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The Role of the Governmental Accounting Information System in Achieving Internal Control Objectives: Evidence from Jordan

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Abstract: Objective: To examine whether the components of the Governmental Accounting Information System (GAIS), the documentary cycle, books and records, electronic devices/technical infrastructure, and documents and forms, predict the achievement of internal control objectives (accountability oversight, legal compliance, and asset protection) in Jordan's public sector within the ERP/GFMIS context. **Methodology:** Cross-sectional survey of internal auditors in ministries and government institutions, 271 questionnaires distributed; 185 usable. One-sample t-tests assessed levels against the neutral point (3). Stepwise multiple linear regression was used to assess the predictive power of GAIS components using standard diagnostics. **Key Findings:** All dimensions' means were below 3, indicating significant agreement on the presence and use of GAIS components. The final regression model explained 67.6% of the variance in internal control achievement. Standardized effects were all positive and significant, with the documentary cycle leading, followed by books and records, documents and forms, and electronic devices. **Conclusions:** Strengthening GAIS, prioritizing the standardization of document flows and approvals, updating recognition/measurement policies and shared data dictionaries, formalizing unified forms, and aligning IT with robust access controls, segregation, audit trails, and training can materially enhance accountability, compliance, and asset protection. Findings underscore GAIS as a control platform, with impact contingent on component maturity and techno-procedural alignment. **Recommendations:** Jordanian public-sector institutions should strengthen GAIS by standardizing documentary cycles, improving books and records, unifying documents and forms, and upgrading electronic infrastructure, while reinforcing access controls, segregation of duties, audit trails, and continuous user training

Keywords: Government accounting, accounting information system, internal control, Jordan.

دور نظام المعلومات المحاسبي الحكومي في تحقيق أهداف الرقابة الداخلية: دليل من الأردن

عمر زريقات[1*]، لينا حسين[1]، هبة ربيع[1]، نيفين كلبونة[2]، إيناس السليم[1]، وعرفات ديب[1]

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الملخص: الهدف: هدفت الدراسة إلى اختبار قدرة مكونات نظام المعلومات المحاسبي الحكومي، وهي الدورة المستندية، والدفاتر والسجلات، والأجهزة الإلكترونية/البنية التقنية، والمستندات والنماذج، على تفسير مستوى تحقيق أهداف الرقابة الداخلية في القطاع العام الأردني، والمتمثلة في المساءلة والرقابة، والالتزام بالقوانين والأنظمة، وحماية الأصول، وذلك ضمن بيئة نظام تخطيط موارد المؤسسة ونظام إدارة المعلومات المالية الحكومية. **المنهج:** اعتمدت الدراسة منهجًا مسحيًا مقطعيًا شمل المدققين الداخليين في الوزارات والمؤسسات الحكومية الأردنية. وجرى توزيع 271 استبانة، كان منها 185 استبانة صالحة للتحليل. واستخدم اختبار العينة الواحدة لمقارنة المتوسطات بالقيمة المحايدة (3)، كما استُخدم الانحدار الخطي المتعدد التدريجي لاختبار القدرة التفسيرية لمكونات نظام المعلومات المحاسبي الحكومي، مع إجراء الاختبارات التشخيصية اللازمة. **أهم النتائج:** أظهرت النتائج أن متوسطات جميع الأبعاد جاءت أقل من القيمة المحايدة، بما يشير إلى اتفاق معنوي لدى أفراد العينة على توافر مكونات نظام المعلومات المحاسبي الحكومي واستخدامها. كما بيّن نموذج الانحدار النهائي أن هذه المكونات تفسر 67.6% من التباين في تحقيق أهداف الرقابة الداخلية. وكانت جميع التأثيرات المعيارية موجبة ودالة إحصائيًا، وتصدرتها الدورة المستندية، تلتها الدفاتر والسجلات، ثم المستندات والنماذج، وأخيرًا الأجهزة الإلكترونية. **الاستنتاجات:** تؤكد النتائج أن نظام المعلومات المحاسبي الحكومي يمثل منصة رقابية مهمة، يمكن أن تعزز المساءلة والالتزام القانوني وحماية الأصول عندما تتكامل مكوناته الإجرائية والتقنية بدرجة كافية من النضج والتنظيم. **التوصيات:** توصي الدراسة المؤسسات الحكومية الأردنية بتوحيد الدورة المستندية، وتحسين الدفاتر والسجلات، وتوحيد المستندات والنماذج، وتطوير البنية الإلكترونية، إلى جانب تعزيز ضوابط الوصول، والفصل بين الصلاحيات، وأثر التدقيق، والتدريب المستمر للمستخدمين.

الكلمات المفتاحية: المحاسبة الحكومية، نظام المعلومات المحاسبية، الرقابة الداخلية، الأردن

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Introduction

The world's governments, specifically the financial and supervisory authorities, are seeking to adopt the best financial and accounting policies and practices to improve their management of public assets and funds in their countries (Masciandaro & Quintyn, 2016). Governments try hard to limit their exposure to risks and control them, and to exploit available funds and assets in the best way to maximize the expected benefit from exploiting government resources in a manner that positively impacts the scope and quality of social and economic services provided by the government, in addition to enabling governments to fulfill their external and internal financial obligations accurately at the lowest possible cost and in line with laws, regulations, and financial and supervisory systems (Nasir et al., 2025). The accounting systems used across various government sectors are considered among the most important tools for producing the accounting and financial information the state needs to make decisions, particularly those with a financial impact (Alqudah et al., 2019). However, it is worth noting that governments always seek to develop efficient accounting systems that meet the needs of such organizations, whereas human involvement is essential for entering the primary information that accounting systems use to produce accounting data (Mansour et al., 2025a).

The governments, such as the government of Jordan, have been making attempts to improve management and use of their resources in terms of adopting stricter financial and accounting strategies due to the direct effects of such strategies on the performance and costs of services provided in social and economic spheres (Masciandaro & Quintyn, 2016; Nasir et al., 2025). However, maximizing public benefits cannot be achieved solely through accounting systems; rather, it requires an internal control framework that translates the outputs of those systems into evidence and makes the control mechanisms effective. Thus, the development of the Governmental Accounting Information System (GAIS) can be considered both an obligation and a necessity of accounting.

The strategies of various government departments are implemented by staff members across different government ministries and public bodies, which means that the financial allocations necessary to implement such plans must be provided (Gbambegu et al., 2025). At the same time, effective governance is critical to ensuring that government institutions manage their expenditures and revenues in accordance with relevant financial laws and regulations, and that none exceed the financial allocations within the government budget (Masdar et al., 2021). In this regard, internal control departments have been established within government ministries and agencies, responsible for managing cash and other resources of those organizations. Their tasks include improving the government's revenue process and avoiding wastefulness that might endanger the state resources of the particular government agency (Alshubiri et al., 2023).

Public administration has witnessed significant developments in many countries, including Jordan (Alawneh, 2025). Public administration has increasingly shifted toward e-government, where financial operations are processed through advanced financial and accounting systems (Doran et al., 2023). This is in addition to attempts to limit the misuse of government assets and monitor the use of public funds to avoid exposing them to the risk of asset loss or excessive use (Abu-Qdais et al., 2023). The lack of a central financial accounting database that enables concerted efforts among entities responsible for oversight, such as internal control units and the Audit Bureau, created gaps and inconsistencies in the information provided by GAIS for government oversight purposes (Billeh et al., 2023). This created uncertainty about whether internal control objectives were being effectively achieved (Taamneh et al, 2020). Therefore, Jordan sought to review and evaluate its financial, accounting and oversight systems by launching an Enterprise Resource Planning (ERP) project, which includes the Government Financial Management Information System (GFMIS), using the Oracle system, as part of a plan to restructure the country's financial system presented by the Ministry of Finance, which included implementing a project to re-engineer the financial operations of various economic sectors in the Jordanian government (Alawneh, 2025). The objectives of Jordan's ERP project are to provide an integrated government financial management information system, automate financial processes, develop accounting systems, expand the use of financial systems across government agencies, restructure the state budget as a control tool, and establish a central database accessible to authorized users (Al-Rawashdeh et al., 2024).

Although there has been a shift in government administration towards electronic systems and the launch of the ERP/GFMIS project, some of the internal control objectives have not been met yet in some departments due to deficiencies in centralization of data collection and the heterogeneity in documentation among ministries (Billeh et al., 2023; Alawneh, 2025). This raised doubts about whether GAIS output was sufficient to meet the objectives of oversight and internal control (Taamneh et al., 2020). Thus, it is essential to conduct an empirical study on the influence of GAIS elements, including documentation cycle, books and records, electronic instruments, and documents and forms, on the achievement of internal control objectives.

The study is driven by the following research questions: (1) How much does each component of GAIS, including the documentary cycle, books and records, electronic devices, and documents and forms, contribute to the accomplishment of objectives of internal controls in Jordanian governmental departments? (2) Which component has the highest explanatory power when constructing the predictive model that takes into account all the above components at once? (3) What is the share of variance of achievement of those objectives explained by GAIS in the environment of ERP/GFMIS? Consequently, the objective of the study is to (1) measure the separate contribution of each component of GAIS to the accomplishment of objectives of internal control; (2) construct the predictive model identifying the most influential component through a proper stepwise approach; and (3) determine the total explanatory power of GAIS in Jordan's government digitalization process and provide practical recommendations for strengthening the documentary cycle, books and records, electronic devices, and documents and forms.

The connection between GAIS and internal control is based on the assumption that the governmental accounting system is a key source of information for planning, control, and evaluation. These processes are determined by the international public sector supervision standards and practices, among which there is the point of view of the Supreme Audit Institutions (INTOSAI) regarding internal control as an overall process with people and procedures designed to reach accountability, compliance, and safeguarding (Ferry et al., 2023; Doran et al., 2023; Ullah & Ali, 2022). Accordingly, examining the predictive relationship between GAIS components and the achievement of internal control objectives is both a scholarly and a practical necessity.

Following the implementation of the ERP/GFMIS project, there is a need to examine the relationship between GAIS and the achievement of internal control objectives in Jordan. The main objective of this study is to examine the role of GAIS in achieving internal control objectives in Jordan. This study is important because it provides government audit bodies with evidence on how GAIS can support internal control in public agencies, identify weaknesses in control practices, improve the achievement of internal control objectives, preserve government assets, control public funds, and reduce risks faced by government departments. In light of the study results, Jordanian government internal auditors dealing with the accounting system can improve their perception of their role and tasks that must be implemented to better achieve the objectives of internal control in light of the accounting system implemented within the ERP project, which will reflect positively on the government's internal control function. Understanding the role of the government accounting information system in Jordan in achieving the objectives of internal control will enable the government to implement its operations and activities effectively, economically, and financially, thereby contributing to rationalizing government decisions and improving government performance.

Literature review and hypothesis development

Governmental accounting is viewed as a set of principles, rules, and procedures that govern the process of collecting, recording, and classifying financial operations undertaken by administrative units, and that are presented in financial reports and lists submitted to the legislative and executive authorities, investors, and researchers (Ismail, 2023). Governmental accounting helps determine the extent to which administrative units comply with legal requirements in collecting and spending public funds. It also supports decision-making, performance evaluation, short- and long-term planning, and the assessment of financial position, obligations, and available cash reserves (Ehalaiye et al., 2021).

An information system may be defined as “a set of physical and human resources, policies, procedures, software, and databases that collect, store, process, and present information to users for decision-making, control, and evaluation of organizational functions and activities” (Lutfi et al., 2022). The literature shows that shifts in information systems enable accounting information systems to process large volumes of data and produce timely, decision-useful information for public decision makers, thereby improving the traceability and oversight of government transactions (Hussien et al., 2025a). However, the quality of supervisory inference does not depend on technology alone; it also hinges on how well it fits the nature of governmental activities, its operating and maintenance costs, and its alignment with the organizational structure and standardization of procedures and documentation (Mansour et al., 2025b). Accordingly, GAIS components are expected to operate as control levers that influence the achievement of internal control objectives by enhancing information quality, timeliness, traceability, and the standardization of procedures.

Computerization has enhanced systems' ability to adapt to the major changes occurring in the business environment. Major developments in information systems have enhanced the ability of accounting information systems to handle, store, and process large volumes of data, producing timely information useful to decision-makers. Modern systems implemented by public sector institutions enhance system flexibility and enable the tracking and monitoring of transactions

(Hussien et al., 2025a). The technology used in the information system should be appropriate to the nature of the activities of the entity or unit, and economical in terms of the cost of its operation and maintenance (Mansour et al., 2025b). The GAIS is defined as the system that performs accounting functions in non-profit government units, and it operates according to a framework of principles, foundations, and rules whose purpose is to control financial resources and regulate their expenditures according to the general budget (Tran Thanh Thuy, 2025). GAIS is operated in accordance with accounting principles and in compliance with the governmental financial systems in force in the country (Hadi & Windiarti, 2025).

Internal control refers to the organizational plan, procedures, and methods used by an organization's management to preserve its assets, ensure the production of useful accounting information by improving the efficiency of data processing, and improve the level of compliance of various procedures with policies (Sumaryati et al., 2020). Internal control is a system based on an organizational plan and a set of methods and procedures designed to achieve established objectives and ensure the effective functioning of organizational activities (Al-Ahmed et al., 2026), and these goals include adherence to the prescribed administrative policies, protection of the facility's assets, detection of fraud and errors, if any, as well as verification.

Government internal control is considered a process involving several parties and is based on legislation, objectives, systems, policies, and procedures designed to regulate work processes, prevent or promptly detect errors and deviations, support timely corrective decisions, preserve assets, and achieve objectives efficiently and effectively (Yurniwati & Rizaldi, 2015). The Arab Group for Supreme Audit Institutions defined internal control as an organizational plan for the means and procedures developed by the establishment to help achieve the objectives of the administration and ensure the safety and efficiency of implementing the work of the establishment and the application of management policies, preserving the assets and property of the establishment from fraud and loss, preventing errors and discovering them if any, and preparing Sound financial data on time (Ferry et al., 2023). In addition, INTOSAI defines internal control in the public sector as an integrated process carried out by an entity's management and employees to provide reasonable assurance that the entity's general objectives will be achieved. These objectives are interrelated and are pursued through specific sub-objectives, functions, processes, and activities (Ferry et al., 2023).

The theoretical framework in the public sector governance literature, based on INTOSAI criteria, views internal control as a unified approach comprising people, systems, and processes used to achieve goals such as responsibility, legal compliance, and security (Ferry et al., 2023). As a result, the main research question for this section will be formulated as follows: What can be the control effect that can be observed via specific channels of operation (reduction of errors and fraudulent activity, establishment of the transaction audit trail, ex post examination, and auditing) due to the features of GAIS?

The extant literature shows that each element of the GAIS employs specific means to achieve internal control goals. Namely, the documentary cycle, defined by standardized document circulation and an established approval process, reduces managers' discretion, provides an audit trail, and improves the detection of discrepancies, thereby contributing to compliance and the safeguarding of assets (Kotyla, 2021; Chalmers et al., 2019). As for books and records, high-quality accounting, consistent classification, and adherence to recognition and measurement principles increase the reliability of information and contribute to better performance evaluation and management of public assets (Ismail, 2023; Ehalaiye et al., 2021). Electronic equipment and computerized systems enable real-time integration and transaction tracking across departments, provided there are strong access controls, a clear division of labor, and an audit trail to protect against potential fraud and errors in computerized environments (Alshaketheep et al., 2024; Alawaqleh, 2021; Zhao et al., 2023). At the same time, form standardization and the definition of input fields reduce data entry errors and enable more efficient data collection and aggregation, helping ensure compliance and facilitating inspection and auditing processes (Kristiani et al., 2024; Yenni et al., 2024; Kotyla, 2021). Accordingly, these mechanisms are expected to translate into tangible improvements in internal control metrics, especially accountability oversight, legal compliance, and asset protection.

The GAIS, as an information system, helps financial management allocate funds, evaluate the performance of government units, and highlight areas requiring greater control (Kotyla, 2021). Accounting data has become necessary for measuring the performance of government agencies and formulating public policies. Accordingly, GAIS should evolve beyond mere compliance with financial laws and regulations governing resource flows to address the effective use of allocated resources (Hussien et al., 2024; Thottoli & Ahmed, 2022). A good accounting system is essential for producing accounting information for decision-makers and for preparing periodic reports to verify compliance with policies (Hussien et al., 2025b). This, in turn, supports effective oversight of organizational performance, including planning, control, and performance evaluation. This impact is reflected in the data and information provided by this system regarding the alternatives available to decision-makers, which help resolve existing and anticipated problems, thereby achieving desired goals (Kristiani et al., 2024).

GAIS is considered one of the most important tools used by the state to manage and implement public activities, as the data and figures generated by the accounting system support decision-making, budget preparation, and the formulation of strategic and short-term plans. GAIS should be designed to help supervisory authorities conduct control procedures and assess whether revenue collection and expenditure disbursement comply with the laws and regulations governing the legality of public revenues and expenditures (Ullah & Ali, 2022). From an administrative perspective, users of GAIS need to obtain accounting data and information easily, conveniently, and within timeframes that match the nature of their needs and the activities of the relevant department or ministry (Kristiani et al., 2024). GAIS, like any other system, consists of interacting, interconnected elements that form a network of information lines (Zraqat & Alharbi, 2026). At the government level, it is a system that performs the functions of control, follow-up, and information that covers the components of the units of the state's organizational structure, especially the control departments, financial planning, and decision-making, and the fact that countries strengthen the principle of legal accountability in their departments (Alrawashedh et al., 2025).

An effective GAIS should provide outputs and information that support the implementation of legal accountability in government activities (Ullah & Ali, 2022). Therefore, senior government departments should regularly evaluate and monitor the effectiveness and suitability of GAIS to ensure that it provides information suitable for analyzing public activities in terms of cost, return, and control (Zai et al., 2024). GAIS is also concerned with several matters, the most important of which is the state's general budget, which is considered the state's tool for planning, implementation, follow-up, control, and decision-making (Kristiani et al., 2024). Monitoring in government departments focuses on achieving administrative and financial control over both revenues and expenditures (Yenni et al., 2024). Developments in public services over recent years, the growing burden on the state, and the rapid expansion of government departments and institutions have increased the need for advanced accounting information systems (Biyantoro, 2023). This expansion created a need for advanced accounting information systems capable of consolidating reports and producing unified state-level reports (Amalia, 2023).

Accounting systems provide information to various internal and external users. Because these users depend on the accuracy of accounting reports, organizations must maintain information accuracy and reliable operations by applying control policies and procedures to both manual and computerized systems; thus, the objectives of internal control remain the same (Al-Ahmed et al., 2026). However, the control policies and procedures differ between the two types of systems due to changes in organizational structure and the transition from traditional documents, different methods of data processing, and risks associated with the use of computer-based systems (Alawaqleh, 2021). Computerized systems lack human judgment and may not identify transactions that exceed reasonable limits. Data may also be modified without leaving physical traces. In addition, the ease of transferring data through small storage devices may facilitate theft or copying, while computer viruses may cause significant operational problems. Accordingly, internal control in computerized accounting systems is often implemented through system and application controls (Chalmers et al., 2019). To achieve government internal control objectives, a sound GAIS should possess the characteristics recognized by international governmental accounting bodies and provide the information needed for examinations, control tasks, and internal control procedures (Otoo et al., 2023).

Based on the previous review, we assume that:

H1: There is a role of GAIS (documentary cycle, accounting books and records, electronic devices, documents, and forms) in achieving the objectives of internal control.

H1-1: There is a role of documentary cycle in GAIS in achieving the objectives of internal control.

H1-2: There is a role of accounting books and records in GAIS in achieving the objectives of internal control.

H1-3: There is a role of electronic devices in GAIS in achieving the objectives of internal control.

H1-4: There is a role of documents and forms in GAIS in achieving the objectives of internal control.

Study Methodology

The study followed the scientific procedures commonly used in this type of research. The descriptive-predictive approach was used to describe the variables and analyze their relationships, as well as the study community and the tools used for data collection and analysis. Additionally, a reliability assessment was conducted to test the stability of the study instrument. The research combined theory and empiricism. The theoretical aspect included an analysis of the accounting information system, internal controls, and the relationships among these components. As for empiricism, it examined the importance of GAIS in achieving the objectives of internal controls in Jordan.

Population and sample

Study participants included all internal auditors working in the departments of internal auditing and controls of Jordanian ministries and institutions. To achieve the study's objectives, the researcher identified the target population by designing an online questionnaire with the Google Forms survey tool. The questionnaire was circulated using the companies' email addresses and the ministry's official addresses. A total of 271 questionnaires were sent out, with 185 received and included in the statistical analysis, yielding a response rate of about 68.3%.

Study Tool:

An electronic survey was developed based on the literature review and previous studies concerning government accounting information systems and internal controls (Ismail, 2023; Lutfi et al., 2022; Sumaryati et al., 2020; Alawaqleh, 2021; Otoo et al., 2023). The survey consisted of multiple questions meant to measure the study variables using two dimensions:

1. The dimensions of the government accounting information system (GAIS), including the documentary cycle, accounting books and records, electronic devices, and documents and forms (Kotyla, 2021; Tran Thanh Thuy, 2025; Ullah & Ali, 2022; Zai et al., 2024).
2. Internal control objectives include compliance with laws and regulations, safeguarding assets, detecting fraud and errors, and ensuring the accuracy and reliability of financial data (Sumaryati et al., 2020; Ferry et al., 2023).

The items were measured using a five-point Likert scale ranging from 1 = strongly agree to 5 = strongly disagree. The questionnaire did not contain reverse-referenced items; therefore, the average responses for each dimension and an overall average for the scales were calculated.

Estimate Questionnaire Validity and Reliability

To assess the reliability of the study tool, the researcher calculated the Cronbach's alpha to test the questionnaire's internal consistency.

Table 1: Cronbach's alpha coefficients

No. items	Variables	Cronbach Alpha
6	Documentary cycle	0.73
6	Books and records	0.75
6	Electronic devices	0.74
7	Documents and forms	0.89
Governmental accounting information system		0.86
7	Objectives of internal control	0.88
The Whole Questionnaire		**0.92**

Table 1 shows that the values of Cronbach's Alpha for study dimensions were (0.73-0.89), all of which are high values, and the value of the reliability coefficient for the tool as a whole reached (0.92), which is an acceptable value for the application. Most studies indicate that a reliability coefficient of 0.70 or above is acceptable.

Table 2: KMO and Bartlett's Test

Variables	Kaiser-Meyer-Olkin	Bartlett's Test	
		Chi-Square	Sig.
Achieving Objectives of Internal Control	0.627	310.745	0.000
Documentary Cycle	0.618	691.439	0.000
Books And Records	0.617	682.708	0.000
Electronic Devices	0.825	1530.502	0.000
Documents And Forms	0.723	1116.362	0.000

Table 2 presents the results of the KMO test, which indicate that the fit values ranged from 0.617 to 0.825, within the acceptable range (>0.60), suggesting that the sample is suitable for exploratory factor analysis. The Bartlett test also showed that all values were statistically significant (Sig = 0.000), confirming sufficient correlations among the questionnaire items to justify applying factor analysis. This result supports the instrument's structural validity and is consistent with the findings of Sumaryati et al. (2020) and Otoo et al. (2023), which indicate that factor analysis is among the best methods for assessing the validity of measurement tools in accounting and internal control studies.

Results

Descriptive statistics

Table 3 shows that the arithmetic means indicate all variables were lower than the neutral level (3). The mean for internal control objectives was (2.05), for the documentation cycle (1.45), for records and books (1.91), for electronic devices (2.19), and for forms and documents (1.87).

Since the Likert scale used ranges from (1 = strongly agree) to (5 = strongly disagree), these results indicate that the sample responses tended toward varying degrees of agreement that these dimensions exist and are practiced in the government environment. The lowest mean was observed for the documentation cycle (1.45), reflecting this dimension's relative strength compared to the others. Conversely, although the means are lower than the neutral value, some of them are close to 2, such as electronic devices (2.19), reflecting a relatively low level of agreement, indicating that this dimension still needs strengthening.

These results demonstrate that employees in internal control units are aware that the components of the Government Accounting Information System (GAIS) are implemented to varying degrees. This is consistent with Kotyla (2021) and Ismail (2023), who argued that the system's effectiveness depends on the efficiency of its components, particularly the documentation cycle and records.

Table 3: One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Achieving Objectives of Internal Control	185	2.0578	.35988	.02646
Documentary Cycle	185	1.4547	.86606	.06367
Books And Records	185	1.9199	.32526	.02391
Electronic Devices	185	2.1976	.97193	.07146

	N	Mean	Std. Deviation	Std. Error Mean
Documents And Forms	185	1.8771	1.05111	.07728

According to Table 4, all score means are significantly lower than the neutral score of 3 ($p < 0.05$). It shows that the combination of four dimensions of GAIS can bring about internal control, as viewed by the respondents as a whole.

Taking into account the Likert scale used (1 = strongly agree to 5 = strongly disagree), values close to 1 indicate overall agreement on the effectiveness of the documentation cycle, records, forms, and electronic devices, while the level of agreement may differ across dimensions.

The results indicate that the system exists and works, but still needs improvement, especially in dimensions with higher average scores (i.e., less approval), including the use of electronic devices. The finding is in line with previous research by Ferry et al. (2023), which state that government systems tend to focus on paper documentation and the document cycle rather than investing in electronic tools.

Table 4: One-Sample Test

Variables	Test Value = 3					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Achieving Objectives of Internal Control	-35.608-	184	.000	-.94216-	-.9944-	-.8900-
Documentary Cycle	-24.268-	184	.000	-1.54527-	-1.6709-	-1.4196-
Books And Records	-45.167-	184	.000	-1.08010-	-1.1273-	-1.0329-
Electronic Devices	-11.229-	184	.000	-.80240-	-.9434-	-.6614-
Documents And Forms	-14.530-	184	.000	-1.12286-	-1.2753-	-.9704-

Hypothesis testing

According to Table 5 (Model Summary), the R^2 obtained from the sequential introduction of the variables into the model is 0.676. As such, the four components of GAIS account for about 67.6% of the total variability in achieving the internal control objectives. The finding is consistent with the studies by Ullah & Ali (2022), which suggest that the government accounting information system is one of the pillars of efficient internal controls and financial transparency.

Table 5: Model Summary (Regression Analysis)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.782	.612	.610	.22473
2	.804	.646	.642	.21540
3	.815	.665	.659	.21014
4	.822	.676	.669	.20697

The results of a stepwise multiple linear regression analysis of the impact of GAIS elements on the achievement of internal control objectives are summarized in Table 6. The table shows that all four elements have entered the model and are statistically significant ($p < 0.05$), though with varying degrees of influence. The beta coefficients of the elements are as follows:

- Document Cycle ($\beta = 0.632$, $p = 0.000$): The highest beta coefficient shows that the document cycle is the most significant dimension influencing the variance in achieving internal control objectives. This result corresponds to the function of the document cycle, which is considered the basis of accounting procedures and enables the documentation of all financial transactions.

- Books and Records ($\beta = 0.166$, $p = 0.000$): The second place indicates that the integrity and relevance of accounting records are the key dimensions of government financial information improvement.

- Documents and Forms ($\beta = 0.144$, $p = 0.010$): Although being the third element in terms of the degree of impact, its effect is still statistically significant.

- Electronic Devices ($\beta = 0.113$, $p = 0.011$): This factor has the weakest impact out of the four analyzed factors; it means that the use of technical devices in Jordanian ministries is still insufficient compared to the document cycle.

In total, the regression equation explains a significant amount of variance in the effectiveness of the internal control ($R^2 = 0.676$). Nevertheless, according to the given ranks, it should be acknowledged that, in the Jordanian governmental setting, the oversight system remains predominantly based on traditional rather than modern electronic means. This conclusion is consistent with the views expressed by Ismail (2023) and Kotyla (2021). It states that developing countries often place heavy emphasis on paper documentation as a primary source of accountability and financial transparency, whereas modern technologies are only auxiliary means that have not yet been used effectively.

Table 6: Coefficients[a] (Regression Analysis)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.585	.032		48.971	.000
	Documentary Cycle	.325	.019	.782	16.997	.000
2	(Constant)	1.461	.043		33.880	.000
	Documentary Cycle	.304	.019	.733	16.018	.000
	Books And Records	.070	.017	.190	4.146	.000
3	(Constant)	1.167	.101		11.548	.000
	Documentary Cycle	.262	.023	.632	11.560	.000
	Books And Records	.062	.017	.168	3.715	.000
	Documents And Forms	.194	.061	.175	3.198	.002
4	(Constant)	1.163	.100		11.681	.000
	Documentary Cycle	.262	.022	.632	11.736	.000
	Books And Records	.062	.016	.166	3.743	.000

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	Documents And Forms	.159	.061	.144	2.591	.010
	Electronic Devices	.039	.015	.113	2.567	.011

a. Dependent Variable: achieving objectives of internal control

Discussion

These results provide an academically consistent picture of the Governmental Accounting Information System's (GAIS) involvement in achieving internal control objectives within Jordanian ministries and governmental organizations. The one-sample t-tests indicated that the means of all variables were below the neutral point (3) on the Likert scale, implying statistically significant agreement regarding the presence and utilization of the system's components. In addition to these findings, the estimates from the stepwise multiple linear regression indicated that the model explains approximately 67.6% of the variance in achieving internal control objectives. This high level of predictive power is determined by the system's design and implies its potential to improve the outcomes of the oversight process.

The cycle of documentary procedures is the most significant factor in explaining variance, as evidenced by its high standardized coefficients. This conclusion corroborates theoretical expectations regarding the importance of “chains of documents and paths of approvals,” which are vital for the control of records, the tracking of transactions, and the prompt detection of anomalies. The standardization of document flows and the determination of authorization points help limit managers' discretionary actions and improve the audit trail, thereby promoting compliance and asset protection, as shown in the relevant literature (Kotyla, 2021; Chalmers et al., 2019). Moreover, the mean value of this dimension was the lowest among the dimensions in one-sample testing, indicating that respondents were strongly aware of how deeply this dimension is rooted relative to the others. Therefore, the primary step towards reform should be to deepen existing practice by harmonizing procedure manuals and coordinating authorization points with the actual activities of government entities.

The books and records are the second most important sources of explanatory power in the context under discussion. This conclusion is consistent with the basic purpose of the accounting function, which is to improve information quality and support decision-making through planning and budgeting. Increased consistency in classification systems and in recognition and measurement approaches directly relates to better information quality for control and assessment purposes, a connection supported by empirical field research conducted in public sector environments (Ismail, 2023; Ehalaiye et al., 2021). In other words, the investment in coding and classification systems, ledgers, and data dictionaries may produce quick results.

Forms and documents had a positive influence, though less so than the other two previously discussed constructs. This finding lends credence to the claim that standardization of forms and clarification of input sections would help reduce entry mistakes and contribute to more efficient data collection and compilation, hence improving the validity of the documentary data in the ex post audit process (Kristiani et al., 2024; Yenni et al., 2024; Kotyla, 2021). The implication is that the standardization of forms across ministries, coupled with clear instructions on how to complete them and limitations on sensitive sections, would offer an immediate solution for controlling data quality problems.

The factor related to electronic equipment and technological infrastructure showed a positive influence, but it was the weakest among all factors. The mean of the factor was closer to the neutral value than the others in the one-sample test, indicating that the utilization of the technological infrastructure in Jordan's governmental environment is still not at its best. There are logical reasons in the literature why such a trend exists: automation, in itself, is not enough to guarantee the quality of inferential controls without access policies, separation of duties, digital audit trails, security controls, and processing integrity (Alawaqleh, 2021; Chalmers et al., 2019; Zhao et al., 2023). Therefore, to maximize the benefits from digital transformation, there is a need to align procedures and technology.

At the aggregate level, predictive models indicate that the Governmental Accounting Information System, as a four-component composite model, explains a significant portion of the variation in the achievement of control objectives. There are two conclusions that can be drawn from this analysis. The first one is that information quality, timeliness, transaction traceability, and standardization of procedures are the main channels of operation through which the architecture of the system leads to better control results, an assumption that is also supported by the international literature on the topic (Ferry et al., 2023; Ullah & Ali, 2022). The second one is that the part of the variance that cannot be explained is influenced by some other institutional variables, such as human resource capacities, policy commitment of the leadership, and culture of compliance, which were mentioned as important complementary elements of any formal system in previous research (Sumaryati et al., 2020; Otoo et al., 2023).

The aforementioned research findings have clear practical applications in policymaking. Firstly, the primacy of the documentary cycle should be ensured through standardization across ministries, linking approval milestones to specific tasks and assigning responsibilities, and establishing mandatory deadlines for document transition, as these measures could enhance accountability and asset security. Secondly, the quality of books and records should be improved through recognition and measurement policy updates, the development of a common data dictionary, and periodic checks to validate entries, so as to reduce inconsistencies between agencies. Thirdly, the benefits from the technical infrastructure should be accelerated through the use of a package of technical and procedural controls, role-based access, duty segregation, non-erasable audit logs, and multi-factor approvals to ensure that control results from system capabilities. Fourthly, forms and documents should be standardized through an official document completion guide, limited free-text fields, and increased constrained fields to facilitate integration with governmental databases. All the recommendations align with the literature review references, which emphasize the significance of governmental accounting information for planning, control, and decision-making.

The findings further add to the theoretical underpinning supporting the notion that GAIS serves not only as an accounting system but also as a governance mechanism that reconfigures the control value chain, from data production to post-examination. The effectiveness of the system depends on how mature and integrated its elements are in the organizational structure. Taking into account the measurement means for internal control objectives below the neutral point and the system's significant explanatory power, the gap is likely to close through phased interventions aimed at techno-procedural integration, training, and the development of a compliance culture. In this respect, the practical significance of the study aligns with the call to leverage digital government within established governance and control mechanisms, so that the speed and richness of information enable the realization of internal control objectives.

Conclusions

This study seeks to measure the role of GAIS dimensions in achieving the goals of internal control within Jordan’s public sector institutions during their transformation towards e-Government and ERP/GFMIS systems. This is descriptive, correlational, and predictive research, in which survey data were obtained from internal auditors in ministries and governmental organizations. The validity and reliability of the measures were tested, after which a one-sample t-test and multiple regression analysis (stepwise selection) were used to determine which GAIS dimensions have the most predictive power for the control objectives.

These findings indicate a strong link between GAIS's integrated architecture and improvements in internal control measures. With regard to this linkage, the documentation process is the first and foremost anchor, while books and records are second, and forms and documentation are third. However, the impact of the technical infrastructure has been found to be positive, but it depends on the proper integration of procedural controls and IT governance. It may be concluded from these findings that information quality and timeliness, transaction tracing, and procedure standardization become the conduits of the system benefits’ translation into control results.

This research paper has made numerous contributions. It has theoretically connected the accounting information system literature with the internal control literature by explaining how each component influences the other and their relative significance within the Arab emerging public sector as it implements ERP/GFMIS systems. Practically, it offers a prioritized implementation agenda: (i) standardize approval routes and procedure manuals within the documentary cycle; (ii) update recognition and measurement policies and build shared data dictionaries for books and records; (iii) standardize forms and documents and structure input fields; and (iv) align the technical infrastructure with robust access controls, segregation of duties, non-erasable audit trails, and sustained user training. Taken together, this mix is poised to convert data abundance and processing speed into the actual attainment of internal control objectives.

Methodological issues have been raised in the context of the research, warranting caution regarding the applicability of the results. The study is based on a cross-sectional approach and self-reports from respondents, which limits the possibility of drawing causal inferences and the extent to which the findings can be represented within governmental bodies. Further research needs to broaden its temporal and organizational scope and account for objective measures of efficiency, as well as other mediating/moderating variables. Nevertheless, the contextual evidence provided here furnishes a practical foundation for policymakers to channel improvement efforts toward the highest return components, thereby strengthening the effectiveness of internal control and advancing the efficient management of public funds and the quality of government services.

List of Abbreviations

GAIS: Governmental Accounting Information System
ERP: Enterprise Resource Planning
GFMIS: Government Financial Management Information System
INTOSAI: International Organization of Supreme Audit Institutions

Disclosure Statement

The authors declare that they have no relevant or material financial interests that relate to the research described in this paper.

– **Ethical approval and consent to participate:** Ethical approval was obtained from the Institutional Review Board (IRB) at Jerash University. An information sheet and informed consent form were provided in English and Arabic, and participation in this study was voluntary. Information about the aim of this study was provided to the participants. Participants were also informed that they could withdraw from the study at any time without penalty. It was confirmed that privacy was maintained during the study, so the questionnaire was recorded using serial numbers.

– **Availability of data and materials:** The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

– **Author contribution:** All authors listed have contributed to the work and approved it for publication. The authors collaborated in an organized manner. O.Z. and L.H. supervised the work. H.R. and E.A. designed the study, communicated with key stakeholders, and contributed to writing the manuscript. N.K. and A.D. collected the data and conducted the statistical analysis. O.Z. reviewed the data and the final manuscript for approval. The authors read and approved the final manuscript.

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