



Cloud-Based Accounting Usage and Internal Audit Effectiveness: The Moderating Role of Digital Proficiency in Listed Companies

R. A. A. M. P. Rathnasiri, H. M. Malinda Nayanajith Herath*

University of Kelaniya, Colombo, Sri Lanka

*Correspondence: E-mail: nayanajithherath95@gmail.com

ABSTRACT

Cloud-based accounting has transformed financial information processing and internal audit practices. This study examines the effect of cloud-based accounting usage on internal audit effectiveness in Sri Lankan listed companies and investigates the moderating role of internal auditors' digital proficiency. A quantitative cross-sectional design was employed using questionnaire data from internal audit professionals. The analysis applied reliability testing, factor analysis, correlation, and regression techniques. The Technology Acceptance Model and Resource-Based View guided the conceptual framework. Cloud-based accounting usage significantly improves internal audit effectiveness, while digital proficiency also contributes positively. However, its moderating role is relatively weak. The study highlights the importance of combining cloud-based accounting adoption with continuous development of auditors' digital capabilities.

ARTICLE INFO

Article History:

Submitted/Received 28 Feb 2026

First Revised 16 Jun 2026

Accepted 19 Aug 2026

First Available online 20 Aug 2026

Publication Date 01 Sept 2026

Keyword:

Cloud-based accounting;

Digital proficiency;

Internal audit effectiveness;

Resource-Based View;

Technology Acceptance Model.

1. INTRODUCTION

Digital transformation has substantially changed how organizations record, process, store, and communicate financial information. One important development is the transition from conventional accounting information systems to cloud-based platforms, which enable organizations to access financial information remotely, increase system flexibility, and support more integrated accounting operations [1]. Cloud accounting has consequently attracted increasing attention in both private- and public-sector organizations because of its potential to improve accessibility, collaboration, and organizational accountability [2].

The development of cloud-based accounting also changes the technological environment in which internal auditors perform their responsibilities. Internal auditors increasingly operate within digital information systems that provide large volumes of continuously generated financial and operational data. Cloud-based technologies can facilitate more timely access to accounting information and provide opportunities for automated and technology-supported auditing. The increasing integration of cloud and blockchain-based accounting systems has therefore created new opportunities as well as new assurance challenges for internal auditors [3].

Cloud-based accounting usage can potentially improve internal audit effectiveness through faster access to financial records, automation of routine procedures, improved data availability, and enhanced analytical capability. Evidence from Jordanian companies indicates that cloud-based accounting usage is positively associated with internal auditors' effectiveness and that auditors' digital proficiency may influence how technological resources are translated into audit outcomes [4]. Similar developments in the Jordanian financial sector demonstrate that adoption of cloud-based accounting is closely associated with technological readiness and organizational acceptance of digital accounting systems [5].

Cloud-based accounting is generally delivered through technological service models that include Software-as-a-Service (SaaS), Platform-as-a-Service (PaaS), and Infrastructure-as-a-Service (IaaS). These arrangements provide organizations with scalable accounting functionality without requiring all computing resources to be maintained internally. Their flexibility became particularly relevant during the COVID-19 period, when organizations increasingly depended on remotely accessible accounting technologies. Research on cloud-accounting adoption during this period demonstrated increased organizational intention to use cloud-based accounting systems and highlighted the growing importance of digital technology in accounting activities [6].

However, the availability of technology alone does not necessarily guarantee effective utilization. Internal auditors must possess appropriate technological capabilities to access digital information, evaluate system-generated evidence, use computer-assisted audit techniques, and understand technology-related risks. Studies examining computer-assisted audit tools have demonstrated that technological factors substantially influence auditors' adoption and use of digital audit techniques [7]. Thus, the effectiveness of cloud-based accounting should be considered together with the capabilities of the individuals who use these systems.

Two theoretical perspectives are particularly relevant to this relationship. The Technology Acceptance Model (TAM) explains technology usage primarily through users' perceptions of usefulness and ease of use [8]. Cloud-based accounting will contribute to audit activities when auditors perceive the technology as useful and practically applicable to their work. In contrast,

the Resource-Based View (RBV) argues that organizational performance depends on the effective utilization of valuable organizational resources and capabilities [9]. From this perspective, cloud-based accounting represents a technological resource, while digital proficiency represents a complementary human capability.

The interaction between these technological and human resources is particularly important for internal auditing. Digital proficiency refers to auditors' ability to work effectively with digital systems, cloud platforms, electronic data, analytical tools, and other technology-supported audit procedures. Cloud technologies may provide extensive information-processing capability, but the quality of audit outcomes may also depend on auditors' ability to use these technological resources appropriately. This consideration provides a theoretical basis for examining digital proficiency not only as an independent contributor to internal audit effectiveness but also as a potential moderator of the relationship between cloud-based accounting usage and audit effectiveness.

The accelerated digitalization associated with the COVID-19 period further demonstrated the importance of technology-enabled internal auditing. Evidence from emerging economies shows that pandemic-related operational disruptions affected internal audit activities and strengthened the need for organizations to adopt digitally supported working arrangements [10]. At the same time, cloud computing introduces cybersecurity, privacy, system availability, and third-party dependency risks that must be recognized when organizations migrate accounting information and audit evidence to externally hosted environments [11]. These risks reinforce the importance of auditors possessing sufficient digital competence to understand both the operational benefits and technological vulnerabilities of cloud systems.

Organizations' perceptions of cloud computing and their technological readiness influence cloud-accounting adoption [12]. As auditing becomes progressively supported by automation, artificial intelligence, and advanced information systems, questions concerning auditors' technological capabilities, professional judgement, and responsible use of digital technologies have also become increasingly important [13]. Consequently, cloud-based accounting should not be examined solely as an accounting technology; it should also be analyzed in relation to the human capabilities required to use it effectively.

Despite the expanding international literature on digital accounting and technology-enabled auditing, empirical evidence from South Asian emerging markets remains comparatively limited. Much of the existing research has focused on Middle Eastern and other emerging-market settings, while relatively little empirical attention has been given to Sri Lankan listed companies. This creates an important contextual gap because the technological, regulatory, organizational, and professional environment of Sri Lanka differs from those of the settings in which much of the previous evidence has been generated.

The Sri Lankan context is especially relevant for investigating this issue. Companies listed on the Colombo Stock Exchange (CSE) operate across diverse sectors, including manufacturing, plantations, banking and finance, hotels and travel, telecommunications, and diversified holdings. These companies operate within a regulated corporate environment in which internal audit functions contribute to governance, risk management, control, and organizational accountability. At the same time, differences in technological readiness and the pace of digital adoption mean that organizations may vary considerably in their utilization of cloud-based accounting systems and the digital capabilities of their internal auditors.

The internal audit profession in Sri Lanka is also undergoing a technological transition. Traditional accounting, compliance, and financial-audit competencies remain important, but internal auditors are increasingly expected to work with digital accounting platforms, analytical tools, electronic evidence, cybersecurity controls, and technology-supported risk-management processes. The combination of organizational technology adoption and auditors' individual technological capability therefore provides a meaningful setting for evaluating whether cloud-based accounting contributes to internal audit effectiveness.

The principal research gap concerns the limited empirical understanding of whether cloud-based accounting usage improves internal audit effectiveness in Sri Lankan listed companies and whether digital proficiency changes the strength of this relationship. Previous research has demonstrated relationships among cloud adoption, technological capability, and audit outcomes, but comparatively limited evidence is available on the simultaneous interaction of these factors in the Sri Lankan listed-company environment.

This study aims to examine the effect of cloud-based accounting usage on internal audit effectiveness and to determine the moderating role of digital proficiency among internal auditors in Sri Lankan listed companies. Specifically, the study seeks to: (i) evaluate the relationship between cloud-based accounting usage and internal audit effectiveness; (ii) determine the direct contribution of digital proficiency to internal audit effectiveness; and (iii) assess whether digital proficiency moderates the relationship between cloud-based accounting usage and internal audit effectiveness. This study addresses the following research questions:

- (i) RQ1: Does cloud-based accounting usage significantly affect internal audit effectiveness in Sri Lankan listed companies?
- (ii) RQ2: Does internal auditors' digital proficiency moderate the relationship between cloud-based accounting usage and internal audit effectiveness?

The novelty of this study lies in integrating cloud-based accounting usage, internal audit effectiveness, and digital proficiency within a single empirical framework in the relatively under-investigated Sri Lankan listed-company context. In addition to examining the direct relationship between cloud-based accounting usage and internal audit effectiveness, the study evaluates digital proficiency as a moderating variable. This enables the research to determine whether technological capability strengthens the contribution of cloud-based accounting to audit effectiveness or primarily operates as an independent determinant of effective auditing. The study contributes to the literature in three ways. First, it extends the application of TAM and RBV to a South Asian emerging-market internal-audit context. Second, it provides empirical evidence regarding the role of digital proficiency in the relationship between technological adoption and audit effectiveness. Third, it provides practical information for company management, internal audit departments, professional bodies, and regulators seeking to align cloud-technology investment with the continuous development of auditors' digital capabilities.

2. LITERATURE REVIEW

2.1. Internal Audit Effectiveness

Internal auditing has developed from a predominantly compliance-oriented activity into an important component of organizational governance, risk management, and internal control. In increasingly digital business environments, internal auditors are expected not only to verify financial information but also to evaluate risks, assess the effectiveness of controls, identify

irregularities, and provide timely information that supports managerial decision-making. The growing integration of digital accounting systems has further expanded these responsibilities because audit evidence is increasingly generated, stored, and processed electronically. Internal audit effectiveness refers to the ability of the internal audit function to accomplish its intended objectives and contribute meaningfully to organizational governance and performance. Important dimensions include effective audit planning, adequate review of internal controls, risk analysis, fraud detection, timely reporting, and appropriate follow-up of audit findings. Cloud-based technologies have the potential to support these functions by improving access to financial information and increasing the speed and coverage of audit procedures [3, 4]. The effectiveness of internal auditing is therefore increasingly associated with both technological resources and auditors' ability to work within digital environments. Evidence from technology-enabled auditing indicates that the use of cloud-based accounting can support more efficient audit processes, although the outcome may also depend on organizational readiness and human capability [4].

2.2. Cloud-Based Accounting Systems

Cloud-based accounting refers to the use of remotely hosted computing infrastructure and software to process, store, and access accounting information through internet-based platforms. Cloud technology can reduce dependence on locally installed accounting applications while allowing financial information to be accessed across organizational locations. Cloud-based accounting adoption is associated with technological readiness, perceived usefulness, accessibility, and organizational support [1, 5]. Cloud-based accounting systems are commonly associated with three service models: Software-as-a-Service (SaaS), Platform-as-a-Service (PaaS), and Infrastructure-as-a-Service (IaaS). SaaS provides users with remotely hosted applications, PaaS provides environments for developing and operating applications, and IaaS provides virtualized computing infrastructure. Within accounting environments, these models can support real-time information access, remote working, scalability, automation, and integration of accounting activities. Cloud-accounting adoption became particularly relevant during periods requiring remote organizational operations. Evidence during the COVID-19 period showed increasing intention among organizations and accounting professionals to adopt cloud-based accounting systems [6]. Public-sector implementation has likewise demonstrated the potential of cloud accounting to improve accessibility, collaboration, and information sharing [2]. Nevertheless, migration to cloud environments also introduces technological and governance risks. These include cybersecurity threats, privacy concerns, third-party dependence, unauthorized access, and potential disruption of cloud services [11]. Consequently, the benefits of cloud-based accounting must be accompanied by appropriate control mechanisms, governance arrangements, and digital capability development.

2.3. Theoretical Foundations

This study is grounded in the TAM and the RBV. Technology acceptance is substantially influenced by users' perceptions of its usefulness and ease of use [8]. When applied to cloud-based accounting, auditors are more likely to accept and use cloud technologies when they perceive these systems as useful for conducting audit activities and sufficiently manageable within their professional work. RBV provides a complementary organizational perspective. It argues that organizational advantage is derived from valuable resources and capabilities that can be effectively deployed [9]. Within the present study, cloud-based accounting represents

a technological resource, while auditors' digital proficiency represents an associated human capability. These resources may independently and jointly contribute to internal audit effectiveness. Combining TAM and RBV therefore enables the study to consider both technology acceptance and technology-related organizational capability. TAM explains why auditors may use cloud-based accounting, whereas RBV provides a basis for examining whether the effectiveness of such technology depends partly on the human resources capable of operating it.

2.4. Cloud-Based Accounting Usage and Internal Audit Effectiveness

Cloud-based accounting can support internal auditing by providing timely access to financial records, facilitating digital evidence collection, automating repetitive procedures, and increasing opportunities for data-based audit analysis. Cloud-based and blockchain-supported accounting environments have also created possibilities for more continuous and technology-enabled assurance [3]. Empirical evidence provides support for a relationship between cloud-based accounting and internal audit effectiveness. Cloud-based accounting usage positively contributed to internal auditors' effectiveness in Jordanian companies [4]. Improved access to information, automation, and technological capability were identified as important mechanisms through which cloud systems can influence audit outcomes [4]. Evidence from the Jordanian financial sector similarly shows that organizations' adoption of cloud accounting is influenced by their technological and organizational readiness [5]. Research conducted during the COVID-19 period further showed that cloud accounting became increasingly relevant where remotely accessible financial systems were required [6]. Together, greater utilization of cloud-based accounting can improve the technological environment within which internal auditors perform their responsibilities. From a theoretical perspective, TAM suggests that useful and accessible systems encourage meaningful technology utilization [8], while RBV identifies technology as an organizational resource capable of contributing to performance when effectively deployed [9]. Accordingly, the following hypothesis is proposed: H1: Cloud-based accounting usage has a significant positive effect on internal audit effectiveness in Sri Lankan listed companies.

2.5. Digital Proficiency as a Moderating Variable

Digital proficiency refers to the ability to use digital technologies effectively in performing professional tasks. For internal auditors, this capability can include using audit software, navigating cloud-based accounting environments, interpreting electronically generated data, applying computer-assisted audit techniques, and recognizing technology-related risks. The growing technological complexity of auditing makes such proficiency increasingly important. Research on computer-assisted audit tools has shown that technological factors influence auditors' adoption and use of digital audit techniques [7]. Technological readiness and the ability to understand cloud computing are associated with the adoption of cloud-based accounting systems [12]. From an RBV perspective, digital proficiency represents a human capability that may complement an organization's technological resources [9]. A cloud system may provide data availability and automation, but auditors must still interpret audit evidence, assess risks, and exercise professional judgement. Digital proficiency could therefore strengthen the extent to which cloud-based accounting usage contributes to effective auditing. Digital proficiency can play an important role in technology-enabled internal auditing [4]. However, whether this capability substantially strengthens the relationship between cloud-based accounting usage and internal audit effectiveness may depend on contextual factors. This uncertainty is particularly relevant to the Sri Lankan listed-company

environment. The second hypothesis is formulated as follows: H2: Digital proficiency significantly moderates the relationship between cloud-based accounting usage and internal audit effectiveness in Sri Lankan listed companies.

2.6. Evaluation of Prior Empirical Research

Several previous studies provide the empirical foundation for this research. Cloud-based accounting usage, internal audit effectiveness, and digital proficiency have been examined together, providing relevant support for the present conceptual framework [4]. However, the previous evidence was obtained in Jordan, creating an opportunity to evaluate whether similar relationships occur in Sri Lanka. Cloud-accounting research in Jordan's financial sector has also demonstrated the importance of technological and organizational factors in adoption decisions [5]. Cloud-accounting adoption during the COVID-19 period further reinforced the importance of technology acceptance under rapidly changing organizational conditions [6]. The application of cloud accounting within the public sector has also been demonstrated [2], while cloud computing has been examined in relation to accounting information systems [1]. Research focusing more directly on auditing further demonstrates the growing relevance of digital technologies. Audit implications within cloud-based blockchain accounting environments have been discussed [3], while technological influences on computer-assisted audit tools have also been examined [7]. Cloud technology is increasingly interconnected with the broader digital transformation of auditing. Digitalization also introduces additional professional issues. Artificial intelligence and other advanced digital technologies can transform the collection, interpretation, and use of audit evidence, but they also create ethical and governance concerns [13]. Cloud computing itself generates security risks that must be considered by organizations and auditors [11].

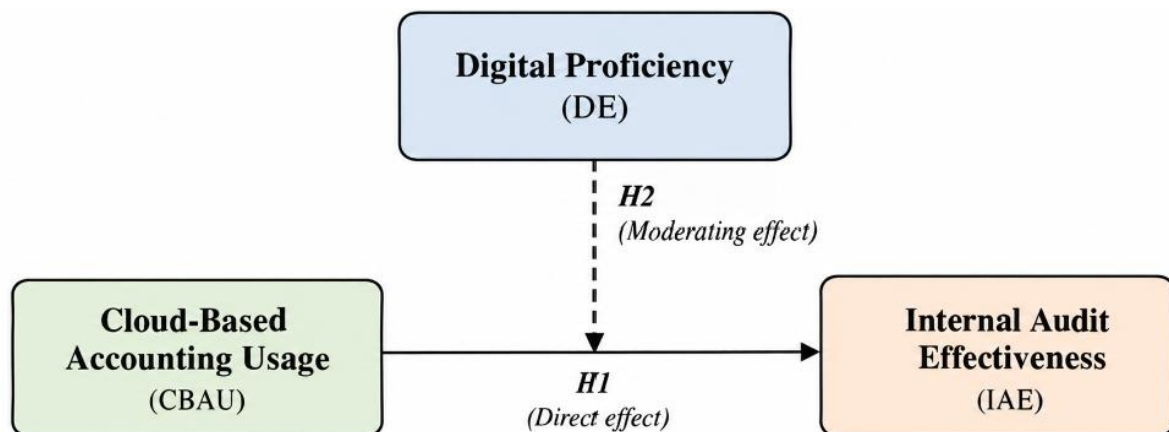
Table 1 summarizes the principal prior studies supporting the present research framework. Despite these contributions, several gaps remain. First, much of the available empirical evidence originates from contexts outside South Asia. Second, evidence specifically concerning Sri Lankan listed companies remains limited. Third, although prior studies recognize the importance of technological capability, the moderating role of digital proficiency in the relationship between cloud-based accounting usage and internal audit effectiveness remains insufficiently examined within the Sri Lankan environment. The present study addresses this contextual and empirical gap by simultaneously examining cloud-based accounting usage, internal audit effectiveness, and digital proficiency among internal auditors working in companies listed on the Colombo Stock Exchange.

2.7. Conceptual Framework

The conceptual framework positions cloud-based accounting usage (CBAU) as the independent variable and internal audit effectiveness (IAE) as the dependent variable. Digital proficiency (DE) is included as a moderating variable. The conceptual relationship is illustrated in **Figure 1**. The relationships can be expressed as: $IAE = \beta_0 + \beta_1(CBAU) + \beta_2(DE) + \beta_3(CBAU \times DE) + \varepsilon$, where IAE represents the internal audit effectiveness, CBAU represents the cloud-based accounting usage, DE represents the digital proficiency, and $CBAU \times DE$ represents the interaction term used to evaluate the moderating effect of digital proficiency.

Table 1. Selected prior studies relevant to cloud-based accounting and internal auditing.

REFERENCE	MAIN FOCUS	RELEVANCE TO THE PRESENT STUDY
Al-Zoubi [1]	Cloud computing and accounting information systems	Supports the technological basis of cloud accounting
Aman and Mohamed [2]	Cloud accounting implementation	Demonstrates organizational application of cloud accounting
Appelbaum and Nehmer [3]	Auditing cloud-based blockchain accounting systems	Connects cloud technology with auditing practices
Alqudah et al. [4]	Cloud accounting, audit effectiveness, and digital proficiency	Direct theoretical and empirical basis for H1 and H2
Eldalabeeh et al. [5]	Cloud-accounting adoption	Supports organizational and technological adoption factors
Saad et al. [6]	Cloud-accounting adoption during COVID-19	Supports technology adoption under digital transformation
Lutfi and Alqudah [7]	Computer-assisted audit technologies	Supports the importance of auditors' digital capability
Rawashdeh et al. [12]	Cloud-computing vision and cloud-accounting adoption	Supports digital readiness and technology adoption
Munoko et al. [13]	Artificial intelligence in auditing	Demonstrates broader implications of audit digitalization

**Figure 1.** Conceptual framework showing the relationship between cloud-based accounting usage, digital proficiency, and internal audit effectiveness.

3. RESEARCH METHODOLOGY

3.1. Research Design

This study employed a quantitative, cross-sectional research design using a structured survey questionnaire. The quantitative approach was selected to objectively examine the strength and direction of the relationships among cloud-based accounting usage, digital proficiency, and internal audit effectiveness. A cross-sectional design enabled the study to collect information from respondents at a specific point in time and evaluate the proposed relationships using statistical techniques. The research combined descriptive and correlational approaches. Descriptive analysis was used to characterize the respondents and study variables, while correlation and regression analyses were applied to examine the proposed relationships and test the hypotheses.

3.2. Population and Sample

The target population consisted of internal audit professionals employed by companies listed on the CSE. These professionals were selected because they possess direct experience with internal audit activities within regulated listed-company environments. A purposive sampling technique was applied to obtain respondents with relevant and current experience in internal auditing. Eligible participants included Internal Audit Managers, Heads of Internal Audit, Financial Audit Managers, and members of internal audit teams. A total of 100 questionnaires were distributed to internal auditors. Following data screening, five incomplete responses were excluded, resulting in 95 valid responses for the final analysis. The retained sample therefore represented respondents with direct involvement in internal audit activities and provided the empirical basis for subsequent statistical analysis.

3.3. Instrument Development and Measurement

Data were collected using a structured questionnaire adapted from previous research, particularly the instrument [4], and adjusted to the Sri Lankan context. The questionnaire consisted of four sections. The first section collected respondents' demographic information, including age, gender, education, professional experience, and job title. The remaining sections measured the three principal constructs investigated in the study. The measurement structure is summarized in **Table 2**. Before the main data collection, the questionnaire was subjected to a pre-test involving 20 internal auditors. Feedback from the pre-test was used to make minor improvements to item wording and sequencing to enhance clarity and content validity.

Table 2. Structure of the research instrument.

SECTION	CONSTRUCT/INFORMATION	NUMBER OF ITEMS	MAIN COVERAGE
1	Demographic information	-	Age, gender, education, experience, job title
2	CBAU	12	SaaS, PaaS, and IaaS
3	IAE	14	Audit planning, control review, risk analysis, fraud detection, follow-up
4	DE	4	Infrastructure readiness, financial resources, training, specialized personnel

Note: All construct items were measured using a five-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree.

3.4. Data Collection

The questionnaire was administered electronically using Google Forms. Internal audit professionals from CSE-listed companies were contacted through professional networks and e-mail invitations. Participation was voluntary and anonymous. Reminder messages were used to improve participation, and the data-collection process was conducted over a four-week period. No personally identifying information was required from participants.

3.5. Data Analysis

The data were analyzed using IBM SPSS Statistics version 27. The analysis was performed through several sequential procedures. First, the dataset was screened to identify incomplete or inconsistent responses. Second, the internal consistency of the study constructs was evaluated using Cronbach's alpha. Third, construct validity was assessed using Principal

Component Analysis (PCA) together with the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity. Descriptive statistics, including the mean, standard deviation, skewness, and kurtosis, were then calculated to describe the distributions of the study constructs. Pearson correlation analysis was used to assess the relationships among cloud-based accounting usage, digital proficiency, and internal audit effectiveness. Simple regression analysis was subsequently applied to examine the direct effect of cloud-based accounting usage on internal audit effectiveness. Multiple regression analysis was employed to examine the contribution of digital proficiency and test its moderating role. The moderation model included the interaction term: $CBAU \times DE$, where CBAU represents the cloud-based accounting usage and DE represents the digital proficiency. The moderation procedure followed the established moderator-analysis framework [14]. Prior to constructing the interaction term, the moderating variable was mean-centred to reduce non-essential multicollinearity. Regression assumptions were also examined. Variance Inflation Factor (VIF) and tolerance statistics were used to assess multicollinearity. Normality was evaluated through standardized residual and normal probability plots, while homoscedasticity was examined using scatter plots of standardized residuals against predicted values. Potential outliers were assessed using Cook's distance and standardized residuals. The overall analytical sequence is summarized in **Table 3**.

Table 3. Statistical analyses applied in the study.

ANALYSIS	PURPOSE
Data screening	Identification of incomplete and inconsistent responses
Cronbach's alpha	Assessment of construct reliability
PCA, KMO, and Bartlett's test	Assessment of construct validity
Mean, SD, skewness, and kurtosis	Description of study variables
Pearson correlation	Assessment of inter-variable relationships
Simple regression	Testing the direct effect of CBAU on IAE
Multiple regression	Testing the effects of CBAU and DE
Interaction analysis	Testing the moderating role of digital proficiency
VIF and tolerance	Assessment of multicollinearity
Residual diagnostics and Cook's distance	Assessment of regression assumptions and outliers

3.6. Ethical Considerations

The study followed standard research-ethics principles. Participation was voluntary, and respondents were informed of the purpose of the study, the anonymous nature of their responses, and their right to withdraw without consequence. No personally identifying information was collected. Research data were stored securely on password-protected devices. The research design and instrument were reviewed in accordance with the academic requirements of the University of Kelaniya.

4. RESULTS AND DISCUSSION

4.1. Respondent Profile

The demographic characteristics recorded in the survey dataset are presented in **Table 4**. The profile shows substantial representation of bachelor's degree holders and relatively early-career internal audit professionals. These characteristics provide contextual information for interpreting the subsequent statistical results. Trainee Internal Auditors represented the largest occupational group, followed by Heads of Internal Audit Departments and Financial

Audit Managers. The relatively junior profile of the respondents is relevant to the interpretation of the findings. These respondents are likely to interact directly with accounting systems and perform operational audit activities. However, limited variation in professional seniority may also reduce variation in perceived digital proficiency, which should be considered when interpreting the moderation analysis.

Table 4. Demographic characteristics recorded in the survey dataset.

CATEGORY	CLASSIFICATION	FREQUENCY
Education level	A/L	5
	Bachelor	86
	Master	8
	PhD	1
Experience	<2 years	39
	2-4 years	47
	5-7 years	10
	8-10 years	3
	>10 years	1
Job title	Trainee Internal Auditor	69
	Head of Internal Audit Department	13
	Financial Audit Manager	12
	Managerial Audit Manager	5
	Operational Audit Manager	1

Note: Frequencies are reported as recorded in the original survey dataset.

4.2. Reliability Analysis

The reliability of the three study constructs was evaluated using Cronbach's alpha. As shown in **Table 5**, Internal Audit Effectiveness recorded an alpha coefficient of 0.980, Cloud-Based Accounting Usage recorded 0.971, and Digital Proficiency recorded 0.917. These values indicate high internal consistency among the measurement items. The items used to represent each construct consistently measure their respective underlying concepts. The particularly high reliability coefficients also support the use of the aggregated constructs in subsequent correlation and regression analyses.

Table 5. Reliability analysis.

CONSTRUCT	ITEMS	CRONBACH'S A
Internal Audit Effectiveness	14	0.980
Cloud-Based Accounting Usage	12	0.971
Digital Proficiency	4	0.917

Note: N = 95

4.3. Construct Validity

Table 6 shows that the Kaiser-Meyer-Olkin values were 0.952 for IAE, 0.928 for CBAU, and 0.820 for DE. Bartlett's Test of Sphericity was statistically significant for all constructs ($p < 0.001$). Each construct formed a single component. The variance explained was 79.52% for IAE, 76.28% for CBAU, and 80.58% for DE. The items within each construct demonstrate a strong common structure and provide adequate support for the measurement framework used in the study.

Table 6. Construct validity based on Principal Component Analysis.

INDICATOR	IAE	CBAU	DE
KMO value	0.952	0.928	0.820
Bartlett's test (Sig.)	0.000	0.000	0.000
Number of components	1	1	1
Variance explained (%)	79.52	76.28	80.58

4.4. Descriptive Statistics

Table 7 presents the descriptive statistics for the three principal constructs. Cloud-Based Accounting Usage had the highest mean score (4.0789), followed by Internal Audit Effectiveness (4.0342) and Digital Proficiency (4.0286). These values indicate generally high levels of agreement with the positively framed questionnaire statements. Standard deviations ranged from 0.9609 to 1.0614, indicating moderate variation among respondents. All three constructs showed negative skewness, suggesting that responses were concentrated toward the higher end of the five-point scale. This pattern indicates generally favourable perceptions of cloud-based accounting usage, digital proficiency, and internal audit effectiveness among the respondents.

Table 7. Descriptive statistics.

VARIABLE	MEAN	SD	SKEWNESS	KURTOSIS
Cloud-Based Accounting Usage	4.0789	0.9609	-2.042	3.989
Digital Proficiency	4.0286	1.0614	-1.967	3.007
Internal Audit Effectiveness	4.0342	1.0338	-1.893	2.999

Note: $N = 95$

4.5. Correlation Analysis

As shown in **Table 8**, Cloud-Based Accounting Usage was strongly and positively correlated with Internal Audit Effectiveness ($r = 0.864$) and Digital Proficiency ($r = 0.925$). Digital Proficiency was also strongly correlated with Internal Audit Effectiveness ($r = 0.851$). All relationships were statistically significant at the 0.01 level. The strong positive correlation between CBAU and IAE provides preliminary support for the expected relationship proposed in H1. Similarly, the strong relationship between DE and IAE indicates that auditors' digital capabilities are closely associated with their perceived audit effectiveness. However, the particularly high correlation between CBAU and DE ($r = 0.925$) indicates potential multicollinearity. This relationship is therefore important when interpreting the regression model and the relatively weak interaction effect observed later.

Table 8. Pearson correlation matrix.

VARIABLE	IAE	CBAU	DE
Internal Audit Effectiveness	1.000		
Cloud-Based Accounting Usage	0.864**	1.000	
Digital Proficiency	0.851**	0.925**	1.000

Note: **Correlation is significant at the 0.01 level (two-tailed).

4.6. Effect of Cloud-Based Accounting Usage on Internal Audit Effectiveness

A simple linear regression was performed to test H1. The results presented in **Table 9** show $R = 0.864$, $R^2 = 0.747$, and adjusted $R^2 = 0.744$. Thus, Cloud-Based Accounting Usage accounted for 74.7% of the variance in Internal Audit Effectiveness within the sample. The unstandardized coefficient was $B = 0.955$, while the standardized coefficient was $\beta = 0.864$. The effect was statistically significant ($t = 16.575$, $p < 0.001$). Accordingly, H1 is supported. The strong relationship between cloud-based accounting usage and internal audit effectiveness is consistent with evidence showing that cloud technology can strengthen audit processes by improving accessibility, automation, and information availability [3, 4]. Cloud-accounting adoption may enable auditors to obtain accounting information more rapidly and support increasingly technology-enabled audit procedures [5, 6]. The finding also supports TAM [8], because technologies perceived as useful and applicable are more likely to be adopted and integrated into professional activities. From an RBV perspective [9], cloud-based accounting can be considered a valuable technological resource that contributes to audit effectiveness when integrated into organizational processes.

Table 9. Simple regression of Cloud-Based Accounting Usage on Internal Audit Effectiveness.

PARAMETER	VALUE
R	0.864
R^2	0.747
Adjusted R^2	0.744
Standard error of estimate	0.537
B (CBAU)	0.955
β (CBAU)	0.864
t (CBAU)	16.575
Sig. (CBAU)	0.000

4.7. Digital Proficiency and the Moderating Effect

The multiple regression model examined Cloud-Based Accounting Usage, Digital Proficiency, and their interaction in relation to Internal Audit Effectiveness. The model produced $R = 0.875$, $R^2 = 0.765$, adjusted $R^2 = 0.760$, and $F(2,92) = 149.94$, $p < 0.001$. Cloud-Based Accounting Usage retained a statistically significant positive direct effect ($B = 0.591$, $\beta = 0.535$, $p < 0.001$). Digital Proficiency also had a significant positive direct effect ($B = 0.365$, $\beta = 0.355$, $p = 0.009$). In contrast, the CBAU $\times$ DE interaction showed $p = 0.062$. Therefore, the moderating effect of Digital Proficiency did not reach the conventional threshold of statistical significance. Nevertheless, Digital Proficiency showed a significant direct contribution to Internal Audit Effectiveness, indicating that it functions more clearly as an independent contributor than as a moderator of the CBAU–IAE relationship.

Table 10. Multiple regression including Digital Proficiency.

VARIABLE	B	β	t	Sig.
Constant	0.144	-	0.615	0.540
Cloud-Based Accounting Usage	0.591	0.535	4.017	0.000
Digital Proficiency	0.365	0.355	2.666	0.009
CBAU $\times$ DE interaction	-	-	-	0.062

Note: Source was from survey data. Model: $R = 0.875$, $R^2 = 0.765$, adjusted $R^2 = 0.760$, $F(2,92) = 149.94$, $p < 0.001$.

The positive direct effect of Digital Proficiency is consistent with research emphasizing the importance of digital capability in technology-supported auditing [7, 12]. Auditors who can effectively navigate digital platforms and analyse electronically generated information are better positioned to benefit from increasingly digital audit environments. The weak moderation result is particularly important. Previous research identified a stronger moderating role of digital proficiency in the Jordanian context, whereas the present Sri Lankan sample provides weaker evidence of such an interaction [4]. One possible explanation is the very high correlation between CBAU and DE ($r = 0.925$), indicating that the two constructs are already closely associated in this sample. Consequently, digital proficiency may operate more strongly as a parallel contributor to audit effectiveness than as a variable that substantially changes the strength of the CBAU–IAE relationship. Another consideration is the relatively junior profile of respondents. Limited variation in experience could reduce the variation observed in self-reported digital proficiency and consequently weaken the statistical interaction. The interpretation should therefore remain cautious and should not be taken to mean that Digital Proficiency is unimportant. Indeed, its statistically significant direct effect demonstrates that digital capability remains relevant to internal audit effectiveness.

4.8. Hypothesis Testing

The overall outcomes of the hypothesis testing are summarized in **Table 11**. H1 is supported because Cloud-Based Accounting Usage has a strong and statistically significant positive relationship with Internal Audit Effectiveness. H2 was not supported because the interaction term did not satisfy the conventional significance threshold. However, Digital Proficiency itself showed a significant positive direct effect on Internal Audit Effectiveness. Therefore, rather than describing Digital Proficiency as a strong moderator, cloud-based accounting usage and digital proficiency operate primarily as complementary contributors to internal audit effectiveness in the present sample.

Table 11. Summary of hypothesis testing.

HYPOTHESIS	RELATIONSHIP	RESULT
H1	CBAU → IAE	Supported ($\beta = 0.864$, $p < 0.001$)
H2	DE moderates CBAU → IAE	Not supported ($p = 0.062$)

4.9. Theoretical and Practical Implications

The findings provide support for the applicability of TAM and RBV in a South Asian internal-audit environment. TAM [8] helps explain the importance of technology usage, while RBV [9] highlights the contribution of both technological resources and human capability. However, the weak interaction effect suggests that these resources may function more as parallel or complementary contributors than as strongly multiplicative factors. From a practical perspective, Sri Lankan listed companies may benefit from continued development of cloud-based accounting and digitally enabled audit systems. At the same time, the significant direct contribution of Digital Proficiency indicates that technological investment should be accompanied by continuing professional development in areas such as digital data analysis, audit software, cloud-platform navigation, and cybersecurity. This is particularly relevant because cloud environments introduce security, privacy, access-control, third-party

dependency, and continuity risks [11]. The growth of artificial intelligence and other advanced technologies in auditing also reinforces the importance of appropriate professional judgement, governance, and ethical consideration [13]. Organizations should therefore view cloud technology and digital capability as complementary strategic investments. Stronger coordination between internal audit and information-technology functions can support system reliability, cybersecurity oversight, data governance, and more effective utilization of cloud-based accounting platforms.

4.10. Limitations and Future Research

The findings should be interpreted within several limitations. The study is based on 95 respondents, which limits generalization to the broader Sri Lankan audit profession. Its cross-sectional design does not establish causal relationships, while reliance on self-reported questionnaire responses may introduce common-method and social-desirability biases. The study also focuses exclusively on listed companies and therefore does not directly represent small and medium-sized enterprises, state-owned enterprises, or public-sector organizations. Furthermore, the conceptual model considers only three principal constructs and does not incorporate potentially relevant factors such as organizational culture, management support, IT-governance maturity, cybersecurity capability, or audit-committee oversight. Future research could employ larger samples, longitudinal designs, and mixed methods. Comparative studies across South Asian countries may also determine whether the relationships identified in Sri Lanka differ under other technological and regulatory environments. The growing use of artificial intelligence, robotic process automation, and advanced data analytics provides additional opportunities for investigating how emerging technologies interact with cloud accounting and auditors' digital capabilities.

5. CONCLUSION

Cloud-based accounting usage is strongly associated with internal audit effectiveness in Sri Lankan listed companies. Digital proficiency also contributes positively to audit effectiveness, although its moderating effect on the relationship between cloud-based accounting usage and internal audit effectiveness is not statistically significant. The findings support technology acceptance and resource capability perspectives in explaining digital audit performance. Cloud platforms should therefore be accompanied by continuous development of auditors' digital skills, cybersecurity awareness, and technology governance. Despite limitations related to sample size, cross-sectional design, and self-reported data, the study provides useful evidence for firms, auditors, regulators, and future research in emerging-market audit environments.

6. AUTHORS' NOTE

The author declares that there is no conflict of interest regarding the publication of this article. The author confirmed that the paper is free from plagiarism.

7. REFERENCES

- [1] Al-Zoubi, A. M. (2017). The effect of cloud computing on elements of accounting information system. *Global Journal of Management and Business Research*, 17(3), 1-9.
- [2] Aman, A., and Mohamed, N. (2017). The implementation of cloud accounting in public sector. *Asian Journal of Accounting and Governance*, 8, 1-6.
- [3] Appelbaum, D., and Nehmer, R. A. (2020). Auditing cloud-based blockchain accounting

- systems. *Journal of Information Systems*, 34(2), 5-21.
- [4] Alqudah, H., Mansour, A. Z., Rawashdeh, B. S., Lutfi, A., Al Barrak, T., Almaiah, M. A., and Alrawad, M. (2024). Enhancing the internal auditors' effectiveness in Jordanian companies: The impact of cloud-based accounting usage and the moderating role of digital proficiency. *Computers in Human Behavior Reports*, 15, 100442.
 - [5] Eldalabeeh, A. R., Al-Shbail, M. O., Almuet, M. Z., Bany Baker, M., and E'leimat, D. (2021). Cloud-based accounting adoption in Jordanian financial sector. *The Journal of Asian Finance, Economics and Business*, 8(2), 833-849.
 - [6] Saad, M., Lutfi, A., Almaiah, M. A., Alshira'h, A.F., Alshirah, M. H., Alqudah, H., Alkhassawneh, A. L., Alsyounf, A., Alrawad, M., and Abdelmaksoud, O. (2022). Assessing the intention to adopt cloud accounting during COVID-19. *Electronics*, 11(24), 4092.
 - [7] Lutfi, A., and Alqudah, H. (2023). The influence of technological factors on computer-assisted audit tools and techniques usage during COVID-19. *Sustainability*, 15(9), 7704.
 - [8] Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340.
 - [9] Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99-120.
 - [10] Bajary, A. R., Shafie, R., and Ali, A. (2023). COVID-19 pandemic, internal audit function and audit report lag: Evidence from an emerging economy. *Cogent Business and Management*, 10(1), 2178360.
 - [11] Tabrizchi, H., and Rafsanjani, M. K. (2020). A survey on security challenges in cloud computing: Issues, threats, and solutions. *The Journal of Supercomputing*, 76(12), 9493-9532.
 - [12] Rawashdeh, A., Rawashdeh, B. S., and Shehadeh, E. (2023). The determinants of cloud computing vision and its impact on cloud accounting adoption in SMBs. *Human Behavior and Emerging Technologies*, 2023, 8571227.
 - [13] Munoko, I., Brown-Liburd, H. L., and Vasarhelyi, M. A. (2020). The ethical implications of using artificial intelligence in auditing. *Journal of Business Ethics*, 167(2), 209-234.
 - [14] Baron, R. M., and Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182.