

Article

The Role of Information Technology in Enhancing Accounting Information Quality: An Empirical Study

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Abstract: This study investigates the role of information technology in improving the quality of accounting information at the Directorate of Education in Salah Al-Din. A descriptive-analytical method was used, with a questionnaire as the main data collection tool. The questionnaire was distributed to a purposive sample comprising 245 accountants and financial officers. Three dimensions of information technology were assessed: technical infrastructure, data processing systems, and security and protection systems regarding their impact on the quality of accounting information in terms of reliability, timeliness, relevance, and understandability. Statistical methods applied included Cronbach's alpha coefficient for reliability testing; frequencies and percentages; mean and standard deviation for description; multiple regression analysis for hypothesis testing conducted through SPSS version 26. Results revealed that information technology has a statistically significant positive impact on the quality of accounting information. It was found that "Data Processing Systems" dimension explains 36.8% variance in quality of accounting information followed by Technical Infrastructure dimension which explains 33.2%, while Security and Protection Systems dimension explains 29.4%. The research recommended that the directorate should enhance its adoption of information technology to achieve high-quality accounting information.

Keywords: Information Technology, Accounting Information Quality, Technical Infrastructure, Security, Accuracy and Reliability..

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1. Introduction

Changes in technology and changes in organization are taking place in the world of business today. Information technology has a great impact on the quality of accounting information and on sound business and financial decision-making. With the ever-growing volume of data and complexities in the work environment, there is an urgent need to develop such digital accounting systems that guarantee accuracy as well as reliability in financial information [1].

Information technology is one of the most vital contemporary instruments that organizations have to keep up with the requirements of the changing digital environment. It is a natural extension of traditional accounting systems but rather provides an integrated technological infrastructure in support of the quality of accounting information, as well as its accuracy and speed in processing [2]. The institution's embrace will enable it to perceive the movements that engage financial data, better the handling of accounts, and protect the safety of information; all these factors will enhance the quality of accounting data used in planning and controlling activities.

Government institutions in Iraq, especially the Directorate of Education in Salah Al-Din, face problems like changes in infrastructure, the need to upgrade their accounting systems, and better quality of financial information. The quality of accounting information has become a necessity from being just a part of theory for effective financial decisions and openness in public spending [3].

The link between IT and quality accounting information is highly pertinent to Iraq at this time, as its government institutions strive to re-establish their digital functions following a recent period of instability. IT offers an integrated platform for the secure, accurate collection, analysis, and processing of financial data. It assists in identifying strengths and weaknesses in the accounting systems that will be utilized in formulating strategies aimed at improving information quality. [4].

It becomes necessary to investigate if there is a cause-and-effect relationship between the adoption of information technology and the quality of accounting information. The degree to which this technology affects the change in information quality will be useful in creating digital accounting systems tailored to the particular needs of the Directorate of Education in Salah Al-Din. Besides, this study adds to Arabic literature on a topic that has very few studies in Iraq, specifically regarding government educational institutions [5].

Methodological Framework of the Research:

1.1. Research Problem:

The problem of the study can be expressed in the main question: "What is the impact of information technology on the quality of accounting information at the Directorate of Education in Salah Al-Din?" From this question, we derive sub-questions like:

1. To what extent does the technological infrastructure affect the quality of accounting information at the Directorate of Education in Salah Al-Din?
2. To what extent do data processing systems affect the quality of accounting information at the Directorate of Education in Salah Al-Din?
3. What is the impact of the security and control systems on the quality of accounting information in the Directorate of Education in Salah Al-Din?

1.2. Importance of the Research:

The Importance of this research is evident in three aspects:

1. Theoretical Importance: This study aims to enhance the academic literature that examines the link between information technology and the quality of accounting information in Iraq—an area not extensively researched before. It also fills a knowledge gap in understanding the mechanisms by which digital technology impacts the development of accounting information quality in the Iraqi governmental environment, presenting an analytical model that can be utilized in similar studies [6].
2. The results of the study can be used as a guide to the Directorate of Education in Salah Al-Din to improve its use of information technology, which will lead to better financial performance and more transparency in spending. These findings are also generalizable to other government directorates in Iraqi governorates facing similar challenges [7].
3. 3. Methodological significance: This study introduced an analytical model that could be applied in similar studies concerning other government entities, with adaptation to the peculiarities of the Iraqi context and institutional environment, as well as reliance on a substantial scientific methodology for measuring impact relationships.

1.3. Research Objectives:

The research aims to:

1. Identify the impact of technological infrastructure on the quality of accounting information in the Directorate of Education in Salah Al-Din.
2. Identify the impact of data processing systems on the quality of accounting information in the Directorate of Education in Salah Al-Din.

3. Identify the impact of security and protection systems on the quality of accounting information in the Directorate of Education in Salah Al-Din.
4. Develop a theoretical and applied framework linking the adoption of information technology with the quality of accounting information in the Iraqi government environment.

1.4. Research Hypotheses:

Main Hypothesis: There is a statistically significant overall impact of information technology adoption on the quality of accounting information in the Directorate of Education in Salah Al-Din.

Sub-hypotheses:

1. There is a statistically significant impact of technological infrastructure on the quality of accounting information in the Directorate of Education in Salah Al-Din.
2. There is a statistically significant impact of data processing systems on the quality of accounting information in the Directorate of Education in Salah Al-Din.
3. There is a statistically significant impact of security and protection systems on the quality of accounting information in the Directorate of Education in Salah Al-Din.

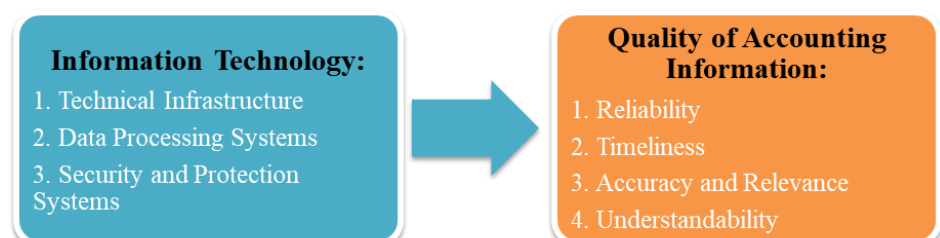
1.5. Scope of the Research:

1. **Subject Scope:** The study addresses the dimensions of information technology (technical infrastructure, data processing systems, and security and protection systems) and their impact on the quality of accounting information (reliability, timeliness, relevance, and understandability).
2. **Geographical Scope:** The study is limited to the Directorate of Education in Salah Al-Din, Iraq.
3. **Temporal Scope:** The study period is from January 2025 to June 2025.
4. **Human Scope:** The respondents included accountants and financial officers in the Directorate of Education in Salah Al-Din.

1.6. Research Terminology:

1. **Information Technology:** A set of digital tools and technologies used for collecting, storing, processing, and transmitting financial data. Technical infrastructure, software systems, and digital networks are included. Cadez & Guilding describe this as a concept that encompasses such elements [8].
2. **Quality of accounting information:** The characteristics that make accounting information useful for economic decision-making include reliability, relevance and suitability, timeliness, understandability, and comparability according to [9].

1.7. Hypothetical diagram of Research:



2. Theoretical Framework and Previous Studies

2.1. Theoretical Framework:

2.1.1. Information Technology:

Information technology is a qualitative leap in the scope of accounting systems, from manual aspects of financial treatment to automated processes and electronic data processing. This technology is based on the premise that accounting information should be processed efficiently and presented in a high-quality manner to facilitate appropriate financial decision-making [10].

2.1.1.1. Importance of Information Technology:

The importance of this technology emanates from various aspects:

1. Better Data Precision: Digital systems increase the accuracy of entering and processing data, lowering human mistakes and raising the trustworthiness of the information [11].
2. Processing Speed: Digital tools allow quicker handling of accounting tasks, making sure data is ready on time for decisions [12].
3. Security and Safety: Financial information is protected from unauthorized access or alteration by using modern digital encryption methods. [13].

2.1.1.2. Information Technology Dimensions:

1. Technical Infrastructure: This dimension refers to the essential hardware and software components of information technology systems. It includes:

- Digital Hardware
- Communication and Internet Networks
- Digital Databases
- Processing Centers and Servers

Al-Ghamdi study confirmed that organizations with integrated technical infrastructure achieve high-quality accounting information, enhancing their ability to prepare accurate and timely financial reports [1].

2. Data Processing Systems: This dimension relates to the software and applications used in processing financial data. This includes:

- Electronic Accounting Software
- Real-time Data Processing Systems
- Digital Storage and Archiving Systems
- Integration Systems

Al-Harbi emphasizes that advanced data processing systems help organizations translate financial data into usable information for planning and control [2].

3. Security and Protection Systems: This dimension focuses on ensuring the safety of financial data from digital threats. It includes:

- Firewalls
- Encryption Systems
- Backup Systems
- Access Control Systems

Al-Anzi indicates that security and protection systems give organizations a clear view of the integrity of their financial data and help identify security vulnerabilities [3].

2.1.2. Quality of Accounting Information:

The characteristics that make accounting information useful for economic decision-making are referred to as the quality of accounting information. This is an important concept in both management and financial accounting. The theory behind information quality is based on the idea of usefulness for decision-making [9].

2.1.2.1. Importance of Quality of Accounting Information:

1. Aiding in Decision Making: In complicated financial situations, quality information enables managers to make correct financial choices [14].
2. Increasing Transparency: The quality of information improves financial transparency and disclosure to stakeholders [15].
3. Improving Control: High-quality information is necessary for control systems that are effective in identifying errors and detecting financial irregularities [4].

2.1.2.2. Dimensions of Accounting Information Quality:

1. Reliability: This characteristic refers to the ability to rely on accounting information as an accurate source of financial facts. This characteristic requires:
 - Freedom from Material Error
 - Neutrality
 - Completeness.
2. Relevance: This characteristic focuses on the extent to which information is useful in influencing economic decisions. Elements of relevance include:
 - Predictive Value
 - Confirmatory Value
 - Materiality [4].
3. Timeliness: This focuses on the availability of information in a timely manner before it loses its ability to influence decisions. Requires:
 - Reporting Speed
 - Availability on Demand
 - Continuous Data Updating [16].
4. Understandability: This relates to users' ability to understand the content of accounting information. It includes:
 - Clarity
 - Logical Organization
 - Use of Understandable Language [17].

2.1.3. The Relationship Between the Two Variables:

There is a complementary relationship between information technology and the quality of accounting information. Information technology provides the tools and infrastructure necessary to produce high-quality accounting information, while the quality of accounting information determines the technical needs that information technology must meet. The absence of digital technology leads to deficiencies in information quality, and the absence of information quality leads to a lack of clarity regarding the technical direction of accounting systems [5].

2.2. Literature Review:

2.2.1. Previous Studies:

1. Al-Ghamdi study aimed to identify the role of digital transformation in developing the quality of accounting information. It concluded that an integrated technological infrastructure contributes to building high-quality information, and that data processing systems are more influential than traditional systems. This study agrees with the current research on the importance of technology, but differs in the application environment (industrial sector versus government/educational sector) [1].
2. Al-Harbi study evaluated the effectiveness of adopting information technology in government institutions in Riyadh. The results showed that the use of electronic data processing systems and digital infrastructure has a significant impact on improving the quality of accounting information. This study agrees with the current research in focusing on the government environment, with a difference in the geographical context [2].

3. Al-Anzi study describes a Kuwaiti research effort entitled "The Influence of Information Technology on Financial Reporting Quality." It noted that security and protection systems are more influential than basic infrastructure on information quality. This study relates to the current one by addressing the relationship between technology and information quality but differs because it is based on field research in Kuwait [3].
4. Cadez and Guilding provide a comprehensive framework for accounting information technology through book of (Strategic Management Accounting), which emphasizes its supporting role in information quality. This theoretical framework was used by the present research during the construction of its research variables [8].
5. Malmi and Brown wrote an article about developments in accounting information systems and their connection with organizational performance. It was found that digital technology adoption has a positive correlation with accounting information quality, thus supporting the hypotheses of this current research [11].
6. Alawattage and Wickramasinghe study described some applications of information technology in emerging markets and proved that these applications can improve the quality of accounting information; it relates to the current research because both studies developing environments [12].

2.2.2. Commentary on Previous Studies:

A review of literature shows that there is increasing attention to information technology and its impact on the quality of accounting information. Most studies have been conducted in private sector environments within developed or emerging countries, with very few having been conducted on the current Iraqi context, which has unique challenges. This particular research will be different from others because it will use a standard exploratory approach focusing on a sample of employees in the Salah al-Din Education Directorate; hence, it can provide a more recent and modern perspective than those provided previously.

3. Research Methodology and Tools

This study used a descriptive-analytical-exploratory method. The descriptive method helped in outlining the phenomenon and its features; the analytical method was applied to understand interactions among variables. The exploratory method assessed respondents' views on the research subject.

3.1. Research Population:

The study population included all accountants and financial directors in the Salah Al-Din Education Directorate, such as:

1. Accountants in the financial departments
2. Administrative and financial affairs officers
3. Financial managers of schools
4. Technical accountants in administrative units

There were a total of three hundred eighty accountants and financial officers in the directorate.

3.2. Research Sample:

An account of stratified random sampling with (245) accountants and financial officers was taken, which stood for (64.5%) of the research population. The size of the sample was calculated using Cochran's equation for statistical samples:

$$n = \frac{N z^2 p (1 - p)}{e^2 (N - 1) + z^2 p (1 - p)}$$

This equation was used to ensure accurate representation of the study population and to achieve the required statistical reliability.

Table 1. Research sample by job level.

#	Job Level	Number of Individuals in the Sample	Percentage
1	Accountants at the Directorate	65	26.5%
2	School Financial Officers	89	36.3%
3	Financial Managers	52	21.2%
4	Accounting Technicians	39	15.9%
	Total	245	100%

Source: The table was prepared by the researcher based on the questionnaire form.

The structure of the institution for education in Salah al-Din:

The organization of the institution consists of: a General Director, an officer in charge of financial matters, leaders from different accounting divisions, bookkeepers working at various units, and technical accounting staff located within schools. This setup shows which management levels are concerned in this research.

3.3. The research instrument (questionnaire):

A 36-item questionnaire was designed to cover the variables of the study and their dimensions, with 6 items assigned to each dimension. The Likert scale used in this questionnaire ranged from strongly agree (5) to strongly disagree (1). To confirm the validity of the instrument, it was presented to a panel of (7) expert judges who are professors in accounting and management at Iraqi universities. Reliability will be assessed through Cronbach's alpha.

Table 2. Distribution of Questionnaire Items.

Variable / Dimension	Number of Items	Item Codes
Independent Variable: Information Technology	18	
Technological Infrastructure	6	1-6
Data Processing Systems	6	7-12
Security and Protection Systems	6	13-18
Dependent Variable: Quality of Accounting Information	18	
Reliability	6	19-24
Timeliness	6	25-30
Relevance	6	31-36
Total	36	

Source: The table was prepared by the researcher based on the questionnaire form.

4. Exploratory Study and Statistical Analysis

The researcher administered a total of 245 questionnaires and received back 238 completed ones, thus achieving a response rate of 97.1 percent. Out of these, 7 were not included in the analysis because they did not contain full information; therefore, there are now 231 questionnaires available for statistical review. This number represents 94.3 percent of the total distributed questionnaires.

The statistical package (SPSS V.26) was used to analyze the data. The analysis included:

4.1. Demographic characteristics of the sample:

Table 3. Distribution of the Sample by Gender.

Gender	Frequency	Percentage	Cumulative Percentage
Male	173	74.9%	74.9%

Female	58	25.1%	100.0%
Total	231	100.0%	

Source: The table was prepared by the researcher based on the questionnaire form.

Table (3) Gender Distribution of Sampled Surveyed Respondents Gender Frequency Percentage Male 299 74.9 Female 100 25.1 Total 399 100% Table (3) reveals that most respondents were male, with a percentage close to 74.9%. This reflects a very poor administrative reality in Iraqi government institutions where women are absent from accounting and financial positions. Thus, development programs should take into account the requirements of this group and provide an atmosphere that would facilitate their increased involvement in future management.

Table 4. Distribution of the Sample by Age Group.

Age Group	Frequency	Percentage	Cumulative Percentage
25–35 years	82	35.5%	35.5%
36–45 years	108	46.8%	82.3%
46 years and above	41	17.7%	100.0%
Total	231	100.0%	

Source: The table was prepared by the researcher based on the questionnaire form.

The table shows that most respondents, 46.8% are 36 to 45 years old and 35.5% are in the 25 to 35-year age range. This clearly indicates that more middle and younger aged persons are found in Accounting and Financial Management at the Directorate which is good since such a group would be more flexible to modern information technology systems as well as advanced digital concepts. Therefore, it can be considered an ideal setting for contemporary accounting practices.

Table 5. Distribution of the Sample by Educational Qualification.

Educational Qualification	Frequency	Percentage	Cumulative Percentage
Diploma	28	12.1%	12.1%
Bachelor's Degree	119	51.5%	63.6%
Master's Degree	68	29.4%	93.1%
Doctoral Degree	16	6.9%	100.0%
Total	231	100.0%	

Source: The table was prepared by the researcher based on the questionnaire form.

Table 5 shows that most of the participants have a bachelor's degree 51.5% and master's degree holders 29.4%. This indicator reflects an average to high academic level of accountants and financial officers at the directorate. A high percentage of postgraduate degree holders usually makes it easier for them to understand complex information technology techniques and advanced digital concepts since higher academic achievement is often related to better analytical skills.

Table 6. Distribution of the Sample by Work Experience.

Work Experience	Frequency	Percentage	Cumulative Percentage
5 years or less	42	18.2%	18.2%
6–10 years	63	27.3%	45.5%
11–15 years	74	32.0%	77.5%
16 years and above	52	22.5%	100.0%

Total	231	100.0%
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Source: The table was prepared by the researcher based on the questionnaire form.

Table (6) shows that the majority of participants (32.0%) have between 11 and 15 years of experience, and (27.3%) have between 6 and 10 years. This combination of medium to long-term experience and a relatively average age represents a tremendous human resource, as extensive experience enables effective judgment of the success of IT systems and the ability to distinguish between beneficial and outdated systems. This necessitates that management design advanced training programs commensurate with this deep expertise.

Table 7. Distribution of the Sample by Digital Technology Level.

Digital Technology Level	Frequency	Percentage	Cumulative Percentage
Beginner	38	16.5%	16.5%
Intermediate	94	40.7%	57.2%
Advanced	68	29.4%	86.6%
Expert	31	13.4%	100.0%
Total	231	100.0%	

Source: The table was prepared by the researcher based on the questionnaire form.

Table (7) shows that the majority of participants (40.7%) have an intermediate technical level, followed by those with an advanced level (29.4%). This distribution reflects the nature of the technical environment in the directorate, which is predominantly intermediate technical, affecting the employees' ability to adopt complex IT systems and requiring them to adapt these systems to their limited technical capabilities.

4.2. Reliability and reliability coefficient (Cronbach's alpha):

The Cronbach's alpha coefficient was employed to assess the reliability of the questionnaire. The reliability of all variables and dimensions was found to be good to excellent.

Table 8. Reliability and Internal Consistency Coefficient (Cronbach's Alpha).

Variable / Dimension	Number of Items	Cronbach's Alpha	Level
Independent Variable: Information Technology	18	0.894	Very High
Technological Infrastructure	6	0.841	Very High
Data Processing Systems	6	0.862	Very High
Security and Protection Systems	6	0.818	Very High
Dependent Variable: Quality of Accounting Information	18	0.887	Very High
Reliability	6	0.853	Very High
Timeliness	6	0.824	Very High
Relevance	6	0.836	Very High

Source: The table was prepared by the researcher based on the outputs of the SPSS program.

Table (8) shows that all values of Cronbach's alpha are greater than the statistically acceptable lower limit of (0.70) and most even exceed (0.80). The value for the independent variable is (0.894) and for the dependent variable is (0.887). This indicates a high degree of

internal consistency among the items, thus confirming the reliability of this instrument as well as the accuracy of the results obtained.

4.3. Frequencies and percentages of respondents' answers:

Table 9. Frequency Distribution and Descriptive Statistics of Responses on the Technological Infrastructure Dimension.

#	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Std. Deviation	Rank
1	The directorate has modern computers that support accounting work	48 (20.8%)	95 (41.1%)	56 (24.2%)	26 (11.3%)	6 (2.6%)	3.76	0.98	4
2	Fast and reliable internet networks are available in administrative units	52 (22.5%)	89 (38.5%)	58 (25.1%)	24 (10.4%)	8 (3.5%)	3.74	0.99	5
3	The directorate uses secure central servers for data storage	58 (25.1%)	94 (40.7%)	48 (20.8%)	23 (10.0%)	8 (3.5%)	3.84	0.96	2
4	Integrated digital databases are available for the accounting system	54 (23.4%)	91 (39.4%)	52 (22.5%)	26 (11.3%)	8 (3.5%)	3.80	0.97	3
5	The technological infrastructure is updated periodically	62 (26.8%)	98 (42.4%)	42 (18.2%)	22 (9.5%)	7 (3.0%)	3.92	0.94	1
6	Digital devices and equipment are sufficient for the number of employees	46 (19.9%)	87 (37.7%)	62 (26.8%)	28 (12.1%)	8 (3.5%)	3.68	0.99	6
Overall Mean of the Dimension							3.79	0.97	

Source: The table was prepared by the researcher based on the outputs of the SPSS program.

As seen in Table (9), the mean rating for the technical infrastructure aspect was (3.79) out of a total of (5). This rating can be classified as good and indicates an intermediate to high degree of adoption of such infrastructure within the directorate. The fifth item, which pertains to regular updates made to the infrastructure, has achieved the highest average rating so far at (3.92). This result reflects that the directorate is indeed committed to enhancing its digital technologies.

Table 10. Frequency Distribution and Descriptive Statistics of Responses on the Data Processing Systems Dimension.

#	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Std. Deviation	Rank
7	The directorate uses advanced electronic accounting systems.	68 (29.4%)	102 (44.2%)	38 (16.5%)	18 (7.8%)	5 (2.2%)	4.01	0.89	1
8	Financial data are processed in real time and effectively.	64 (27.7%)	98 (42.4%)	44 (19.0%)	19 (8.2%)	6 (2.6%)	3.95	0.91	2
9	Digital archiving systems are available for financial documents.	58 (25.1%)	94 (40.7%)	48 (20.8%)	24 (10.4%)	7 (3.0%)	3.88	0.94	3
10	Processing systems are integrated across administrative units.	54 (23.4%)	89 (38.5%)	56 (24.2%)	26 (11.3%)	6 (2.6%)	3.82	0.95	5
11	The processing systems are characterized by ease and flexibility.	56 (24.2%)	91 (39.4%)	52 (22.5%)	25 (10.8%)	7 (3.0%)	3.85	0.94	4
12	The systems support automatic preparation of financial reports.	62 (26.8%)	95 (41.1%)	46 (19.9%)	22 (9.5%)	6 (2.6%)	3.98	0.90	2
	Overall Mean of the Dimension						3.92	0.92	

Source: The table was prepared by the researcher based on the outputs of the SPSS program.

Table (10) shows that the overall average for data processing systems dimension was (3.92), which is higher than that of technical infrastructure dimension reflecting more attention being given to this aspect within the directorate. The highest mean score was for item seven, concerning the use of advanced electronic accounting systems, with a value of (4.01), indicating that such systems are widely used.

Table 11. Frequency Distribution and Descriptive Statistics of Responses on the Security Systems Dimension.

#	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Std. Deviation	Rank
13	The directorate uses intrusion protection systems.	56 (24.2%)	92 (39.8%)	50 (21.6%)	26 (11.3%)	7 (3.0%)	3.81	0.96	3

14	Data encryption systems are available to protect financial data.	52 (22.5%)	88 (38.1%)	54 (23.4%)	28 (12.1%)	9 (3.9%)	3.76	0.98	4
15	Periodic backups of data are conducted.	58 (25.1%)	96 (41.6%)	48 (20.8%)	22 (9.5%)	7 (3.0%)	3.87	0.94	2
16	Access to data is clearly and accurately restricted.	54 (23.4%)	89 (38.5%)	52 (22.5%)	28 (12.1%)	8 (3.5%)	3.79	0.96	3
17	Systems for detecting data manipulation are available.	48 (20.8%)	84 (36.4%)	58 (25.1%)	32 (13.9%)	9 (3.9%)	3.72	0.99	5
18	Employees are trained in cybersecurity.	62 (26.8%)	94 (40.7%)	46 (19.9%)	22 (9.5%)	7 (3.0%)	3.91	0.93	1
Overall Mean of the Dimension							3.81	0.96	

Source: The table was prepared by the researcher based on the outputs of the SPSS program.

Table (11) presents the average score for the dimension concerning protection and security systems as (3.81), which falls under a good level category. This indicates that there is an intermediate to high degree of attention paid to issues of security protection. The item that received the highest mean score was number eighteen about training employees in cybersecurity, with a value of (3.91). This reflected the managerial perception of how important digital security is.

Table 12. Frequency Distribution and Descriptive Statistics of Responses on the Reliability Dimension.

#	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Std. Deviation	Rank
19	Accounting information is characterized by accuracy and freedom from errors.	66 (28.6%)	101 (43.7%)	40 (17.3%)	18 (7.8%)	6 (2.6%)	4.02	0.88	1
20	Financial data are processed accurately and reliably.	64 (27.7%)	98 (42.4%)	42 (18.2%)	20 (8.7%)	7 (3.0%)	3.98	0.90	2
21	Information represents financial facts fairly.	58 (25.1%)	94 (40.7%)	48 (20.8%)	24 (10.4%)	7 (3.0%)	3.88	0.94	4
22	Financial reports are characterized by completeness	56 (24.2%)	89 (38.5%)	52 (22.5%)	26 (11.3%)	8 (3.5%)	3.84	0.95	5

	and comprehensiveness.								
23	Information can be relied upon in decision-making.	62 (26.8%)	96 (41.6%)	44 (19.0%)	22 (9.5%)	7 (3.0%)	3.95	0.91	3
24	Information is free from bias or manipulation.	54 (23.4%)	87 (37.7%)	54 (23.4%)	28 (12.1%)	8 (3.5%)	3.82	0.95	6
	Overall Mean of the Dimension						3.92	0.92	

Source: The table was prepared by the researcher based on the outputs of the SPSS program.

Table (12) revealed a high level of agreement among the research sample (n=231) on the reliability items, as indicated by means ranging between 3.82 and 4.02 (overall mean 3.92 with a standard deviation of 0.92). This reflects strong positive evaluations since it is higher than the theoretical mean of 3.00. Item 19 ranked first in accuracy and error-freedom at 4.02 with 72.3% agreeing or strongly agreeing, followed by items 20 and 23 at ratings of 3.98 and 3.95, respectively, for careful processing and reliability in decisions. The low standard deviations between .88 and .95 indicate a homogeneity of opinions with positive responses dominating over seventy percent on the top items; thus these results reflect the strength of the reliability characteristic in accounting information from this directorate supporting our research hypotheses.

Table 13. Frequency Distribution and Descriptive Statistics of Responses on the Timeliness Dimension.

#	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Std. Deviation	Rank
25	Financial reports are provided on time.	64 (27.7%)	98 (42.4%)	42 (18.2%)	22 (9.5%)	5 (2.2%)	3.96	0.90	2
26	Information is available quickly upon request.	68 (29.4%)	102 (44.2%)	38 (16.5%)	18 (7.8%)	5 (2.2%)	4.03	0.87	1
27	Data are processed in real time.	58 (25.1%)	94 (40.7%)	48 (20.8%)	24 (10.4%)	7 (3.0%)	3.88	0.93	4
28	Periodic reports are prepared according to their scheduled times.	62 (26.8%)	96 (41.6%)	44 (19.0%)	22 (9.5%)	7 (3.0%)	3.94	0.91	3
29	Data are continuously and regularly updated.	56 (24.2%)	89 (38.5%)	52 (22.5%)	26 (11.3%)	8 (3.5%)	3.85	0.94	5
30	There are no delays in providing information.	54 (23.4%)	87 (37.7%)	54 (23.4%)	28 (12.1%)	8 (3.5%)	3.82	0.95	6
	Overall Mean of the Dimension						3.91	0.92	

Source: The table was prepared by the researcher based on the outputs of the SPSS program.

Table (13) shows the distribution of responses from the research sample about the items of the timeliness dimension. The mean value ranged from 3.82 to 4.03, with an overall mean of 3.91 and a standard deviation of 0.92, which indicates high positive agreement on most items. The item "providing information quickly" ranked highest with a mean value of 4.03 followed by "reporting on time," which has a mean value of 3.96 and then "preparing periodic reports," which has a mean value of 3.94, while "no delays" ranked lowest with a score of 3.82. High percentages for the responses "strongly agree" and "agree," which are between 71%-74%, indicate strong perception about timeliness, while low standard deviations (<0.95) indicate homogeneity in opinions regarding this dimension; hence these results support our hypothesis regarding timeliness being one of the key strategic factors.

Table 14. Frequency Distribution and Descriptive Statistics of Responses on the Relevance Dimension.

#	Item	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean	Std. Deviation	Rank
31	Information helps in predicting financial performance.	66 (28.6%)	99 (42.9%)	42 (18.2%)	18 (7.8%)	6 (2.6%)	4.00	0.89	1
32	Information confirms previous financial results.	62 (26.8%)	96 (41.6%)	46 (19.9%)	22 (9.5%)	5 (2.2%)	3.96	0.90	2
33	Information influences financial planning decisions.	64 (27.7%)	98 (42.4%)	44 (19.0%)	20 (8.7%)	5 (2.2%)	3.98	0.89	2
34	Information is consistent with users' needs.	58 (25.1%)	92 (39.8%)	50 (21.6%)	24 (10.4%)	7 (3.0%)	3.87	0.93	4
35	Information is presented in a clear and understandable manner.	60 (26.0%)	94 (40.7%)	48 (20.8%)	22 (9.5%)	7 (3.0%)	3.92	0.91	3
36	Information contributes to improving institutional performance.	56 (24.2%)	89 (38.5%)	52 (22.5%)	26 (11.3%)	8 (3.5%)	3.84	0.94	5
Overall Mean of the Dimension							3.93	0.91	

Source: The table was prepared by the researcher based on the outputs of the SPSS program.

Table (14) displays high levels of agreement among the research sample 231 individuals with relevance and appropriateness items mean ranging from 3.84 to 4.00 overall mean 3.93 reflecting a level of agree to strongly agree on a 5-point Likert scale. Items that got the highest scores were predicting financial performance 4.00 rank 1 and influencing decisions at 3.98 rank two followed by confirming previous results at 3.96 also in rank two while contributing to performance improvement got the lowest score at 3.84 which was in rank five; with low standard deviations from .89 through .94, this further indicates a homogeneity of opinions and thus confirms the strength of this dimension within the directorate.

4.4. Testing the Research Hypotheses:

Multiple Linear Regression analysis was applied to test the hypotheses. It estimates the strength of the relationship between independent and dependent variables and the proportion of variance explaining that relationship.

4.4.1. First Hypothesis:

“There is a statistically significant effect of the technological infrastructure on the quality of accounting information in the Directorate of Education in Salah Al-Din.”

Table 15. Results of Testing the First Hypothesis.

Variable	R	R ²	F	B	t	Sig.	Result
Technological Infrastructure	0.576	0.332	113.847	0.398	10.672	0.000	Supported

Source: The table was prepared by the researcher based on the outputs of the SPSS program.

Table (15) presents a detailed statistical overview of the effect of technological infrastructure on the quality of accounting information. First, it shows the correlation coefficient (R) of 0.576, indicating a strong positive correlation between these two variables: technological infrastructure and quality of accounting information. In other words, increasing efforts in developing technological infrastructure are substantially associated with an increase in the quality of accounting information.

The coefficient of determination (R²) is equal to 0.332 which means that technological infrastructure explains 33.2% of the total variance in the quality of accounting information. A large percentage like this one underscores how important this dimension is for improving and enhancing the quality of accounting information.

The F-value registered at 113.847 proves very high statistical significance between independent and dependent variables indicating a strong relationship between them; therefore, it can be concluded that there exists a highly statistically significant relationship between them. The regression coefficient (B) has been found to be 0.398 which implies that with every unit increase in technological infrastructure, there would be an increase in the quality of accounting information by almost 0.398 units; hence investment efforts toward developing infrastructure have a direct impact on improving data quality.

Finally, since the statistical significance value (Sig.) is .000—much lower than the conventional cutoff point of .05—it can be concluded that this effect is highly statistically significant. Therefore, based on all these results, we accept the first hypothesis: there is a statistically significant positive relationship between technological infrastructure and the quality of accounting information.

4.4.2. Second hypothesis:

“There is a statistically significant effect of data processing systems on the quality of accounting information in the Directorate of Education in Salah Al-Din.”

Table 16. Results of Testing the Second Hypothesis.

Variable	R	R ²	F	B	t	Sig.	Result
Data Processing Systems	0.606	0.368	132.943	0.428	11.524	0.000	Supported

Source: The table was prepared by the researcher based on the outputs of the SPSS program.

Table (16) presents the results of testing the second hypothesis, which investigates the effect of data processing systems on the quality of accounting information. The correlation coefficient shows a very strong positive relationship ($R = 0.606$) between these variables compared to the previous hypothesis.

The coefficient of determination indicates that data processing systems account for 36.8% of variations in the quality of accounting information, which is significantly higher than that attributed by other dimensions of information technology. The F-value further confirms the validity and strength of this statistical model.

The regression coefficient value underlines that among all predictors, data processing systems have the most substantial impact—an increase by one unit in this dimension would lead to an increase in the quality measurements by 0.428 units. This dimension's positive effect is highly statistically significant as indicated by its significance value ($\text{Sig.} = 0.000$). Therefore, the second hypothesis has been accepted with high confidence.

4.4.3. Third hypothesis:

"There is a statistically significant effect of protection and security systems on the quality of accounting information in the Directorate of Education in Salah Al-Din."

Table 17. Results of Testing the Third Hypothesis.

Variable	R	R ²	F	B	t	Sig.	Result
Security and Protection Systems	0.542	0.294	94.382	0.352	9.716	0.000	Supported

Source: The table was prepared by the researcher based on the outputs of the SPSS program.

Table (17) shows the detailed statistical analysis of the effect of security and protection systems on the quality of accounting information. The correlation coefficient ($R = 0.542$) indicates a moderate to strong positive relationship between security and protection systems and accounting information quality.

The coefficient of determination ($R^2 = 0.294$) implies that security and protection systems account for 29.4% of the variation in quality accounting information; though this percentage is lower than other dimensions, it still represents a statistically significant proportion.

The F-value of 94.382 confirms the validity of the statistical model used. The regression coefficient ($B = 0.352$) indicates that there is a moderate positive effect from security and protection systems toward enhancing the quality of accounting information. Since significance value (Sig.) equals zero, it means that this effect is highly statistically significant; thus, we accept our third hypothesis.

4.4.4. Main hypothesis:

"There is a statistically significant overall effect of information technology adoption on the quality of accounting information in the Directorate of Education in Salah Al-Din."

Table 18. Results of Testing the Main Hypothesis (Multiple Regression).

Variable	B	Std. Error	Beta	t	Sig.	Interpretation
Constant	0.892	0.241	–	3.701	0.000	–
Technological Infrastructure (X1)	0.286	0.076	0.298	3.763	0.000	Significant Effect
Data Processing Systems (X2)	0.342	0.079	0.356	4.329	0.000	Significant Effect
Security and Protection Systems (X3)	0.228	0.068	0.246	3.353	0.001	Significant Effect

Source: The table was prepared by the researcher based on the outputs of the SPSS program.

Table (18) displays results from the complete multiple regression analysis that tests how the three dimensions of information technology (technical infrastructure, data processing systems, and security systems) affect the quality of accounting information. The value of $R=0.718$ indicates a very strong correlation between the composite independent variable and dependent variable.

The coefficient of determination $R^2=0.516$ explains 51.6% variance in quality accounting information, which is a high percentage that proves this model as predictive and these dimensions as pivotal for enhancing the quality of accounting information. Also, since F-value equals to 81.247 with statistical significance $p=0.000(<0.01)$, it confirms overall validity for rejecting null hypothesis thus proving relationship non-randomness nature. Regression coefficients highlight relative impacts with data processing systems leading at $\beta=0.356$ followed by technical infrastructure at $\beta=0.298$ and then security and protection systems at $\beta=0.246$; all are statistically significant ($p<0.05$).

The mathematical model expresses this as:

$$Y = \beta_0 + 0.298X_1 + 0.356X_2 + 0.246X_3 + e$$

This supports the main hypothesis of a significant positive impact and recommends strengthening these dimensions in financial policies to improve information quality.

5. Conclusions and Recommendations

5.1. Conclusions:

In light of the statistical results obtained from the exploratory research, the following conclusions can be drawn:

1. The strong effect of data processing systems: The data processing systems dimension accounts for the highest variance in the quality of accounting information at 36.8% supporting the critical role advanced electronic accounting systems play within the department. This supports the statement that institutions using advanced processing systems will tend to report higher quality information.
2. The significance of technological infrastructure: Results indicated that this dimension contributes to 33.2% variance in quality of accounting information thus providing empirical evidence for integrated digital infrastructure as a major contributor toward achieving accuracy and reliability in financial reporting.
3. The function of protection and security systems: Even though it is least impactful at 29.4%, this dimension is statistically significant; therefore, one can draw an inference that institutions with strong digital protection systems may be able to provide integrity in their financial data.
4. Integration of dimensions: Results also indicated that an integration of these three dimensions could explain up to 51.6% variation in the quality of accounting

information, thus reinforcing the argument for adopting an integrated methodology while implementing digital technologies.

5. The technological environment in the Directorate of Education: It has been noted that awareness regarding information technology within the Directorate is at a good level but improvement areas exist, particularly with respect to security and protection systems.
6. The importance of human resources: It was found out that institutions with qualified personnel (as per demographic data) implement information technology more effectively thereby confirming human resource roles toward success for such systems.

5.2. Recommendations:

Based on the preceding findings and conclusions, the researcher offers the following recommendations:

5.2.1. Practical Recommendations:

1. Improve Data Processing Systems: Since data processing systems had the most significant effect (36.8%), it is suggested that the directorate be prompted to fully apply and utilize modern electronic accounting systems with direct connectivity between all administrative units.
2. Upgrade the Technological Infrastructure: It is recommended that the directorate improve its ability to use modern infrastructure technologies such as cloud servers and high-speed networks in line with financial objectives.
3. Enhance Security and Protection Systems: It is recommended that a cybersecurity unit be established or resources allocated on a regular basis, security intelligence be collected, and protective tools such as advanced encryption be used to secure data.
4. Enhance Human Abilities and Merge IT Frameworks: Training for accountants and financial managers in contemporary information technology methods is advisable. All three aspects of IT (infrastructure, data processing systems, and security systems) should be integrated to realize their full advantages.

5.2.2. Research Recommendations:

5. Since this is a preliminary study that was conducted in one institution, it would be good to do comparison studies with other education directorates in other provinces of Iraq. This will help in assessing the extent to which the results can be generalized.
6. Moderating variables such as directorate size, system age, and activity nature should be noted since they can influence the relationship between information technology and quality accounting information.
7. This study should be applied to other government sectors like health or municipalities for comparison across sectors.

An assessment study on challenges in implementing IT in Iraq and ways to overcome these challenges is suggested.

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