

## The effect of cloud computing on the quality of financial statements: The mediating role of internal control system

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### CHRONICLE

### ABSTRACT

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The study aimed to evaluate how cloud technology implementation would affect Jordanian industrial businesses' financial statements' integrity across a range of variables (financial condition, income, cash flow, owners' equity). The investigation involved employees from financial and internal audit departments, including various job titles. A random sample of 150 questionnaires was distributed among the study population, with a 96% response rate (145 retrieved). Respondents were scored using a Likert five-point scale on the 44-paragraph questionnaire. To accomplish its goals, the study used a descriptive-analytical methodology and statistical techniques such as path analysis (using AMOS) and simple linear regression analysis (using SPSS). According to the study, the implementation of cloud accounting has a statistically significant effect on the quality of financial statements by Dimension (statement of financial position, income statement, statement of cash flows, and list of equity), according to the study. Applying cloud accounting has a statistically significant effect on the internal control system, and the internal control system has a statistically significant impact on the accuracy of financial statements. Furthermore, cloud accounting has a statistically significant impact on the quality of financial statements in Jordanian industrial companies through the internal control system as an intermediate variable. The study made several recommendations in light of the earlier findings, the most significant of which are: determining the internal control system's current state both before and after cloud accounting was implemented; creating and executing a robust internal control system compliant with international accounting standards; and assessing the suitability of cloud accounting solutions through thorough evaluations. The report also emphasized how crucial it is to set up ongoing audit and internal control systems to evaluate how well the internal control and cloud accounting systems are working together.

## 1. Introduction

In the context of contemporary economic advancements, many institutions aspire to enhance their performance by embracing modern technologies, with a notable focus on cloud computing (Saad et al., 2022; Oliveira et al., 2019). Cloud computing aims to facilitate the transfer, circulation, and communication of data among different departments and branches within an institution (Lutfi et al., 2024; Maqueira-Marín et al., 2017). Furthermore, it fosters connections between the institution,

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customers, suppliers, and other relevant stakeholders, allowing users to collect, store, process, and analyze data through the electronic cloud (Oliveira et al., 2014; Mansour et al., 2024). The widespread adoption of cloud computing applications globally has led numerous international companies to adopt cloud accounting, ensuring uninterrupted network access at all times (Abu Al-Futouh, 2018; Hsu et al., 2014; Shehadeh et al., 2024).

Cloud accounting, also known as web accounting, is replacing traditional accounting software as financial executives seek cost-effective solutions adaptable to diverse business needs (Alrfai et al., 2024). Developed to address issues with traditional systems, cloud accounting programs are increasingly recognized for their efficiency in saving time and money (Almaiah et al., 2022; Yousefi and Qatal, 2021). Cloud accounting delivers computing services over the Internet, not as a product. Users access shared resources remotely, eliminating the need for knowledge about system configuration (Sutthikun et al., 2018). It involves applications hosted on remote servers, processing data sent by users through a website, not on their desktops (Atadoga et al., 2024; Usman et al., 2019).

Financial statements are crucial information sources for parties with a facility-related interest. Prepared per accounting foundations, principles, and rules, the set comprises four key statements: income, position, cash flow, and changes in equity (Agbenyo et al., 2018). Financial statements, prepared following accounting principles, are vital for assessing a facility's success. They offer essential information to primary beneficiaries, helping predict cash flow, measure income, and evaluate fund sources and utilization (Salehi et al., 2023; Akai, 2023).

Cloud accounting globally aids business owners in generating financial statements (income, financial position, cash flow, changes in ownership) via specialized firms, reducing the need for a permanent accountant and cutting statement preparation costs (Lutfi, 2022). High-quality financial information, aligned with qualitative characteristics, is crucial for stakeholders to make informed decisions (Akai, 2023; Idris, & Mohamad, 2017; Siswanti et al., 2024). Cloud accounting accelerates operations, promptly detecting and correcting errors, and ensuring accuracy and information quality. The cloud application fosters neutrality and impartiality, as users rely on consistent accounting methods and programs, enhancing internal control systems. This safeguards assets, detects fraud and errors, ensures reliable financial reports, and ensures compliance with organizational laws, regulations, and policies (Alkhazaleh, & Marei, 2021; Ma et al., 2021, 2019). In light of the current economic expansion, Jordanian manufacturing enterprises endeavor to enhance their efficiency by utilizing contemporary technologies, like cloud accounting, to elevate the caliber of their financial reports (Idris, & Mohamad, 2016). The importance of cloud accounting and its impact on financial statement quality are discussed, with a focus on Jordanian industrial enterprises that trade on the Amman Stock Exchange (Alshirah et al., 2021). The internal control system is taken on as a mediator in this work.

The current study aims to respond to the following queries:

1. What is the impact of using cloud accounting on the financial statement's accuracy?
1. What is the impact of using cloud accounting on the internal control system?
2. What is the impact of the internal control system on the financial statements quality?
3. Does the internal control system mediate the impact of using cloud accounting on the financial statements quality?

## 2. Literature Review and hypotheses development

### 2.1. Related Works

The overview by Yousfi and Qatal (2021) examined online accounting apps and how they affect financial results. The study suggested that to promote efficiency, dependability, trustworthiness, and transparency in Algerian economic institutions, organizations should be encouraged to use cloud accounting. The impact of internal control on the quality of financial reports was examined in Sawafta and Zidan's (2021) case study conducted in the Ministry of Finance in Ramallah. Three internal control dimensions—follow-up, information, and communication—were found to have significant effects. Strategic risk planning and clear information presentation are among the recommendations made. Prior research has not gone into detail to determine which aspects of cloud accounting have had a particularly negative impact on the accuracy and financial performance of accounting data. The reason for this is that several cloud accounting studies, including those by Yousfi and Qatal, 2019; and Wahdan et al., 2021, nearly all concentrated on the same target impacts. On the other hand, different aspects were primarily covered by the DV and IV studies of the internal control system, namely for internal control, and the quality of the financial statements. For example, Sawafta and Zidan, 2021 investigated the impact of internal control on financial report quality, whereas AL-Mahdi (2022) study looked at how COSO-based internal control affected financial reports; his investigation focused on the qualitative aspects of accounting information and how these aspects affected internal control in Iraqi commercial banks. The beneficial impact of the internal control system on the caliber of financial reports was highlighted by Salehi et al (2023). Ultimately, these investigations show that the methodological strategy of this work aims to fill in the shortcomings.

### 2.2. Financial statements

Financial statements serve as crucial information sources for investors, lenders, analysts, and other stakeholders. While their nature is similar, varying parties have distinct information needs. To address this, general-purpose financial statements are

prepared to meet the diverse needs of external parties involved with the facility (Agbenyo et al., 2018). Financial statements are comprehensive records displaying a company's financial operations, including the balance sheet, income, profits, and cash flows. These serve as accounting references, organizing data logically to convey information about the company's financial components and conditions at a specific time (Salehi et al., 2023).

Financial statements must meet objectives by serving various groups, particularly current and potential investors and creditors. They should provide information to estimate risks affecting cash flows, measure changes in crises, and assess the company's private income. Furthermore, they must offer reliable data on economic elements to gauge strengths and weaknesses, disclose apparent changes in total resources, and inform about expected returns from investment. Ultimately, the statements should disclose all relevant data tailored to the company's users' needs (Kamal et al., 2023).

### 2.3. Cloud Accounting

The accounting profession has embraced information technology innovation, and cloud computing is poised to reshape the accounting software market. The rising adoption of cloud computing underscores its potential. Cloud accounting mirrors traditional software functionality but operates in the cloud, departing from locally installed accounting software (Alkhatir et al., 2018). Cloud accounting, or web accounting, is replacing traditional programs, driven by financial executives seeking practical and cost-effective solutions. Beyond automation and detailed data provision, its appeal lies in the flexibility to adapt to diverse business needs (Al-Shmam et al., 2021). Developed to address issues with traditional systems, cloud accounting programs are increasingly recognized for their efficiency, saving both time and money (Akai, 2023).

The adoption of cloud accounting, as highlighted by Al-Shamrani (2019), brings about numerous advantages for companies. Firstly, it allows for the establishment of accounts with the latest technological applications, eliminating the need for constant updates. Furthermore, cloud accounting provides global accessibility, enabling users to access accounts from various parts of the world through any internet connection (Tahar et al., 2020; Khayer et al., 2020). Additionally, companies can benefit from free technical support provided by service providers, enhancing the overall cost-effectiveness and efficiency of the accounting system (Alghadi et al., 2024). In summary, cloud accounting emerges as a transformative and advantageous solution in the realm of modern accounting practices. Therefore, this study proposes the following hypothesis:

**H<sub>1</sub>:** *There is a significant impact of using cloud accounting on the accuracy of financial statements.*

**H<sub>2</sub>:** *There is a significant impact of applying cloud accounting on the internal control system.*

### 2.4. Internal control system

The internal control system (IAG) developed by the International Audio Group aligns with the International Standards on Auditing (IFAC) by the International Federation of Accountants. It encompasses organizational plans, methods, procedures, and policies to ensure orderly and effective operations, including adherence to policies, asset protection, fraud detection, and encouraging efficiency (Bakua & Ahmed, 2012; Alshirah, Alshirah, & Lufti, 2021). The internal control system, as per the Committee of Sponsoring Organizations (COSO, 2013), is a multifaceted process involving the board of directors and administration. Its purpose is to reasonably ensure that the organization achieves operational objectives, safeguards assets, produces reliable reports and adheres to established laws.

The internal control system, encompassing organizational plans and standards, is vital for asset protection and evaluating data reliability. As organizations grow, it ensures accuracy, with senior management overseeing goal implementation. Thus, this study proposes the following hypothesis:

**H<sub>3</sub>:** *There is a significant impact of the internal control system on the quality of the financial statements.*

**H<sub>4</sub>:** *There is a significant impact of applying cloud accounting on the quality of financial statements through the internal control system.*

## 3. Research model

To accomplish the aim and particular objectives of the study, a special model was used, as shown in Fig. 1.

## 4. Methodology

The research used the descriptive approach, which includes the following methods of collecting, summarizing, organizing, and presenting data with the help of tables and graphs. It also implies calculating statistical measures such as measures of centrality and the strength of correlation. Additionally, the research used a deductive analytical approach, which means expressing meaning using the numbers, understanding the statistical significance, and interpreting, and describing these numbers from a sense point of view in a broader context than a descriptive approach. This step occurred after tabulating and analyzing

the sample's opinions, aiming to draw more comprehensive and general conclusions about society. The research population is made up of workers with a variety of job titles, including department head, employee, assistant manager, department director, and internal auditor, who work in the finance and internal audit departments. As of the end of 2022, these people were connected to 54 Jordanian industrial businesses that were listed on the Amman Stock Exchange. Regarding the study sample, a random sample of the study population was employed, and 145 out of the 150 questionnaires that were issued to the study population overall were retrieved. As a result, the companies' overall recovery rate was 96%, which is trusted to be typical of the study population. According to Sekaran, a minimum response rate of 86% is considered suitable for research purposes when completing the study protocols.

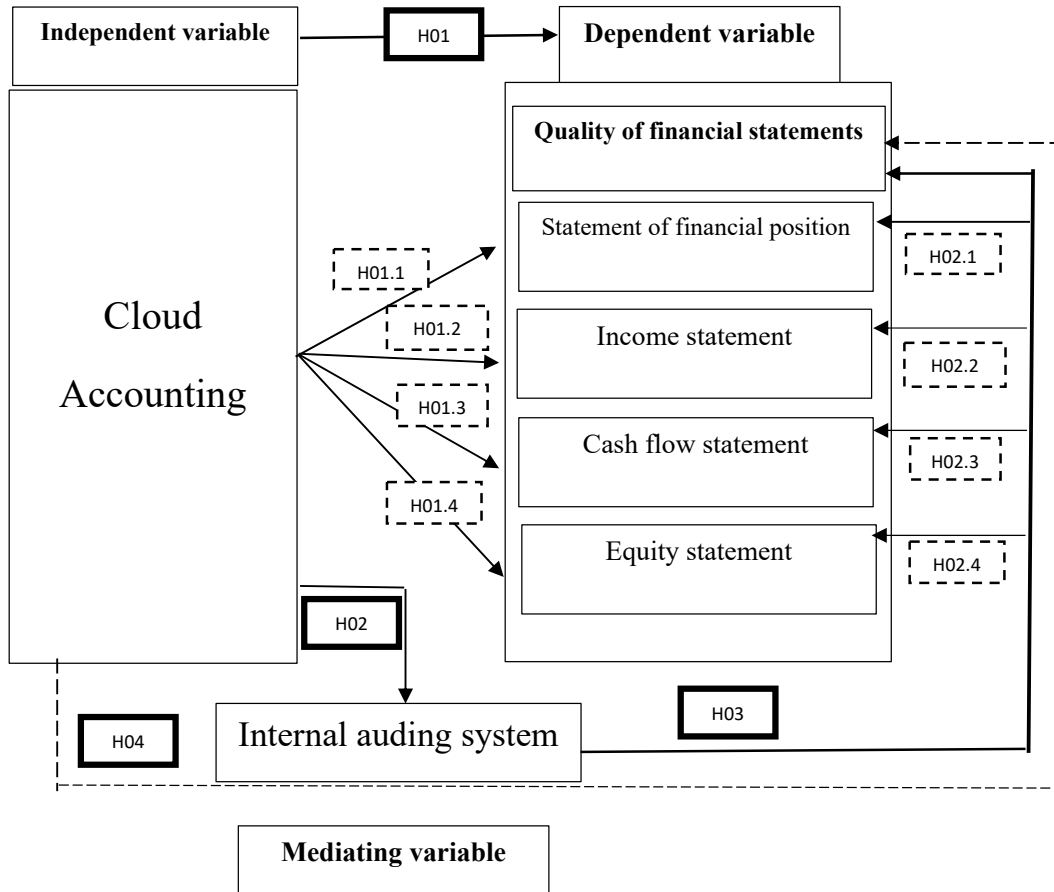


Fig.1. Study model

**5. Construct Validity and reliability**

Truthfulness refers to the alignment between the paragraphs of a measurement instrument and the subject it aims to measure. It involves ensuring that the items within these paragraphs appropriately capture the dimensions and characteristics that the researcher intends to assess. The accuracy of the instrument relies on the extent to which the items or paragraphs accurately represent the variable or feature under study (Alsyouf et al., 2023; Reinartz et al., 2009). Considering this, the researcher presented the study tool to a group of academic experts from Jordanian universities. These experts reviewed the questionnaire paragraphs and their contents, providing feedback and suggestions for improvements (Marei, 2023). All amendments and revisions necessary were made to the questionnaire based on their input. The availability of accurate and stable measures is vital for field research using a questionnaire as the main tool of data collection (Marei et al., 2022, 2023). The unstable measurement tends to mislead an accurate reflection of the current issue under study. In this case, reliability refers to the credibility of the measurement of the research tool to the research sample to eliminate a mere random error in the results obtained (Marei et al, 2023). In essence, reliability ensures consistent outcomes when the tool is reapplied to the same group of individuals. The Statistical Package for the Social Sciences (SPSS) offers various methods for calculating the reliability of the study instrument. To ensure the reliability of the study tool, the Cronbach Alpha coefficient was employed to assess the internal consistency of the tool and its variables. According to Hair et al. (2022), a value between 0.6-0.7 is considered the minimum for accepting reliability, while Garson suggested 0.7 as a limit, with a minimum acceptance value of 0.8 and above indicating tool stability. The Cronbach alpha coefficient for all items of the scale was found to be 0.855, \*-with the highest

value observed for the internal control variable at 0.892 and the lowest for the variable representing the quality of financial statements at 0.823. These reliability coefficients for all variables and aspects of the study tool are deemed acceptable for the study's purposes, as depicted in Table 1.

**Table 1**  
Table of internal consistency coefficients using the Cronbach alpha equation

The variable	Variable type	No of items	Cronbach Alpha coefficient
Cloud computing	Independent	13	0.844
Internal control system	Mediator	15	0.892
Quality of financial statements	Dependent	16	0.823
All items on the scale		44	0.855

## 6. Hypotheses Testing Results

### 6.1. The first main hypothesis

**H01.** There is a significant impact of using cloud accounting on the accuracy of financial statements for Jordanian industrial enterprises, including the Statement of Financial Position, Income Statement, Statement of Cash Flows, and List of Equity.

The impact of adopting cloud accounting on the dimensions of the financial position, income statement, statement of cash flows, and list of property rights of Jordanian industrial companies is being investigated by researchers using basic linear regression analysis. Table 2 illustrates this.

**Table 2**  
Coefficient of determination value and the coefficient of multiple correlation

Model	Relationships	R	R-Squire	Square-Adjusted	Std. Error of Estimate
1	Cloud Accounting on financial statements quality	.422	.178	.172	.51851
1	Cloud Accounting on financial position	.434	.189	.183	.65694
1	Cloud Accounting on Income statement	.225	.051	.044	.69584
1	Cloud Accounting on Cash flow statement	.325	.106	.099	.68045
1	Cloud Accounting on equity statement	.380	.144	.138	.61924
1	Cloud Accounting on Internal control	.552	.304	.300	.53985
1	Internal control on of financial statements quality	.687	.472	.469	.41550
1	Internal control on of financial position	.661	.436	.432	.54749
1	Internal control on Income statement	.416	.173	.168	.64935
1	Internal control on Cash flow statement	.539	.290	.285	.60630
1	Internal control on equity statement	.606	.367	.363	.53247

**Table 3**  
Multiple Linear Regression Analysis

Relationships	Standardized Coefficients		Stan Coef	t	Sig.	Result
	B	Std. Error				
Cloud Accounting on financial statements quality	.424	.076	.422	5.567	.000	Accepted
Cloud Accounting on financial position	.556	.096	.434	5.765	.000	Accepted
Cloud Accounting on Income statement	.282	.102	.225	4.764	.006	Accepted
Cloud Accounting on Cash flow statement	.411	.100	.325	4.112	.000	Accepted
Cloud Accounting on equity statement	.446	.091	.380	4.906	.000	Accepted
Cloud Accounting on Internal control	.627	.079	.552	7.912	.000	Accepted
Internal control on of financial statements quality	.607	.054	.687	11.31	.000	Accepted
Internal control on of financial position	.744	.071	.661	10.52	.000	Accepted
Internal control on Income statement	.459	.084	.416	5.475	.000	Accepted
Internal control on Cash flow statement	.599	.078	.539	7.643	.000	Accepted
Internal control on equity statement	.626	.069	.606	9.108	.000	Accepted

From Table 2 above, data reveals that the correlation coefficient (R) is 42.2% or 0.422, this is indicative of a medium-strong relationship between cloud accounting and the quality of financial statements. According to the R squared value, cloud accounting accounts for 17% of the variance in the financial statement quality,  $R^2 = 0.17$ . Therefore, the quality of financial statements among the industrial commercial enterprises in Jordan is statistically significantly influenced by cloud accounting. This is indicated by the fact that the  $F.Sig = 0.00$  is less than the standard significance level, 0.05. The validity of the model of the study at the given degree of freedom is further shown by the  $F_{cal} = 111.631$  and is greater than the  $F_{tab}$ . This is relative to the coefficient in table 3 of the hypothesis, whereby the cloud accounting is assigned a coefficient of  $\beta = 0.422$ , with  $Sig = 0.00$ , to establish the t-calculated value at 5.567, which is higher than the  $t_{tab} = 3.8415$ , the difference is statistically significant. From the findings, the alt hypothesis is accepted, and the null hypothesis is rejected. The alt hypothesis states that the financial statements quality, in the areas of statement of the financial position, income statement, statement of cash flows, and list of equity for the Jordanian industrial firms, are statistically significantly influenced by the accounting cloud characteristics.

### 6.1.1. Sub-hypotheses

**H01.1:** There is a significant impact of applying cloud accounting on the quality of the statement of financial position of Jordanian industrial companies.

As a result, based on the data in Table 2, the correlation coefficient  $R$  is 43.4% or so. The predictor correlates at a medium-strong level with the dependent variable. Thus, the implementation of cloud accounting can explain 18% of the variability of SOFP quality in this study, according to  $R$  Square 0.18. Therefore, it can be concluded that the adoption of cloud accounting and the quality of Statements of Financial Position in terms of accuracy in Jordanian industrial firms are related. This can be proven by considering the value  $F$ .Sig, which is 0.00, which means that it is less than the significance level of 0.05—in addition, taking into account that the value of the tabulated value is 3.8415, which is less than the calculated value of  $F$ , which is 33.222. These results demonstrate the significance of the model used in this study, which has degrees of freedom of  $DF = 1/143$ . CA variable coefficient  $\beta$  is 0.434 according to the coefficient in table 3 of this hypothesis. In addition, at the significance level of 0.00, the calculated  $T$  value is 5.765, which is higher than the table value of 3.8415. This means that the hypothesis significantly proves itself, so the alternative hypothesis can be considered confirmed, and the first sub-hypothesis of the main hypothesis is rejected. According to the alternative hypothesis, the implementation of a cloud does not have a significant impact on the accuracy of the statement of financial condition in Jordanian industrial firms.

**H01.2:** There is a significant impact of applying cloud accounting on the quality of the income statement of Jordanian industrial companies.

As per Table 2 below, there is a weak correlation between the quality of the income statement and cloud accounting, as the correlation coefficient ( $R$ ) stands at 22.5%. With a  $R$  Square value of 0.05, the quality of the income statement was found to be influenced by 5% regarding the adequacy of cloud accounting. Both the coefficient ( $F$ .Sig) and its value of 0.00 lie below the stipulated cutoff of 0.05. Besides, the calculated ( $F$ ) value is higher compared to the critical value of 3.8415 as depicted by 7.638. This means that the model used in the study has significant effects on the quality of the income statement. To complement this derivation is the freedom degree ( $F=DF = 1/143$ ). For instance, as highlighted in the hypothesis, the coefficient value ( $\beta$ ) was 0.225. At a significance level of 0.006, the related value in Table 3, ( $T$ ) was 4.736 and then the hypothesized value was less than 3.8415. This implies that the hypothesis was significant as well. As such, the researcher's null hypothesis is rejected while their alternative hypothesis, which states that cloud accounting use has a significant influence on the income statement, is adopted in place of the first hypothesis, H0120S2, which is thus nullified. Hence. Other hypotheses include H0120S3, which states that cloud accounting influences cash flow statement quality, whereas balance sheet quality does not.

**H01.3:** There is a significant impact of applying cloud accounting on the quality of the Cash flow statement of Jordanian industrial companies.

The quality of the cash flow statement and therefore the use of cloud accounting has a linear or moderate relationship. If the  $R$  factor or the correlation coefficient recorded 32.5% in the table 2, as in 5, it can be said that little change occurs. Thus, 10% of the total change in the quality of the cash flow statement could be explained using cloud accounting. It's revealed within the  $R$  Square significance value of 0.10. As a result, the quality of cash flow statements has been significantly affected by the utilization of cloud accounting in Jordanian industrial enterprises. It is often confirmed because the significance level is 0.05 and it's exceeded the worth of 0.00 for  $F$ .Sig. Then, the  $F$ .salmi's value was calculated at 16.911, which is above the tabular value of 3.8415. Therefore, this reveals that the research model is significant because the Degree of Freedom is 1/143. consistent with the coefficient's hypothesis in table 3, this can be because the variable "cloud accounting application," has a beta coefficient of 0.325. The expected  $T$  worth 4.112 is larger than the tabulated  $T$  worth 3.8415 at a significant level of 0.000. These results clarify that the alternative hypothesis is acceptable. Still, the third sub-hypothesis to the primary main hypothesis is rejected, which means there is a significant influence of cloud accounting within the cash flow statement quality of Jordanian industrial businesses. The quality of the property rights inventory depends on whether cloud accounting has been implemented in Jordanian industrial enterprises.

**H01.4:** There is a significant impact of applying cloud accounting on the quality of the equity statement of Jordanian industrial companies.

The correlation coefficient  $R$ , which is 38.0% according to Table 2, suggests that the use of cloud accounting is moderately to highly linked to the quality of the property rights list. Also, the use of cloud accounting explains a large amount of variance since the squared  $R$  is 0.14, which is 14 percent of the variance in the quality of the list of property rights. The use of cloud accounting has a statistically positive effect on the quality of the list of property rights for Jordanian industrial companies. It would be best if you even considered that  $F$ .Sig is 0.00; this is a little more than 05. This is evident when comparing the critical  $F$ Tab value at a significant level of 0.05. With the computed  $F$  that is 24.065, the computed  $F$  has more substantive digits than the critical  $F$ Tab of 3.8415, with degrees of freedom of 1/143. This means that at this level of freedom, the research

model is significant. Then we find that the  $\beta$ -coefficient value for the variable “cloud accounting application” in the hypothesis is 0.380. At a value of 0.05, the computed T value is 4.906, exceeding the tabulated F value. The value is significant at 0.000, and thus the alternate hypothesis is retained, hence rejecting the fourth sub-hypothesis of the first main hypothesis: In Jordanian industrial companies, the accuracy and reliability of the property rights list are significantly affected by cloud accounting.

### 6.2. The Second Hypothesis

**H02:** There is a significant impact of applying cloud accounting on the internal control system in Jordanian industrial companies.

The researchers used simple linear regression analysis to determine the impact of applying cloud accounting on the internal control system in Jordanian industrial companies, as shown in Table 3.

Table 2 shows that the correlation coefficient (R) has a value of 55.2%, indicating a moderate to strong association between the use of cloud accounting and the internal control system. The coefficient of determination, R-squared, is 0.30, indicating that the implementation of cloud accounting can account for 30% of the variability observed in the internal control system. The Pearson correlation coefficient indicated a statistically significant influence of implementing cloud accounting on the internal control system in Jordanian industrial businesses. The F.Sig value is 0.00, which is less than 0.05. Additionally, the computed value is greater than the tabular value of 3.8415 at a degree of freedom (DF) of 1/143, specifically 62.602. This indicates the relevance of the study model. Table 3 of coefficients of the hypothesis indicated that the coefficient for the applied cloud accounting variable was 0.552, and the estimated T-value was 7.912, which exceeds the critical T-value of 3.8415 at the 0.000 significance level. According to the findings: The third primary null hypothesis has been disproven, and the alternative hypothesis has been validated: The application of cloud accounting has a substantial influence on the internal control system in industrial enterprises in Jordan.

### 6.3. The Third Hypothesis

**H03. There** is a significant impact of the internal control system on the quality of the financial statements (statement of financial position, income statement, etc.). This study looks at Jordanian industrial businesses' property rights listings and cash flow accounts. In our review of the influence of the internal control system on the quality of financial statements, the dependent variable dimension will be the system dimension and the independent variable will be the Jordanian industrial firms. The approach applied in the study is the simple linear regression and table 3 indicates the result of the analysis:

From Table 2, it can be understood that the correlation coefficient,  $R = 68.7\%$  indicates the presence of a medium-strong relationship between the caliber of financial statements and the internal control system. With  $R^2 = 0.47$ , as the internal control system explains 47% of the Variation in Financial Statements, Jordanian Industrial Businesses' Financial Statements depend significantly on their internal control system. The analysis of the R-square is supported by the F. Sig value: 0.00 which is less than the researcher level .05, as seen from the table 3, below. There is also a case of the model's significance on the degree of freedom when the F computed  $> F$  Table 4:  $127.963 > 3.8415$ . For the second hypothesis, the coefficient in table 3 indicates that with the computed T table = 11.312. The value coefficient of the variable internal control system is 0.687. As it can use a significance of .000 Both factors are more than the Tabular value of 3.8415. Therefore, from these values, the second main null hypothesis null is the rejected null hypothesis, and the alternative is accepted and determined that internal control has a distinct effect on financial statement quality, specifically d4 – d1 which is found in the statement of financial status. The Jordanian industrial companies normally have the financial records, The Income Statement, Statement of Cash Flows, and List of Equity.

#### 6.3.1. Sub-hypotheses

The impact of the internal control system on several aspects of the quality of the financial statements of an industrial business in Jordan was evaluated by the researchers using a basic linear regression analysis. The cash flow statement, equity statement, income statement, and statement of financial position are some of these components. The following were the results:

**H03.1:** There is a significant impact of the internal control system on the quality of the financial position statement of Jordanian industrial companies.

The correlation coefficient in Table 3 is 66.1%, indicating a moderate to strong linear relationship between the internal control system and the quality of the financial position statement. Specifically, nothing is offered; .43 is the R Square value, which means 43% of the variation in the Quality of the Financial Position Statement is due to the internal control system. Therefore, the internal control system has a significant impact on the quality of the financial position statement of the Jordanian industrial business. The research model is also relevant at the degree of freedom as the computed value is 110.740, which is greater than the tab value of 3.8415. Here, the calculated value for the p-value is 0.00 greater than the 0.05 critical value as well. The value

of the coefficient  $\beta$  is determined by looking up to the table 3 of coefficients for the hypothesis. The respective table is 3, and the coefficient for the variable internal control system is 0.661. The computed value of T is 10.523, and the Tab is 3.8415 at a level significant to 0.000. Given the above results, therefore, we reject the first sub-hypothesis for the second main hypothesis and accept the alternative literature review Why: internal control system significance: rej. H01.1 alt. hp: The internal control system has a direct and significant effect on the quality of the financial position statement of Jordanian industrial businesses.

**H03.2:** There is a significant impact of the internal control system on the quality of the income statement of Jordanian industrial companies.

According to Table 2, The R coefficient has a value of %41.6, which is a medium-strong relationship between the internal control system and the income statement. According to Table 2, the evidence substantiates that the R square value is 0.17% and it proves that the internal control system constitutes 17% variability of the income statement. The null hypothesis of the internal control system's influence on the income statement of Jordanian industrial companies is rejected because the R square value is 0.17 (p-value = 0.00). The calculated F.Sig value is 0.00, and The f.Campeld value (29.981)>f.Tabulated Table 0.05 with a degree of freedom of 1/143 is evidence of the significance of the study. The coefficient  $\beta$  for the variable "internal control system" is the value of 0.416. The calculated T- T-value is 5.475, and the tabulated t-value at 0.05 significant level is 3.8415 is also evidence of the statistical significance. The second sub-hypothesis of the second major hypothesis is invalidated, and the second alternative hypothesis is proven. This means that there is a significant relationship between the internal control system and the income statement accuracy of Jordanian industrial companies.

**H03.3:** There is a significant impact of the internal control system on the quality of the cash flow statement of Jordanian industrial companies.

The correlation between the quality of the cash flow statement and the internal control system is moderate to high 53.9%, as shown in table (2). Since there is an R Square of 0.29; thus, it was concluded that the characteristics of 29% quality have been adequately explained by the implementation of the internal control system. The research findings from the study reveal that the quality of the industrial Jordanian corporate flow statements is profoundly affected by the internal control system. This is made abundantly clear by F.Sig values of 0.00 (lower than 0.05), while a DF value of 1/143 revealed that the value of FS1.415 is less than the F tabulated by = 3.8415 which indicates that the null hypothesis is rejected and hence; the recorded data scale the coefficients of calibration for this hypothesis found in table 3. The coefficient ( $\beta$ ) of the internal control system variable was found to be 0.539. At a level of significance of 0.000; a computed value of 7.643 is far greater than the F tabulated value = 3.8415, thus it is significant. The data obtained reject the third sub-hypothesis of the second main hypothesis, and hence I accept the alternative hypothesis which states that the quality of cash flow statements of the Jordanian industrial companies is significantly affected by their internal control system.

**H03.4:** There is a significant impact of the internal control system on the quality of the equity statement of Jordanian industrial companies.

According to Table 2, the internal control system and the quality of equity statement have a medium coronal, there was not anything specific offered with a correlation coefficient of (R=60.6 %).as for r square the value was .36 which means that 36% of the variation in equity statement quality could be referred back to the internal control system. The internal control system positively affected the quality of equity statements at the Jordanian industrial firms. It was not only that the calculated value -.13 > the tabulated value -1.83 but the coefficient, which is less than one of, that is greater than shows that the study model was highly significant at each of freedom. As presented in the beta coefficient table of the hypothesis, the variable internal control system beta =.108 which is significant and greater than tabulated values at sig=.000 level. As for the 2<sup>nd</sup> main hypothesis given, the results are that the alternative form is accepted, whereas the 4<sup>th</sup> sub-hypothesis is rejected based on the above result. The quality of schedule of property rights at Jordan industrial is significantly impacted by the internal control system".

#### 6.4. *The Fourth Hypothesis*

**H04:** There is a significant impact of applying cloud accounting on the quality of financial statements through the internal control system in Jordanian industrial companies.

The fourth hypothesis was examined by Path Analysis utilizing the Amos program, a statistical software supported by the Social Sciences statistical package program SPSS. This analysis aimed to confirm the existence of both direct and indirect effects of the research variables. The findings have indicated as follows:



**Table 4**  
Values of fit indices for the paths model

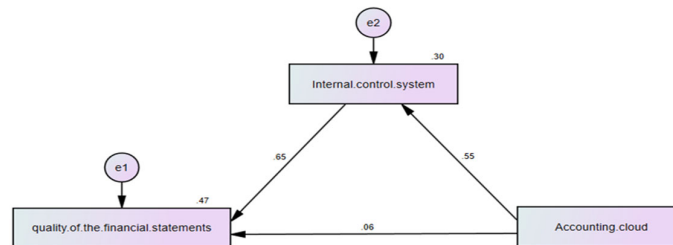
Statement	Chi <sup>2</sup>	Df	Goodness of Fit				RMSEA	Significance level
			GFI	CFI	IFI	NFI		
Cloud accounting	0.000	0	0.979.0	1.000	1.000	1.000	0.033	0.015

The results from Table 4 indicate that the Chi2 value is 0.00 with 0 degrees of freedom. Additionally, the Goodness of Fit Index (GFI) has a value of 0.979, which is close to one. This suggests that the model has good quality appropriateness since a higher value closer to one indicates a better fit. The comparative alignment index (CFI) has a value of 1.00, which indicates perfect alignment. Similarly, the standard alignment index (NFI) also has a value of 1.00, indicating a perfect alignment. Additionally, the square root index of the mean squares of the error (RMSEA) approaches zero with a value of 0.033, further supporting the validity of the approved model (Byrne, 2010).

**Table 5**  
Direct and indirect effect coefficients and the total effect of the fourth main hypothesis

variables	Direct effect		Indirect effect		Total effect	
	Cloud accounting	Internal control system	Cloud accounting	Internal control system	Cloud accounting	Internal control system
Internal control system	0.627				0.627	
Quality of financial statements	0.062	0.577	0.362		0.424	0.577

In table number 5, it is indicated that the direct impact of cloud accounting on the internal control system is 0.627. Additionally, the intentional direct effect of cloud accounting on the financial statements is 0.062, and the intentional direct effect on the system is also 0.062. On the one hand, the aim to maintain internal control in the financial accounts was 0.577. Table 5 demonstrates that the independent variable cloud accounting has an indirect effect on the dependent variable, the quality of the financial statements. This effect is mediated by the internal control system, with a magnitude of 0.362. This indicates a significant and effective impact of cloud accounting on the quality of financial statements through the internal control system. The partial-mediation internal control system has a total impact of 0.424 on the quality of the financial statements in cloud accounting. Cloud accounting can have an indirect influence of 42.4% on the quality of financial statements by affecting the internal control system. Thus, this has a significant impact at a significance level of less than 0.05, indicating that the internal control system acts as a partial mediator. Cloud accounting adversely impacts the quality of financial statements and internal control systems in Jordanian joint-stock industrial enterprises listed on the Amman Stock Exchange, resulting in a total negative effect of -0.424. Therefore, the fourth null hypothesis H01 is disproven, and the alternative HA1 is supported, indicating that there is a significant influence of using cloud accounting on the quality of financial statements in the internal control system.



**Fig. 2.** Path analysis test results

## 7. Discussing the results of the analysis

### 7.1 Discussing the results of the cloud accounting

The study's findings suggest that the significance of the independent variable (cloud accounting) was moderately observed, with an average score of 3.66. Most participants, spanning diverse job titles, agreed that cloud accounting applications effectively facilitate regular financial data backup, enable remote work, and feature data encryption across all platforms. Notably, the cloud-based system allows for real-time feedback and correction through software control in the event of any defects. The researchers attribute these outcomes to the awareness among employees in Jordanian industrial companies with varying job roles regarding the benefits of cloud accounting. These include the flexibility it offers for task execution without location constraints, secure access to stored data, and robust protection through encryption and backup restoration, ultimately reducing the likelihood of accounting errors.

### 7.2 *Discussing the dimensions of financial statement quality*

The study revealed that sample members' estimates of the relative importance of financial statement quality ranged between 3.77 and 3.89. Property rights topped the list with the highest average (3.89), indicating high importance, followed by cash flows (3.82) and financial position statements (3.80), both with high relative importance. The income statement ranked last with a moderate importance average of 3.77. Overall, the dimensions of financial statement quality received an average rating of 3.82, suggesting high importance. Jordanian industrial companies were found to provide financial statements with high qualitative characteristics, reflecting awareness of their significance among employees. This is attributed to the companies' emphasis on hiring experienced personnel committed to preparing informative financial statements for effective decision-making by internal and external stakeholders, such as investors and lenders. The study underscores the crucial role financial statements play in guiding investment, credit, and other decisions within the business stakeholders.

### 7.3 *Discussing the results of the internal control system*

The study's findings on the internal control system reveal a moderate overall importance, with an arithmetic average of 3.66. Across various job titles, most sample members concurred that the internal control system facilitates transparent communication channels for the smooth flow of accounting information throughout the company. Additionally, the system incorporates accounting methods for assessing comprehensive performance, including budget planning, standard costs, and financial/non-financial indicators. The internal control systems also contribute to supervisory controls and emergency plans, minimizing the risk of electronic device and system failures. Notably, Jordanian industrial companies exhibit flexible control systems, and corporate management actively engages in risk analysis and classification, utilizing technical means for assessing the likelihood of potential risks.

The researchers attribute the observed result to the heightened awareness among the study sample of employees in diverse job roles within Jordanian industrial companies regarding the critical role of the internal control system. This awareness extends to the system's significance in safeguarding assets, assessing the objectivity and accuracy of accounting data, and establishing a reliable foundation for decision-making. Furthermore, the internal control system is acknowledged for mitigating risks, developing strategies to address potential issues, and ensuring compliance with laws. The ultimate goal is to produce transparent financial reports that comprehensively cover operational, financing activities, and cash flows, thereby satisfying the stakeholders reliant on accounting information and aiding them in making informed and dependable decisions. Analyzing study hypotheses is fundamental to scientific research, forming the basis for conclusions and recommendations. The summarized results are as follows:

**The first main hypothesis** Cloud accounting significantly affects the quality of financial statements for Jordanian industrial companies, supported by a coefficient of determination of 0.17 and a significance level below 0.05. The impact encompasses the accuracy, timeliness, accessibility, and reliability of financial reports. This aligns with findings in studies by Talfah and Al-Zoubi (2021) but differs from Peter & Martin's (2016) study, which noted a positive but not statistically significant impact on human capital and capital structure. Implementation specifics and organizational context can influence the extent of cloud accounting's implications for financial reporting.

**The second main hypothesis** the second main hypothesis affirms a statistically significant impact of the internal control system on the quality of financial statements in Jordanian industrial companies (coefficient of determination: 0.47; significance level < 0.05). The researcher attributes this to the system's influence on the accuracy, completeness, integrity, and timeliness of financial information. Studies by Sawafta and Zidane (2021), and Lari (2019) support these findings, highlighting the importance of well-designed internal control systems for reliable financial reporting.

**The third main hypothesis** the third main hypothesis reveals a statistically significant impact of cloud accounting on the internal control system in Jordanian industrial companies (coefficient of determination: 0.30; significance level < 0.05). The researcher attributes this to the positive contributions of cloud accounting, including enhanced communication channels, risk identification, physical and electronic asset protection, fraud detection, and improved reliability and accuracy of financial reports.

**The fourth main hypothesis** the study demonstrates is that the internal control system serves as a positive mediating variable in the impact of cloud accounting on the quality of financial statements in Jordanian industrial companies. The indirect effect of cloud accounting on financial statement quality, mediated by the internal control system, is significant at 0.362. Through this mediation, the total impact of cloud accounting on financial statement quality is 0.424, indicating that it indirectly explains 42.4% of its effect on financial statements through the internal control system. The researcher attributes this to cloud accounting's ability to enhance financial statement accuracy and quality by expediting operations, promptly detecting errors, and ensuring compliance with accounting standards and regulations.

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## References

- Akai, N. D., Ibok, N., & Akininyi, P. E. (2023). Cloud Accounting and the Quality of Financial Reports of Selected Banks in Nigeria. *European Journal of Accounting, Auditing and Finance Research*, 11(9), 18-42.
- Alghadi, M., Alqudah, H., Ananzeh, H., Almaiah, M., & Al-Matari, Y. (2024). Enhancing cyber governance in Islamic banks: The influence of artificial intelligence and the moderating effect of Covid-19 pandemic. *International Journal of Data and Network Science*, 8(1), 307-318.
- Alkhatir, N., Walters, R., & Wills, G. (2018). An empirical study of factors influencing cloud adoption among private sector organisations. *Telematics and Informatics*, 35(1), 38-54. <https://doi.org/10.1016/j.tele.2017.09.017>.
- Alkhazaleh, A. M. K., & Marei, A. (2021). Would irregular auditing implements impact the quality of financial reports: Case study in Jordan practice. *Journal of Management Information and Decision Sciences*, 24(6), 1-14.
- Al-Mahdi, M. A. (2022). The Effect of Applying the COSO Internal Control System on Improving the Professional Specialization of the Internal Auditor in Iraqi Commercial Banks. *World Bulletin of Management and Law*, 14, 95-109.
- Almaiah, M. A., Hajje, F., Shishakly, R., Lutfi, A., Amin, A., & Awad, A. B. (2022). The role of quality measurements in enhancing the usability of mobile learning applications during COVID-19. *Electronics*, 11(13), 1951.
- Alrfai, M. M., Alqudah, H., Al-Kofahi, M., Alrawad, M., & Almaiah, M. A. (2023). The influence of artificial intelligence on the AISs efficiency: Moderating effect of the cyber security. *Cogent Social Sciences*, 9(2), 2243719.
- Al-Shamrani, Magda Awda Faleh (2019). The impact of cloud computing external review in Saudi Arabia. *Arab Journal of literature and human studies*, 3(8), 251-286.
- Alshirah, M., Alshirah, A., & Lufti, A. (2021). Audit committee's attributes, overlapping memberships on the audit committee and corporate risk disclosure: Evidence from Jordan. *Accounting*, 7(2), 423-440.
- Alshirah, M., Lutfi, A., Alshirah, A., Saad, M., Ibrahim, N. M. E. S., & Mohammed, F. (2021). Influences of the environmental factors on the intention to adopt cloud based accounting information system among SMEs in Jordan. *Accounting*, 7(3), 645-654.
- Al-Shmam, M. A., Riyadh, H. A., & Alfaiza, S. A. (2021). The business and accounting technology innovation for better firm performance: A case of Malaysian firms. *Academic Journal of Interdisciplinary Studies*, 10(6), 60-60.
- Alsyouf, A., Lutfi, A., Alsubahi, N., Alhazmi, F. N., Al-Mugheed, K., Anshasi, R. J., ... & Albugami, M. (2023). The use of a Technology Acceptance Model (TAM) to predict patients' usage of a personal health record system: The role of security, privacy, and usability. *International journal of environmental research and public health*, 20(2), 1347.
- Atadoga, A., Umoga, U. J., Lottu, O. A., & Sodiya, E. O. (2024). Evaluating the impact of cloud computing on accounting firms: A review of efficiency, scalability, and data security. *Global Journal of Engineering and Technology Advances*, 18(02), 065-074.
- Bakua, A. F. Y. A. K., & Ahmed, M. M. M. (2012). Activation of the internal control systems to reduce the phenomenon of financial and administrative corruption in the service units (Analytical study of the theory). *Journal of Administration and Economics*, 30(92), 90-122.
- Byrne, M. B. (2010). *Structural Equation Modeling with AMOS Basic Concepts*. Applications, and Programming (2nded). New York, NY Routledge.
- Hair, J. F. (2021). Reflections on SEM: An introspective, idiosyncratic journey to composite-based structural equation modeling. *ACM SIGMIS Database: The DATABASE for Advances in Information Systems*, 52(SI), 101-113.
- Hsu, P. F., Ray, S., & Li-Hsieh, Y. Y. (2014). Examining cloud computing adoption intention, pricing mechanism, and deployment model. *International Journal of Information Management*, 34(4), 474-488. <https://doi.org/10.1016/j.ijinfomgt.2014.04.006>
- Idris, K. M., & Mohamad, R. (2016). The influence of technological, organizational and environmental factors on accounting information system usage among Jordanian small and medium-sized enterprises. *International Journal of Economics and Financial Issues*, 6(7), 240-248.
- Idris, K. M., & Mohamad, R. (2017). AIS usage factors and impact among Jordanian SMEs: The moderating effect of environmental uncertainty. *Journal of Advanced Research in Business and Management Studies*, 6(1), 24-38.
- Kamal, L. N., Jasni, N. S., Razali, F. M., & Shah, S. Z. O. (2023). Factors Influencing the Intention to Adopt Cloud Accounting Among Malaysian North Borneo SMEs: A TOE Model Approach.
- Khayer, A., Talukder, M. S., Bao, Y., & Hossain, M. N. (2020). Cloud computing adoption and its impact on SMEs' performance for cloud supported operations: A dual-stage analytical approach. *Technology in Society*, 60, 101225. <https://doi.org/10.1016/j.techsoc.2019.101225>.
- Lutfi, A. (2022). Understanding the Intention to Adopt Cloud-based Accounting Information System in Jordanian SMEs. *International Journal of Digital Accounting Research*, 22.
- Lutfi, A., Alkelani, S. N., Alqudah, H., Alshira'h, A. F., Alshirah, M. H., Almaiah, M. A., ... & Abdelmaksoud, O. (2022). The role of E-accounting adoption on business performance: the moderating role of COVID-19. *Journal of Risk and Financial Management*, 15(12), 617.
- Ma, D., Fisher, R., & Nesbit, T. (2021). Cloud-based client accounting and small and medium accounting practices: Adoption and impact. *International Journal of Accounting Information Systems*, 41, 100513. <https://doi.org/10.1016/j.acinf.2021.100513>.
- Mansour, M., Saleh, M. W., Marashdeh, Z., Alkhodary, D., & Al-Nohood, S. (2024). Eco-Innovation and Financial Performance Nexus: Does Company Size Matter?. *Journal of Open Innovation: Technology, Market, and Complexity*, 100244.

- Maqueira-Marín, J. M., Bruque-Cámara, S., & Minguela-Rata, B. (2017). Environment determinants in business adoption of Cloud Computing. *Industrial Management & Data Systems*, 117(1), 28-246. <https://doi.org/10.1108/IMDS-11-2015-0468>.
- Marei, A. (2023). The Moderating Role of Big Data and User Satisfaction in the Predictors of Generalized Audit Software among Jordanian Auditing Firms. *Expert systems*, 9, 10.
- Marei, A., Al-Haddad, S., Daoud, L., Habashneh, A., Fariz, R., & Aldamisi, R. (2022). The impact of innovation on customer satisfaction in the commercial banks: Business performance as a mediating variable. *Uncertain Supply Chain Management*, 10(3), 887-894.
- Marei, A., Mustafa, J. A., Othman, M., & Daoud, L. (2023). The moderation of organizational readiness on the relationship between toe factors and fintech adoption and financial performance. *Journal of Law and Sustainable Development*, 11(3), e730-e730.
- Oliveira, T., Martins, R., Sarker, S., Thomas, M., & Popović, A. (2019). Understanding SaaS adoption: The moderating impact of the environment context. *International Journal of Information Management*, 49, 1-12. <https://doi.org/10.1016/j.ijinfomgt.2019.02.009>.
- Oliveira, T., Thomas, M., & Espadanal, M. (2014). Assessing the determinants of cloud computing adoption: an analysis of the manufacturing and services sectors. *Information Management*, 55, 497-510. <https://doi.org/10.1016/j.im.2014.03.006>.
- Reinartz, W., Haenlein, M., & Henseler, J. (2009). An empirical comparison of the efficacy of covariance-based and variance-based SEM. *International Journal of research in Marketing*, 26(4), 332-344.
- Saad, M., Lutfi, A., Almaiah, M. A., Alshira'h, A. F., Alshirah, M. H., Alqudah, H., ... & Abdelmaksoud, O. (2022). Assessing the intention to adopt cloud accounting during COVID-19. *Electronics*, 11(24), 4092.
- Salehi, M., Ammar Ajel, R., & Zimon, G. (2023). The relationship between corporate governance and financial reporting transparency. *Journal of Financial Reporting and Accounting*, 21(5), 1049-1072.
- Sawafta, Osman Ahmed & Zeidan, Shaza Musa. (2021). The impact of internal control on the quality of financial reports: a case study of the Ministry of Finance in Ramallah. *Journal of economic, administrative and Legal Sciences*, 15(5), 30-47 .
- Shehadeh, M., Atta, A., Barrak, T., Lutfi, A., & Alrawad, M. (2024). Digital transformation: An empirical analysis of operational efficiency, customer experience, and competitive advantage in Jordanian Islamic banks. *Uncertain Supply Chain Management*, 12(2), 695-708.
- Siswanti, I., Riyadh, H. A., & Prowanta, E. (2024). Digital Transformation's Moderating Role on Financing and Capital Quality Impacts for Sustainable Islamic Rural Banking in Indonesia. *International Journal of Sustainable Development & Planning*, 19(3).
- Sutthikun, W., Thapo, R., & Sahayrak, K. (2018). Accounting in the Cloud. *International Journal of Integrated Education and Development*, 3(2), 19-27.
- Tahar, A., Riyadh, H. A., Sofyani, H., & Purnomo, W. E. (2020). Perceived ease of use, perceived usefulness, perceived security and intention to use e-filing: The role of technology readiness. *The Journal of Asian Finance, Economics and Business*, 7(9), 537-547.
- The Committee of Sponsoring Organizations of the Treadway Commission (COSO), (2013), Internal Control - Integrated Framework.
- Usman, U. M. Z., Ahmad, M. N., & Zakaria, N. H. (2019). The Determinants of Adoption of Cloud-Based ERP of Nigerian's SMES Manufacturing Sector Using Toe Framework and Doi Theory. *International Journal of Enterprise Information Systems (IJEIS)*, 15(3), 27-43. <https://doi.org/10.4018/IJEIS.2019070102>.

