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The Relationship Between Accounting Information Systems and Firms Performance: Empirical Evidence from Saudi Arabia

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Abstract

This study attempts to understand the relationship between accounting information systems AIS and firms' performance; in the first part of the study, a brief introduction that focuses on the technological advancements and the impact of such advancements on the business world, and in the second part, a review of literature that considered different perspectives on the relationship between AIS and firms' performance. The key differences between manual and automated systems were shown in a table later in the literature review, followed by explanations for each comparison aspect. In the third part, four questions are asked regarding the AIS implementation; the questions covered the top management commitment, the users' competencies, the quality of the adopted system, and the impact of the degree of technological investment on the implementation process. Data for the study was acquired from a Saudi SME. The study's purpose is to investigate the impact of AIS on organizational performance in Saudi SMEs. The presented ideas of this study, where the main finding of the study is that AIS implementation has a positive impact on firms' performance.

Keywords: Accounting Information Systems, Information Technology, Automated Accounting, Manual Accounting, Performance Enhancement.

JEL Classification Code: H70, D80, M0, L25

1. Introduction

Advances in information technology IT has progressed at a fast pace, making the business environment more unpredictable. Since the rapid progress of IT, (Nugraha et al., 2022; Lawal et al., 2022) businesses are encouraged to employ automated IT systems because they will aid and speed up management in obtaining data that will be analyzed to provide yield data that support trustworthy judgments. Accounting Information Systems (AIS) users are constantly promoting technological assets to help organizations to function on a serious globe (Qatawneh, 2022).

Additionally, previous research, including those by Romney et al. (2015), demonstrated the importance of the accounting information system (AIS) in enabling the enhancement of company performance (Gelinas et al., 2014). This goal can be attained by businesses that are open to natural changes, especially in IT. In today's world, most firms use IT to some extent, making it very challenging to gain a competitive edge and succeed in the market without it.

According to Gelinas et al. (2014), the AIS is the most commonly used information system, particularly in financial reporting. It is vital to combine the two elements in a single firm performance model to understand the causal relationship between the two because numerous studies have looked at the influence of knowledge management and the use of AIS on firm performance in different models (Collier, 2015). The goal of this study is to shed light on the relationship between AIS adoption and the potential for improved firm performance. This relationship will be examined in the study's literature review section, which also highlights the strengths of current systems and the benefits of technological development for AIS.

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What benefits, such as process speed and security, may a firm expect if they invest in a system that satisfies their financial requirements? In a later section of the literature review, explanations for each comparative element were followed by a table showing the key differences between manual and automated methods. The research's study questions include four questions about the current problem after its literature review section.

Three of the four questions deal with the success of the AIS deployment, with top management commitment, accountants' (AIS users') skills, and the standard of the accepted AIS itself as three of the four key considerations. The fourth query, on the other hand, is whether greater AIS implementation for businesses results from increased investment in technological advancements. The adopted study was conducted by Trabulsi (2018) and was titled *The Impact of Accounting Information Systems on Organizational Performance*. The study focused on Saudi SMEs and found that businesses that adopted AIS in their business functions experienced superior organizational performance.

2. Literature Review

Accounting information systems are considered a tool that assists management in the planning and control process by providing relevant and trustworthy data for decision-making (Romney et al., 2015; Saleh et al., 2021; Jawabreh et al., 2022a; Shniekat et al., 2021; Alananzeh et al., 2019). Similarly, according to Bushman and Smith (2003), the primary purpose of AIS is to provide accounting data to third parties, such as the administration and functional faculty. Moreover, Kieso et al. (2012) specifies the embodiment of the AIS is to receive raw information, then, at that point, treated and subsequently introduced through accounting information helpful to the users of the information. According to Bushman and Smith (2001), the type of accounting information is derived from the application of AIS.

According to Borhan and Bader (2018), an accounting information system (AIS) is a formal system for identifying, measuring, aggregating, analyzing, preparing, interpreting, and transmitting accounting information about a specific company to a specific group. An accounting information system refers to a collection of sources (people and equipment) that are designed to collect financial data to provide the information required by various decision-makers at a given moment (Bodnar & Hopwood, 2010). Accounting information systems are critical to all businesses. It is intended to aid in the management and collecting of information, raw data or ordinary data, and its transformation into financial data for reporting to decision makers (Dandago & Rufai, 2014; Harash et al., 2014). AIS can incorporate sub-frameworks or portions of both physical and nonphysical systems that are interconnected and cooperating to manage the interchange

of information related to financial matters into financial data. AIS should be able to collect data, transform it into information, and distribute the final product to internal and external users (Taiwo, 2016). According to Ghasemi et al. (2011), one of the criteria that determines the effectiveness of the AIS implementation is executive responsibility. AIS is a system that aids in the collecting and recording of data and information about occurrences that have a financial impact on enterprises. It also aids in the upkeep, processing, and dissemination of such data to both internal and external stakeholders (Olusola et al., 2013; Abu-Musa, 2006; Ghasemi et al., 2011; Dalci & Taniş, 2004; Saleh et al., 2021; Al Fahmawee & Jawabreh, 2022). AIS significantly contributes to the provision of internal and external reporting data, financial statements, and trend analysis capabilities that influence organizational performance.

Management must collaborate with others to achieve goals; pioneers cannot conduct the entire organization's strategy on their own (Soudani, 2012). Users of such systems must, at the very least, be skilled and have unique qualities and talents. Competence, according to Fitrius (2016), is a crucial characteristic of someone who can significantly influence or forecast trustworthy performance. In the end, those exceptional entertainers are more competent than the strategic assessor because they use their ability more frequently, in more contexts, and with greater outcomes. The conduct is another factor to evaluate. Competencies, according to Haleem and Kevin (2018), are personal attributes that result in exceptional performance. According to Bawono et al. (2021) and Mulyani and Arum (2016), competence can be divided into four categories: technical competence, which is defined as the ability to perform the basic errands of the organization; managerial competence, which is defined as the ability to perform to carry out a variety of administrative tasks necessary in hierarchical administrative undertakings, and social competence, which is defined as the ability to communicate. According to Lingga (2020), the capacity of an individual is the ability to accomplish multiple duties in work. Furthermore, an individual's entire ability is made up of two sets of characteristics, namely intellectual capacity and physical ability. The ability to conduct a mental activity is referred to as intellectual ability. Physical ability refers to the ability to do tasks that necessitate stamina, strength, and other related abilities. Ability was born and studied nature to complete a task (Sari & Susanto, 2018).

Even if a company has high competence and committed management, it still needs a highly productive accounting information system with specified specifications, adequate resources, and a well-rounded system (Jawabreh et al., 2022a, 2022b; Jawabreh, 2020; Jahmani et al., 2020; Saleh & Jawabreh, 2020). According to Azmi and Sri (2020), an accounting information system is a collection of software systems that record, process, and distribute accounting data

to internal and external parties. Komala (2012) emphasized the necessity of designing an accounting system as an interconnected system with human and computer components that uses cycles such as data collection, recording, summing up, analyzing, and delivering data to management to provide final information to users. An accounting information system is a structure for integrating inputs into results, from economic data to financial data. It is used to carry out an element's functions and send accounting information to relevant parties (Emeka-Nwokeji, 2012).

Kaplan et al. (1998) and Sajady et al. (2012) defined an accounting system as a subsystem of the management information system that collects and reports financial transaction-related data. The accounting information system, according to Rahayu (2012), is a collection of assets that is set to turn data into accounting information. According to Adisanjaya and Ramantha (2019), Daintith (2009), Fontinelle (2021), and Al-Nawafah et al. (2019), the AIS is a component that collects, characterizes, manages, analyzes, and distributes financial data, as well as decision-making for both external and internal groups.

The following are attributes of an accounting information system: it is an integrated structure and coordinated within an organization that directs activities ranging from gathering data, recording, ordering, processing, analyzing financial information, and conveying it to involved parties; it is an incorporated structure and coordinated within an organization that directs activities ranging from gathering data, recording, ordering, processing, and analyzing financial information and conveying to involved parties; it is an incorporated structure and coordinated within an organization that directs activities ranging from gathering data, recording, ordering, processing, and analyzing financial information to be applicable to show the organization's activities and administration, as well as its accomplishments. According to Stanley and Edwards (2005), the adequacy of accounting information systems is a proportion of success in meeting set-up goals. One may say that the adequacy of an accounting information system is determined by its ability to achieve its intended goal.

The effective use of accounting information systems, according to Mandala and Astika (2019), is the strength of the framework's application. The usage of accounting information systems in daily work and the satisfaction of clients is defined by Sačer and Oluić (2013).

Kareem et al. (2021) conducted a study that investigates the role of AIS in terms of operation support, knowledge support, regulatory support, and the role of KMC, including knowledge acquisition, knowledge transfer, and knowledge utilized to enhance organizational performance in Iraqi SMEs, and one of the main study findings revealed that AIS had a positive and significant influence on organizational performance.

On the other hand, Ahmad (2012) conducted research titled: Problems and Internal Control Issues in AIS from the Perspective of Jordanian Certified Public Accountants, in which a questionnaire was distributed to a sample of accountants in Jordanian organizations, considering the main disadvantages of the use accounting information systems' expert systems. The following were the primary downsides of implementing AIS: A) The possibility of hacking and viruses is a continual worry while using accounting information systems, but these issues may be avoided by taking basic measures and adopting defensive procedures. B) Power outages can be disastrous, but they can be prevented C) Data loss due to factors other than server damage, backup tapes damage, servers or computers, or backup tapes theft, deletion, etc., is a persistent source of concern that cannot be avoided. D) The expert systems in accounting information systems are excessively expensive, and it is only a redundant operation. E) Although the cost of expert systems in accounting information systems is substantial, the benefits of utilizing them outweigh the costs. F) Computer fraud, such as payments to bogus suppliers, theft of workers' and contractors' social security information, and so on, is unavoidable. G) Expert systems in accounting information systems typically need specific training courses for firm workers, which is prohibitively expensive in comparison to the benefits (Godfrey et al., 2010; Spathis & Ananiadis, 2005; Kanellou & Spathis, 2013; Ali et al., 2016a)

Numerous research has been conducted to identify the variables that contribute to the successful implementation of information systems. Among the variables investigated, top management support plays a substantial role in the task's outcome (Harash, 2015). According to some observers, senior management support is the most crucial factor in the framework's successful implementation (Hall, 2015). With other factors such as the quality of the system, as well as the systems users' capabilities cannot be neglected.

Borhan and Nafees (2018) investigated the influence of accounting information systems on the financial performance of selected Jordanian real estate firms. The study used a survey research approach and collected data through questionnaires from 175 workers from five Jordanian organizations. To examine the given data, the study applies linear regression statistics. The findings demonstrated that accounting information systems had a considerable influence on the financial performance of the organizations under examination.

Kashif (2018) assessed the financial performance of selected FMCG firms in India using an accounting information system. The study used a survey research methodology with 400 participants, and data were collected from 177 returned and valid questionnaires. The acquired data were analyzed using basic linear regression analysis,

and hypotheses were evaluated with a 95% confidence level. The study's findings indicated that accounting information systems had a considerable influence on the financial performance of selected FMCG firms in India.

Al-Dalaïen and Khan (2018) evaluated the influence of AIS on the financial performance of a sample of Jordanian real estate enterprises. A well-designed questionnaire was used to collect data from workers of the selected real estate businesses, which were Noor Capital, Jordan International Investment Company (JIIC).

Raed (2017) studied the influence of accounting information systems (AIS) on Jordanian bank success. A survey research design is used in the study. The study gathered information from 112 questionnaires distributed to Jordanian bank workers. To address the study hypotheses, correlations and multiple regressions were used. The findings demonstrated that accounting information systems have a substantial impact on the success of banks.

Ali et al. (2016b) examined how accounting information system (AIS) success variables affect organizational performance. In this study, four categories of AIS success characteristics were employed as performance determinants: service quality, information quality, data quality, and system quality. A structured questionnaire survey was used to obtain data from 273 Jordanian banking sector respondents. The PLS-SEM approach was used to analyze the obtained data. According to the findings, service quality, information quality, and system quality are the most important AIS success elements for improving organizational performance. According to the report, firms in the banking sector may improve their performance by adopting and applying AIS success characteristics.

2.1. Major Differences Between Manual and Automated Systems

Even though automated accounting systems are newer than manual accounting systems, they have already altered the accounting discipline to the point that it is hard to find a business that does not utilize some sort of automated accounting (Table 1).

1. Manual accounting refers to an accounting approach in which financial transactions are tracked with physical registers for journals and ledgers, vouchers, and account books. Automated accounting, on the other hand, refers to an accounting method that employs accounting software or a bundle to track a company's financial transactions.
2. In manual accounting, the exchange should be documented in a book with a single area, such as a journal daybook. The exchanges, on the other hand, are recorded as information in the redid data set in automated accounting.

3. In manual accounting, all the computations for the transactions, such as expansion, deduction, and so on, are done physically. Surprisingly, there is no necessity to do computations in automated accounting because the PC can readily complete the estimations.
4. In manual accounting, a single remaining portion is always included, with the accounts, to record and renew exchanges, which is tiresome and time-consuming. In automated accounting, on the other hand, when a transaction is entered, it is immediately updated in all of the accounts to which it pertains, making the cycle faster.
5. In manual accounting systems, if a mistake is made while entering and recording the transaction in the books of accounts, change passages can be used to obtain exact results. Change sections are also made to obey the "coordinating with the rule" principle; for example, the accounting period expenses should coordinate with the specific earnings. However, in automated accounting, when an agreement to coordinate with standards journals and vouchers is ready, modification passages are not passed for rectification of errors unless the error is a guideline error.
6. One benefit of automated accounting over manual accounting is that accounting records can be preserved and maintained, but it is hard to back up all the passages and financial statements in manual accounting.
7. In manual accounting, the preliminary equilibrium is set up only when it is needed; however, in automated accounting, a moment preliminary equilibrium is set up on a regular basis.
8. In a manual accounting system, the financial statement is prepared at the end of a period, such as a fiscal year. Under the automated accounting system, the financial statement is generated at the touch of a button.

2.2. Research Questions

1. Is there a relationship between a firm's top management commitment and the success of an accounting information system implementation?
2. Is there a relationship between accountants' competency and the success of an accounting information system implementation?
3. Is there a relationship between the adopted accounting systems quality and the success of an accounting information system implementation?
4. Does investing heavily in technology support the accounting information system implementation?

Table 1: The Following are the Main Differences Between the Two Systems (Susan Parcells, 2016)

Basis for Comparison	Manual Accounting	Automated Accounting
Recording	The recording is possible through the book of original entries.	The data content is recorded in a customized database.
Speed	Slow	Comparatively faster.
Adjusting entries	Made for correction of errors.	It cannot be made for the correction of errors.
Backup	NA	Entries can be saved and backed up
Trial Balance	Prepared when needed.	Instant trial balance is provided on daily basis.
Financial Statement	Prepared at the end of the period, or quarter.	It is provided at the click of a button.
Calculation	All the calculation is performed manually.	Only data input is required, the calculations are performed by a computer system.

3. Research Methodology

A survey was used to collect data for Trabulsi's (2018) study titled 'The Impact of Accounting Information Systems on Organizational Performance: The Context of Saudi's SMEs.' All employees of a Saudi SME were included in the study. The participants were chosen using a simple sampling procedure. There were 140 questionnaires distributed. A total of 137 questionnaires were found to be suitable for analysis (Table 2). The responses were categorized using a five-point Likert scale. On a two-stage method, measurement and structural model testing, Partial least squares (PLS) were used for the study analysis.

By examining if the composite reliability (CR) value is larger than 0.7, the average variance extracted (AVE) value is greater than 0.5, and Cronbach's alpha is greater than 0.6, it is possible to assess the measurement model's reliability, convergent validity, and discriminant validity (Hair et al., 2006). While the AVE values ranged from 0.60 to 0.80, the CR values ranged from 0.88 to 0.92. These numbers are above the allowed range of 0.70 and 0.50, demonstrating the construct's dependability. To guarantee convergent validity, the loading factor for each item was also computed, which shows that the scale has strong convergent validity. The statistical significance of route coefficients was assessed using the bootstrapping approach in smart PLS software (Table 3), the study's PLS model, and all research variables' p values. Structural Model 7.2 According to the analysis findings, the factor (using AIS) significantly affects organizational performance ($t = 9.29$, $p \leq 0.001$).

The use of AIS explained 0.47 percent of the variance in organizational performance ($p \leq 0.001$). Using AIS has a substantial positive impact on increasing quality with values ($t = 8.64$, $p \leq 0.001$) and can explain 0.37 percent of the variation in improving quality. Furthermore, with

Table 2: Sample Characteristics

Educational Degree	17 (12.4)
Bachelor	73 (53.3)
Masters	39 (28.5)
PhD	8 (5.8)
Less Than 5 Years Experience	39 (28.5)
11–15 Years	57 (41.6)
More Than 15 Years Experience	41 (29.9)
Total	137 (100)

t values (7.05, 9.48) and ($p \leq 0.001$), employing AIS has a considerable favorable influence on cost reduction and effective decision making. Using AIS can explain 0.45 percent of the variance in cost reduction and 0.29 percent of the variance in effective decision-making. These findings are summarized in Table 4.

4. Findings and Conclusion

Many firms utilize accounting information systems to automate and integrate their corporate processes, efficiency, and competitive advantages. The purpose of this study is to examine the impact of accounting information systems AIS on organizational performance. It is expected that the technological component of accounting information systems would have the greatest influence on organizations, allowing them to easily track, record, and publish financial and accounting data. Starting with an introduction to the subject, where the essence of AIS advancement is discussed briefly, starting with the technological advancements the business world was, and still witnessing firsthand, as well as

Table 3: Composite Reliability Assessment Results

Constructs	Items	Factor Loading	Mean ± SD	CR	Cronbach's α	AVE
Using of AIS	AIS1	0.813	0.673 ± 4.467	0.881	0.828	0.605
	AIS2	0.792	0.82 ± 3.46			
	AIS3	0.819	0.685 ± 4.204			
	AIS4	0.852	0.681 ± 4.248			
	AIS5	0.852	0.685 ± 4.38			
Cost Reduction	Cost1	0.788	0.87 ± 3.956	0.883	0.824	0.655
	Cost2	0.862	0.733 ± 4.058			
	Cost3	0.833	0.778 ± 3.964			
	Cost4	0.75	0.755 ± 3.954			
Improving Quality	QL1	0.84	0.686 ± 4.182	0.925	0.891	0.754
	QL2	0.833	0.784 ± 3.883			
	QL3	0.912	0.758 ± 4.036			
	QL4	0.887	0.724 ± 4.044			
Effective Decision Making	1-Dec	0.85	0.853 ± 3.847	0.923	0.874	0.8
	2-Dec	0.908	0.731 ± 3.832			
	3-Dec	0.924	0.749 ± 3.788			

Table 4: Hypothesis Testing Results

Path (Hypothesis)	t	P	R ²	Results
Using of AIS → Organizational performance (total effect) H1	9.29	***	0.47	Supported
Using of AIS → Improving quality H1.1	8.64	***	0.37	Supported
Using of AIS → Cost reduction H1.2	7.05	***	0.45	Supported
Using of AIS → Effective decision-making H1.3	9.48	***	0.29	Supported

an emphasis on the importance of adopting and investing in IT solutions for businesses, to compete and thrive in today's business world.

Followed by a review of literature where different viewpoints are stated and reviewed, but it can be noticed that it is well agreed upon in the literature review that adopting an AIS is beneficial for firms on many levels, especially organizational performance, regardless of the nature of work, as long as a firm has monetary, and accounting processes, it will certainly benefit from adopting an AIS. Also, in the literature review, the benefits of implementing an AIS, as well as major differences between automated, and manual systems, are stated.

One of the main benefits of adopting an AIS in a firm is speed, the speed of processes of establishing and correcting data if needed. Then, four key questions are asked regarding AIS implementation; three of the four questions concern

the efficacy of the AIS implementation, with three essential components in mind: top management commitment, the competencies of accountants (AIS users), and the quality of the adopted AIS itself. The fourth question, on the other hand, takes a broader perspective, asking whether spending more on technological advances leads to better AIS adoption for enterprises.

Regarding top management commitment, certainly, there is a substantial correlation between management commitments and the successful implementation of accounting information systems, where top management must provide guidance and support to the involved parties, in addition to continuous monitoring and control, for the implementation to meet the expected goals. As for the quality of the adopted AIS, it depends on several factors, such as the size of the firm, and the nature of work, but to be precise, usually, there is no relationship between the quality

of the adopted system and the implementation process, where it is certain that the quality of the adopted system affects the organizational performance, the adopted system secures data efficiently, with minimum redundancy, and can perform the expected tasks on the highest level possible, AIS main tasks involve the collection, storage, and processing of financial and accounting data used by internal users to report information to investors, creditors, and tax authorities. Regarding the users/accountants' competencies, defiantly, it has a significant impact on the AIS success; three main users/accountants' skills variables are labeled Technical, Human, and Conceptual skills (Al Khasabah et al., 2022). As well as two user knowledge components, termed user knowledge and experience, have all contributed to AIS's success.

Furthermore, the findings revealed that user Experience and technical skills, rather than absolute levels of user skills such as human skills, conceptual skills, and user knowledge, contribute more to AIS success. And the fourth question of the study in hand inquired if the more a firm invests in technology, the more successful the AIS implementation is? In short, yes, accounting departments have reaped enormous gains because of technological advancements. IT networks and computer systems have reduced the time it takes accountants to produce and deliver financial information. This means that AIS is a form of technological advancement that the business world is witnessing closely. In the fourth section of the study, the method used in this paper is a study by Trabulsi (2018) titled "The Impact of Accounting Information Systems on Organizational Performance: The Context of Saudi's SMEs," where the study suggests that AIS should receive more attention as a tool for enhancing organizational performance.

The author believes that firms need to invest in technology, as well as an effective AIS, to compete in today's business world, which is highly competitive; such belief is like the previously reviewed literature, where Borhan and Nafees (2018) concluded in their study that those accounting information systems had a considerable influence on the performance of the organizations. Also, Raed (2017) study findings demonstrated that accounting information systems have a substantial impact on the success of banks. The findings of this study agree with most of the literature, which concludes that AIS adoption impacts firms' organizational performance positively.

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