THE INFLUENCE OF INFORMATION TECHNOLOGY USAGE ON THE EFFICIENCY AND EFFECTIVENESS OF ACCOUNTING INFORMATION SYSTEMS AND ITS IMPACT ON INVESTMENT DECISIONS: A SURVEY STUDY

Ali T.M. Kadawi
University of Sfax/Tunisia
alitalall522@gmail.com

Khamoussi Halioui
University of Sfax Higher School of Commerce, Tunisia
khamoussi.halioui@gmail.com

A B S T R A C	K E Y W O R D S
The study aimed, on its theoretical side, to explain the impact of using information technology with its various multiple techniques on the efficiency and effectiveness of accounting information systems and how it reflects on investment decisions. This was achieved through reviewing the most important previous studies related to the research topic. Additionally, the study reviewed the significant technological innovations resulting from the Fourth Industrial Revolution. Regarding the practical aspect of the study, a questionnaire was formulated, consisting of two main axes, each containing five questions. The study's sample consisted of academic professionals working in the faculties of management and economics at Iraqi universities, specializing in accounting and finance. The study's results revealed positive and statistically significant differences in the use of information technology techniques on the efficiency and effectiveness of accounting information systems, with a positive impact on improving investment decision-making.	Accounting Information System, Information Technology, Investment Decision

Introduction

In the dynamic landscape of contemporary business and finance, the synergy between Information Technology (IT) and Accounting Information Systems (AIS) plays a pivotal role in shaping the efficiency and effectiveness of financial reporting and disclosure mechanisms (Al-Okaily et al., 2020). This study embarks on an exploration of this symbiotic relationship, with a specific focus on its ramifications for investment decisions (Inv. Dec.). Through a comprehensive survey study, we aim to

unravel the intricacies of how IT usage influences AIS and, subsequently, the decisions made by investors.

The proliferation of IT solutions and digital innovations has ushered in a new era for AIS. Traditional manual processes have given way to automated systems, data analytics, and real-time reporting capabilities (Djanegara et al., 2018). While these advancements hold the promise of enhancing the efficiency and effectiveness of AIS, they also present challenges related to data security, system reliability, and adaptation to evolving technological landscapes (Thabit, 2019). As organizations increasingly rely on AIS-generated financial information, it becomes crucial to understand how these transformations affect Inv. Dec. (Abernathy et al., 2020).

This study aims to investigate the influence of IT usage on the efficiency and effectiveness of AIS by assessing the extent to which IT adoption impacts the efficiency of financial data processing within AIS, examining the role of IT in enhancing the effectiveness of AIS in terms of data accuracy, timeliness, and relevance, and analyzing how IT-induced improvements in AIS influence Inv. Dec. made by various stakeholders.

In an era where data-driven decision-making is paramount, our findings may offer valuable insights for organizations seeking to optimize their AIS and harness the power of IT for more informed investment strategies. Ultimately, this study contributes to the broader discourse on the intersection of technology, accounting, and finance in the contemporary business landscape.

1. Literature Review and Hypotheses Development:

1.1 IT Techniques:

Information Technology (IT) is an omnipresent force that has revolutionized the way we live, work, and interact with the world (Dos Santos et al., 1993). In an era marked by unprecedented technological advancements, IT has emerged as the driving force behind innovation and progress (Van Niekerk and Rudman, 2019), (Thabit, 2021). IT encompasses a vast and dynamic field that involves the use of computers, software, networks, and digital systems to acquire, store, process, and transmit information (Zhu and Liu, 2023). It empowers individuals, organizations, and societies to harness the power of data and knowledge for a multitude of purposes, ranging from communication and decision-making to entertainment and scientific exploration (Khorashadi et al., 2017).

The evolution of IT is characterized by exponential growth and rapid innovation. Each decade has witnessed groundbreaking developments, from the birth of the internet in the 1960s to the proliferation of smartphones, artificial intelligence, and cloud computing in recent years (Janvrin and Wang, 2019). These advancements have not only expanded the capabilities of IT but have also led to its integration into virtually every aspect of our daily lives.

IT has left an indelible mark on society, the economy, and culture. In the business world, IT has streamlined operations, enhanced productivity, and facilitated global commerce through e-commerce platforms (Thabit et al., 2021). It has transformed healthcare with electronic medical records and telemedicine, revolutionized education with online learning, and reshaped entertainment with streaming services (Jarah et al., 2023).

Furthermore, IT has spurred innovation across various industries, from autonomous vehicles to renewable energy solutions (Wu et al., 2019). It has opened new frontiers in scientific research, enabled efficient data analysis, and accelerated the pace of discovery (Janvrin and Wang, 2019), (Thabit et al., 2020). The fusion of IT with artificial intelligence and machine learning promises even greater possibilities, from self-learning algorithms to personalized medicine.

Due to the intertwining of IT with every aspect of life, it was necessary for the field of accounting, with all its systems, to adapt to the developments that emerged in the business environment as a result of adopting Fourth Industrial Revolution technologies (I4), represented by Metaverse technology. This has produced a range of modern and new technologies that have directly impacted AIS. The most important of these technologies, as indicated by many researches, can be presented as follows in Table 1.

Table 1: The Most Common IT Techniques

IT Technique	Application in AIS	References
Internet of Things (IoT)	It involves physical components embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data and information with other devices and systems over the Internet	(Faccia and Petratos, 2021) (Ionescu, 2019)
Block chain	It is an advanced database technology that serves as an open ledger allowing for transparent sharing of information within a business network	(Fullana and Ruiz, 2021) (ALSaqa et al., 2019) (Sarwar et al., 2021) (Inghirami, 2019)
Robots	It is an automated software application that performs repetitive tasks on a network, following specific instructions to mimic human behavior but in a faster and more accurate manner than humans	(Tsoraya et al., 2023) (Pebrina et al., 2022) (Vasarhelyi, 2013)
Cryptocurrencies	They are currencies whose value is determined by the principles of supply and demand and are conceptually similar to commodities like gold	(Yen and Wang, 2021) (Cazazian, 2022) (Paulsson and Brady, 2022) (Mosteanu and Faccia, 2020)
Cloud Computing	It's a modern and crucial technology that allows renting infrastructure services and storing data and applications on servers or data centers	(Moudud-Ul-Huq et al., 2020) (Brandas et al., 2015) (Shkurti and Muça, 2014) (Schmidt and Gal, 2020)
Big Data Analysis	It involves the use of advanced analytical techniques to analyze and understand large and diverse datasets, including structured, unstructured, and semi-structured data.	(Huerta and Jensen, 2017),. (Bhimani and Willcocks, 2014) (Gartner and Hiebl, 2017), (Vasarhelyi et al., 2015)
Data Mining Techniques	It is a technique that involves computer-assisted analysis for processing and exploring a large dataset using data mining tools and methods, enabling units to discover hidden patterns and relationships in the data	(Rodger, 2003) (Chahadah et al., 2018) (Xiao et al., 2010) (Musa et al., 2019)
Digital Assets	It encompasses digital documents, audio content, moving images, and other digital data that is currently in circulation or will be stored on digital devices such as personal computers, laptops, media players, data storage devices, and communication devices	(De Haes et al., 2016) (Vasarhelyi and Greenstein, 2003) (Farhan and Kawther, 2023)
Chat GPT Website	This website is one of the modern online platforms used for answering various text-based questions and automating many tasks, such as composing email messages and obtaining information in the fields of accounting and auditing.	(Wood et al., 2023) (Al-Ghatrifi et al., 2023) (Eulerich et al., 2023)

From Table 1, we can see that each type of technology produced by the IT revolution mentioned above has directly or indirectly impacted AIS. Ultimately, this impact will focus on improving the efficiency and effectiveness of AIS, which is the foundation for providing accounting information disclosed

through financial statements and reports to both internal and external users. This improvement will reflect on enhancing the efficiency and effectiveness of their Inv. Dec.

1.2   Efficiency and Effectiveness of AIS:

Accounting Information Systems (AIS) play a pivotal role in modern organizations, serving as the backbone of financial management and decision-making processes. The efficiency and effectiveness of AIS are critical factors that can significantly influence an organization's success. This literature review explores various aspects of AIS efficiency and effectiveness, highlighting key concepts, factors, and the impact of technological advancements.

1.2.1   Efficiency in AIS:

Efficiency in AIS refers to the ability of the system to process financial transactions and generate financial reports accurately, quickly, and with minimal resource consumption. Several factors contribute to AIS efficiency (Djanegara et al., 2018), (Zhu and Liu, 2023), (Jarah et al., 2023):

– Automation: Automation of routine accounting tasks, such as data entry and reconciliation, reduces the likelihood of errors, speeds up processes, and saves time and resources.

– Data Integration: Efficient AIS should seamlessly integrate data from various sources within an organization, minimizing duplication and ensuring data consistency.

– Scalability: Scalable AIS systems can adapt to an organization's changing needs without a significant increase in costs or resource allocation.

– User-Friendly Interfaces: User-friendly interfaces and intuitive design enhance the efficiency of AIS by reducing the learning curve for users and improving data input accuracy.

1.2.2 Effectiveness in AIS:

Effectiveness in AIS refers to the system's ability to provide timely, relevant, and accurate information to support decision-making. Key factors contributing to AIS effectiveness include (Al-Okaily et al., 2020), (Fullana and Ruiz, 2021), (Inghirami, 2019):

– Data Accuracy: Accurate data is fundamental for effective decision-making. AIS must maintain data integrity to ensure the information generated is reliable.

– Timeliness: AIS should provide real-time or near-real-time access to financial information, allowing organizations to respond quickly to changing circumstances.

– Customization: Effective AIS systems allow for the customization of financial reports and dashboards to meet the unique needs of users and decision-makers.

– Security: Ensuring the security of financial data is crucial for maintaining the trust of stakeholders and protecting sensitive information from unauthorized access.

1.3   IT and AIS

IT has revolutionized the way businesses process, store, and analyze financial data. Traditional manual accounting processes have been replaced by sophisticated AIS that incorporate IT components such as databases, software applications, and hardware infrastructure. These systems are designed to enhance the efficiency and accuracy of financial data management (Thabit and Jasim, 2019), (Musa et al., 2019).

1.3.1   Enhanced Efficiency

The utilization of IT in AIS streamlines routine accounting tasks such as data entry, ledger maintenance, and reconciliation. Automation reduces the risk of errors inherent in manual processes, leading to

improved efficiency. Additionally, IT enables real-time data processing, allowing organizations to access up-to-date financial information, thereby expediting decision-making processes.

1.3.2 Improved Accuracy

Accuracy is paramount in accounting, and IT plays a crucial role in achieving this. Through features like data validation and automatic calculations, IT minimizes the chances of human error in financial reporting. Moreover, IT-based AIS can cross-verify data, enhancing data accuracy and integrity.

1.4 AIS and Inv. Dec.

AIS plays a crucial role in providing the financial information necessary for investors to make informed decisions about allocating their capital. some researchers mentioned to key ways in which the efficiency and effectiveness of AIS influence Inv. Dec. (Abernathy et al., 2020), (Alawaqleh and Al-Sohaimat, 2017):

1.4.1 Timely Access to Information:

– Efficiency: An efficient AIS processes financial data quickly and provides investors with up-to-date information. Timely access to financial reports and data is essential for investors to assess a company's current financial health and performance. Delayed or outdated information can lead to suboptimal Inv. Dec.

– Effectiveness: An effective AIS ensures that financial data is accurate and reliable. Investors can trust the information they receive, which is crucial for making informed Inv. Dec. Accurate data allows investors to assess a company's financial position accurately, leading to more confident investment choices.

1.4.2 Data Accuracy and Integrity:

– Efficiency: An efficient AIS reduces the likelihood of errors in financial data processing. Automation and streamlined processes minimize the risk of human error, which can lead to incorrect financial reporting. Reliable financial data is essential for investors to evaluate a company's financial health and make Inv. Dec.

– Effectiveness: An effective AIS not only maintains data accuracy but also ensures data integrity. Data integrity means that financial data is protected from unauthorized changes or tampering. Investors can have confidence that the financial information they rely on for Inv. Dec. has not been compromised.

1.4.3 Advanced Analysis and Insights:

– Efficiency: An efficient AIS can process large volumes of data quickly, allowing for more in-depth analysis. Investors can use advanced analytics to identify trends, patterns, and anomalies in financial data. This deeper analysis provides valuable insights into a company's financial performance and growth prospects.

– Effectiveness: An effective AIS is capable of generating comprehensive financial reports and conducting complex data analysis. These reports provide investors with a holistic view of a company's financial health, including key performance indicators, profitability ratios, and liquidity ratios. Such insights are critical for making well-informed Inv. Dec.

1.4.4   Transparency and Compliance:

–   Efficiency: An efficient AIS can help organizations streamline compliance processes, reducing the administrative burden associated with regulatory requirements. This can lead to cost savings for the company, potentially benefiting investors indirectly through improved financial performance.

–   Effectiveness: An effective AIS ensures that the company complies with accounting standards and regulations. Compliance enhances transparency in financial reporting, making it easier for investors to assess a company's adherence to industry standards. Transparent financial reporting builds trust and confidence among investors.

Generally, the efficiency and effectiveness of AIS have a direct impact on Inv. Dec. An efficient AIS provides timely access to accurate financial data, while an effective AIS ensures data integrity and offers advanced analysis capabilities. These attributes collectively enable investors to assess a company's financial health, make informed investment choices, and manage risk effectively. Companies with well-designed and well-operated AIS are more likely to attract and retain investors, which can have a positive impact on their access to capital and overall growth.

H1: *There is a statistically significant impact of using IT on Inv. Dec via enhancing the efficiency of AIS.*

H2: *There is a statistically significant impact of using IT on Inv. Dec via enhancing the effectiveness of AIS.*

2.   The Research Framework:

Figure 1 show the research framework, illustrating the proposed relationships between the variables. Information Technology (IT), the Independent variable (INDV), can directly affect Investment Decisions (Inv. Dec.), the dependent variable (DV). Moreover, IT (INDV) can also indirectly impact Inv. Dec. (IV) through efficiency and effectiveness of AIS
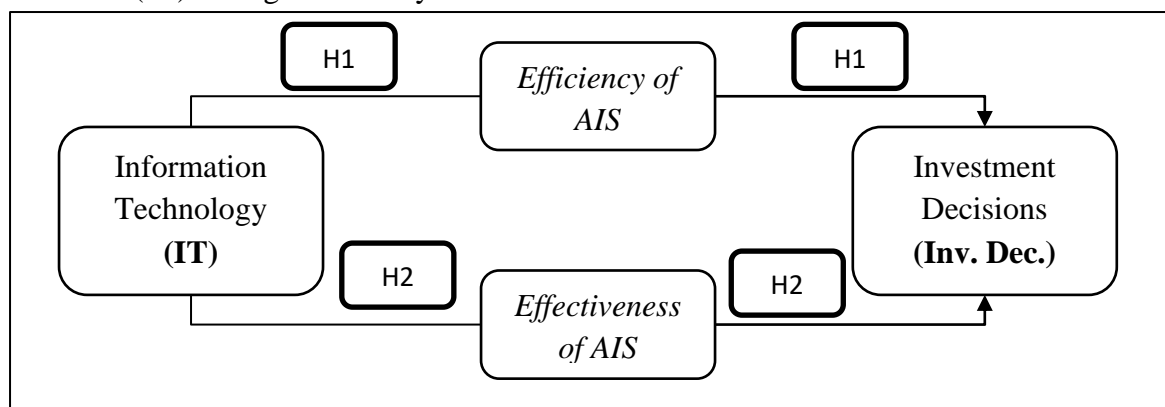

Figure 1: The Study Framework (Modified by adding H1 and H2)

3.   Methodology:

In order to evaluate the proposed hypotheses, it is essential to collect data from real-world scenarios. This study employs a quantitative approach, and the data were collected from academics specialized in the fields of accounting and finance working in the faculties and higher schools of management and economics at Iraqi universities. In total, (42) electronic forms were distributed, and (37) valid forms suitable for statistical analysis were collected. The researchers used the statistical software package (SPSS$_{v26}$) to analyze the responses and obtain the results. The data collection phase extended over 30

days, for June 2023. The questionnaire employed a "5-point Likert scale" to facilitate respondent comprehension. The Cronbach's alpha coefficient was used to test the reliability and consistency of the questionnaire, and the results were high, indicating that the alpha values for all the questions were greater than (0.5). This means that the consistency in responses was high, demonstrating the validity of the questionnaire items, as shown in Table 2:

Table 2: The reliability coefficient (Cronbach's alpha)

Hypothesis	The Context of Hypothesis	No. of Paragraphs	Cronbach's alpha
H1	There is a statistically significant impact of using IT on Inv. Dec via enhancing the efficiency of AIS	5	0.756
H2	There is a statistically significant impact of using IT on Inv. Dec via enhancing the effectiveness of AIS	5	0.944
Total		10	0.890

4.   Results:

4.1   Demographic Profile

Table 3 shows the demographic picture of the research sample with regard to the four characteristics (educational qualification, scientific title, academic specialization, years of experience) and the proportions of each variable in the sample.

Table 3: The Demographic Profile

Variable	Sources of Variation	Frequency	Percentages (%)
Educational Qualification	Doctorate	9	24
	Master's degree	26	70
	Postgraduate Diploma	2	6
Educational Title	Professor	5	14
	Asst. Professor	8	22
	Lecturer	15	40
	Asst. Lecturer	9	24
Academic Discipline	Accounting	23	62
	Finance	14	38
Years of Service	Less than 10 years	5	13
	10-20 years	15	41
	21-30 years	10	27
	More than 30 years	7	19

Hypothesis Testing and Analysis

5.2.1. Test of Hypothesis 1:

There is a statistically significant effect of using IT on the efficiency of AIS, which positively impacts Inv. Dec. By measuring the opinions of the study's sample groups regarding the first hypothesis questions, the following becomes evident:

Table 4: Analysis of Study Sample Responses Regarding the First Hypothesis

No	Paragraphs	The arithmetic mean	Stander deviation	Agree and strongly agree	Neutral	Do not agree Strongly Disagree
1	The input devices produced by IT contribute to covering all the data prepared for processing	3.97	0.99	30	4	3
2	IT software is characterized by a high level of flexibility in conducting operational processes and updates, which benefits Inv. Dec. makers	4.16	1.08	36	1	0
3	Networks and communications contribute to providing and updating information outputs accurately and quickly for Inv. Dec. makers	4.03	1.01	30	5	2
4	IT has led to the immediate feedback imposed on the elements of AIS, contributing to the instant detection of errors	4.35	1.16	37	0	0
5	IT contributes to achieving accuracy in accounting measurement processes due to the rarity of errors in the outputs	4.24	1.12	34	2	1
	overall average	4.15	1.07			

It can be observed from Table (4) that the degree of agreement with the statements of the first hypothesis all came with an 'agree' response, indicating that most of the statements have a statistically positive significance from the perspective of the study sample. The overall arithmetic mean for the first hypothesis as a whole was (4.15), with a standard deviation of (1.07). Therefore, the first hypothesis will be accepted as is. It is worth noting that the fourth question ranked first with the highest acceptance rate (100%) with an average score of (4.35) and a standard deviation of (1.16).

To check if there are significant differences between the respondent's perceptions with regard to the first hypothesis, we used the ANOVA test for the five items crossed with the four profile characteristics. Table 5 below shows the following results.

Table 5 : Analysis of variance for personal variables regarding the first hypothesis

Variable	Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F-Value	Sig.	Significance
Educational Qualification	Among categories	8211.216	2	4105.608			There are significant differences among the academic qualification categories in favor of the **Ph.D.**
	Within categories	264020.955	34	691.154	5.940	0.003	
	All	272232.171	36	-			
Educational Title	Among categories	7196.124	3	2398.708			There are significant differences among academic title categories in favor of the title **prof.**
	Within categories	265036.047	33	695.633	3.448	0.017	
	All	272232.171	36	-			
Academic Discipline	Among categories	12594.272	4	3148.568			There are significant differences among scientific specialization categories in favor of the **accounting** specialization
	Within categories	269637.900	32	709.573	4.437	0.002	
	All	272232.171	36	-			
Years of Service	Among categories	4291.773	3	1430.591			There are no significant differences among the categories of years of service
	Within categories	267940.399	33	703.256	2.034	0.109	
	All	272232.171	36	-			

The results of table (5) indicate, through the level of significance, that there are statistically significant differences in the answers of the research sample with regard to the first hypothesis, according to the three first demographic variables: academic qualification (PhD); academic title (professor); and the scientific specialization (accounting). However, there are no statistically significant differences in the years of service, as the value of (Sig) is (0.109), which is greater than the level of significance (0.05).

5.2.2. Test of Hypothesis 2:

There is a statistically significant impact of using IT in its various forms on the effectiveness of AIS and this has a positive effect on Inv. Dec.

Table 6 : Analysis of Study Sample Responses Regarding the Second Hypothesis

No.	Paragraphs	The arithmetic mean	Stander deviation	Agree and strongly agree	Neutral	Do not agree Strongly Disagree
1	IT, in its various technologies, has influenced the appropriateness of accounting information and has reflected positively on the decision-making orientations of Inv. Dec. makers	4.08	1.04	30	5	2
2	IT has influenced the property of accurate representation of economic events in accounting information, and this has had a positive impact on the Inv. Dec. making orientations	4.32	1.15	35	1	1
3	IT has influenced the property of predictive value of accounting information, and this has reflected positively on assisting Inv. Dec. makers in predicting future events	4.22	1.10	34	2	1

4	IT has influenced the property of comparability of accounting information with previous and subsequent events, and this has reflected positively on improving Inv. Dec.	3.97	0.99	31	3	3
5	IT has influenced the property of timely information in accounting and has resulted in not withholding any information from Inv. Dec. makers.	4.38	1.17	37	0	0
	overall average	4.19	1.09			

Table (6) shows that the degree of agreement with the statements of the second hypothesis all came with an 'agree' response, indicating that most of the statements have a statistically positive significance from the perspective of the study sample. The overall arithmetic mean for the second hypothesis as a whole was (4.19), with a standard deviation of (1.09). Therefore, the second hypothesis will be accepted as is. It is worth noting that the fifth question ranked first with the highest acceptance rate (100%) with an average score of (4.38) and a standard deviation of (1.17).

To check if there are significant differences between the respondent's perceptions with regard to the second hypothesis, we used the ANOVA test for the five items crossed with the four profile characteristics. Table 7 below show the following results.

Table 7 : Analysis of variance for personal variables with respect to the second hypothesis

Variable	Sources of Variation	Sum of Squares	Degrees of Freedom	Mean Squares	F-Value	Sig.	Significance
Educational Qualification	Among categories	2273.714	2	1136.859	5.102	0.007	There are significant differences among the academic qualification categories in favor of the **Ph.D.**
	Within categories	85116.425	34	222.819			
	All	87390.141	36	-			
Educational Title	Among categories	1487.561	3	495.854	2.199	0.088	There are no significant differences between the scientific title categories
	Within categories	85902.580	33	225.466			
	All	87390.140	36	-			
Academic Discipline	Among categories	3811.412	4	952.853	4.173	0.003	There are significant differences between the academic qualification categories in favor of **accounting**
	Within categories	86778.730	32	228.365			
	All	87390.140	36	-			
Years of Service	Among categories	1688.556	3	562.852	2.502	0.059	There are no significant differences between the categories of years of service
	Within categories	85701.584	33	224.939			
	All	87390.140	36	-			

It is noted from Table (7) that the results indicate, through the level of significance, that there are statistically significant differences in the answers of the sample members regarding the second hypothesis according to the first and the third demographic variables (educational qualification (PhD) and academic discipline (accounting)) where the value of (sig) was respectively (0.007) and (0.003), Whereas, there are no statistically significant differences with regard to the second and the fourth demographic variables (educational title and years of services) where the values of (sig) are respectively (0.088) and (0.053), both of which are greater than the level of Significance (0.05).

Conclusions and Recommendations:

4.2 Conclusions:

Based on the descriptive and analytical aspects of the study, the researchers have arrived at the following conclusions:

1. The use of IT in its various forms has positively impacted the efficiency and effectiveness of AIS by increasing speed, storage capacity, accuracy, and reducing costs and staff requirements.

2. The use of IT has affected the elements of AIS, resulting in high accuracy and suitability of accounting information, an increase in the number of beneficiaries, and a positive impact on the orientations and decisions of investors.

3. The use of IT techniques in the development of AIS enables decision-makers to access accounting information from anywhere and at any time.

4. The arithmetic mean for both hypotheses was high according to the responses of the surveyed sample. This indicates the acceptance of both hypotheses related to the study. Specifically:

   a) There is a statistically significant impact of using IT in its various forms on the efficiency of AIS, and this reflects positively on Inv. Dec. This hypothesis had an overall arithmetic mean of (4.15) with a standard deviation of (1.07).

   b) There is a statistically significant impact of using IT in its various forms on the effectiveness of AIS, and this reflects positively on Inv. Dec. This hypothesis had an overall arithmetic mean of (4.19) with a standard deviation of (1.09).

5. The results of the variance test (Anova test) showed that there were statistically significant differences in the answers of the study sample members regarding the first hypothesis according to the variable of academic qualification, doctorate, academic title of professor, and academic specialization in accounting, where the value (and Sig) of these variables was less than the level of significance (0.05).

6. The results of the (Anova test) showed that there were statistically significant differences in the answers of the study sample members regarding the second hypothesis according to the variable of academic qualification, doctorate, and academic specialization in accounting, as the value reached (Sig) and these two variables were less than the level of significance (0.05).

4.3 Recommendations:

1. It is imperative for economic entities to leverage various IT techniques to support the efficiency and effectiveness of their AIS, benefiting Inv. Dec. makers through the following:

   a) Utilizing cloud computing technology in digital storage operations.

b)   Harnessing block chain technology for transparent information exchange as it provides an open ledger.

c)   Employing big data analytics technology for analyzing and understanding vast and large datasets.

d)   Utilizing robotics technology to perform accounting tasks faster and more accurately than humans.

e)   Leveraging data mining technology for processing large datasets and discovering hidden relationships in data.

f)   Utilizing the capabilities of AI-driven platforms like GPT-3 for obtaining diverse and real-time answers to text-based questions related to accounting domains.

2.   It is essential to continue conducting research and studies by researchers in the accounting field in light of the advancements occurring in the field of IT and introducing new variables that have not been addressed in existing research and studies to serve the accounting profession.

References:

1. Abernathy, J., Beyer, B., Downes, J., and Rapley, E. (2020), "High-Quality Information Technology and Capital Investment Decisions", Journal of Information Systems, 34(3), pp. 1-29.

2. Alawaqleh, Q., and Al-Sohaimat, M. (2017), "The relationship between accounting information systems and making investment decisions in the industrial companies listed in the Saudi Stock market", International Business Research, 10(6), pp. 199.

3. Al-Ghatrifi, M., Al Amairi, J., and Thottoli, M. (2023), "Surfing the Technology Wave: An International Perspective on Enhancing Teaching and Learning in Accounting", Computers and Education: Artificial Intelligence, 4, 100144.

4. Al-Okaily, A., Al-Okaily, M., Shiyyab, F., and Masadah, W. (2020), "Accounting Information System Effectiveness from An Organizational Perspective", Management Science Letters, 10(16), pp. 3991-4000.

5. ALSaqa, Z., Hussein, A., and Mahmood, S. (2019), "The Impact of Blockchain on Accounting Information Systems", Journal of Information Technology Management, 11(3), pp. 62-80.

6. Bhimani, A., and Willcocks, L. (2014), "Digitisation, 'Big Data' and the Transformation of Accounting Information", Accounting and Business Research, 44(4), pp. 469-490.

7. Brandas, C., Megan, O., and Didraga, O. (2015), "Global Perspectives on Accounting Information Systems: Mobile and Cloud Approach", Procedia Economics and Finance, 20, pp. 88-93.

8. Cazazian, R. (2022), "Blockchain Technology Adoption in Artificial Intelligence-based Digital Financial Services, Accounting Information Systems, and Audit Quality Control", Review of Contemporary Philosophy, (21), pp. 55-71.

9. Chahadah, A., Refae, G., and Qasim, A. (2018), "The Use of Data Mining Techniques in Accounting and Finance as A Corporate Strategic Tool: An Empirical Investigation on Banks Operating in Emerging Economies", International Journal of Economics and Business Research, 15(4), pp. 442-452.

10. De Haes, S., Joshi, A., Huygh, T., and Jansen, S. (2016), "How Boards Lead and Govern Digital Assets: A Summary of the State-of-the-Art Research".

11. Djanegara, M., Mulyani, S., Putra, D., Zahra, N., and Mauludina, M. (2018), "The Effect of Institutionalization Isomorphic Pressures and the Role of Knowledge Management on Investment Decisions of the Accounting Information Systems", Polish Journal of Management Studies, 18(2), pp. 46-58.

12. Dos Santos, B., Peffers, K., and Mauer, D. (1993), "The Impact of Information Technology Investment Announcements on the Market Value of the Firm", Information Systems Research, 4(1), pp. 1-23.

13. Eulerich, M., Sanatizadeh, A., Vakilzadeh, H., and Wood, D. (2023), "Can Artificial Intelligence Pass Accounting Certification Exams? ChatGPT: CPA, CMA, CIA, and EA?, pp. 1-26.

14. Faccia, A., and Petratos, P. (2021), "Blockchain, enterprise resource planning (ERP) and accounting information systems (AIS): Research on e-procurement and system integration". Applied Sciences, 11(15), pp. 67-92.

15. Farhan, K., and Kawther, B. (2023). "Accounting Audit Profession" in Digital Transformation Environment between Theoretical Framework and Practical Reality 2023", World Economics and Finance Bulletin, 22, pp. 120-133.

16. Fullana, O., and Ruiz, J. (2021), "Accounting Information Systems in the Blockchain Era", International Journal of Intellectual Property Management, 11(1), pp. 63-80.

17. Gartner, B., and Hiebl, M. (2017), "Issues with Big Data", in The Routledge Companion to Accounting Information Systems (pp. 161-172). Routledge.

18. Huerta, E., and Jensen, S. (2017), "An Accounting Information Systems Perspective on Data Analytics and Big Data", Journal of Information Systems, 31(3), pp. 101-114.

19. Inghirami, I. (2019), "Accounting Information Systems in the Time of Blockchain", In Conference: İtaıs 2018 Conference (pp. 1-16).

20. Ionescu, L. (2019), "Big data, blockchain, and artificial intelligence in cloud-based accounting information systems", Analysis and Metaphysics, (18), pp. 44-49.

21. Janvrin, D., and Wang, T. (2019), "Implications of Cybersecurity on Accounting information", Journal of Information Systems, 33(3), pp. A1-A2.

22. Jarah, B., Jarrah, M., Almomani, S., AlJarrah, E., and Al-Rashdan, M. (2023). "The Effect of Reliable Data Transfer and Efficient Computer Network Features in Jordanian Banks Accounting Information Systems Performance based on Hardware and Software, Database and Number of Hosts", International Journal of Data and Network Science, 7(1), pp. 357-362.

23. Khorashadi, M., Karkon, A., and Golnari, H. (2017). "The Effect of Information Technology on the Quality of Accounting Information", Journal of System Management, 3(3), pp. 61-76.

24. Mosteanu, N., and Faccia, A. (2020). Digital Systems and New Challenges of Financial Management–FinTech, XBRL, Blockchain and Cryptocurrencies", Quality–Access to Success, 21(174), pp. 159-166.

25. Moudud-Ul-Huq, S., Asaduzzaman, M., and Biswas, T. (2020), "Role of Cloud Computing in Global Accounting Information Systems", The Bottom Line, 33(3), pp. 231-250.

26. Musa, K., AlShehadeh, A. R., and Alqerem, R. (2019), "The Role of Data Mining Techniques in the Decision-Making Process in Jordanian Commercial Banks", in 2019 IEEE Jordan International Joint Conference on Electrical Engineering and Information Technology (JEEIT) (pp. 726-730). IEEE.

27. Paulsson, V., and Brady, M. (2022), "Accounting Information Systems: Supporting Business Strategy", The Routledge Handbook of Accounting Information Systems, 113.

28. Pebrina, E., Novitasari, D., Sukriyah, S., Firmawati, Y., and Tsoraya, N. (2022), "The Role of Accounting Information Systems in the Industrial Revolution 4.0 Era", Edumaspul: Jurnal Pendidikan, 6(2), pp. 2409-2412.

29. Rodger, J. (2003), "Utilization of Data Mining Techniques to Detect and Predict Accounting Fraud: A Comparison of Neural Networks and Discriminant Analysis", in Managing Data Mining Technologies in Organizations: Techniques and Applications (pp. 174-187). IGI Global.

30. Sarwar, M., Iqbal, M., Alyas, T., Namoun, A., Alrehaili, A., Tufail, A., and Tabassum, N. (2021), "Data Vaults for Blockchain-Empowered Accounting Information Systems", IEEE Access, 9, pp. 117306-117324.

31. Schmidt, P. , and Gal, G. (2020), "Editors' Introduction to the Special Section", on Cloud Computing and Accounting Information Systems (JISC 2018), Journal of Information Systems, 34(2), pp. 1-4.

32. Shkurti, R., and Muça, E. (2014), "An Analysis of Cloud Computing and Its Role in Accounting Industry in Albania", Journal of Information Systems & Operations Management, 1.

33. Thabit, T. (2019), "The Influence of Mobile Information Technologies in Enhancing the Electronic Audit", The 3rd International Scientific Conference, Amman, Jordan: The World Islamic Sciences and Education University.

34. Thabit, T. (2021), "The Extent of Applying ISO 14001 Requirements in the Environmental Auditing Practices of Iraq", Journal of Techniques, 3(3), pp. 76-82.

35. Thabit, T., and Jasim, Y. (2019), "The Challenges of Adopting e-Governance in Iraq", Current Research Journal of Social Sciences and Humanities, 2(1), pp. 31-38.

36. Thabit, T., Ishhadat, H., and Abdulrahman, O. (2020), "Data Governance Based on COBIT2019 Framework to Achieve Sustainable Development Goals", Journal of Techniques, 2(3), pp. 9- 18.

37. Thabit, T., Sid, H., and Jasim, Y. (2021). "The Impact of Green ICT Adoption in Organizations of Developing Countries", Al-Riyada for Business Economics Journal, 7(1), pp. 9-18.

38. Tsoraya, N., Asbari, M., and Novitasari, D. (2023), "The Role of Accounting Information Systems in the Industrial Revolution 4.0", Journal of Information Systems and Management (JISMA), 2(1), pp. 44-47.

39. Van Niekerk, A., and Rudman, R. (2019), "Risks, Controls and Governance Associated with Internet of Things Technologies on Accounting Information", Southern African Journal of Accountability and Auditing Research, 21(1), pp. 15-30.

40. Vasarhelyi, M. (2013), "Formalization of standards, automation, robots, and IT governance", Journal of information systems, 27(1), pp. 1-11.

41. Vasarhelyi, M., and Greenstein, M. (2003), "Underlying Principles of the Electronization of Business: A Research Agenda", International Journal of Accounting Information Systems, 4(1), pp. 1-25.

42. Vasarhelyi, M., Kogan, A., and Tuttle, B. (2015), Big Data in Accounting: An Overview, Accounting Horizons, 29(2), pp. 381-396.

43. Wood, D., Achhpilia, M., Adams, M., Aghazadeh, S., Akinyele, K., Akpan, M., and Kuruppu, C. (2023), "The ChatGPT Artificial Intelligence Chatbot: How Well Does It Answer Accounting Assessment Questions?", Issues in Accounting Education, pp. 1-28.

44. Wu, J., Xiong, F., and Li, C. (2019), "Application of Internet of Things and Blockchain Technologies to Improve Accounting Information Quality", IEEE Access, 7, pp. 100090-100098.

45. Xiao, M., Xiaoli, H., and Gaojin, L. (2010), "Research on Application of Data Mining Technology in Financial Decision Support System", in 2010 3rd International Conference on Information Management, Innovation Management and Industrial Engineering (Vol. 4, pp. 381-384). IEEE.

46. Yen, J., and Wang, T. (2021), "Stock Price Relevance of Voluntary Disclosures about Blockchain Technology and Cryptocurrencies", International Journal of Accounting Information Systems, 40, 100499.

47. Zhu, H., and Liu, C. (2023), "Application of 5G Internet of Things in the Construction of Enterprise Management Accounting Information System", Soft Computing, 27(18), pp. 12979 - 12996.