

THE ROLE OF DIGITAL INTERNAL AUDITING IN ACTIVATING DIGITAL UNIVERSITY GOVERNANCE

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Abstract: This study seeks to investigate the impact of digital internal auditing on the activation of digital governance practices in Palestinian universities, particularly in relation to enhancing transparency, strengthening accountability, promoting e-participation, and reinforcing electronic oversight mechanisms, a descriptive-analytical approach was employed using a structured questionnaire to measure the levels of digital internal auditing and digital governance. The study population consisted of administrative and academic-administrative staff at seven Palestinian universities: An-Najah National University, Birzeit University, Al-Quds University Abu Dis, Al-Quds Open University, Bethlehem University, Hebron University, and Palestine Technical University – Kadoorie. Population data were obtained from the Palestinian Central Bureau of Statistics (2023–2024). Using stratified random sampling, 271 questionnaires were distributed, of which 237 were returned, yielding a response rate of 87.5%, the findings revealed a high level of digital internal auditing across all dimensions, including auditor independence, professional competence, audit performance quality, and scope of work. Digital governance was rated high for accountability, e-participation, and electronic oversight, while transparency scored moderately. Regression analysis indicated that digital internal auditing has a statistically significant positive impact on all dimensions of digital governance, explaining 23.9% to 46.3% of the variance, with the strongest effect on transparency, the results suggest that Palestinian universities achieve effective digital governance primarily through robust digital internal auditing mechanisms. To enhance governance comprehensively, universities should strengthen transparency measures, invest in digital infrastructure, and provide continuous professional development for auditors. The study provides actionable insights for policymakers and administrators to optimize digital governance frameworks, improve institutional performance, and foster trust among stakeholders.

Keywords: Digital Internal Auditing, , E-Participation, Digital university governance

1. Introduction

The world is witnessing rapid technological developments associated with the Fourth Industrial Revolution, prompting institutions to adopt digital transformation through modern digital infrastructure and systems to achieve sustainable development goals (Dayioğlu & Turker, 2021). Digital governance has become an important approach in higher education institutions

for enhancing transparency, accountability, and institutional performance through more efficient management of educational systems and expanding universities' societal impact (Al-Ra'i, 2021). In this context, digital internal auditing has gained increasing importance as an effective tool for supporting digital governance through the use of data analytics techniques to detect risks and fraud, strengthen information security, and improve the quality of oversight and institutional performance (Hamza, 2025; Rashwan & Abu Arab, 2022; Al-Sharif, 2025).

2. Problem Statement

The Fourth Industrial Revolution has accelerated technological advancement, leading higher education institutions to adopt digital infrastructures and integrated systems. This shift has promoted digital governance to enhance transparency, accountability, participation, and institutional performance (Dayioğlu & Turker, 2021; Al-Ra'i, 2021). However, its effectiveness depends on strong internal control systems, particularly digital internal auditing. Digital internal auditing uses advanced tools such as data analytics and automated monitoring to detect risks, improve reporting accuracy, and support decision-making (Hamza, 2025; Rashwan & Abu Arab, 2022). It strengthens governance by enhancing oversight, risk management, and information security, while improving service quality and institutional trust (Al-Sharif, 2025).

Despite its advantages, universities face challenges such as limited digital skills, weak infrastructure, high costs, and resource constraints, which may affect implementation effectiveness (Ali & Ahmed, 2024). This study examines the role of digital internal auditing in activating digital university governance in Palestinian universities, focusing on its impact on transparency, accountability, participation, and electronic control, while identifying key challenges and proposing improvement strategies.

Hence, the main research question is:

What is the role of digital internal auditing in activating digital university governance?

The following sub-questions are derived from the main question:

1. What is the level of implementation of digital internal auditing in universities?
2. What is the level of digital university governance in universities?
3. What is the role of digital internal auditing in enhancing transparency within digital university governance?
4. What is the role of digital internal auditing in enhancing accountability within digital university governance?
5. What is the role of digital internal auditing in enhancing e-participation within digital university governance?
6. What is the role of digital internal auditing in enhancing electronic control within digital university governance?

3. Objectives of Study

1. Assess digital transformation in Palestinian universities and its challenges
2. Examine its impact on governance, transparency, accountability, and decision-making.
3. Evaluate its effect on internal auditing effectiveness.

4. Analyze the role of digital internal auditing in strengthening university governance and propose improvements.

4. Significance of the Study

The significance of this study can be highlighted through the following dimensions:

- a. Addresses a research gap on digital governance and internal auditing in universities.
 - b. Supports decision-makers in improving performance and overcoming governance barriers.
 - c. Enhances education quality and stakeholder trust through digital governance.
 - d. Provides recommendations to strengthen digital internal auditing and governance systems
- Based on the research problem and objectives, and in light of the theoretical framework and previous studies addressing the relationship between governance and financial performance, the following hypotheses were formulated for statistical testing.

5. Main Hypothesis

There is no statistically significant effect at the significance level ($\alpha < 0.05$) of digital internal auditing in activating digital university governance in Palestinian universities.

The following sub-hypotheses are derived from the main hypothesis:

1. There is no statistically significant effect at the significance level ($\alpha < 0.05$) of digital internal auditing in enhancing the principle of participation within digital university governance in Palestinian universities.
2. There is no statistically significant effect at the significance level ($\alpha < 0.05$) of digital internal auditing in enhancing the principle of transparency within digital university governance in Palestinian universities.
3. There is no statistically significant effect at the significance level ($\alpha < 0.05$) of digital internal auditing in enhancing the principle of independence within digital university governance in Palestinian universities.
4. There is no statistically significant effect at the significance level ($\alpha < 0.05$) of digital internal auditing in enhancing the principle of accountability within digital university governance in Palestinian universities.

6. Theoretical Framework

Digital transformation:

In universities enhances educational quality and administrative efficiency through digital systems, data analytics, and AI, improving learning, decision-making, and resource use (Al-Saeedi & Al-Harbi, 2026; Tqmte, 2019). However, its implementation is constrained by challenges such as limited skills, weak leadership, resistance to change, and high costs (Al-Muslamani, 2020).

Digital University Governance

Digital governance in universities ensures transparency, accountability, and efficiency through ICT systems, improving performance and service quality (Al-Shammari, 2025; Abdulaziz,

2024). It focuses on strategic alignment, role definition, standards, risk management, and cost efficiency, and is based on principles such as transparency, accountability, e-participation, and electronic control (Al-Otaibi & Al-Mufeez, 2021; Silva et al., 2020; Al-Dahshan & Jadallah, 2020).

Digital Internal Auditing:

Digital internal auditing is an advanced form of traditional auditing that uses data analytics and digital tools to improve accuracy, risk detection, and reporting quality (Holt & DeZoort, 2009; Kotb et al., 2020). It enhances efficiency, independence, and decision-making support, while strengthening internal control and risk management, and requires high technical and professional competencies across financial, operational, governance, and risk audits (Rashwan & Abu Arab, 2022; Al-Hassa et al., 2024).

Relationship Between Digital Auditing and Governance:

Digital internal auditing supports digital governance by enhancing transparency, accountability, and risk management, particularly in digital environments requiring advanced analytical capabilities (Ali & Ahmed, 2024).

Previous Studies

Studies indicate that Palestinian universities are relatively ready for digital transformation but face resource and planning limitations (Madi & Abu Hajeer, 2020). Digital technologies improve audit quality and governance effectiveness (Al-Sharif, 2025; Al-Hassa et al., 2024), while governance enhances institutional performance and reputation (Abu Al-Atta & Hamdouna, 2023; Abdulaziz, 2024). However, a research gap remains in integrating digital auditing with university governance in the Palestinian context.

Study Theories

Agency Theory explains the need for auditing to reduce information asymmetry and agency costs (Jensen & Meckling, 1976). Stakeholder Theory emphasizes balancing the interests of all parties through transparency and accountability, where digital auditing strengthens trust and decision-making quality (Freeman, 1984; Fung, 2015).

7. Research Methodology

Study Design

The study adopted the descriptive–analytical approach, which examines phenomena as they exist in reality. It focuses on providing an accurate description of the phenomenon in both quantitative and qualitative terms through data analysis, result extraction, and interpretation in light of the theoretical framework and previous studies.

Study Population

The study population consisted of all administrative and academic-administrative staff in private universities in the West Bank. The targeted universities were: (Al-Quds Open

University, Birzeit University, An-Najah National University, Al-Quds Abu Dis University, Palestine Technical University–Kadoorie, Bethlehem University, and Hebron University). The total population size was (913) employees, according to reports issued by the Palestinian Central Bureau of Statistics. The population was distributed across the seven universities as follows: Al-Quds Open University (192), Birzeit University (191), An-Najah National University (188), Al-Quds Abu Dis University (130), Palestine Technical University–Kadoorie (73), Bethlehem University (70), and Hebron University (69). The study sample consisted of (271) respondents, selected proportionally to ensure representative coverage of the population distribution across universities. The highest representation was for An-Najah National University (21.1%), followed by Al-Quds Open University (20.7%) and Birzeit University (19.8%), while the remaining percentages were distributed among the other universities. This distribution reflects a relatively balanced representation aligned with population size, enhancing the reliability and generalizability of the findings.

Study Sample:

1. Pilot Sample

A pilot sample of (30) administrative and academic-administrative staff was selected from private universities in the West Bank to test the validity and reliability of the research instrument.

2. Actual Sample

The sample size was determined using a statistical formula and adjusted using a correction formula. The final sample size was (271) respondents. A total of (237) questionnaires were returned and considered valid for analysis, representing the actual study sample.

The sample was distributed across universities in a way that reflects proportional representation. In addition, the sample showed diversity in terms of years of service and educational qualifications, which enhances the depth and reliability of the responses. The majority of participants had more than 10 years of experience (54.0%), followed by those with 5–10 years (24.9%), and less than 5 years (21.1%). Regarding educational level, most respondents held a bachelor's degree (40.9%), followed by a master's degree (34.6%), a doctorate (21.5%), while diploma holders represented the smallest proportion (3.0%).

Study Instrument

A questionnaire was used as the primary data collection tool, designed to examine the role of digital internal auditing in enhancing digital university governance.

The questionnaire consisted of:

- 1. Demographic Information:** (University, years of service, academic qualification).
- 2. Digital Internal Auditing Dimensions:** (20 items).
- 3. Digital University Governance Dimensions:** (28 items).

The study adopted a five-point Likert scale (1–5), where (1) indicates very low agreement and (5) indicates very high agreement. Validity and reliability were tested using expert judgment, construct validity (Pearson correlation), Cronbach's Alpha, and split-half reliability. The results confirmed that all dimensions were statistically significant and met acceptable validity and reliability standards ($p < 0.05$). For interpretation of means, the class interval was calculated

based on the range ($5-1 = 4$), divided by the number of scale points (5), resulting in a class width of (0.80). Accordingly, response levels were classified into: very low, low, moderate, high, and very high.

Statistical Methods

The Statistical Package for Social Sciences (SPSS) was used to analyze the data. The following statistical techniques were applied:

Frequencies and percentages for demographic description , Pearson correlation coefficient for construct validity and internal consistency , Cronbach's Alpha for reliability testing Split-half reliability method , Central Limit Theorem for assessing normality ,One-Sample T-Test to examine the level of responses mLinear regression analysis to test the impact of independent variables on the dependent variable mThese methods ensured robust statistical analysis and supported the study's hypotheses testing.

8. Discussion and Conclusion

The question states the following :What is the level of digital internal auditing in universities?

This question was examined using a One-Sample T-Test,

No. (1): Analysis of the axes of digital internal audit.

Table 1

m	axis	average Calculation	deviation Standard	value T" "	value Sig. "	the weight relative	Order	degree Approval
1	Independence of the internal auditor	3.613	0.732	12,879	0.000	72.253	4	large
2	Professional competence of the internal auditor	3.624	0.553	17.379	0.000	72.489	3	large
3	Quality of internal audit performance	3.862	0.666	19.944	0.000	77.249	1	large
4	Scope of work of internal audit	3.738	0.672	16.909	0.000	74.768	2	large
	Digital Internal Audit	3.709	0.450	24.285	0.000	74.190		large

The results indicate that internal auditing in universities is characterized by relatively high levels of independence (72.253), professional competence (72.489), performance quality (77.249), scope of work (74.768), and digital auditing (74.190). This reflects a strong organizational and professional structure that supports digital transformation and emphasizes the development of procedures and technical competencies. Although independence recorded the lowest value, it does not significantly affect overall system effectiveness. These findings are consistent with Al-Mashhadani (2025), who highlighted the need to enhance risk assessment and auditing procedures to strengthen digital audit practices.

Second: Results of the second question and their discussion:

This question examines the reality of governance in digital universities. It was analyzed using a One-Sample T-Test,

Table 2: Analysis of the axes of digital internal audit.

m	axis	average Calculation	deviation Standard	value T" "	value Sig. "	the weight relative	Order	degree Approval
1	Transparency	3.343	0.709	7.449	0.000	66,860	4	Medium
2	accountability	3.560	0.559	15.418	0.000	71,200	2	large
3	e-participation	3.669	0.603	17.093	0.000	73.382	1	large
4	Electronic censorship	3.530	0.734	11.117	0.000	70.597	3	large
	Digital university governance	3.525	0.500	16.174	0.000	70.509		large

The table above shows that: Palestinian universities demonstrate a good level of digital governance, with high scores in e-participation (73.382), accountability (71.200), e-monitoring (70.597), and overall governance (70.509), while transparency is comparatively lower (66.860). These results indicate strong interaction, accountability, and monitoring systems, alongside weaknesses in disclosure and transparency mechanisms, suggesting the need to enhance digital openness and evaluation tools these findings align with previous studies showing varying levels of digital governance practice and readiness for digital transformation in universities (Abdel Aziz, 2024; Abu Al-Ata & Hamdouna, 2023; Madi & Abu Hajir, 2020) ,this question examines whether digital internal auditing has an impact on activating transparency within digital university governance. The following null hypothesis was formulated: there is no statistically significant effect at ($\alpha \leq 0.05$) of digital internal auditing on transparency within digital university governance.

To test this hypothesis, linear regression analysis was used.

Table 3: Linear regression analysis of the role of digital internal auditing in enabling transparency.

m	independent variable	Dependent variable: Transparency						
		regression coefficient	Value " ofT "	The value " of Sig. "	Value " ofF "	The value " of Sig. "	Coefficient of determination	Modified coefficient of determination
1	The constant	-0.644	-2.293	0.023	204.320	0.000	0.465	0.463
2	Digital Internal Audit	1.075	14,294	0.000				

The table above shows that Fourth: Results of Question Four and Discussion:

This question examines whether digital internal auditing has an impact on activating accountability within digital university governance. The following null hypothesis was formulated: there is no statistically significant effect at ($\alpha \leq 0.05$) of digital internal auditing on accountability within digital university governance.

To test this hypothesis, linear regression analysis was used, as presented in Table 4.

Table 4: Linear regression analysis of the role of digital internal auditing in activating accountability.

m	independent variable	Dependent variable: Accountability						
		regression coefficient	Value " ofT "	The value " of Sig. "	Value " ofF "	The value " of Sig. "	Coefficient of determination	Modified coefficient of determination
1	The constant	0.852	3.475	0.001	123.628	0.000	0.345	0.342
2	Digital Internal Audit	0.730	11.119	0.000				

The results indicate a statistically significant effect of digital internal -auditing on accountability within digital university governance ($F = 123.628$, $\text{Sig.} = 0.000$, $\alpha \leq 0.05$). The model explains 34.2% of the variance in accountability ($R^2 = 0.345$; Adjusted $R^2 = 0.342$), while the remaining variation is attributed to other factors. The regression equation is: (Accountability Level) = $0.852 + 0.730 \times (\text{Digital Internal Audit})$.

Overall, digital internal auditing enhances accountability by ensuring compliance monitoring, defining responsibilities clearly, and detecting violations early. The positive coefficient ($\beta = 0.730$) confirms its significant role in increasing accountability, although additional factors such as organizational policies and awareness also contribute. These findings are consistent with Al-Arada and Shehadeh (2023), who highlighted the role of digital auditing in strengthening accountability.

The question states the following: This question examines whether digital internal auditing has an impact on activating electronic participation within digital university governance. The following null hypothesis was formulated: there is no statistically significant effect at ($\alpha \leq 0.05$) of digital internal auditing on e-participation within digital university

governance, to test this hypothesis, linear regression analysis was used, as presented in the following table.

Table 5: Linear regression analysis of the role of digital internal auditing in enabling e-participation.

m	independent variable	Dependent variable: Electronic participation						
		regression coefficient	Value " ofT "	The value of "Sig. "	Value of "F "	The value of "Sig. "	Coefficient of determination	Modified coefficient of determination
1	The constant	1.222	4.301	0.000	75.161	0.000	0.242	0.239
2	Digital Internal Audit	0.660	8.670	0.000				

The table above shows that:

The results show a statistically significant effect of digital internal auditing on electronic participation in digital university governance ($F = 75.161$, $\text{Sig.} = 0.000$, $\alpha \leq 0.05$). The model explains 23.9% of the variance ($R^2 = 0.242$; Adjusted $R^2 = 0.239$), while the remaining variation is attributed to other factors. The regression equation indicates a positive relationship: (Electronic Participation Level) = $1.222 + 0.660 \times (\text{Digital Internal Audit})$, overall, digital internal auditing enhances e-participation by providing a secure and structured environment that supports decision-making. However, its moderate explanatory power suggests that other factors such as digital infrastructure, applications, and training also play an important role. These findings are consistent with previous studies on internal auditing and digital transformation (Shaimaa, 2025; Al-Hassah et al., 2024). The question states the following: examines whether digital internal auditing affects electronic control within digital university governance, the following null hypothesis was tested: there is no statistically significant effect at ($\alpha \leq 0.05$), this hypothesis was tested using linear regression analysis

Table 6, which examined the impact of digital internal auditing on activating electronic control in digital universities

Table 6

m	independent variable	Dependent variable: Electronic surveillance						
		regression coefficient	Value " ofT "	The value " of Sig. "	Value " ofF "	The value " of Sig. "	Coefficient of determination	Modified coefficient of determination
1	The constant	-0.198	-0.631	0.529	143.693	0.000	0.379	0.377
2	Digital Internal Audit	1.005	11.987	0.000				

The table above shows that:

The results show a statistically significant effect of digital internal auditing on electronic control in digital university governance ($F = 143.693$, $\text{Sig.} = 0.000$, $\alpha \leq 0.05$). The model

explains 37.7% of the variance in electronic control ($R^2 = 0.379$; Adjusted $R^2 = 0.377$), while the remaining variation is attributed to other factors. The regression equation indicates a strong positive relationship: (Electronic Control Level) = $-0.198 + 1.005 \times$ (Digital Internal Audit).

The results show that digital internal auditing improves electronic control in digital universities by supporting process monitoring, compliance, and data protection. The positive regression coefficient ($\beta = 1.005$) indicates that improvements in digital auditing significantly increase control levels, explaining 37.7% of its variation. This suggests that other factors, such as digital infrastructure, security policies, and continuous training, also play an important role. These findings are consistent with previous studies highlighting the positive impact of digital transformation on internal auditing quality, audit mechanisms, and sustainable development (Al-Sharif, 2025; Salem et al., 2024; Wahba, 2023).

The results show that Palestinian universities have high levels of internal auditor independence (72.253), professional competence (72.489), audit performance quality (77.249), scope of work (74.768), and digital internal auditing (74.190). In contrast, transparency recorded a moderate level (66.860), while accountability (71.200), e-participation (73.382), e-monitoring (70.597), and overall digital governance (70.509) were at high levels. The findings also confirm a statistically significant effect ($\alpha \leq 0.05$) of digital internal auditing on transparency, accountability, e-participation, and electronic monitoring, highlighting its key role in strengthening digital governance and improving institutional performance.

1. Internal auditing shows high independence and strong professional competence, ensuring efficient and objective performance.
2. Audit quality is comprehensive across all functions, reflecting adherence to modern standards.
3. Transparency is moderate, indicating improvement efforts but not full disclosure or trust.
4. A gap exists between strong auditing and weaker transparency and participation, highlighting the need for better integration with digital governance.

9. Recommendations

1. Strengthen auditor independence through clear policies ensuring unrestricted access to data and professional autonomy.
2. Enhance digital transparency via satisfaction measurement tools and updated public information.
3. Improve digital infrastructure to support secure and effective e-participation.
4. Strengthen accountability by clarifying responsibilities and improving monitoring systems.
5. Upgrade digital audit quality through training, updated tools, and international standards.
6. Integrate electronic control into daily operations, including data security and backups.
7. Adopt a risk-based audit approach to improve efficiency and evaluation accuracy.

Future Suggested Studies

1. A study of the impact of digital internal auditing on the efficiency of financial and administrative performance in digital universities.
2. A comparative study between digital universities in Palestine and other countries to evaluate best practices in digital governance and internal auditing. An applied study on the role of training and building digital capabilities for auditors in enhancing the effectiveness of digital internal auditing.

3. A study of the impact of digital governance on the satisfaction of beneficiaries of electronic university services and the level of community participation

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