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The Effectiveness of Accounting Information Systems and Their Role in Enhancing Accounting Information Quality in Private Healthcare Institutions

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Abstract

This study aims to provide a focused theoretical examination of the relationship between the effectiveness of Accounting Information Systems (AIS) and the quality of accounting information within private healthcare institutions. The study posits that an Accounting Information System is an integrated structure designed to collect, process, and transform both financial and non-financial data into actionable information that supports planning, control, and decision-making. Concurrently, accounting information quality serves as the benchmark for evaluating output validity in terms of relevance, reliability, comparability, and understandability, alongside accuracy, timeliness, and completeness. Furthermore, the study addresses the unique operational context of private healthcare institutions, characterized by an increasing demand for real-time and precise information driven by competitive pressures, self-financing requirements, and the diverse interests of multiple stakeholders.

Keywords: Accounting Information Systems; System Effectiveness; Accounting Information Quality; Private Healthcare Institutions; Relevance; Reliability; Decision-Making.

Introduction

Accounting information has become a strategic resource within contemporary organizations. Accounting is no longer merely an instrument for recording financial transactions; rather, it has evolved into an information system that links data with control, planning, and decision-making. The significance of this transformation is further accentuated within private healthcare institutions, given the sensitive nature of their financial and operational decisions, the diversity of services they provide, and their reliance on self-financing and fee-for-service revenue models. Consequently, these institutions have an imperative need for accurate, reliable, and timely information. This dissertation asserts that the relationship between the effectiveness of Accounting Information Systems (AIS) and the quality of information provides an explanatory approach to understanding the capacity of healthcare institutions to enhance their informational performance. An effective system establishes sound mechanisms for data collection, processing, storage, retrieval, and internal control, whereas information quality reflects the fitness of the resulting outputs for use across various decision-making contexts.

Problem Statement

The importance of this subject stems from the necessity for private healthcare institutions to implement accounting information systems capable of keeping pace with operational velocity, diverse data sources, and stringent control and compliance requirements. However, the mere presence of a system is insufficient to guarantee the quality of its outputs. Its effectiveness depends upon the competence of its human resources, the integrity of its inputs, the clarity of its procedures, the integration of its databases, and its ability to secure information while ensuring timely accessibility. Accordingly, the central problem revolves around the following question:

- To what extent does the effectiveness of Accounting Information Systems contribute to enhancing the quality of accounting information within private healthcare institutions?
- Sub-questions deriving from this problem include:
- How does the integration of accounting system components influence information quality?

- What is the nature of the relationship between system effectiveness and the qualitative characteristics of accounting information?
- Why does this relationship assume particular significance within private healthcare institutions?

Hypotheses

The effectiveness of Accounting Information Systems contributes to improving the quality of accounting information.

1. The quality of accounting information affects the efficiency of planning, control, and decision-making within private healthcare institutions.
2. An integrative relationship exists between the effectiveness of Accounting Information Systems and the quality of accounting information, thereby supporting the overall performance of private healthcare institutions.

Section One: Accounting Information Systems

First: Conceptual Framework of Accounting Information Systems

1. The Concept of System, Data, and Information

Understanding an Accounting Information System (AIS) begins with distinguishing among the concepts of system, data, and information. A system represents a set of interrelated components that interact dynamically to achieve a common objective, relying on inputs, processing, outputs, feedback, and internal control mechanisms. Data constitutes the raw, unprocessed facts and figures inputted into the system, whereas information represents the meaningful output obtained following the processing, structuring, and organization of data, rendering it useful for end-users.

A system is defined as: "A set of interrelated components that serve a common purpose, and may encompass a collection of tools, machines, procedures, and users."¹ Furthermore, data has been defined as: "The raw material upon which the accounting information system relies as primary inputs for the production of information²."

2. Definition of an Accounting Information System

Numerous definitions of an Accounting Information System exist; nevertheless, they fundamentally converge on viewing it as a major subsystem within the overarching Management Information System (MIS). It is tasked with collecting, recording, classifying, and processing relevant financial and non-financial data, and subsequently transforming it into information and reports that serve both internal and external users.

Among these definitions, it is identified as: "The set of systems designed to handle financial data and non-financial data related to financial transactions arising from the activities conducted by business enterprises³." In another definition, it is characterized as: "The fundamental and vital component of management information systems within a business enterprise, as it identifies and aggregates financial and accounting data from sources both internal and external to the enterprise, processes this data, and transforms it into useful financial and accounting information for its users⁴."

Accordingly, an Accounting Information System can be conceptualized as an integrated value chain that commences with data collection and culminates in the generation of actionable information, underpinned by control and feedback loops that ensure the correction of variances and continuous performance improvement.

Second: Components, Characteristics, and Design Principles of Accounting Information Systems

1. Components of Accounting Information Systems

The effectiveness of an Accounting Information System rests upon the integration of multiple elements, most notably qualified human resources, inputs, manual and automated procedures, data and database architectures, software applications, information technology infrastructure, and outputs. These components cannot be viewed as isolated entities, as a deficiency in any single element propagates across the subsequent stages of the system⁵. Inaccurate inputs inevitably lead to inaccurate information; ambiguous procedures undermine processing consistency; deficient user competence compromises operational integrity; and inadequate security controls expose data to the risks of loss or manipulation. Consequently, the effectiveness of the system is inextricably linked to the integrity of the entire information lifecycle.

2. Characteristics of Accounting Information Systems

¹ Sayed Atta-Allah Sayed, *Accounting Information Systems*, Dar Al-Raya for Publishing and Distribution, Amman, 2008, p. 9.

² Abdel-Hay Abdel-Hay Marie, *Managerial Accounting: Decision-Making and Planning Concepts*, Al-Dar Al-Jamiiyah, 1997, p. 3.

³ Abdel-Aziz El-Sayed Mostafa, *Advanced Studies in Accounting Information Systems*, Faculty of Commerce, Cairo University, 2026, p. 11.

⁴ Ahmed Hussein Ali Hussein, *Accounting Information Systems: Conceptual Framework and Applied Systems*, Al-Dar Al-Jamiiyah, Egypt, 2003, p. 47.

⁵ Sayed Atta-Allah Sayed, *Accounting Information Systems*, op. cit., p. 29.

An Accounting Information System is characterized by its hierarchical architecture and its composition of interrelated subsystems. It is founded upon functional differentiation, division of responsibilities, and the principle of synergy, wherein the value generated by the integrated whole exceeds the sum of its individual parts⁶. Furthermore, it relies on dynamic operational processing and continuous feedback mechanisms to rectify variances and errors, alongside ongoing maintenance and development to prevent technical and functional obsolescence.

3. Design Principles of Accounting Information Systems

Accounting Information Systems are grounded in the principle of operational and departmental integration within a unified informational framework, as well as the principle of single-source data entry to minimize redundancy, reduce errors, and ensure data consistency⁷. In addition, the systems approach conceptualizes the enterprise as an integrated holistic entity, while the behavioral approach takes into account the users, their individual characteristics, and their degree of system acceptance.

Third: Types, Importance, and Objectives of Accounting Information Systems

1. Types and Subsystems

Accounting Information Systems are divided into a Financial Accounting Information System, which focuses on preparing financial statements and reports primarily directed toward external stakeholders, and a Managerial Accounting Information System, which concentrates on providing the necessary information for internal planning, control, and decision-making⁸. Emerging from these systems are several operational subsystems, including the payroll system, the cash disbursements and receipts system, human resource and asset accounting, cost accounting, and budgetary accounts⁹. This division of the Accounting Information System demonstrates an essential balance between external compliance and internal managerial effectiveness. The financial system ensures transparency and accountability to external parties, whereas the managerial system equips leadership with analytical tools to make data-driven operational and strategic decisions, thereby enhancing planning, internal control, and overall organizational performance.

2. Strategic Importance

The significance of the accounting system extends well beyond a routine record-keeping function; it serves as an informational benchmark for management and stakeholders alike, acts as a communication bridge among various subsystems, and actively contributes to future forecasting, resource allocation, and internal control execution¹⁰. Consequently, the system has become an indispensable instrument linking the current operational position of the enterprise to its financial metrics and future projections. This dynamic is illustrated in the following figure:

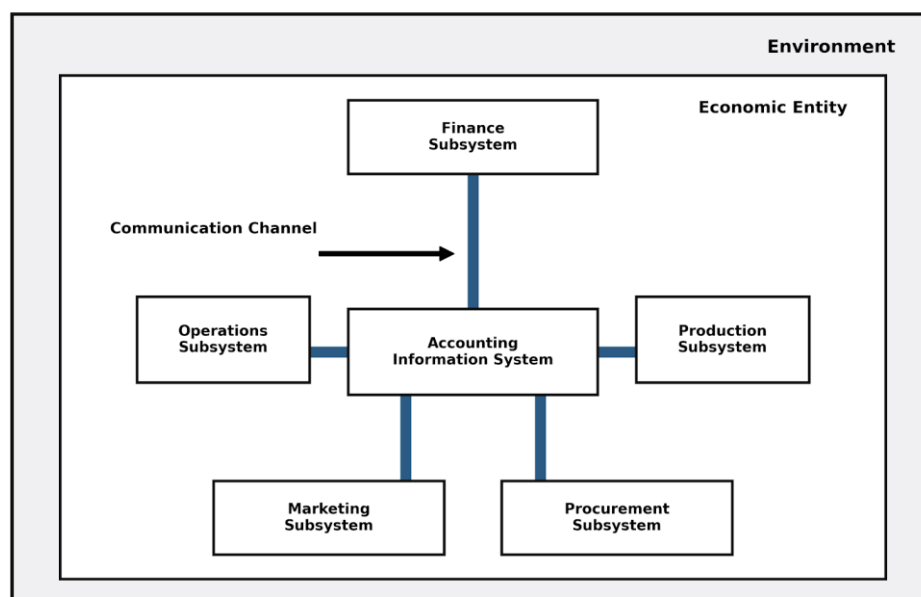
⁶ Hadj Kouider Gourine, *The Importance of Building and Developing the Accounting Information System in Achieving Competitive Advantage for Economic Enterprises in the Knowledge Economy: A Case Study of Algeria*, Doctoral Dissertation, Hassiba Benbouali University, Chlef, 2013, pp. 69–70.

⁷ Ahmed Amin, Accountant, *Accounting Information Systems: Duties of the Systems Analyst and Accounting Information Systems Designer*, retrieved from: <http://kenanaonline.com/users/esraaa/posts/112116>

⁸ Ibrahim Mida, "Factors Influencing the Accounting Information System and Its Role in Strategic Decision-Making," *Damascus University Journal for Economic and Legal Sciences*, Vol. 25, No. 1, 2009, p. 536.

⁹ Ibrahim Mida, *ibid.*, p. 537.

¹⁰ Ziad Hashem Al-Saqqa, *Accounting Information Systems*, Dar Ibn Al-Atheer for Printing and Publishing, Iraq, 3rd ed., 2022, p. 78.

Figure (01): The Importance of the Accounting Information System within the Economic Entity

Source: Ziad Hashem Al-Saqqa, *Accounting Information Systems*, University of Mosul, Dar Ibn Al-Atheer for Printing and Publishing, Iraq, 3rd ed., 2022, p. 77.

3. Objectives

The primary objectives of Accounting Information Systems comprise supporting decision-making processes, assisting management in planning, control, and performance evaluation, fulfilling statutory and regulatory mandates, safeguarding enterprise assets and data integrity, and processing and documenting financial transactions. Furthermore, the system contributes to cost reduction, resource optimization, and the provision of dependable reports¹¹. Fulfilling these objectives requires the system to deliver the appropriate information to the designated user at the opportune time, while maintaining data integrity, confidentiality, and availability to authorized personnel. This underscores the direct correlation between system effectiveness and the qualitative attributes of its informational outputs.

Section Two: Accounting Information Quality

First: The Nature of Accounting Information Quality

1. The Concept of Accounting Information Quality

Accounting information quality represents the capacity of the information produced by the system to fulfill user objectives and support decision-making processes. It does not merely signify freedom from errors; rather, it encompasses credibility, utility, and compliance with statutory, regulatory, professional, and technical standards, alongside the timely delivery of information.

Accounting information quality is defined as: "The credibility possessed by such information and the utility it delivers to users, being free from misstatement and bias, and prepared in accordance with a set of legal, regulatory, professional, and technical standards to facilitate the achievement of objectives¹²." This definition highlights that quality is a composite concept integrating informational accuracy, practical utility, and the integrity of the framework within which it is produced.

2. Concepts Related to Quality

Quality is intrinsically linked to the value of information, its completeness, relevance, and data integration. The value of information is measured by its capacity to improve decision-making outcomes relative to the cost of its acquisition¹³. Completeness denotes the adequacy of information required to evaluate alternatives; relevance reflects the

¹¹ Abdel-Aziz El-Sayed Mostafa, *op. cit.*, pp. 62–63.

¹² Ahmed Kaid Nourredine and Hilayli Islam, "The Role of Accounting Information Systems in Improving the Quality of Accounting Information in Economic Enterprises," *Journal of Financial and Business Economics*, Vol. 4, No. 1, June 2019, p. 241.

¹³ Essam El-Din Mohamed Metwally, *Accounting Information Systems*, University of Science and Technology, Open University of Sudan Publications, 1st ed., 2007, p. 54.

extent of the information's alignment with the decision context and its capacity to reduce uncertainty; and data integration ensures consistency, currency, and operational validity.

Objectivity and timeliness also emerge as critical dimensions: objectivity mandates the avoidance of bias, deliberate misstatement, and error, while timeliness requires the delivery of information within a timeframe that permits its effective exploitation¹⁴. Information delivered late may lose a substantial portion of its managerial value, regardless of its underlying accuracy.

Second: Characteristics, Objectives, and Criteria of Accounting Information Quality

1. Qualitative Characteristics

Accounting information quality is founded upon a set of interrelated characteristics, foremost among which are relevance and reliability, closely supported by comparability and understandability. Relevance denotes the capacity of information to influence economic decisions, facilitate forecasting, and confirm or correct prior expectations¹⁵, with timeliness constituting an essential component thereof.

Reliability pertains to the degree to which information faithfully and neutrally represents economic substance and underlying transactions, remaining free from material error and bias¹⁶. Comparability enables the tracking and evaluation of performance across time periods or across distinct enterprises, whereas understandability ensures that information remains accessible and comprehensible¹⁷ for users to utilize effectively.

2. Objectives of Quality

The primary objectives of information quality¹⁸ encompass supporting resource allocation decisions, providing a sound foundation for planning, control, and performance appraisal, serving the informational needs of investors, creditors, and external stakeholders, disclosing cash flows and the entity's ability to satisfy obligations, and providing quantitatively and qualitatively adequate data.

3. Criteria for Achieving Quality

Quality is realized within an integrated framework of legal, regulatory, professional, and technical standards¹⁹. Legal standards establish governing parameters and enforce disclosure; regulatory standards monitor compliance and detect variances; professional standards promote integrity and accountability; and technical standards drive the development of methodologies for data preparation and presentation.

sequently, accounting information quality is not merely the outcome of the output stage; rather, it is the cumulative result of a continuum that begins with the quality of inputs, proceeds through rigorous processing integrity, and culminates in the presentation of information in an appropriate format for end-users.

Section Three: The Specificity of Healthcare Institutions and the Relationship Between the System and Information Quality

First: The Specificity of Private Healthcare Institutions

Private healthcare institutions exhibit distinctive operational characteristics that make the necessity for accounting information particularly critical²⁰. They operate within an increasingly competitive environment and are directly influenced by surging demand and service diversification²¹, while relying heavily on self-financing mechanisms and

¹⁴ Essam El-Din Mohamed Metwally, *ibid.*, p. 86.

¹⁵ Kenneth S. Most, *Accounting Theory*, 2nd ed., Grid Publishing, 1982, p. 20.

¹⁶ Abbas Mahdi Al-Shirazi, *Accounting Theory*, Dar Al-Salasel, 1st ed., Kuwait, 1990, p. 200.

¹⁷ Nacer Ahmed and G  d Alim, "La bourse et la comptabilit  ," *Revue Fran  aise de Comptabilit  *, No. 175, Paris, Jan. 1987, p. 61.

¹⁸ El-Hadi Adam Mohamed Ibrahim et al., "The Impact of Creative Accounting Techniques on the Quality of Accounting Information," *Journal of the Faculty of Administrative Sciences*, No. 1, 2017, p. 68.

¹⁹ El-Hadi Adam Mohamed Ibrahim et al., *ibid.*, p. 68.

²⁰ Rouabhi Nour El Houda, "Private Hospital Institutions in Algeria," *Moutoun Journal*, Dr. Moulay Tahar University, Saida, Vol. 10, No. 1, 2017, p. 103.

²¹ Ismail Aly El-Din Nour and Kaid Ahmed, "The Role of Accounting Information Systems in Improving the Quality of Accounting Information in Economic Enterprises," *Journal of Financial and Business Economics*, University of Echahid Hamma Lakhdar - El Oued, Vol. 4, No. 1, Algeria, 2019, p. 246.

direct fee-for-service collections²². Consequently, their management requires precise and real-time information²³ to oversee cost structures, pricing, liquidity management, and optimal resource allocation.

Furthermore, a wide array of stakeholders requires access to accounting information within this sector, encompassing executive administration, proprietors, patients, medical suppliers, health insurance providers, and regulatory authorities²⁴. This diversity of stakeholders elevates requirements for financial transparency, regulatory compliance, and reporting integrity.

Second: The Theoretical Relationship Between Information Systems Effectiveness and Information Quality

The relationship between the effectiveness of information systems and information quality is structured upon an interconnected continuum. This process begins with input integrity and the cohesive integration of human resources, procedures, and technologies within a structured, controlled processing environment²⁵. This systematically minimizes errors, operational delays, and associated risks, thereby directly improving the qualitative characteristics of system outputs. These outputs materialize as more relevant, reliable²⁶ [7], comparable, and understandable information, enabling the enterprise to strengthen its strategic planning, control mechanisms, and decision-making capabilities.

The study demonstrates that the Accounting Information System constitutes the foundational framework transforming raw data into actionable information, whereas information quality represents the definitive benchmark for evaluating system success. The more effective and efficient the system is, the greater its capability to deliver timely information, ensure freedom from material misstatements and bias, and optimize presentation for decision utility.

Moreover, modern information technology, integrated database architectures, robust security protocols, and automated controls substantially accelerate processing speed and accuracy²⁷, mitigating data manipulation and loss while reinforcing stakeholder confidence in the resulting outputs. Thus, the relationship between system effectiveness and information quality is not merely mechanical, but simultaneously organizational, technical, and human.

Empirical Study

I. Study Population and Sample

1) Study Population

The study population comprises all personnel within the private healthcare institutions under investigation who are involved in utilizing Accounting Information Systems or handling, processing, and leveraging accounting information to execute their administrative and financial responsibilities. This specifically encompasses accountants, financial officers, department heads, managers, and administrative personnel within these private healthcare institutions.

2) Sample

Given the practical constraints of conducting an exhaustive survey of the entire target population, an intentional sample of 40 employees comprising financial and accounting personnel across six (06) private healthcare institutions was selected. This sample was utilized to collect empirical data relevant to the research problem through the administration of a structured questionnaire.

II. Validity and Reliability Analysis of the Sample Using Descriptive Statistical Methods

❖ Sample Reliability and Validity Testing via Cronbach's Alpha:

The reliability coefficient serves as an essential indicator of the measurement instrument's stability and internal consistency—reflecting the degree of item interrelatedness and freedom from measurement error—specifically its capacity to produce consistent results upon repeated administration under identical conditions. Within this context, Cronbach's Alpha coefficient was employed to measure the internal consistency of the questionnaire developed for this study. This index evaluates the variance among the individual items under examination relative to their total composite variance.

²² Rouabhi Nour El Houda, *ibid.*, p. 105.

²³ Ismail Aly El-Din Nour and Kaid Ahmed, *ibid.*, p. 250.

²⁴ Hilayli Islam and Nourredine Kaid Ahmed, "The Role of Accounting Information Systems in Improving the Quality of Accounting Information in Economic Enterprises," *Journal of Financial and Business Economics*, Vol. 4, No. 1, University of Echahid Hamma Lakhdar - El Oued, Algeria, June 2019, p. 242.

²⁵ Hilayli Islam and Nourredine Kaid Ahmed, *ibid.*, p. 244.

²⁶ Chaqfa Khalil Ibrahim Abdullah, "The Role of Electronic Accounting Information Systems in Improving the Quality of Financial Reporting in Palestinian Government Institutions," *Journal of Research in Financial and Accounting Sciences*, Vol. 5, No. 1, 2020, p. 15.

²⁷ Dakhli Abdelrahmane, "The Role of Electronic Accounting Software in Improving the Output Quality of the Accounting Information System in Economic Enterprises: A Field Study," *New Economy Journal*, Vol. 15, No. 1, 2024, p. 201.

A Cronbach's Alpha value approaching zero indicates weak internal consistency, signifying a lack of measurement reliability. Conversely, higher coefficient values demonstrate elevated levels of reliability, confirming that the scale items consistently measure the targeted theoretical construct. Furthermore, the reliability coefficient represents a vital index of the research instrument's overall psychometric quality and methodological rigor. High Cronbach's Alpha values enhance the generalizability of findings, whereas low values diminish analytical reliability, compromise both internal and external validity, restrict interpretive accuracy, and preclude empirical generalization.

The following table presents the reliability and validity coefficients across the various dimensions of the study, facilitating an evaluation of the stability and consistency of the measurement instrument. In accordance with established statistical research conventions, reliability levels are categorized as follows:

- Reliability is deemed **unacceptable** if the coefficient is less than 0.60 (less than 60%).
- Reliability is deemed **poor / weak** if the coefficient falls between 0.60 and 0.69.
- Reliability is deemed **acceptable** if the coefficient ranges between 0.70 and 0.79.
- Reliability is deemed **good** if the coefficient ranges between 0.80 and 0.89.
- Reliability is deemed **excellent / very high** if the coefficient is greater than or equal to 0.90.

Table (01): Distribution of Cronbach's Alpha and Validity Coefficients

Questionnaire Dimensions	Dimension Content	Number of Items	Cronbach's Alpha Coefficient	Validity Coefficient
Dimension One (Hypothesis One)	The Effectiveness of Accounting Information Systems	07	0.866	0.921
Dimension Two (Hypothesis Two)	Accounting Information Quality and Its Impact on Planning, Control, and Decision-Making	07	0.869	0.945
Dimension Three (Hypothesis Three)	The Integrative Relationship Between System Effectiveness, Information Quality, and Performance Support	07	0.877	0.965
Total Composite		21	0.871	0.944

Source: Prepared by the researchers based on SPSS software output.

Based on the results presented in the table, it is evident that the questionnaire exhibits a high degree of reliability and validity. The overall composite mean of Cronbach's Alpha reached approximately 0.871, representing an elevated level that reflects strong internal consistency among the survey items. Furthermore, the overall composite validity coefficient reached approximately 0.944, providing a solid statistical confirmation that the research instrument effectively measures the constructs it was designed to assess.

These findings demonstrate that the items formulated across the three dimensions are integrated and coherent, thereby justifying reliance on the questionnaire as a robust scientific measurement tool. Moreover, the convergence of coefficient values across the distinct dimensions indicates homogeneity in respondents' answers and stability in their evaluations, conferring strong credibility upon the field data.

Consequently, these statistical indicators not only enhance the reliability of the research instrument, but also robustly support the objective and rigorous empirical testing of the three research hypotheses, ensuring that the study's findings remain methodologically sound for both academic analysis and practical application.

❖ **Descriptive Statistical Analysis of the Questionnaire:**

To ensure precision in addressing the study's research questions, the questionnaire was designed to capture dependable data reflecting the multifaceted dimensions of the topic under investigation. Proportions and metrics associated with each dimension were rigorously calculated, accounting for potential variances across respondents and employing appropriate statistical techniques to maximize analytical objectivity and accuracy.

Items were classified and ranked according to the respondents' evaluations, relying on statistical calculations of means and standard deviations. The items were sequenced in order of importance based on the weighted arithmetic mean, wherein items with the highest mean values were designated as having the greatest relative importance, while lower values reflected comparatively secondary importance.

To determine the level of agreement and relative importance of each item, a five-point Likert scale was utilized: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5). Accordingly, the arithmetic mean for each item was evaluated using a standardized benchmark, serving as the primary reference criterion for ranking from the highest to the lowest values.

The assessment of importance relies on the degree of respondent consensus for each item, with findings categorized according to the following scoring intervals:

- If the arithmetic mean is less than 1.80, it indicates **Strong Disagreement**.
- If it ranges between 1.80 and 2.60, it indicates **Disagreement**.

- If it ranges between 2.60 and 3.40, it indicates **Neutrality**.
- If it ranges between 3.40 and 4.20, it reflects **Agreement**.
- If it exceeds 4.20, it reflects **Strong Agreement**.

Data distributions reflect the collective responses of the participants across all surveyed items, evaluated at a specified confidence level, ensuring analytical consistency as illustrated in the following table:

Table (02): Weighted Arithmetic Mean Evaluation Scale for Relative Importance

Level of Agreement / Importance	Arithmetic Mean Interval
Strongly Disagree	1.00 to less than 1.80
Disagree	1.80 to less than 2.60
Neutral	2.60 to less than 3.40
Agree	3.40 to less than 4.20
Strongly Agree	4.20 to 5.00

Source: Prepared by the researchers based on SPSS software output.

- ❖ **First Hypothesis:** The effectiveness of Accounting Information Systems contributes to improving the quality of accounting information.

Table (03): Results of Sample Responses Regarding the First Dimension Hypothesis

Items	Arithmetic Mean	Standard Deviation	Level of Agreement
The accounting information system utilized within the institution is characterized by the ease of inputting and processing accounting data.	4.45	0.60	Strongly Agree
The accounting information system provides the required information in a timely manner.	4.10	0.72	Agree
The accounting system contributes to minimizing errors during the recording and processing of financial transactions.	4.35	0.80	Strongly Agree
The components of the accounting information system are integrated in a manner that ensures seamless data processing within the institution.	3.95	0.75	Agree
The accounting information system possesses the necessary flexibility to adapt to varying operational requirements.	4.33	0.65	Strongly Agree
The accounting system provides an adequate level of security and internal control over financial data and information.	3.85	0.78	Agree
The accounting information system fulfills the needs of various internal users across the institution.	4.05	0.70	Agree
Overall Mean	4.15	0.71	Agree

Source: Prepared by the researchers based on SPSS software output.

The findings presented in Table (03) indicate that the responses of the study sample toward the items of the first dimension were consistently positive, with an overall arithmetic mean of 4.15 and a standard deviation of 0.71, denoting a high level of agreement. The arithmetic means for individual items ranged between 3.85 and 4.45, reflecting a relative consensus among sample members regarding the effectiveness of Accounting Information Systems.

The item pertaining to the ease of data entry and processing ranked first, registering an arithmetic mean of 4.45, a standard deviation of 0.60, and a "Strongly Agree" rating. The item addressing the system's contribution to error reduction also recorded a high mean of 4.35, followed by system flexibility with a mean of 4.33, underscoring a strong perception of accounting system efficiency. Conversely, the item concerning the level of security and internal control yielded the lowest arithmetic mean at 3.85, with a standard deviation of 0.78, while nonetheless remaining within the "Agree" interval. Similarly, the item evaluating the integration of system components obtained a mean of 3.95, suggesting relative potential for enhancing architectural integration across system modules.

Standard deviation values ranged between 0.60 and 0.80, demonstrating an acceptable degree of response homogeneity and the absence of significant dispersion. Overall, these results confirm a positive orientation among respondents toward the effectiveness of Accounting Information Systems, demonstrating that such effectiveness is particularly evident in the ease of data processing, error minimization, and operational adaptability. Consequently, the descriptive statistical findings for the first dimension provide empirical support for the proposition that the effectiveness of Accounting Information Systems contributes to improving accounting information quality in the institutions under study.

- ❖ **Second Hypothesis:** The quality of accounting information affects the efficiency of planning, control, and decision-making within private healthcare institutions.

Table (04): Results of Sample Responses Regarding the Second Dimension Hypothesis

Items	Arithmetic Mean	Standard Deviation	Level of Agreement
The accounting information provided by the system is characterized by accuracy and freedom from material errors.	4.36	0.70	Strongly Agree
The accounting information presents a faithful representation of the institution's financial position.	4.39	0.66	Strongly Agree
Accounting information reaches its users in a timely manner.	3.23	0.79	Neutral
The accounting information is characterized by clarity and ease of understanding by its users.	4.86	0.80	Strongly Agree
The accounting information can be relied upon during planning and control over the institution's activities.	4.02	0.72	Agree
The accounting information enables comparability of the institution's results across different periods.	4.30	0.68	Strongly Agree
The accounting information is characterized by relevance to the needs of its users within the institution.	4.15	0.75	Strongly Agree
Overall Mean	4.19	0.71	Agree

Source: Prepared by the researchers based on SPSS software output.

The results in Table (04) indicate that the responses of the study sample members toward the items of the second dimension were generally positive, with an overall arithmetic mean of 4.19 and a standard deviation of 0.71, reflecting a high level of agreement. The arithmetic means of the individual items ranged between 3.23 and 4.86, indicating relative variation in the respondents' evaluations of the qualitative characteristics of accounting information.

The item pertaining to the clarity and understandability of accounting information registered the highest arithmetic mean at 4.86, with a standard deviation of 0.80, demonstrating a high level of clarity in accounting outputs among users. This was followed by the item regarding the faithful representation of the financial position with a mean of 4.39, data accuracy and freedom from material misstatement with a mean of 4.36, and the comparability of results across different periods with a high mean of 4.30, reflecting the vital importance of this characteristic in leveraging accounting information.

Conversely, the item concerning the timely delivery of information to its users recorded the lowest arithmetic mean at 3.23, with a standard deviation of 0.79, corresponding to a "Neutral" evaluation and indicating a relative deficiency in the timeliness dimension. Furthermore, the results showed agreement among sample members regarding the reliance on accounting information for planning and control, with a mean of 4.02.

Standard deviations ranged between 0.66 and 0.80, reflecting an acceptable degree of homogeneity and the absence of high dispersion in responses. Overall, these results confirm a high level of accounting information quality in terms of accuracy, reliability, clarity, comparability, and relevance, alongside a recognized need to enhance the timeliness of information delivery. Consequently, the descriptive statistical findings for the second dimension support the importance of accounting information quality in enhancing the efficiency of planning, control, and decision-making within private healthcare institutions.

- ❖ **Third Hypothesis:** The effectiveness of Accounting Information Systems contributes to improving the quality of accounting information.

Table (05): Results of Sample Responses Regarding the Third Dimension Hypothesis

Items	Arithmetic Mean	Standard Deviation	Level of Agreement
The effectiveness of the accounting information system contributes to improving the accuracy of accounting information.	4.33	0.88	Strongly Agree
The integration among the accounting system components helps provide more reliable information.	4.22	0.70	Strongly Agree
The speed of accounting data processing leads to providing information in a timely manner.	4.86	0.85	Strongly Agree
The effectiveness of internal controls within the accounting system contributes to enhancing the credibility of accounting information.	4.11	0.65	Agree
Improving the effectiveness of the accounting information system contributes to raising the overall quality level of accounting information.	3.88	0.68	Agree

The effectiveness of the accounting information system assumes particular importance in healthcare institutions due to the multiplicity and diversity of their financial and accounting operations.	4.42	0.95	Strongly Agree
Overall Mean	4.02		Agree

Source: Prepared by the researchers based on SPSS software output.

The results in Table (05) indicate that the attitudes of the study sample members toward the items of the third dimension were positive, with an overall arithmetic mean of 4.02, reflecting a high level of agreement regarding the existence of an integrative relationship between the effectiveness of Accounting Information Systems and accounting information quality. The arithmetic means of the individual items ranged between 3.88 and 4.86, indicating a high level of awareness among sample members regarding the significance of this relationship.

The item pertaining to the role of accounting data processing speed in providing timely information recorded the highest arithmetic mean at 4.86, with a standard deviation of 0.85, highlighting the critical importance of speed in enhancing the quality of accounting outputs. Furthermore, the item concerning the importance of accounting system effectiveness in healthcare institutions recorded a high mean of 4.42, with a standard deviation of 0.95. The contribution of system effectiveness to improving the accuracy of accounting information followed with an arithmetic mean of 4.33, reinforcing the link between system efficiency and output accuracy. Additionally, the item addressing integration among system components and the provision of more reliable information achieved a mean of 4.22, with a standard deviation of 0.70, while internal control effectiveness within the system in enhancing information credibility registered a mean of 4.11, reflecting a positive evaluation of accounting control mechanisms.

Conversely, the item concerning the contribution of improved system effectiveness to elevating overall information quality recorded the lowest arithmetic mean at 3.88, with a standard deviation of 0.68, while remaining well within the "Agree" interval. The standard deviation values, which ranged between 0.65 and 0.95, indicate an acceptable level of homogeneity in the respondents' answers, alongside relative variation across certain items. Overall, these results reflect a substantial awareness among sample members of the interconnectedness between accounting system effectiveness and the qualitative characteristics of accounting information. Consequently, the descriptive findings for the third dimension support the existence of an integrative relationship between the effectiveness of Accounting Information Systems and the quality of accounting information, thereby contributing to the support of private healthcare institutions' performance.

❖ Student's T-Test:

Following the review of the descriptive statistical findings for the study sample, the One-Sample T-Test was utilized to verify the statistical significance of the hypotheses adopted in the study, which were measured through the questionnaire items administered to the sample members.

Decision-making was guided by the following two statistical decision rules:

- ✓ The null hypothesis is accepted if the significance value (sig.) is greater than 0.05 (5%).
- ✓ The alternative hypothesis is accepted if the significance value (sig.) is less than 0.05 (5%).

Table (06): Results of One-Sample T-Test for the Study Hypotheses

Hypotheses / Statements	Calculated T-Value	Degrees of Freedom (df)	Significance Level (p-value / Sig.)	Decision
First Hypothesis: The effectiveness of Accounting Information Systems contributes to improving the quality of accounting information.	3.214	39	0.000	Accept H ₁
Second Hypothesis: The quality of accounting information affects the efficiency of planning, control, and decision-making within private healthcare institutions.	2.876	39	0.000	Accept H ₁
Third Hypothesis: An integrative relationship exists between the effectiveness of Accounting Information Systems and the quality of accounting information, thereby supporting the performance of private healthcare institutions.	4.102	39	0.000	Accept H ₁
Total Scale Items	21	39	0.000	Accept H ₁

Source: Prepared by the researchers based on SPSS software output.

The One-Sample T-Test results presented in Table (06) demonstrate statistical significance across all three tested research hypotheses, with the significance level (p-value / Sig.) reaching 0.000, which is below the established statistical

threshold of $\alpha = 0.05$. The calculated t-value for the first hypothesis was 3.214 at 39 degrees of freedom (df), confirming a statistically significant impact of Accounting Information Systems effectiveness on improving accounting information quality. The second hypothesis recorded a t-value of 2.876, indicating a statistically significant effect of accounting information quality on the efficiency of planning, control, and decision-making. The third hypothesis yielded the highest t-value at 4.102, underscoring the strong statistical significance of the integrative relationship between Accounting Information Systems effectiveness and accounting information quality.

Based on these empirical findings, the null hypotheses (H_0) are rejected and the alternative hypotheses (H_1) are accepted across all three propositions. The results broadly demonstrate statistical consistency in the respondents' orientation toward validating the hypothesized relationships within the theoretical research model. Furthermore, the calculated t-values substantiate the presence of statistically significant differences between the sample mean responses and the test benchmark value. Accordingly, the statistical findings provide robust empirical support for the proposed hypotheses within the parameters of the study sample comprising 40 respondents.

Conclusion

This study concludes by highlighting the critical importance of Accounting Information Systems (AIS) effectiveness in enhancing the quality of accounting information within private healthcare institutions, serving as essential instruments for organizing and processing financial and accounting data. The empirical findings indicate that accounting system effectiveness is closely linked to its capacity to provide accurate, relevant, reliable, and timely information. The results further reveal that the architectural integration of AIS components contributes to enhancing the quality of accounting outputs and minimizing data-processing errors.

Hypothesis testing confirmed a statistically significant effect of AIS effectiveness on improving accounting information quality. Additionally, the study demonstrated that high-quality accounting information enhances the efficiency of planning, control, and decision-making within private healthcare institutions. The results also established an integrative relationship between system effectiveness and accounting information quality, reflecting positively on overall organizational performance. This relationship assumes heightened significance in private healthcare institutions due to the volume of their operations and the heterogeneity of their financial and accounting data.

Moreover, the findings emphasize the necessity of continuous AIS development aligned with the specialized nature and operational demands of healthcare provision. This requires allocating the necessary technical and human resources to ensure effective system utilization. Internal control mechanisms governing accounting data must also be reinforced to guarantee accuracy, reliability, and data processing integrity. Consequently, AIS effectiveness represents a fundamental determinant in elevating accounting information quality in private healthcare institutions. In light of these findings, developing these systems constitutes an essential pathway for optimizing organizational performance and securing high-quality accounting information that addresses diverse organizational needs.

Recommendations

1. Modernize and upgrade Accounting Information Systems within private healthcare institutions to keep pace with contemporary technological advancements.
2. Strengthen integration across the various components and modules of the accounting system to ensure rapid and accurate data processing.
3. Prioritize the core dimensions of accounting information quality, particularly relevance, reliability, accuracy, and timeliness.
4. Intensify professional training programs for staff on the effective utilization of Accounting Information Systems and continuously upgrade their technical skills.
5. Reinforce internal control procedures to safeguard accounting data integrity, reduce processing errors, and prevent potential data manipulation.
6. Periodically update accounting software and clinical enterprise applications to match the unique operational characteristics of the healthcare sector.
7. Implement standardized, periodic metrics and key performance indicators (KPIs) to measure accounting system effectiveness and evaluate output quality.
8. Allocate the requisite technical infrastructure and qualified human capital to ensure the operational continuity and effectiveness of Accounting Information Systems.

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