve, a need for more training, or a demand for technically inclined individuals. However, should the information not be provided, the business may find it challenging to use it. The individual is at a significant risk from this sickness, it is crucial to remember. This exposes the business to a degree of risk that is deemed to be significant. This may be due to the challenging nature of the adoption process for young children. This predicament has emerged as a result of the company's unwillingness to start the process of growth. The possibility exists that the adoption process might become harder over time, [2].

A company's business operations and information technology architecture may experience significant problems as a consequence of the incorporation of CAATs. The organization may suffer greatly as a result of these difficulties. It's feasible that this will occur. It is possible that in order for CAATs to get data that is pertinent to analysis, it will be essential for them to make use of a broad variety of software programs and data sources. This stage is currently being conducted to collect the crucial data for the analysis. Working collaboratively and being cautious while preparing are essential to reducing the risk of compatibility difficulties and data integrity concerns throughout the integration process, [3].

Because of their quantifiable advantages, CAATs are a crucial component of contemporary auditing procedures. Actual data acquired throughout the auditing process supports the conclusion that CAATs significantly improve audit effectiveness. Among the numerous that are now in use are information assurance systems like the CAAT. The use of CAATs has the potential to cut the audit cycle time by forty percent from its current level, [4]. They are obligated to overcome this challenge since doing so will enable them to save considerable amounts of time. According to further research [5], it has been established that CAATs may boost accuracy by sixty percent while simultaneously reducing mistakes by those same sixty percent. Over the course of manual auditing, this represents a significant improvement. The use of CAATs has been shown to have the capability of significantly enhancing both precision and accuracy in this specific sector. Among the outcomes that are considered to be positive are those that are perfect. Performing a comprehensive data analysis was a challenging task for auditors in the past; however, this is now something that can be accomplished. You will be able to do this if you make use of CAATs. According to the findings of a follow-up research conducted, seventy-five percent of auditors believe that CAATs have the capacity to provide recommendations that are supported by significant data analysis. It is possible for CAATs to improve risk assessment and the discovery of fraudulent behavior by using these strategies. By using the capability to identify irregularities in transactional data and patterns that are inconsistent, CAATs have the potential to detect dangers and fill in gaps in a timely manner, [6]. Even though these are only a few of the numerous benefits that CAATs provide, there are many more. When CAATs are used to vast and intricate data sets, they make it easier to identify patterns and trends in the data. This is not just doable, but also achievable. Another quality that adds to the use of CAATs as tools is their capacity to be scaled up to a higher level, [6].

Since their role involves assessing and validating a company's financial accounts, internal auditors have the responsibility of guaranteeing the protection of shareholders' interests. The security of it must be ensured by internal auditors. If they are dependent on the management of the company, their work is seen as being very dependable. Because of this, independence criteria are given a significant degree of weight in many nations' present legal frameworks for statutory audits. This is the scenario in each of their native countries. [7], because the structure was in place, this is the result that happened. The financial industry often uses the risk of a market collapse—which may happen if management gets access to information that is only known by individuals inside the company—as justification for new laws. Investors are ignorant of both the phenomenon known as "information asymmetry" and the unethical behavior of auditors, which is also known as "moral hazard." In actuality, neither investors nor auditors are aware of these two instances. Because accounting systems are inherently vague and flexible, the individuals responsible for creating these financial reports may readily modify the data to provide a positive image of the organization's overall financial status. This is a consequence of accounting systems' ambiguity and flexibility. This process is known as "creative accounting" when it is used in a way that conforms with the law, [8].

Examining the variables that affect the adoption of CAAT in the auditing business is probably the study's main objective. Both Top Management Support (TMS) and Intention to Adopt CAAT (IACAAT) are regarded to be independent variables with their own unique characteristics. It's possible that the objective of this study is to establish the

nature of the relationship that exists between these two variables. In addition to the moderating impact of Perceived utility (PU), often known as the perceived utility of something, we also investigate the mediating roles of Audit or Competency and Audit or IT Competency.

This objective satisfies the criterion of understanding how internal organizational elements and auditor qualifications affect the internal decision-making process of the company, which shows that this objective is successful. Consequently, this objective is successful. This objective is especially crucial in view of the recent release of updated auditing technology. The study's findings might provide management and audit professionals with significant new knowledge on how to use CAAT efficiently.

2 Literature Review

As a direct result of advancements in technology, the field of internal auditing has seen significant changes during the last several decades, [9]. Considerable alterations have been made. Since most contemporary firms have automated their accounting processes, it is imperative that technology be used for internal audits, [10]. This is because technological advancement has been made possible by technology. There is a noticeable trend in the company environment toward a higher dependence on technology, which presents new auditing issues. This is because, in computerized organizational environments, only auditing abilities based on information technology can identify fraudulent conduct or flaws in IT systems, [11]. This is what started the whole thing. Performing the audit work might be difficult in today's increasingly computerized company environment if the appropriate information technology tools and techniques are not used, [11]. This is a consequence of increased automation in the audit function. It is becoming more and more important for auditors to use a broad variety of information technology-related tools and techniques in order to extend their expertise in this area and enhance the quality of their auditing, [10], [11]. Internal auditors are being asked to do data-driven audits and employ technology for data analysis more and more often. This is especially so since internal auditors are required to act with appropriate professionalism, [12].

In order to improve the quality of audit work, auditors created Audit Technology, [13]. Auditors have aggressively supported the auditing of technology. Assisting with internal auditing tasks is getting easier with the availability of technology-based alternatives such as CAATs, [14]. To accomplish the goal of thoroughly and successfully identifying and managing organizational risks, CAATs must be used. The use of CAATs has also been demonstrated to have a positive effect on audit report quality, [15]. Internal auditors must be knowledgeable about information technology risks, IT controls, and technology-based audit techniques, according to the Institute of Internal Auditors (IIA), [12]. Information technology aids in the creation of a more regulated environment in which the internal audit process may be carried out. As a result, achieving internal audit objectives requires effective use of information technology. A better IT auditing skillset among auditors is needed, according to several studies, for effective and efficient auditing in the future, [16].

2.1 Top Management Support (TMS)

Several studies demonstrated the influence of the TMS on the adoption of CAATs. For instance, the study that examines the adoption of artificial intelligence (AI) technology for talent acquisition demonstrates that top management support is among the factors that influence technology adoption for talent acquisition positively, [17]. Another study examines the elements that influence organizations' intentions to implement BDA in their everyday operations and also found that senior management support has a substantial effect on adoption intention, [18].

On the other hand, the study examined the impact of information technology capabilities (ITC) on organizational performance (OP) in the hospitality industry using TMS as mediating, and discovered that ITC is positively associated with OP and TMS acts as a moderator of the positive relationship between ITC and OP, [19]. Therefore, based on the previous studies, one could hypothesize the following:

Hypothesis 1 (H1): Top management support (TMS) significantly impacts the intention to adopt CAAT (IACAAT).

2.2 Auditor IT Competency (ITC)

The second segment of this study addresses the relationship between auditor ITC and the intention to adopt CAATs. The purpose is to examine how auditor skills in IT could lead to CAATs being adopted to perform their tasks. This relationship has been studied previously, [20]. In a study of students' ICT skills (as judged by self-efficacy) and their future intention to utilize mobile learning,

focusing on tertiary students, it was found that ICT skills had an effect on their intention to embrace mobile learning. It was discovered that both advanced and fundamental ICT skills played a key technology in the intention to embrace mobile learning, [20]. Therefore, the past studies indicate the following hypothesize is relevant to be tested:

Hypothesis 2 (H2): Auditor IT competency (ITC) mediates the relationship between top management support (TMS) and the intention to adopt CAAT (IACAAT).

2.3 Auditor Innovativeness (AI)

The third segment focuses on AI and Intention to adopt CAATs. This study investigates how the level of Auditors' innovativeness could affect the adoption of CAATs. Previous studies have examined the effect of guests' innovativeness on their intention to accept co-created new services and found that visitors' innovativeness is associated with an intention to embrace co-created new services, [21].

Another study aims to ascertain customers' intention to utilize online banking using the technology acceptance model (TAM) with the inclusion of three factors: consumer inherent innovativeness, domain-specific innovativeness, and perceived security risk. The results revealed that consumers' inherent innovativeness has a considerable beneficial effect on their intention to use online banking, [22]. However, the study that investigates the possibilities for tourism education in underdeveloped countries by means of mobile learning using TAM discovered that users' innovativeness was not as crucial for the attitude-intention relationship as previously believed, [23]. The mixed result provides an opportunity for further investigation that it is hypothesizing that:

Hypothesis 3 (H3): Auditor innovativeness (AI) mediates the relationship between top management-support (TMS) and the intention to adopt CAAT (IACAAT).

2.4 Perceived Usefulness (PU)

The fourth is addressing the relationship between PU and Intention to adopt CAATs; that is, the usefulness of CAATs from the auditors' point of view could affect the intention to adopt these techniques in their auditing tasks. Several studies discussed the association between these two variables. The study that aims to get an understanding of the significance and obstacles associated with implementing artificial intelligence (AI) and to explore the elements that influence customers' intention to embrace AI in banking services revealed that one's attitude toward PU has a substantial impact on one's intention to use, [24].

Another study investigated the factors that influence customer adoption of self-driving automobiles. The research establishes that PU has a beneficial influence on behavioral intention to embrace self-driving automobiles, [25]. An article examining the drivers of customers' intention to use mobile banking services in Zimbabwe found that PU has a favorable influence on behavioral intention to embrace mobile banking services, [26]. The study ascertains the intention and efficacy of DCP adoption for online learning among students enrolled in higher education institutions (HEIs) in India utilizing TAM, indicating that interaction, cost-effectiveness, and the key TAM characteristics as PU all contribute to students' favorable attitudes regarding DCP use and intention to embrace it in future, [27].

The hypothesis suggests that a positive relationship exists between PU and IACAAT. As auditors perceive CAATs as useful tools that can enhance their audit tasks, they are more likely to express an intention to adopt and integrate CAATs into their work practices. The hypothesis assumes that individuals are more inclined to adopt new technologies when they believe that using those technologies will result in tangible benefits and improvements in their work outcomes. Thus, if auditors perceive CAATs as valuable and advantageous for their audit tasks, they are more likely to be motivated to adopt and utilize CAATs in their daily work. Therefore, one could hypothesize the following:

Hypothesis 4 (H4): Perceived usefulness has a positive moderating effect on the relationship between top management support and the intention to adopt CAAT.

Hypothesis 5 (H5): Perceived usefulness has a positive moderating effect on the relationship between auditor IT competency and the intention to adopt CAAT.

Hypothesis 6 (H6): Perceived usefulness has a positive moderating effect on the relationship between auditor innovativeness and the intention to adopt CAAT.

3 Research Methods

This study used a quantitative research method to collect numerical data via the use of a questionnaire. Internal auditors of publicly traded firms that are listed on the Amman Stock Exchange (ASE) were

the study's primary respondents. However, as a result of the low number of internal auditors in Jordanian companies, this study also included professionals from similar fields, such as financial managers and employees from finance departments.

In preparation for the study, the responses were methodically collated in Google Sheets. This study sought to collect responses from five individuals who, depending on their ties, were linked to or had connections to internal auditors. Based on the study's findings, the target demographic consisted of the 172 enterprises that were listed on the ASE. A Likert scale with five points, ranging from "Strongly Agree" to "Strongly Disagree," was utilized for the questionnaire's twenty-four distinct items. This questionnaire was adapted from one used in earlier studies in order to guarantee precise variable measurement of the variables being studied.

One of the approaches used in this investigation is shown by the questionnaire's progression, which is summarized in Table 1 as a summary of the progression. Five main variables have an impact on the adoption of CAATs by internal auditors and related professionals in Jordanian companies listed on the ASE Exchange.

Table 1. Questionnaire Development

Variable	No. of items	Reference
Intention to adopt CAATs	6	[28], [29]
Perceived usefulness	6	[30], [31]
Auditor IT competency	6	[32]
Auditor innovativeness	6	[33], [34]
Top Management Support	6	[35]

The data is analyzed using Smart PLS 3, a structural equation modeling (SEM) software particularly suited to examine complex relationships between underlying variables. The analysis involved several vital steps. Initially, the measurement model was evaluated to check the validity and reliability of the variables in the research model. This assessment involved examining factors like loadings, composite reliability, and average variance extracted (AVE) for each variable, which was crucial for confirming the constructs' validity and reliability. Subsequently, the structural model was analyzed to explore the relationships between these variables.

4 Finding

4.1 Demographic Profile of the Respondents

In the demographic information section, respondents who work as internal auditors and employees who relate to them were categorized by gender, age, employment type, experience, education level, and sector type, as displayed in Table 2.

Table 2. Respondent Profile

Item	Description	Freq.	%
Gender	Male	171	58.6
	Female	121	41.4
Age	30 years and below	62	21.2
	31 - 40 years.	75	25.7
	41 – 50 years.	69	23.6
	More than 50 years.	86	29.5
Employment type	Internal auditor	92	31.5
	Financial manager	67	22.9
	Finance department staff	133	45.5
Years of Experience	5 years or less	46	15.8
	6 – 10 years	131	44.9
	11 – 20 years	100	34.2
	More than 20 years.	15	5.1
Level of Education	Bachelor	43	14.7
	Master	112	38.4
	PhD	45	15.4
	Professional qualification	92	31.5
Sector Type	Technology companies	67	22.9
	Real Estate	15	5.1
	Industrial firm	27	9.2
	Service firm	139	47.6
	Others	44	15.1
The accounting system used in organization	Manual, no computer is used.	19	6.5
	Combination of manual and computer processing.	98	33.6
	Fully computerized.	175	59.9

4.2 Pre-test and Pilot-test

Before starting the research, an initial evaluation engaged 15 participants whose insights were crucial in fine-tuning the questionnaires for greater clarity and reducing potential uncertainties. After receiving their feedback, slight adjustments were made to improve the questionnaires. To evaluate the internal consistency of the items, data was gathered from 15 individuals involved in a pilot study, and Cronbach's alpha was calculated. All constructs demonstrated reliability exceeding 0.70, meeting the reliability standards, [36].

4.3 Common Method Bias (CMB)

To investigate the potential existence of common method bias (CMB), both the heterotrait-monotrait (HTMT) ratio and the inner variance inflation factor (VIF) values were examined. Following the criteria [37], this study determined that a correlation exceeding $r>0.90$ between constructs might indicate

a potential issue with CMB. The analysis revealed that all correlations among constructs remained below the 0.90 threshold, with the highest value recorded in the HTMT table at 0.834. This suggests an absence of CMB in the dataset. Additionally, the inner VIF values surpassing 3.30 might indicate the influence of CMB on the model. Based on the evaluation from the structural model assessment table, the maximum VIF observed was 3.199, well below the recommended threshold of 3.30, [38]. This evidence further supports the conclusion that common method bias does not exist in this study.

4.4 Means, SD, and Correlations of the Study Variables

Table 3 (Appendix) illustrates the descriptive statistics and associations among the constructs, indicating noteworthy correlations among all variables—IACAAT, TMS, ITC, AI, and PU. Within these constructs, AI demonstrated the highest average value of 4.422, while PU exhibited the lowest average value of 3.719.

Utilizing Smart-PLS 4.0 for Partial Least Squares Structural Equation Modeling (PLS-SEM) is a well-established and acknowledged method for analyzing path models involving composite variables, primarily intended for validating theories. This approach offers particular advantages for models with numerous indicators or data that deviate from a normal distribution. Such a methodology is in line with the recommendations provided, [38], [39]. The process began by preparing the data in SPSS (version 29.0), involving essential procedures such as assessing common method bias and ensuring linearity. The prepared data were used in the ensuing stages of our study project to make sure that our hypothesis testing and PLS-SEM analysis were successfully completed. This was made possible with support from the Smart-PLS 4.0 software.

4.5 Evaluation of Measurement Model (Outer Model)

The present research used a comprehensive methodology that complied with the criteria, [39]. The methodology has two components, namely Cronbach's Alpha (CA) and Composite Reliability (CR). A comprehensive analysis of the internal reliability and consistency of the variables was the goal of developing this methodology. To achieve such was the aim of this methodology. Cronbach's Alpha and Cronbach's Reliability (CR) values for each variable all surpassed 0.7, suggesting exceptional internal consistency, as can be shown in Table 4. The criteria provided in [39] were rigorously followed in order to determine the convergent validity of each item. Under these criteria, each and every item must have an average variance extracted (AVE) minimum value of 0.50 and a factor loading (FL) minimum value of 0.40. This represents the required percentage at its most basic level. Every component has loadings that are more than 0.70 and significantly exceed the FL benchmark, according to the data shown in Table 4.

Table 4. Constructs validity and reliability

Constructs	Items	FL	CA	CR	AVE
IACAAT	CAAT1	0.620	0.847	0.855	0.570
	CAAT2	0.710			
	CAAT3	0.787			
	CAAT4	0.804			
	CAAT5	0.754			
	CAAT6	0.835			
INN	INN1	0.849	0.905	0.907	0.678
	INN2	0.845			
	INN3	0.812			
	INN4	0.846			
	INN5	0.779			
	INN6	0.808			
ITC	lTC1	0.667	0.838	0.842	0.553
	lTC2	0.727			
	lTC3	0.761			
	lTC4	0.766			
	lTC5	0.758			
	lTC6	0.775			
PU	PU1	0.743	0.870	0.844	0.579
	PU2	0.750			
	PU3	0.821			
	PU4	0.755			
	PU5	0.660			
	PU6	0.825			
TMS	TMS1	0.781	0.901	0.904	0.669
	TMS2	0.870			
	TMS3	0.859			
	TMS4	0.793			
	TMS5	0.779			
	TMS6	0.820			

Notes: CR: Composite Reliability; AVE: Average Variance Extracted; CA: Cronbach's Alpha

This is the reason why the data are shown in Table 4. Furthermore, every construct had values beyond 0.50, indicating their successful surpassing of the AVE criterion. Based on the investigation's findings, convergent validity is shown to be very high, which is consistent with the recommendations put forward by [39] (Figure 1).

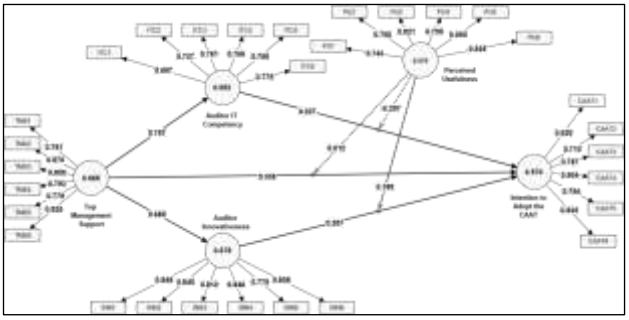

Fig. 1: Measurement model with outer loadings and AVE values from PLS-Algorithm

The Fornell and Larcker criterion and the HTMT were the two reliable methods used in this investigation to assess the discriminant validity of the measurements. For the duration of the inquiry, a mixture of these two methods was used. Employing the Fornell-Larcker criterion entailed comparing the diagonal values (indicating the square roots of the AVE) with the correlation values presented beneath them. The results, illustrated in Table 5, consistently indicate that the diagonal values exceed the respective correlation values. This consistent trend adheres to the criteria established [40], indicating a significant degree of discriminant validity.

Table 5. Discriminant validity- Fornell Larcker

Constructs	AI	ITC	IACAAT	PU	TMS
AI	0.823				
ITC	0.715	0.743			
IACAAT	0.705	0.700	0.755		
PU	0.120	0.097	0.097	0.761	
TMS	0.68	0.657	0.702	0.098	0.818

The off-diagonal values are the correlations between latent variables, and the diagonal is the square root of AVE.

Furthermore, this study extended the evaluation of discriminant validity by employing the HTMT ratio. This approach entails comparing correlations among different constructs with correlations among items within the same construct. According to established standards, a ratio below 0.9 is deemed acceptable, [41]. The observations consistently indicated that the correlation values among the latent variables consistently remained below this 0.9 threshold, as highlighted [41] and demonstrated in Table 6. Based on these results, this study surely asserts that the measurement constructs demonstrate distinct and satisfactory discriminant validity.

Table 6. Discriminant validity- HTMT

Constructs	AI	ITC	IACAAT	PU	TMS
AI					
ITC	0.834				
IACAAT	0.802	0.823			
PU	0.130	0.116	0.100		
TMS	0.747	0.867	0.798	0.129	

4.6 Assessment of Structural (Inner) Model

Following a thorough evaluation of the measurement model, the focus shifted to exploring collinearity within the structural model. This phase entailed a meticulous examination of key indicators, including the inner Variance Inflation Factor (VIF), coefficient of determination (R^2) values, and effect size (f^2). The comprehensive results are outlined in Table 7 (Appendix), demonstrating that all predetermined thresholds for R^2, f^2, and inner VIF have been satisfactorily fulfilled. This indicates the absence of significant issues associated with collinearity. With collinearity effectively addressed and taken into consideration, this study proceeded to rigorously analyze the hypotheses, as detailed in the subsequent section.

5 Discussion

Table 8 (Appendix) meticulously displays the results concerning the proposed hypotheses. The initial hypothesis (H1) suggested a direct correlation between TMS and IACAAT. The data robustly substantiates this proposal, as evidenced by the noteworthy p-value of 0.000, significantly below the customary threshold of 0.05, accompanied by a substantial t-value of 5.179, surpassing the critical value of 1.96. These findings strongly support the assertion that TMS indeed has a substantial and positive influence on IACAAT (β= 0.330).

Furthermore, the second hypothesis (H2) explored the mediation of ITC in the association between TMS and IACAAT. The provided evidence signifies a substantial mediating role of ITC in this relationship, supported by a p-value of 0.014, below the threshold of 0.05, and a t-value of 2.455, surpassing 1.96. Additional validation arises from the LL and UL values, recorded as 0.036 and 0.305, respectively, both positive and not encompassing zero, confirming significant mediation. However, this mediation is partial, as the direct effect between TMS and IACAAT remains significant, validating partial mediation, [41].

Similarly, the third mediating hypothesis (H3) examined the mediation of AI in the relationship between TMS and IACAAT. The evidence presented indicates a significant mediating role of

AI in this relationship, supported by a p-value of 0.000, below the threshold of 0.05, and a t-value of 4.100, surpassing 1.96. Further affirmation arises from the LL and UL values, recorded as 0.099 and 0.291, respectively, both positive and not encompassing zero, confirming significant mediation. Nevertheless, similar to the previous case, this mediation is partial, as the direct effect between TMS and IACAAT remains significant, reaffirming partial mediation, [43].

Table 8 (Appendix) also presents a detailed summary of the findings regarding PU's moderating effects. However, the fourth proposed hypothesis (H4) did not receive statistical support as the p-value of 0.857 exceeds 0.05, and the t-value of 0.181 is less than 1.96. Therefore, this study concludes that PU does not exert a significant moderating effect on the relationship between TMS and IACAAT. In contrast, the fifth hypothesis (H5) posited that PU serves as a moderator in the association between ITC and IACAAT. The collected data robustly supports this hypothesis, revealing a substantial moderating influence of PU. Statistical significance is evident with a p-value of 0.038 and a t-value of 2.083, both demonstrating a negative moderation, as indicated by β= -0.207. This suggests that PU notably weakens the ITC-IACAAT relationship. Likewise, the sixth hypothesis (H6) proposed that PU acts as a moderator in the link between AI and IACAAT. The collected data decisively confirms this hypothesis, presenting a noteworthy moderating effect of PU. Statistical significance is apparent with a p-value of 0.023 and a t-value of 2.275, both demonstrating a positive moderation, as evidenced by β= 0.189. This suggests that PU significantly strengthens the AI-IACAAT relationship.

Figure 2 provides a clear visual representation of how PU influences the correlation between ITC and IACAAT. It illustrates that the impact of ITC on IACAAT is more prominent when PU levels are higher, whereas it diminishes in significance at lower PU levels. To delve deeper into this relationship, this study conducted separate path analyses for both high PU (1 standard deviation above the mean) and low PU (1 standard deviation below the mean). These analyses, presented in Figure 2, aim to elucidate the variability in the ITC-IACAAT relationship across different PU levels. The results demonstrate a stronger connection between ITC and IACAAT when the PU levels are raised, as shown by a higher beta coefficient. When PU levels are high, this phenomenon occurs. On the other hand, the lower beta coefficient indicates that the strength of this association seems to be lowered when the PU levels are dropped. These investigations highlight the critical role that PU plays in creating the connection between ITC and IACAAT.

Figure 3 provides a clear and comprehensive visual representation of the data, which also shows the impact of PU on the correlation between AI and IACAAT. The information shows that when test takers' proficiency level is higher, artificial intelligence has a greater impact on the International Association of Computer-Assisted Adaptive Testing (IACAAT); but, when proficiency levels are lower, the effect of AI diminishes. To get a deeper understanding of the association between the two variables, this research performed separate path analyses for both high PU (one standard deviation above the mean) and low PU (one standard deviation below the mean). These analyses, depicted in Figure 4, aim to elucidate the variations in the AI-IACAAT relationship across different PU levels. The results indicate a stronger association between AI and IACAAT at elevated PU levels, highlighted by a higher beta coefficient. Conversely, at lower PU levels, this association appears weaker, demonstrated by the lower beta coefficient. These findings emphasize the pivotal role of PU in influencing the connection between AI and IACAAT.

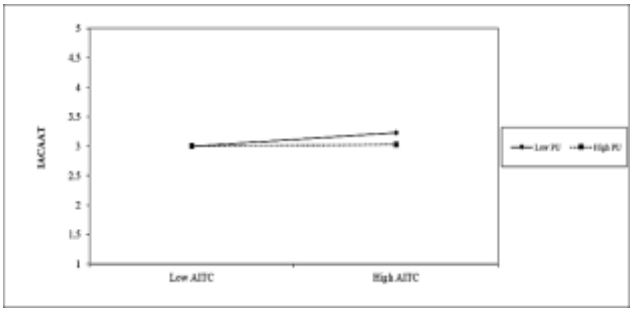

Fig. 3: Interactive Effect of PU between ITC and ITC

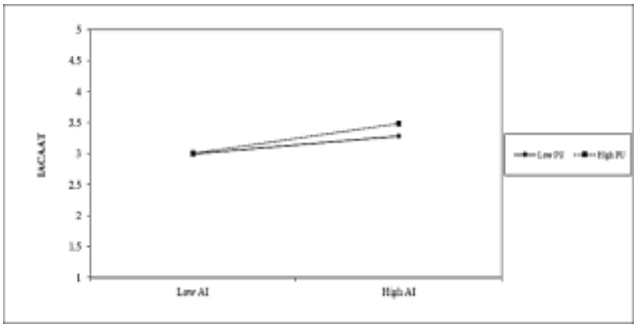

Fig. 4: Interactive Effect of PU between AI and IACAAT

6 Conclusion

This study intended to provide evidence on the critical factors influencing the adoption of CAATs in Jordanian or a similar environment. Particular emphasis is given to the role of top management support and the impact of specific auditor characteristics on adopting new audit technologies. The findings confirm that top management support is essential for adopting new technology. This support is crucial because it can provide the necessary resources, such as funding for training and technology acquisition, and can foster an organizational culture that embraces change. Additionally, the benefits of CAATs in performing audits more effectively, such as reducing audit cycle times and accurately analyzing more extensive and complex data sets, might encourage management to switch to more reliable tools. By endorsing CAATs, top management can help overcome resistance to change among staff, ensuring a smoother transition and more effective integration of these advanced audit tools.

Concentrating on the mediating roles of auditor IT competency and innovativeness, it has illustrated how these factors influenced the relationship between management support and CAAT adoption. In brief, these specific characteristics make the adoption possible and faster. On the other hand, using perceived usefulness as a moderator shows a varying influence on the relationship between top management support and CAAT adoption. These findings suggest a positive thought about the benefits of CAATs' among the personnel involved with audits in ASE-listed companies. It indicates the positive intention to use CAATs, and the audit firms shall be ready to switch to new technology. The change in the business dynamic indicates the audit firms' future direction.

In conclusion, this study contributes valuable insights for audit firms and professionals on adopting a new technology. The top management highly appreciates the benefits of the new technology. Within a supportive management environment, auditor-specific attributes such as IT competency and innovative mindset will speed up the adoption of these technologies. Audit firms should prioritize these factors to implement and utilize CAATs to enhance their audit practices. Audit firms shall move along to meet the business needs as their landscape evolves. Embracing technological advancements could significantly help audit firms stay competitive while ensuring the highest audit quality and efficiency standards.

7 Implications

The practical implications that the research's results have for the Jordanian audit industry should be understood by senior management, audit companies, and auditors themselves.

Given that the implementation of Computer Assisted Audit Tools (CAATs) depends on Top Management Support (TMS), it is evident that top executives need to actively support and provide their approval to emerging technology. The commitment of Management might have a significant influence on the adoption process, thereby increasing the effectiveness and efficiency of the process's audits.

Furthermore, it is implied by the mediating role of Audit or IT Competency (ITC) that improving auditors' IT skills is necessary for the effective use of CAAT. The fact that ITC stands for "Information Technology Competency" may help to explain this. To guarantee that auditors can use CAATs effectively, companies that provide auditing services should give priority to training programs that emphasize IT proficiency. This will ultimately lead to shorter audit cycle times and higher audit quality.

The significance of fostering an innovation culture within audit teams may be shown by the mediation impact of Audit or Innovativeness. It will be simpler to design and implement state-of-the-art auditing technology if auditors are encouraged to adopt a creative mentality. This is one method that might be used to improve the process. Implementing programs that encourage employee creativity and innovation is essential for audit companies to thrive inside their organization.

Perceived Usefulness (PU) is used as a mediator in this research to shed light on the nuanced function of PU in contemporary society. Though it did not significantly moderate the relationship between TMS and CAAT adoption, PU had a positive influence on the relationship between auditor qualities (ITC and AI) and CAAT adoption. Before and after the adoption of CAAT, this was accurate. It was not a significant moderating influence, yet this condition did arise. A comprehensive explanation of the advantages and benefits related to the use of CAATs must thus be given to auditors. To increase auditors' preparedness to adopt these technologies, it is possible to demonstrate to them why they are practical.

In a word, this research offers significant information that auditing firms thinking about using CAATs may then adopt. Audit firms can effectively integrate these technologies into an increasingly automated business environment while upholding high standards of audit quality and efficiency and

remaining competitive by stressing top management support, encouraging innovation, improving auditor IT competency, and emphasizing the perceived value of CAATs.

8 Limitations

- Applying the study's conclusions to other nations or areas that are comparable to those that are traded on the Jordanian Amman Stock Exchange (ASE) is difficult. Due to the fact that the research was limited to firms that were listed on the Amman Stock Exchange (ASE), it is not feasible to apply the findings of the study to other countries or areas.
- It is likely that the findings cannot be extended to other audit samples or businesses since the sample was restricted to internal auditors and other professionals working in relevant disciplines at ASE-listed corporations. This limitation makes it possible that the findings cannot be generalized to other audit agencies.
- In a short period of time, the study was conducted. It is likely that more significant insights into the dynamics of CAAT adoption, as well as the growing roles that innovation, top-level management support, and IT competence and skills play, may be achieved by sticking to the same methodology over a lengthy period of time. This is because it is feasible that this will allow for the acquisition of these insights.
- It is likely that some variable that impacts CAAT adoption was overlooked since this study was conducted using quantitative research methodologies. It is possible to get a more in-depth comprehension of the key reasons and the variables that inspire individuals by using qualitative research methods such as case studies or interviews. This is because these methods allow for the development of more comprehensive knowledge.
- On the other hand, the only variables that were looked at were Top Management Support (TMS), Audit or Innovativeness (AI), and Audit or IT Competency (ITC).
- Geographically, the study was confined to Jordan, without investigating potential variations in CAAT adoption dynamics in different regions or countries. Future research could explore how cultural, economic, or regulatory differences influence the adoption of audit technologies in various global contexts.

Declaration of Generative AI and AI-assisted Technologies in the Writing Process
During the preparation of this work the authors used Grammarly for language editing. After using this service, the authors reviewed and edited the content as needed and take full responsibility for the content of the publication

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APPENDIX

Table 3. Means, SD, and Correlations of the Study Variables

Variables	Gender	Age	Em_type	Y Ex	L Edu	S_Type	S_com	A/C_Sys	IACAAT	TMS	ITC	AI	PU	Mean	SD
Gender	1													1.411	0.493
Age	0.065	1												2.613	1.120
Em_type	-0.007	-0.015	1											2.140	0.868
Y Ex	0.017	-0.07	0.062	1										2.284	0.785
L Edu	0.062	-0.031	0.106	-0.036	1									2.637	1.077
S_Type	-0.014	0.022	0.050	0.066	0.026	1								3.274	1.414
S_com	-0.025	-0.037	-0.810	-0.024	-0.040	-0.047	1							1.890	0.526
A/C_Sys	-0.080	-0.083	0.033	-0.059	-0.023	0.017	-0.063	1						2.534	0.617
IACAAT	-0.022	0.022	-0.084	-0.08	0.027	0.010	0.068	0.041	1					4.109	0.611
TMS	0.061	0.074	-0.122	-0.033	0.073	0.026	-0.010	0.014	0.698	1				4.283	0.636
ITC	0.049	0.138	-0.077	-0.036	0.062	0.066	-0.010	-0.027	0.685	0.718	1			4.399	0.551
AI	-0.037	0.080	-0.090	-0.037	0.092	0.054	0.072	-0.020	0.698	0.672	0.811	1		4.422	0.533
PU	-0.014	0.020	0.020	-0.078	0.050	-0.056	0.084	-0.036	0.066	0.073	0.101	0.106	1	3.719	0.468

Table 7. Assessment of the structural model

R-Square	Endogenous Variables	R Square	R Square Adjusted	0.26: Substantial, 0.13: Moderate, 0.02: Weak, [42]
	AI	0.463	0.461	
	ITC	0.573	0.572	
	IACAAT	0.615	0.606	
Effect Size (F-Square)	Exogenous Variables	AI	ITC	IACAAT	0.35: Substantial, 0.15: Medium effect, 0.02 Weak effect [42]
	AI			0.067	
	ITC			0.033	
	PU			0	
	TMS	0.861	0.342	0.121	
Collinearity (Inner VIF)	Exogenous Variables	AI	ITC	IACAAT	VIF <= 5.0 [39]
	Al			3.199	
	ITC			3.115	
	PU			1.149	
	TMS			2.437	

Table 8. Hypotheses testing result

Hypotheses	OS/Beta	SD	95% C.I. Bias Corrected		t-value	p-value	Results	Mediation
			LL	UL				
HI: TMS -> IACAAT	0.336	0.065	0.187	0.450	5.179	0.000	Supported	
H2: TMS -> ITC -> IACAAT	0.172	0.070	0.036	0.305	2.455	0.014	Supported	Partial
H3: TMS -> Al -> IACAAT	0.195	0.048	0.099	0.291	4.100	0.000	Supported	Partial
H4: PU x TMS-> IACAAT	0.012	0.067	-0.116	0.145	0.181	0.857	Not Supported	
H5: PU x ATC -> IACAAT	-0.207	0.100	-0.409	-0.031	2.083	0.038	Supported	
H6: PU x Al -> IACAAT	0.189	0.083	0.026	0.330	2.275	0.023	Supported	

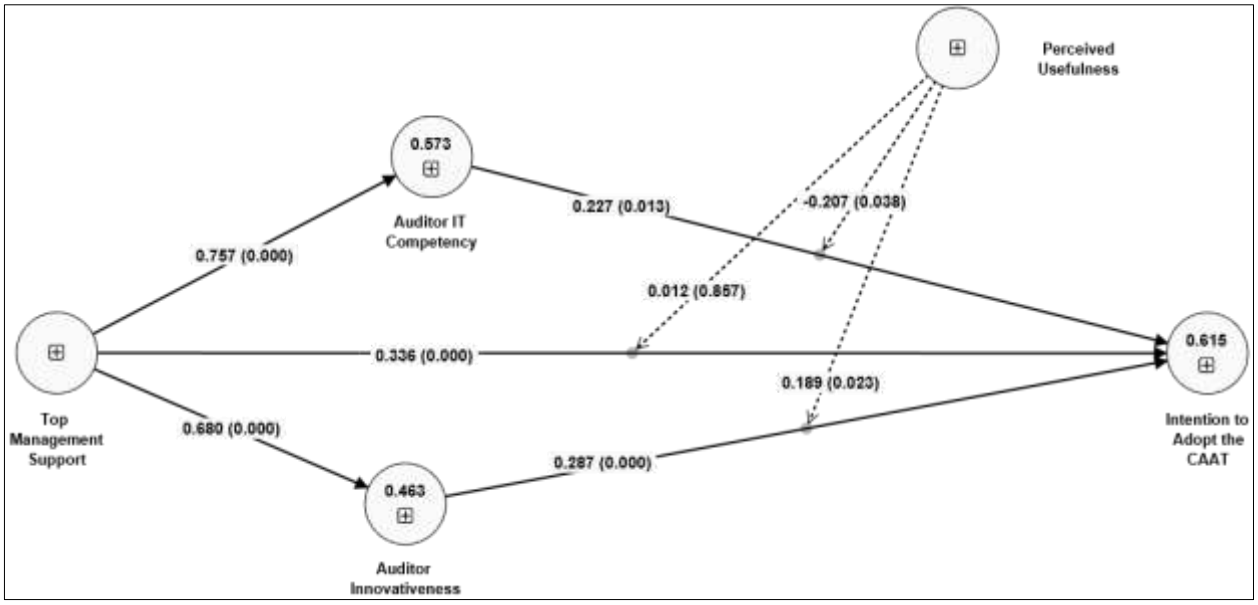

Fig. 2: Structural Model with path coefficient (beta) and p-values from bootstrapping test

Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

The authors equally contributed in the present research, at all stages from the formulation of the problem to the final findings and solution.

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Conflict of Interest

The authors have no conflicts of interest to declare.