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The impact of empowering internal auditors on the quality of electronic internal audits: A case of Jordanian listed services companies

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ABSTRACT

This study emphasizes on the top management empowerments to internal auditors, namely, general qualification, electronic qualification and independence, affecting quality of electronic internal audits in the Jordanian Listed Service Companies. This paper used 144 usable questionnaires from internal auditors in the Jordanian listed service companies. The gathered data were analysed utilizing “Statistical Package for Social Sciences (SPSS)”. The results reveal that general qualification, electronic qualification and independence have a significant effect on the quality of electronic internal audits, as supported by the resource-based view. Due to the importance of the service companies' sector in the context of Jordan, the results are helpful for the internal audit profession and decision makers in offering new legislation for the internal audit profession. Future research may consider other factors that may hinder the quality of electronic internal audits, such as audit task complexity or organizational culture.

1. The introduction

Technological development has led to the introduction of information technology in all fields (Alshira'h, Alsqour, Lutfi, Alsyouf, & Malek, 2020a; Jadir, Rana, & Dwivedi, 2022; Kar & Dwivedi, 2020). The use of technology has become a competitive advantage for some companies that distinguish them from their counterparts (Al-Okaily et al., 2022; AlQudah, Osman & Al Qudah, 2014; Kumar, Kar & Ilavarasan, 2021; Lutfi et al., 2022; Norwahida & Shukeri, 2014). However, the operations of data, whether manual or electronic, and also, the scope of audit does not change in light of the electronic operation of data (Almaiah et al., 2022g,f; Al-Sukker, Ross, Abdel Qader, & Al-Akra, 2018; Lutfi & Alqudah, 2023), but the method of auditing and collecting evidence may completely differ, and this difference may be due to the different procedures for collecting, classifying and storing accounting information (Alshirah et al., 2021a, b; Al-Thneibat, 2017; Alqudah et al., 2022).

Moreover, using the computer in audit operations makes it easy for the auditor to verify the validity of operations with less cost than the manual system (Alshirah et al., 2021a; Amponsah, Adekoya, & Weyori, 2022; Al-Damni, Al-Halabi & Arabi, 2021). Meanwhile, the auditors must understand the risks associated with computer technology and systems, also auditors need to evaluate the availability of electronic evidence and the efficiency of this evidence, besides the risks of these computerized systems to customers (Almaiah et al., 2022h-j; Alshira'h et al., 2020b; Usang & Salim, 2016; Alrawad et al., 2023a,b; Alrawad, Lutfi, Alyatama, Elshaer, & Amin Almaiah, 2022 Alqudah, Amran & Hassan, 2019). Among the tools that are used by the auditor to audit computerized systems and electronic commerce are the “General Audit Software”, this program is designed to examine the efficiency of remote communication systems, data and the individuals who manage them (Alzoubi, 2019; Al-Okaily, Alqudah, Al-Qudah & Alkhwalidi, 2022). Only authorized persons enter the system for agreed purposes.

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Extensive use of computers presents a good opportunity to improve the audit profession. The use of computers in audit operations contributed to providing a variety of services to users of financial statements and contributing to solving financial and accounting problems that facing auditors (Alzeban & Gwilliam, 2014). The increasing interest in using modern technologies in accounting operations, has need to advance the profession of auditing and improve its performance in line with developments increased (Usang & Salim, 2016). Therefore, due to the digital transformation at the global level, and the automation of most companies' activities, especially after the repercussions of the Corona pandemic, the electronic internal audit has become an integral part of the elements of corporate governance (AlOkaily, Alqudah, Matar, Lutfi, & Taamneh, 2020; Lutfi, 2020).

Furthermore, the spread of COVID-19 had a surprising impact on internal auditors who could no longer able to conduct planned audits utilizing their traditional methodologies (face-to-face) (Lutfi et al., 2022c; Saad et al., 2022). Affected internal audit functions shifted to performing electronic audits, which means performing audit procedures using information technology with data analytics to report on the strength of internal controls and the accuracy of financial data and gather evidence electronically (Lutfi, Alkelani, Al-Khasawneh et al., 2022; Teeter, Alles & Vasarhelyi, 2010; Eulerich, Wagener & Wood, 2021). Hence, electronic internal audit is needed more than ever because it can mitigate the impacts of social distancing on auditing methodologies (Al-Okaily, Alqudah, Al-Qudah & Alkhwald, 2022).

It is expected that applying the electronic internal audit will increase the efficiency of internal auditors as they can do more productive tasks in a short time (Christ, Eulerich, Krane & Wood, 2021). Meaning, when internal auditors are efficient, they will be able to extend the scope of their tasks and carry them out effectively. Ultimately, when internal auditors become more effective and efficient, it is expected that stakeholders will be more likely to be persuaded and trust the work of the electronic internal audit (Eulerich et al., 2021). That to say, the shift from the manual audit system to the electronic audit has become an urgent necessity for the advancement of the audit profession and this profession has entered into the era of information technology (Alzoubi, 2019; Pickard, Schuetzler, Valacich & Wood, 2020). These changes led to different methods of auditing and risk assessment. Meanwhile, the majority of these methods depend on high-quality technological processes (Lenz et al., 2017). Although the expectations from using an electronic internal audit are relatively straightforward, the lack of spread of the electronic internal audit may be due to their lack of awareness of its benefits or the internal audit units do not have the required qualification (Qudah et al., 2019).

Many researchers believe that empowering top management of internal auditors and the appropriate regulatory environment for them has a major role in increasing the quality of auditing (Lenz et al., 2017; Lutfi, Al-Khasawneh et al., 2022; Rensburg & Coetzee, 2016). Wherein qualified (i.e., General qualifications and electronic qualifications) and independent internal auditors will lead to increased efficiency in the electronic internal audit profession (Alqudah et al., 2019). According to the professional standards of the internal audit profession, empowering top management is one of the most important main areas in improving organizational performance in companies. Hence, this study came to identify the impact of empowering top management of internal auditors (general qualification, electronic qualification, independence) on the quality of electronic internal auditing in Jordanian listed service companies.

Other motives leading to this study are the scant studies on the electronic internal audit profession (Eulerich et al., 2021; Al-Okaily et al., 2022), particularly in Jordan. In this vein, more studies must be conducted (Dal Mas & Barac, 2018; Alqudah, 2020). For instance, Park, Lee and Kim (2019) confirmed that only a few studies have addressed IA. Correspondingly, Endaya and Hanefah (2016) and Alqudah, Emran and Hassan (2019) have suggested the need for additional studies to empirically investigate the factors affecting the in-

ternal audit profession. Eulerich et al. (2021) confirmed that there are very few studies that dealt with electronic internal audits worldwide, and they asserted the need for further studies in this field. Furthermore, Al-Okaily et al. (2022) and, Endaya and Hanefah (2016) indicated that sufficient theories must be utilized to support the internal audit research.

Accordingly, this study employed the resource-based theory by containing factors influencing the quality of electronic internal audits as practical and critical resources for the internal auditors to deliver their tasks effectively. Hence, this study hypothesizes that the general qualification, electronic qualification, and independence have a positive effect on the quality of electronic internal auditing in Jordanian-listed service companies.

This paper contains Five sections: It starts with an introduction to the quality of electronic auditing in Jordanian service companies. Section Two presents the study's theoretical framework and then delivers the study hypotheses. Section Three presents the research methodology. Section Four provides the study results. And the fifth section discusses the results of the study compared to previous research and presents research contributions and future studies.

2. Theoretical framework

The theoretical framework of this study was developed based on the study of the literature on the quality of electronic internal auditing, the Jordanian context related to the internal auditing profession and the resource-based theory. Considering the relevancy of the Resource-Based Theory in studying the quality of electronic internal audits is based on the view that if the organisations possess several distinguishing internal resources or qualifications to a higher extent, the quality of electronic internal audits will be increased (Alqudah, 2020). This is because the Internal Audit Department (IAD) is seen to be like any department in an organization, that needs resources to be competent to deliver its services (Kruger, Steyn & Kearney, 2002). Thus, the Resource-Based Theory employed in this study explains the association between internal resources, including the general qualification, electronic qualification, independence, and the quality of electronic internal audit within the Jordanian listed service companies. Hence, the study has Three independent variables (i.e., general qualification, electronic qualification, independence), and One dependent variable (i.e., the quality of electronic internal audit) (as shown in Fig. 1).

2.1. Quality of electronic internal audit

The perception of accounting audits has changed as a result of the increasing need for auditing functions, whereas auditing is a form of control. Therefore, with the development of human life, especially economic ones, auditing has received wide attention in the financial, economic, legal and even social fields (Alzoubi, 2019). Hence, the profession of audit is present in every company, regardless of its type, due to its significant role in preserving and protecting the company's funds and helping to make decisions Various (Almaiah et al., 2022k,l; Lenz & Hahn, 2015). Further, the audit profession is one of the professions that must possess the necessary capabilities to control the internal control systems of business companies in a way that ensures the delivery of good and accurate information to all administrative levels and external parties in an appropriate and timely manner in order to use it in construction and rational decision-making. Therefore, the audit process plays a vital role in supporting the activities of services companies to ensure the effectiveness and efficiency of operations, which helps to demonstrate their good management to shareholders (Alzeban & Gwilliam, 2014).

The shift from the manual audit system to the computer-assisted audit has become an urgent necessity to enhance the audit profession and enter the era of information technology, as this change in style led to different methods of auditing and auditing in risk assessment, the use of audit tools and procedures, and the use of specialized information technology programs to complete the electronic audit process (Alzoubi, 2019;

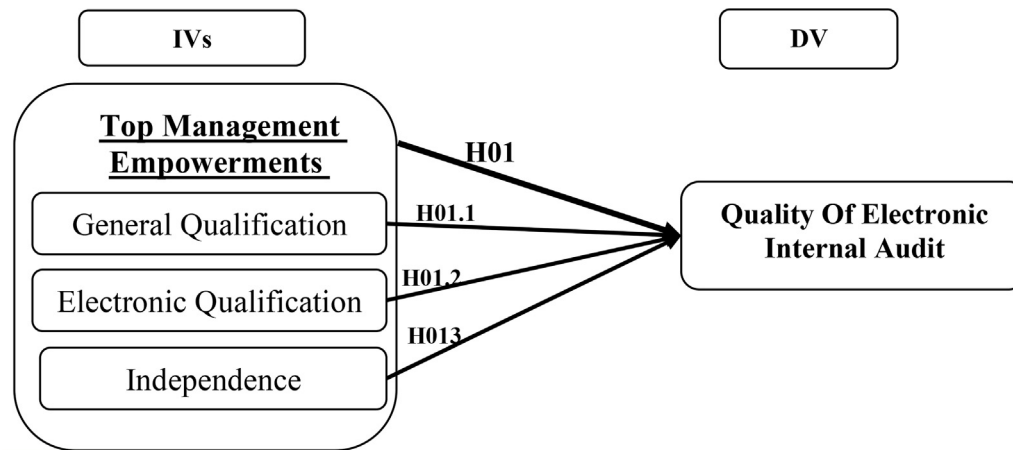


Fig. 1. Research model.

Lutfi, 2021). Some of them were based on the computer audit method, others depended on computer auditing, and others will be processed later, which produced different methods that enable this function to be performed easily, and the majority of these methods depend on high-quality technological processes (Al-Okaily et al., 2022). However, these developments have affected the internal audit profession, whereas the internal audit function get a great benefit from using technologies.

Internal audit is a set of processes concerned with data collection (audit evidence), analysis and evaluation, in order to obtain reasonable assurance about compliance or non-compliance with applicable standards. Internal audit mainly consists of the amount and the quality of the evidence collected to express an opinion or make a recommendation (Rensburg & Coetzee, 2016). While the electronic internal audit was defined as an aggregate and valuation process to determine whether using computers contributes to protecting the assets of the economic unit, confirms the integrity of its data, achieves its objectives effectively, and uses its resources efficiently. The electronic audit helps the internal auditor to perform the audit profession strategically and enables him to use information technology. In the audit process in order to properly plan and perform audit engagements and issue reports (Poltak, Sudarma & Purwanti, 2019).

2.2. Top management empowerments

In general, the electronic audit requires inputs, skills, and experience quite different from manual audits because of this difference in moving or moving from a manual audit to an audit by hardware and software (Alqudah et al., 2019; Rensburg & Coetzee, 2016; Tiwari & Raman, 2022). Hence, in the context of the present study to be able to obtain a high-quality electronic internal audit in Jordanian listed service companies, it is necessary for top management to empower internal auditors with the general and electronic qualifications as well as the level of independence they require (Lutfi, 2022a,b). Further, based on the Resource-Based Theory (Barney, 1991), the empowerment of top management for internal audit units can be a ground to supply them with the necessary internal resources to do their duties effectively. With adequate support (empowerment) from the company management, the internal audit staff can ensure the critical resources to execute their duties (Al-Khasawneh et al., 2022; Grover, Kar & Dwivedi, 2022), and the internal audit units can employ qualified auditors and offer them continuous training, which is needed to perform the objectives of electronic internal audits (Bello, Ahmad & Yusof, 2018).

2.2.1. General qualification

The general qualification of the IAD refers to acquiring the internal auditors of knowledge and skills at the required level, to help them

to perform specific tasks perfectly and in accordance with the applicable standards (Bello, Ahmad & Yusof, 2018). Also, the internal auditor needs to be sufficiently qualified to carry out the audit process and respond to changes and developments in the environment of the audit profession (Abbass & Aleqab, 2013). Further, the general qualifications can be clarified by the Auditing Standard (610) which confirmed on provide Adequate training to the internal auditors estimate and fulfill the related professional standards, so that they are able to carry out the audit profession effectively. Again, according to the resource-based theory, if a company owns high general competencies, electronic internal audit quality will be improved (Hamza Mohammad, 2020), as the internal audit unit requires resources to be competent to deliver its services. Thus, internal audit unit need consideration from their top management to reach the audit aims. Such empowerments contain being involved in providing the internal audit units with qualified staff and adequate training for the successful execution of electronic internal audit tasks (Alqudah et al., 2019; Khassawneh, 2014; Kushwaha, Kar & Dwivedi, 2021).

That to say, empowering the IAD in Jordanian listed service companies with a general qualification by top management is one of the crucial factors that impact the quality of electronic internal audits. Internal auditor, with a general qualification, can get suitable skills to achieve their tasks (Lenz & Hahn, 2015). Additionally, the internal audit unite can get continuous training and suitable resources (Alzeban & Gwilliam, 2014). It is argued that the provision of the IAD with qualified staff is important to empower internal auditor to accomplish his tasks effectively, then leads to the quality of electronic internal audits. If internal auditor gets sufficient qualifications (skills, knowledge, training, experience), this will lead to a high quality of electronic internal audits in Jordanian listed service companies. Hence, the first hypothesis proposes that:

H₁: The general qualification has positive impact on quality electronic of internal audits in Jordanian listed services companies.

2.2.2. Electronic qualification

Electronic qualification is a basic principle of the functions of the internal auditor, and the auditor must perform his profession with sufficient technical training and professional experience (Alqudah et al., 2021). Electronic skill and Professional care are the duty of the auditors to perform their task with a reasonable degree (International Standards for Auditing and Assurance and the Code of Ethics of the Profession). Al-Okaily et al. (2022) considers that electronic competence is the expertise required by internal auditors and an adequate understanding of all accounting applications, in addition to an understanding of control and internal audit policies and procedures. Alqudah et al. (2019) also added that internal auditors must have sufficient communication skills, personal skills, and information technology skills.

Hence, based on the resource-based view, empowering the IAD with an electronic qualification is one of the crucial factors that impact the quality of electronic internal audits (Poltak et al., 2019; Usang & Salim, 2016). With an electronic qualification internal auditors can get suitable electronic skills to do their tasks easily and fast (Alqudah, Mathani, Aldiabat, Alshakary, & Alqudah, 2022). It is argued that the provision of the IAD with electronic qualification is important to aid internal auditors to reach their electronic tasks effectively, which then leads to the quality of electronic internal audits. If the internal auditors get sufficient electronic qualifications (electronic skills, information technology knowledge, automated training, electronic experience), this will lead to a high quality of electronic internal audits in Jordanian listed service companies. Hence, the second hypothesis proposed that: H_2 : *The electronic qualification has positive impact on quality electronic of internal audits in Jordanian listed services companies.*

2.2.3. Internal auditors' independence

Independency is a crucial condition for the effectiveness of internal audits (Alshirah et al., 2021c; Alzeban & Gwilliam, 2014; Arena & Sarens, 2015). This is documented by the IIA that "the internal audit activity must be independent, and internal auditors must be objective in performing their work" (IIA, 2017, p.3) Independence is described as the release from circumstances that threaten objectiveness. The independence of internal auditors enhances the financial reports' integrity (Arens, Elder, Beasley, & Hogan, 2016; Erasmus & Coetzee, 2018). Hence, in the context of the present study, it can be said that internal auditor's independence raises the quality of electronic internal audits in Jordanian listed service companies because independence may give the internal auditors a positive work environment in which they can accomplish their electronic tasks without restricts or pressure (Abuazza, Mihret, James & Best, 2015; Al-Sukker et al., 2018; Alzoubi, 2019). Besides, according to the "Resource-Based Theory", resources could be assets that employed to help a company to achieve its objectives and execute well (Bryson, Ackermann & Eden, 2007). Thus, the present study argues that if internal auditor performs independently in a company, it will enhance the quality of electronic internal audits. Thereby, the internal auditor's independence can be a main part of the quality of electronic internal audits in Jordanian listed service companies. Hence, the third hypothesis proposed that:

H_3 : *The independence internal auditors have positive impact on quality electronic of internal audits in Jordanian listed services companies.*

3. Methodology

3.1. Study sample and data collection

The present paper addressed the empowerments of internal auditors (i.e., general qualification, electronic qualification, independence) influencing the quality of electronic internal audit in Jordanian listed services companies (the study population). This study suggests a model supported by a resource-based theory. Further, to be relevant to the context of the present study, each general qualification, electronic qualification and independence have been addressed as internal resources (factors) affecting the quality of electronic internal audits in the context of Jordanian public service companies. As shown in Amman Stock Exchange (ASE) (2022) the service companies which is listed on ASE and active are 41 services companies, includes Seven groups of companies namely: 2 Health Care Services, 5 Educational Services, 9 Hotels and Tourism, 9 Transportation, 2 Technology and Communication, 5 Utilities and Energy, and 9 Commercial Services (Lutfi et al., 2023; Zaitoun & Alqudah, 2020). The entire population in this study will be involved as the research sample. In the context of electronic of the internal audit in services companies, the internal auditors addressed as respondents of the current study.

The data was gathered from internal auditors to cover the study variables. The perceptions of the internal auditors were measured to offer

indicators of the empowerments that received from top management influencing the quality of the electronic internal audit. The questionnaires have been distributed to 41 listed services companies by five questionnaires for each company, wherein 205 questionnaires have spread to internal auditors in the Jordanian listed services companies. Out of them, 144 valid responses were received from the participants. The questionnaire was employed to describe the study variables by internal auditors.

3.2. Reliability and validity

Only a well-designed, well-organized, and dependable research instrument assures the validity of the study findings. Hence, to assure the content validity and in regard to the wording and content of the questions, also to assure that all participants have understood the questions and to deter ambiguity in the questionnaire, a panel of specialists of six information technology professionals and auditing researchers was formed. Viewing their observations, we adjusted some of the items to improve the clarity of the questionnaire survey. Following this, we performed a pilot test using "Cronbach Alpha Test" on a sample of 20 internal auditors. The results indicated proof of the validity and reliability of the study instruments (see Table 2). That is to say, Cronbach Alpha values for all study items are greater than 0.07 (Al-Mugheed et al., 2022; Alshirah, Alshirah, & Lutfi, 2021b; Sekaran & Bougie, 2016).

3.3. Study measurements

The survey questionnaires were closed-ended, on a five-point Likert scale, permitting the respondents to declare their thoughts using various grades from strongly disagree (1) to strongly agree (5). The survey questionnaire consists of 3 sections, the first section introduced the demographic profile: gender, age, educational background and work experience. the second section provides a scale measuring the quality of electronic internal audits. The third section showed scales measuring the independent variables of the suggested study model. The variables items representing the present survey were adapted from prior studies related to an internal audit (Alqudah, 2019; Alzeban & Gwilliam, 2014, 2019; Salehi, 2016).

3.4. Common method bias

Although self-reported data may be exaggerated or missing relevant details and some information, this method has been strongly defended in the literature, as it is the only method available for many categories of research (Hamza Mohammad, 2020; A. Alsyouf et al., 2022; Adi Alsyouf et al., 2021, 2022a, 2023; Adi Alsyouf, Ku Ishak, Lutfi, Alhazmi, & Al-Okaily, 2022b; Adi Alsyouf & Ishak, 2018; Alqudah et al., 2021; Lutfi et al., 2022; Al-Okaily et al., 2022). To mitigate the influence of common method bias, we followed several steps. For example, we gathered data in two stages. We confirmed the respondents' anonymity. Further, we executed an "exploratory factor analysis" with an unrotated solution to prove that the common method is free of bias. The result was also satisfactory – that to say, the "Harman single-factor test" indicated that a single factor explained only 38.16%, which delivers approval for the lack of common method bias. This approach is agreeing with the prior literature (Almaiah et al., 2022a–e; Al-Okaily et al., 2022; Lutfi et al., 2022b).

4. Results

The "Statistical Package for Social Sciences (SPSS)" 25.0 were employed for analysis the study data. Normality, Data cleaning, multicollinearity, Descriptive Statistics and Simple Linear Regression tests were run using SPSS.

Table 1 shows that majority of the respondents were within the age group of 41–60 years old approximately (88%), the bulk of the participants had a Bachelor's degree (71%) whereas 28% of them had a

Table 1
Profiles of Respondents.

	Category	Frequency	Percentage (%)
Age	21–30	0	0
	31–40	14	10
	41–50	88	61
	51–60	39	27
	<60	3	2
	Total	144	100
Education Level	Bachelor	102	71
	Master	38	26
	PhD	4	3
	Total	144	100
Experience	2–4	0	0
	5–7	13	9
	8–10	86	60
	<10	45	31
	Total	144	100
Job Title	Financial audit	79	55
	Managerial Audit	43	30
	Technical audit	22	15
	Total	144	100

Master's degree. The majority of the participants had at least 8 years of working experience (91%). Consequently, the demographic data of the participants showed that they had acceptable experience and knowledge to participate in the survey and deliver trustworthy data for this study.

For **descriptive statistics**, Table 2 shows the result of descriptive statistics for the constructs of this study. The mean scores of the constructs were upper the mid-point on the one to five-scales. we classify the five-point scale into three classifications: low, medium and high scales. Scores smaller than 2.33 are considered low; scores higher than 3.67 are considered high; while scores between 2.33 and 3.67 are considered moderate (Hair, Hult, Ringle & Sarstedt, 2016).

Table 3 shows that the mean for the study variables is ranged between 3.26 and 4.05. That is means all study variables have a very good level of the Mean scores except the Independence variable that has reasonable level. Additionally, the result illustrate that the independence of internal auditor's variable holds the best rank of the mean score, while the general qualification variable gets the last rank of mean score. The quality of electronic internal audit variable was in the Second rank and the electronic qualification in the Third rank.

For **Normality** test, the normality indicates that "data have a symmetrical distribution exhibiting a shape that forms a bell curve" (Pallant, 2020), and the Skewness and kurtosis are used to represent the normality test. "Skewness is a measure that illustrates to what range a data distribution has deviated from the center of the mean" (George & Mallery, 2019). The results in Table 3 display that the skewness values were in the acceptable range (+3 and -3), demonstrating that the gathered data are normal distributed. "Kurtosis is a measure that shows whether the data group is flat or peaked relative to a normal distribution" (Hair et al., 2016). The kurtosis values can be positive or negative, wherein positive value indicate that the responses are distributed in a flatter way, wherein negative value indicated that the responses are distributed in a peaked way (George & Mallery, 2019). In our study as proved in Table 4, the kurtosis test was between +7 and -7 as recommended. So, there is no problem for kurtosis, meaning that the data have normal distribution.

For **Multi-Collinearity** test, "the variance inflation factor (VIF)" test and the "tolerance" test were employed to confirm that there is no multi-collinearity issue among the study variables (as shown in Table 4).

According to Hair et al. (2016), "multicollinearity is not an issue when the value of VIF is less than five and tolerance is above 0.2". The results presented in Table 4 shows that there is no multi-collinearity

among the study variables. That to say, all tolerance values are between (1.502 and 1.757) and more than 0.20, and VIF values were between (2.846 to 3.385), and less than 5. Thus, no multi-collinearity among the endogenous variables.

For **Linear regression** test, Table 5 depicted the Linear regression coefficients of the empowerments of internal auditors (i.e., general qualification, electronic qualification, independence) as an independent variable to the quality of electronic internal audit as a dependent variable. All variables are significant where ($p < 0.01$). In terms of t-values, the highest t-value was discovered for the independence, where (t-value = 8.453). This indicated that independence of internal auditor's variable made the strongest contribution to explain the dependent variable (the quality of electronic internal audit). The lowest t-value indicated that internal auditors with electronic qualification affect the quality of electronic internal audit (t-value = 3.452). The results of the testing hypotheses indicated that the independent variable significantly affect the dependent variables (Hair et al., 2016). Hence, all hypotheses are accepted (see Table 5).

5. Discussion

This study seeks to examine the impact of empowering internal auditors (i.e., general qualification, electronic qualification, independence) on the quality of electronic internal audits in Jordanian listed services companies. The study has three independents' variables and one dependents variable, with three hypotheses. The present research extended the resource-based theory by adding general qualification, electronic qualification and independence as internal sources leading to a great level of electronic internal audits quality (as a new innovation). The results of the current study are theoretically supported by a resource-based theory approach. the Resource-Based Theory supports the model proposed in this study, implying that adequate resources are needed to reach the best performance. Those resources e.g., assets and capabilities, are maintained by companies, thereby allowing them to achieve strategies that improve their quality (Barney, 1991). that to say, the quality of the electronic internal audit can be acquired by sufficient empowerment from top managements, which includes a satisfactory level of independence, and sufficient general and electronic qualification for internal auditors as internal resources. However, there are very few studies that addressed the effect of respective factors on the quality of electronic internal audits, especially in developing countries. Thus, the present study came to fill the research gap in this field.

The first hypotheses was indicate that there is a positive relationship between the general qualifications and quality of electronic internal audits in Jordanian listed service companies. The prior studies revealed that the auditors' qualifications positively impact the internal audit quality (Alzeban & Gwilliam, 2014; Chandra & Kumar, 2018; Lenz & Hahn, 2015; Salehi, 2016; Poltak et al., 2019; Usang & Salim, 2016). However, with regard to the quality of electronic internal auditing, this study found that it is affected positively and significantly by a good level of general qualifications of internal auditors. This influence was also supported by resource-based theory (Alqudah et al., 2019). Thus, empowering the internal auditor with a sufficient level of general qualifications by top management is more likely to increase the quality level of electronic internal audits. The quality of electronic internal audits required a relevant qualification to empower the internal auditors to carry on their audit tasks effectively. Hence, the first hypothesis is accepted. In this respect, Jordanian service companies should offer internal audit units with qualified auditors, on another hand, the heads of IAD s need to explain to the top management about advantages and features of electronic internal audit applications that allow auditors to conduct audit transactions at any time from anywhere (24/7) worldwide.

The second hypothesis proposed that there is a positive relationship between electronic qualifications and the quality of electronic internal audits in Jordanian-listed service companies. Based on our knowledge, this is the first study that addressed the electronic qualifications of in-

Table 2
Descriptive statistics.

Constructs	Items	Mean	Rank	Level	S.D	a (>0.7)
1. Quality of Electronic Internal Audit	12	3.94	2	High	.548	.825
2. General Qualification	8	3.26	4	Moderate	.415	.742
3. Electronic Qualification	7	3.83	3	High	.565	.883
4. Independence	8	4.05	1	High	.619	.851

Table 3
Normality Test.

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Quality of Electronic Internal Audit	.222	.240	.375	.524
General Qualification	.382	.240	.329	.524
Electronic Qualification	.174	.240	.318	.524
Independence	.263	.240	.228	.524

Table 4
Multi-Collinearity Result.

	Tolerance	VIF
General Qualification	1.619	2.828
Electronic Qualification	1.757	2.423
Independence	1.502	3.385

Table 5
Linear Regression Analysis.

Constructs	t-value	Sig.	Result of Hypothesis
General Qualification	4.418	.000	Accepted
Electronic Qualification	3.452	.001	Accepted
Independence	8.453	.000	Accepted

internal auditors as a factor affecting the electronic internal audit quality. However, the present study found that electronic qualifications have a positive effect on the quality of electronic internal auditing. This effect was also supported by resource-based theory (Alqudah et al., 2019). Thus, empowering the internal auditor with a sufficient level of electronic qualifications by top management of Jordanian listed service companies is more likely to increase the quality level of electronic internal audits, since without electronic skills the quality of electronic internal audits cannot be reached. The quality of electronic internal audits required relevant techniques and skills to empower the internal auditors to conduct their audit tasks effectively. Hence, the second hypothesis is accepted.

The last hypothesis proposed that there is a positive relationship between the independence and quality of electronic internal audits in Jordanian-listed service companies. However, the independence issue of the internal auditors has been addressed many times in prior research e.g., with internal audit effectiveness (Alqudah et al., 2019; Alzeban & Gwilliam, 2014); and internal audit quality (Bello, Ahmad & Yusof, 2018; Usang & Salim, 2016); internal audit add value (D’Onza, Selim, Melville & Allegrini, 2015). All those studies have addressed the traditional approach of the internal audit function. But using independence as a factor affecting the electronic internal audit quality has been neglected in prior studies. In this context, the result of this study exposes a positive and significant relationship between the independence and quality of electronic internal audits. This means that empowering the internal auditor with a sufficient level of independency by top management of Jordanian-listed service companies will increase the quality level of electronic internal audits since without respect for independence the quality of electronic internal audits cannot be reached (Alrawad et al., 2023). Thus, the quality of electronic internal audits requires appropriate freedom to empower internal auditors to conduct

their audit tasks effectively and objectively. Hence, the third hypothesis is accepted.

To conclude, this study aimed to explore the impact of internal auditor empowerment on the quality of electronic internal audits in Jordanian listed service companies (Al-Khasawneh et al., 2022). The study identified three independent variables (general qualification, electronic qualification, and independence) and one dependent variable (quality of electronic internal audits) with three hypotheses. The results showed that general and electronic qualifications positively influenced the quality of electronic internal audits, which was supported by resource-based theory. The study also found that independence had a positive effect on the quality of electronic internal audits, which has been neglected in prior research. Therefore, empowering internal auditors with adequate resources, including general and electronic qualifications and independence, is essential to achieving the best performance and improving the quality of electronic internal audits. This study fills a research gap regarding the effect of respective factors on the quality of electronic internal audits, particularly in developing countries. Jordanian service companies should provide qualified auditors for their internal audit units and explain the advantages of electronic internal audit applications to top management.

5.1. Implications

5.1.1. theoretical implication

In terms of contributions, this study has positively expanded the literature in the quality of internal audits context in general and in to Jordanian listed service companies. However, there is many factors affecting the internal audit, but very few studies have addressed the qualifications and the independence as factors affecting the quality of internal audits. Also, the results declared in this study could contribute to future electronic internal audit published studies as we extended the resource-based theory and examined the effect of the respective factors (as internal sources) on the electronic internal audit quality (as a new innovation) in the Jordanian listed service companies. Furthermore, it should be noted that this study has not been addressed before in Jordan. Therefore, the theoretical implication of our study which is crucial for the advancement of electronic internal auditing in different contexts has been determined.

5.1.2. Practical implications

With the growth of technology and its applications, companies sought to use this technology to serve their audit activities. The present study validated the importance of applying the electronic internal audit in facilitating the tasks of the internal auditors. Thus, attention training programs should be delivered to internal auditors to overcome their lack of electronic qualifications in the Jordanian listed service compa-

nies. Training should be required for internal auditors, and they should be kept informed of recent developments on a regular basis.

A long-term strategy needs to be formulated by the companies to reform and improve their internal audit quality and offer reliable and efficient auditing practices. However, the objectives of improving internal audit operations among companies have yet to be fully achieved, especially in developing societies. Therefore, the finding of the present study can serve in this direction where electronic internal audits were found to improve quality internal auditors' tasks in the Jordanian listed service companies.

5.1.3. Limitations and future work

There is no study without limitations, this study has some limitations that need to take into account in future studies. For instance, our study is limited to the active listed services companies in Jordan. To achieve better generalization of relevant factors affecting the quality of electronic internal audits context, Future research may consider other factors that may hinder internal audit tasks, e.g., pay satisfaction, task complexity, and organizational culture. Hence, it is clear that further investigations are needed in the context of electronic internal audits to ensure the applicability of the present study model by executing it in different contexts as appropriate.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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