

Uncertain Supply Chain Management

homepage: www.GrowingScience.com/uscm**Unveiling the impact of CEO characteristics and technological factors on management accounting information system use****Ishraq Bataineh^a, Abdalwali Lutfi^{b,c,d,e*}, Hamza Alqudah^{f,g*} and Thamir Al Barrak^c**^a*Tunku Puteri Intan Safinaz School of Accountancy, College of Business, Universiti Utara Malaysia, Malaysia*^b*College of Business Administration, The University of Kalba (UKB), Kalba, Sharjah, 11115, United Arab Emirates*^c*Department of Accounting, College of Business, King Faisal University, Al-Ahsa 31982, Saudi Arabia*^d*Applied Science Research Center, Applied Science Private University, Amman, Jordan*^e*MEU Research Unit, Middle East University, Amman, Jordan*^f*Jadara University Research Center, Jadara University, Jordan*^g*Accounting Department, Faculty of Administrative and Financial Sciences, Irbid National University, Irbid 2600, Jordan***ABSTRACT***Article history:*

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The objective of the current study is to explore how certain attributes of chief executive officers (CEOs), such as their innovativeness, knowledge of information systems (IS), and trust in technology and technological factors (Compatibility, relative advantage, and complexity) on the utilization of accounting information systems (AIS) in companies across various industries in Jordan. The research gathered data through a structured questionnaire, which included a 7-point scale. The respondents were CEO/owner of small, medium, and large enterprises (SMEs) in Jordan. A total of 315 valid responses were analyzed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) technique. The findings indicated a significant and positive correlation between complexity, compatibility, CEOs trust in technologies, CEOs information system (IS) knowledge, and the utilization of AIS. However, CEO innovativeness and relative advantage have an insignificant impact on AIS use. The present study is the first to examine CEO characteristics in the AIS context. The practical and theoretical implications derived from the empirical findings of this study offer valuable insights for managers and practitioners. These insights aim to enhance their understanding of the fundamental factors crucial for the successful implementation of AIS in companies, ultimately contributing to improved firm performance.

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1. Introduction

All types of business entities, including non-profit organizations, rely on accounting information to support various stakeholders, including management and external parties like agencies, investors, banks, and government, in achieving specific objectives during decision-making (Thuan et al., 2022; Lutfi et al., 2022; Saad et al., 2022). Precise accounting information forms the basis for aiding executives in making informed professional choices and decisions, consistently guiding appropriate operations, efficiently managing the firm, and establishing robust internal controls (Monteiro & Cepêda 2021; Saad et al., 2022). Particularly in the current era, such as Information Technology (IT) 4.0, characterized by digital technology and universal connectivity through the Internet, everything is interlinked (Akter et al., 2024; Kureljusic, & Karger, 2023). The 4 Industrial Revolution represents the shift toward data exchange and automation in manufacturing information technology (IT)/innovations and daily life (Shehadeh et al., 2024)

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Utilizing IT facilitates the execution of tasks, cost savings, and the efficient management of organizations, ensuring the provision of timely and reliable information (Mansour et al., 2024; Lutfi, 2022). Consequently, the effective company and management of a firm now necessitate the integration of current IT (Ashal et al., 2024). A prime example of sophisticated IT tools is the accounting information system (AIS), designed to process accounting data and effectively support managerial decision-making (Kristanti et al., 2024; Thuan et al., 2022). As highlighted by Kurniati and Suryanto (2021), AIS encompasses various forms, records, and reports organized to supply business information essential for an enterprise's managing process through computerized accounting software packages.

Leveraging AIS for automating diverse business operations offers numerous advantages to the industry, such as saving time, handling large transaction volumes, reducing errors, and furnishing precise and timely report to support well-informed decisions-making (Wijayanti et al., 2024; Marei, 2023a). In this vein, Hassan et al., (2021) and Idris and Mohammed (2016) emphasized that successful companies must implement AIS to guarantee their sustainability and survival in an progressively competitiveness environment and expand the efficiency and competencies of their business processes.

Companies in Jordan across diverse sectors have adopted Accounting Information Systems (AIS) for their accounting and managerial needs. The local accounting software market has shown significant activity in recent years (Pham & Vu, 2024). Currently, there are over 130 legally recognized accounting software providers. Furthermore, with the evolution of the digital economy, the emergence of new business structures and payment methods, and the increasing complexity and diversity of financial transactions, the accounting record system mandated and revised by the state undergoes continuous updates to remain relevant and aligned with economic development (Idris & Mohammed, 2016; Mojtahedi, & Zhou, 2024). Moreover, the effective implementation of AIS is vital to all organizations because it assists them to reduce costs, upsurge the income/revenues over time, build competitive advantages, and foster productivity (Lutfi et al., 2022).

Despite the positive trend in development, governmental support, and the advantages offered by AIS, the adoption rate of AIS within Jordanian companies remains comparatively low in comparison to other nations in the same region (Lutfi et al., 2022). To illustrate, Idris & Mohammed (2016) noted that a mere 14% of Jordanian firms have incorporated AIS in their business reporting. Similarly, research by Lutfi (2022) and Idris, and Mohamad (2017), consistently indicates a limited adoption of AIS among Jordanian firms. This finding aligns with the Statistics Department in Jordan's (2016) report, stating that only 38.1% of Jordanian firms utilize AIS. One contributing factor is insufficient employee training, with a mere 17.7% of establishments in Jordan providing training to their staff on computer programs and software applications, including human resources planning and enterprise resource planning (ERP) (Department of Statistics Jordan, 2016).

Furthermore, numerous global research studies have explored the utilization of Accounting Information Systems (AIS). However, there is a distinct lack of specific research investigating the correlation between CEO characteristics and technological factors in relation to AIS usage, especially in the current scenario. In Jordan, there is much research on the implementation of AIS, although they are relatively scarce. Most of these research focus on Technological, Organizational, and Environmental (TOE) antecedents that affect the implementation, adoption, or usage of AIS in small and medium-sized businesses. These factors encompass technological considerations, such as relative advantage, compatibility, and complexity; organizational factors, including readiness of organization and employees' information technology competences; and environment factors like competition forces and regulatory support (Pereira et al., 2024; Lutfi et al.2022). Additionally, there is a study specifically addressing the application of AIS in enterprises. Noteworthy international studies include an investigation into the variables affecting the effectiveness of AISs in the Pakistan context (Kouser et al., 2011). Based on the results, two pivotal factors that drive effectiveness of AISs are manager accounting practices and manager knowledge involvement in AISs usage.

Furthermore, Ali, Shaari, Rahman, and Wan Nur Syahida Ismail. (2012) investigated the intentions of SMEs regarding the continued use of AIS. The study findings reveal that relative advantage serves as the most significant predictor of attitude regarding AISs and system satisfaction, the two factors play a crucial role in mediating the intention to persist in using AIS. Similarly, a study focusing on the implementation of AIS in SMEs in Vietnam, utilizing the fundamental mechanisms of AIS, was conducted by Tu (2020). The outcomes indicate that 3 factors exert the most substantial influence on the usage of AISs: individuals, IT infrastructure, and internal control systems. Overall, there is currently no research specifically examining the relationship between CEO characteristics and technological factors in the context of AIS use in Jordan (Lutfi et al., 2022). Additionally, there are limited local works on the drivers that affect the use of AISs in Jordan.

Consequently, this study aims to address existing research gaps by pinpointing the factors that influence the utilization of Accounting Information Systems (AIS). The investigation is conducted within the context of Jordan, a developing nation. In this setting, CEOs play a pivotal role in organizations, with CEO characteristics emerging as a significant factor capable of influencing the adoption of Information Technology (IT) (Ezzaouia & Bulchand-Gidumal 2020; Safari et al., 2015; Thong 1999; Thong & Yap 1996). As indicated in the literature, CEOs who exhibit innovativeness, possess knowledge in IT, and express trust in information technology are more inclined to adopt IT, including AIS (Alkhater et al., 2018; Mahliza 2020; Ramayah et al., 2016). Similarly, Tornatzky and Fleischer's (1990) meta-analysis identified relative advantage, compatibility, and complexity as the most consistently relevant and positively significant attributes, all of which are explored in the present study.

Hence, this study investigates the impact of CEOs features—specifically, CEOs innovativeness, knowledge of CEOs information system (IS), and CEOs trust in technologies—and technological factors, including relative advantage, compatibility, and complexity, on the utilization of Accounting Information Systems (AIS) within Jordanian companies spanning diverse industrial sectors. The study incorporates the control impact of firm size on these relationships. Furthermore, the research contributes significantly to theory by integrating the TOE model and Diffusion of Innovations theory to construct a comprehensive research model. The study employs PLS-SEM to assess and identify the factors that influence AIS utilization in Jordanian companies.

Hence, the current work aims to address this void, contributing to the existing body of knowledge and providing valuable insights for future scholars in the Information Systems field. In terms of practical implications, this research offers benefits to practitioners, including CEOs and governmental agencies, assisting them in decision-making and the formulation of improved strategies for the utilization of AIS.

The subsequent sections of the research are structured as follows: Section 2 encompasses an in-depth exploration of the pertinent literature and the theoretical framework development. Section 3 outlines the design of the research and its components. The analysis and results for the identified hypotheses are detailed in Section 4. Finally, Section 5 concludes the study, highlighting its limitations.

2. Related Works

2.1. CEO innovativeness and Usage of AIS

CEO innovativeness is defined as the extent to which a CEO can introduce novel ideas and initiate innovative applications of Information Technology (IT), such as AIS, within the company (Thong & Yap, 1995). Numerous studies consistently affirm that CEOs innovativeness's exhibits a significant correlation with the implementation of innovation in recent years. Notably, Fogarty and Armstrong (2009), Yuniarty et al., (2019), Thong (1999), and Thong and Yap (1995) have all established a significantly positive relationship between CEO innovativeness and the adoption of IT/IS. Additionally, Ramayah et al., (2016) emphasized the influential role of CEOs in Malaysian Small and Medium-sized Enterprises (SMEs), while Thong (1999) found a positive correlation between CEO innovativeness and IS adoption in Singapore. As innovators, CEOs are characterized by their willingness to take risks, openness to new technologies, unique perspectives, and a consistent commitment to allocating funds and resources for innovative technologies (Jantan et al., 2001). Therefore, this study posits that higher CEO innovativeness increases the likelihood of AIS usage. Accordingly, the hypothesis is formulated as follows:

Hypothesis 1. *CEO innovativeness has a positive and significant influence on the usage of AIS in Jordanian firms.*

2.2. CEO IS Knowledge and Use of AIS

Prior research has indicated that the knowledge of IT possessed by CEOs or managerial staff is crucial in facilitating the adoption of innovation at the organizational level. (Mahliza 2020; Sharifat 2018; Thong 1999; Thong & Yap 1995). According to Thong (1999), CEOs' IS knowledge remains a significant factor in adopting/using technology in firms. In the present study, IS knowledge of CEOs means the level to which the CEOs have experience and knowledge of IT applications and accounting techniques to use IT (e.g., AIS) in a company (Thong & Yap, 1995). Moreover, Ramayah et al., (2016) stated that the deeper the CEO's IT knowledge and innovativeness, the greater the likelihood of website technology continuance. Moreover, within the domain of Accounting Information Systems (AIS), numerous investigations have highlighted the notable impact of CEOs' familiarity with AIS implementation (Lutfi et al., 2022). This study posits that CEOs with a higher level of Information Systems/Information Technology (IS/IT) proficiency and a better understanding of the advantages offered by AIS are more inclined to adopt its use. Therefore, the hypothesis is formulated as follows:

Hypothesis 2. *CEO IS knowledge has a positive and significant impact on the use of AIS in Jordanian firms.*

2.3. CEO Trust in Technology and Use of AIS

Literature reveals that CEOs' trust in technologies significantly and positively influences the adopting/using technologies on the firms (Kubota, & Okuda, 2023; Khalil and Zainuddin 2015; Safari et al., 2015). This suggests that the confidence that CEOs have in technology could accelerate the adoption and utilization of AIS. Additionally, when making decisions regarding the use and adoption of Information Systems/technology, CEOs' trust in technology plays a crucial role (Sofyani et al., 2024). In the current investigation, CEOs trust in technologies encompasses the integrity, reliability, and competences of IT application for utilizing AIS within the company (Khalil and Zainuddin 2015). Innovations that are successfully developed may be linked to trust in technology among managers, professionals, and employees. Additionally, the CEOs' trust in technology significantly impacted AIS in an organization (Khalil and Zainuddin 2015). Hence, this study anticipates that the trust that CEOs place in technology will ease and accelerate the adoption and utilization of AIS. Consequently, the hypothesis is posited as follows:

Hypothesis 3. *CEOs' trust in technologies have a positive and significant influence on the usage of AIS in Jordanian firms.*

2.4. Relative Advantage and Use of AIS

Technological factors encompass the technical attributes to be utilized (Hinderson et al., 2012). Roger (2014) suggests that innovations possess characteristics that can impact their adoption. This notion is elucidated by the concept of relative advantage, denoting the extent to which an innovation (e.g., AIS) is perceived as offering greater benefits compared to alternative solutions (Rogers 2014). In the context of AIS, its distinctive features set it apart from other Information System (IS) technologies, enabling the collection, storage, and processing of valuable financial and accounting data essential for managerial decision-making (Khaeri and Baredwan 2015). Moreover, previous studies on relative advantage are considered as a significant predictor in IS/IT use (Lutfi et al., 2022). Consequently, it is considered a critical factor in AIS use studies, specifically for Jordan. The discussion leads to the following hypothesis:

Hypothesis 4. *Relative advantage has a positive significant impact on the use of AIS in Jordanian firms.*

2.5. Compatibility and Use of AIS

Compatibility denotes the degree to which an innovation/technology is seeming as consistent with the existing prior experiences, values, and the needs of prospective users (Roger 2014). With regard to technologies adoption, innovations are more likely to be implemented/used if it is even with the business's standing ITs objectives, infrastructure, and business operations (Hameed and Counsell 2014; Oliveira et al., 2014). Concerning AIS, compatibility refers to the resemblance between existing processes and the implementation and usage of AIS. The effective use and implementation of technology demand new skills and approaches, and any lack of compatibility could hinder technological adoption and innovation (Lutfi et al., 2022). Furthermore, compatibility is considered the most influential factor in technological adoption compared to other elements affecting innovation (Grandon & Pearson 2004; Zahu et al., 2006). Hence, it could be anticipated that companies in Jordan are likely to use AIS more smoothly and diffuse it faster if that AIS possesses the compatibility attribute. Therefore, the current study proposed the following hypothesis:

Hypothesis 5. *Compatibility has a positive significant impact on the use of AIS in Jordanian firms.*

2.6. Complexity and Use of AIS

Complexity is referred to the degree to which AIS is perceived as relatively difficult to understand and use (Rogers 2014). The previous literature depicts that complexity is a substantial factor in adopting/using an innovation (Kandil et al., 2018), thereby, decision-makers are in a dilemma about adopting the innovation (Ghobakhloo et al., 2011; Lutfi et al., 2022). In addition, compared to other technological elements of innovations, complexity links negatively with the implementation of new technologies (Zhu et al., 2023). Furthermore, recent literature found that complexity has a significant and negative impact on the adoption and use of innovation in organizations (Maroufkhani et al., 2020). Hence, if firms perceive that adoption or use of AIS requires considerable effort, they are less likely to adopt and use it. Thus, it is necessary to explore the perceived complexity and the usage of AIS.

Hypothesis 6. *Complexity has a negative significant impact on the use of AIS in Jordanian firms.*

2.7. Control Variable

In this research, we have included firm size (FS) as a control variable (e.g., number of employees). The importance of firm size is frequently emphasized in literature related to the adoption and usage of (IS/IT) (Lutfi et al., 2022). Previous research has consistently recognized firm size as a noteworthy factor influencing the adoption of innovations (Mansour et al., 2024; García-Moreno et al., 2018; Otali et al., 2020). In addition, it is often considered that larger firms have higher resources, such as the availability of internal IT expertise (Vatanasakdakul et al., 2017; Young and Poon 2013); consequently, they are more likely to accomplish successful innovations implementation. In addition, Kamil and Rosli (2016) suggested that firm size is a potential factor that may affect AIS adoption and should be investigated in future studies. While earlier studies on innovation primarily focused on assessing firm size as a factor in the adoption process, a restricted number of studies on Information Technology (IT) adoption have considered firm size as a control variable (Kwarteng and Aveh 2018; Vatanasakdakul et al., 2017). Consequently, firms' size is incorporated as a control factor for the utilization of AIS.

2.8. Theoretical Model

The theoretical underpinning of the present work is grounded in the fundamental tenets of the Diffusion of Innovation (DOI) theory as articulated by Rogers in 2014. Rogers defined innovation as an idea, practice, or object that is perceived to be new by an individual or another unit of adoption. While diffusion refers to the process by which an innovation is communicated through certain channels over time among the members of a social system (Rogers, 2014). Likewise, Rogers elucidated that the spread of innovation is frequently connected to endeavors aimed at disseminating innovation through effective communication channels by attentive individuals. This theory has substantiated studies on the adoption of technology (Mohtaramzadeh et al., 2018). Similarly, AIS have been implemented in businesses to optimize efficiency, ultimately seeking a competitive edge over competitors. Therefore, in the current study based on DOI theory, technological factors towards AIS use are supported by DOI theory.

Moreover, the TOE framework has been employed in various studies pertaining to technological innovation and the adoption and usage of technology. Examples include studies on the adoption of electronic data interchange (EDI), the adoption of e-markets, and the adoption of enterprise resource planning (ERP) systems (Kuan and Chau 2001; Duan et al., 2012; Ramdani et al., 2013). However, the present study focuses on relative advantage (RA), compatibility (CO), and complexity (COMPL) as technological factors. Tornatzky and Fleischer's (1990) meta-analysis found that the attributes of relative advantage, compatibility, and complexity were consistently relevant and significant, and these are also examined in the present study. Furthermore, this current research expands upon the Technology-Organization-Environment (TOE) framework by introducing CEO characteristics, as highlighted by Thong (1999) and Thong and Yap (1995). The CEO of a company is directly engaged in the decision-making process for adopting IT because their characteristics play a crucial role in determining IT adoption. The CEO characteristics considered in this study's conceptualization encompass CEO Information Systems (IS) knowledge, CEO innovativeness, and CEO trust in technology.

Theoretically, earlier scholars have explored the adoption of AI (Schiavi et al., 2024), the adoption of e-accounting (Lutfi et al., 2022), and the usage of e-government (Year et al., 2020). Additionally, there is a suggestion that further research is needed on the adoption and usage of AIS, particularly in developing countries (Lutfi 2022). Furthermore, limited attention has been given to investigating the technological dimensions of the TOE model and CEO characteristics. Consequently, the identified practical and theoretical issues warrant additional investigation, and this study contributes to the existing knowledge by addressing research questions within developing countries, specifically in companies based in Jordan. The theoretical framework of the study encompasses six independent variables, one dependent variable, and one control variable, as illustrated in Fig. 1.

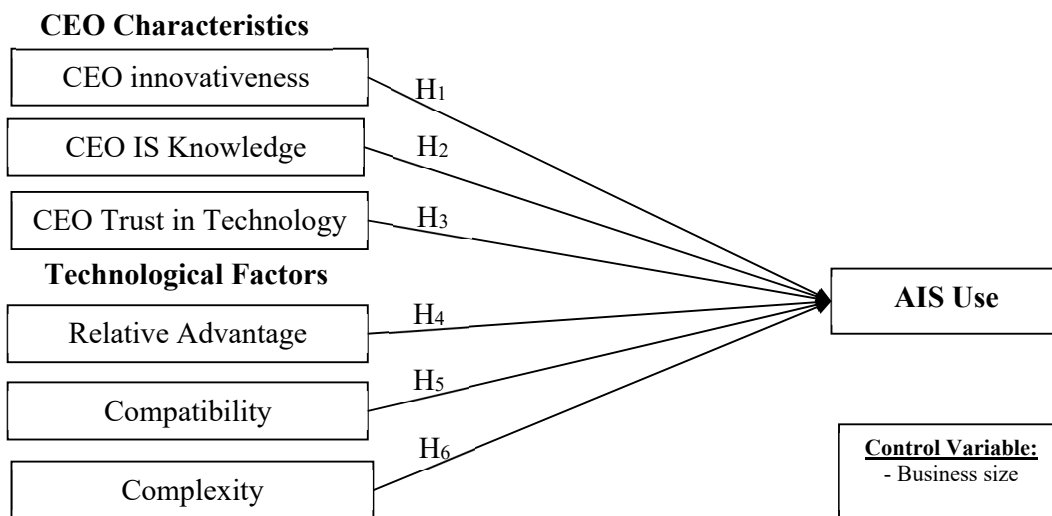


Fig. 1. Theoretical framework

3. Methodology

3.1. Research Design, Population, and Sampling Technique

The design of the research amalgamates various parts into logical, coherent, and efficient methods. By incorporating overarching strategies for data measurement and analysis, it guarantees a credible, effective, and organized approach to address study problems and respond to studies questions. Moreover, the study design is structured to maximize the accuracy of the answers to research questions based on the gathered data (Kumar, 2019). In the current research, a cross-section survey methodology was employed. Survey is employed to analyze the relationships among different variables within the social system, encompassing associations, corporations, and communities. Additionally, the unit of analysis pertains to the entity under scrutiny in research (Sekaran & Bougi, 2016). This entity could be a household, an organization, or an individual, depending on the focus of the scholar's investigation. In this research, the organization serves as the unit of analysis, with CEOs of firms acting as respondents. The rationale behind selecting CEOs is their pivotal role as primary decision-makers responsible for determining the use of AIS in their respective companies (Thoang 1999; Thoang & Yaap 1995).

The questionnaire employed in the current study was derived from prior research. The scale for assessing CEO innovativeness was adapted from Thong and Yap (1995). Similarly, the measurement of CEO Information Systems (IS) knowledge utilized a five-item scale from Thong and Yap (1995), and CEO trust in technology was gauged using the questionnaire developed by Khalil and Zainuddin (2015). The questionnaire concerning relative advantage was adapted from Ifinedo (2011), while compatibility utilized a five-item scale from Teo and Pian (2003). Additionally, complexity was measured using

questionnaires from Ifinedo (2011) and Premkumar and Roberts (1999). In addition, we measured the control variable (firm size) based on the number of employees in the targeted firms. Lastly, twelve items were adapted from the studies conducted by Ali et al., (2012) and Idris and Mohammed. (2016) to measure the use of AIS.

The current research categorizes three sectors (Manufacturing; Wholesale and Retail Trade, Repair of Motor Vehicle and Motorcycle; and Accommodation and Food Service) in Jordan into small, medium, and large-sized industries, determined by their involvement in the country's exports through a proportionate stratified random sampling method. According to data from the Chambers of Industry and Commerce in Jordan (2021), the total population of small, medium, and large industries is 9,473, as illustrated in Table 1 below:

Table 1

Study population

Population	Nu of Enterprises
Manufacturing sector	3,457
Retail and Wholesale Trade, Motor Vehicle and Motorcycle Repair	4,506
Food Service and Accommodation Activities	1,510
Total	9,473

Moreover, 368 companies were chosen according to the sample size table provided by Krejcie and Morgan (1970). To collect the research data, a total of 700 survey questionnaires were sent to the enterprises CEO of chosen industry as illustrated in Table 2:

Table 2

The calculation of sample size (sampling technique)

strata	Proportionate	Proportionate Sample from Small companies	Proportionate Sample from medium companies	Proportionate Sample from large companies	Sample Size (S)
Manufacturing sector	$3457/9473=0.364$	$2885/3457=0.834$ $0.834*255=213$	$265/3457=0.076$ $0.076*255=19$	$307/3457=0.088$ $0.088*255=23$	$700*0.364=255$
Wholesale and retail trade, repair of motor vehicle and motorcycle	$4506/9473=0.475$	$4264/4506=0.946$ $0.946*333=315$	$128/4506=0.028$ $0.028*333=9$	$114/4506=0.025$ $0.025*333=9$	$700*0.475=333$
Accommodation and food service activities	$1510/9473=0.159$	$1304/1510=0.863$ $0.863*112= 97$	$142/1510=0.094$ $0.094*112= 10$	$64/1510=0.042$ $0.042*112= 5$	$700*0.159=112$
Total					700

3.2. Technique of the Data Collection

The researcher has collected this study data using a survey questionnaire from the CEOs of targeted companies from different industries in Jordan that are using AIS. The survey is created with a seven point Likert type scale, anchored to “Strongly disagree” (1) and “Strongly agree” (7) except for AIS use which deliberate applying a Likert-scale of 7 scales ranging from “Not used at all” (1) and “Used very extensively” (7). All questions were structured to explore the mechanisms which will affect Jordanian companies of AIS use. Specifically, data for this research was gathered over a span of three months, commencing in June 2021. The questionnaire was managed via Google Form, and the survey was distributed through emails or WhatsApp numbers, with contact details obtained from the Jordanian industry and commerce chamber. As mentioned in Table 3, the researchers administered 700 questionnaires, out of which 315 were filled and returned and utilized for the analysis representing a 45% usable response rate. Details are in Table 3 below.

Table 3

Survey distribution and responses rate.

Questionnaires	Responses Rate
Number of Survey Distributed	700
Survey received	315
Received and valid survey	315
Valid Survey Percentage	45%

4. Analysis and Results

The current research utilized SPSS 23 for assessing the descriptive statistics of the work. Likewise, for inferential statistics, SEM technique was applied, employing PLS- 3.3.2 for the analysis of data, as outlined by Sarstedt et al., (2019).

4.1. Participants Profile

Table 4 illustrates a gender breakdown among respondents', with a response rate of 85.7% for male respondents and 14.3% for female respondents in the demographic analysis. Regarding the age distribution of CEOs in Jordanian firms, the data reveals that 31.1% of the respondents fall within the age range of 40–49 years. Finally, the data on the "Experience of using AIS" confirms that a significant proportion of participating CEOs, with experience in using AIS, fall into the category of 6 to 10 years.

Table 4
Demographic statistics.

	Frequency	Percent %
Gender		
Males	270	85.7
Females	45	14.3
Age-Group		
Under 30	52	16.5
30 – 39	96	30.5
40 – 49	98	31.1
50 and above	69	21.9
Experience Using AIS		
2 years or less	52	16.5
3 - 5 year	70	22.2
6 - 10 year	101	32.1
Over 10 years	92	29.2

4.2. Descriptive Analysis of The Constructs

The descriptive statistics presented in Table 5 show the computation of scores for mean, minimum, maximum, and standard deviation values on a Likert scale spanning from 1 (Strongly disagree) to 7 (Strongly agree). Therefore, the mean values observed range from 2.11 to 5.57, and the standard deviation values range from 0.85 to 1.60. Moreover, Cronbach’s alpha results are in line with the standard values, i.e., at least 0.65 is considered average reliability, and 0.70 or higher indicates that the instrument has a better reliability standard (Hair et al., 2014; Sekaran and Bougie 2016).

Table 5
Descriptive statistics and Cronbach’s alpha.

	Min	Max	Mean	SD	Cronbach’s Alpha
AIS use	1	7	5.568	1.273	.947
CEO innovativeness	1	7	2.489	1.117	.762
CEO IS knowledge	2	7	4.898	.853	.813
CEO trust in technology	1	7	5.563	1.149	.889
Relative advantage	1	7	2.111	.989	.873
Compatibility	1	7	5.638	1.016	.865
Complexity	1	7	3.715	1.601	.923

4.3. Assessment of Measurement Model

The present research examined the validity and internal consistency reliability of the model to evaluate the outer model, also known as the measurement model (Hair et al., 2017) and it is shown in Fig. 2.

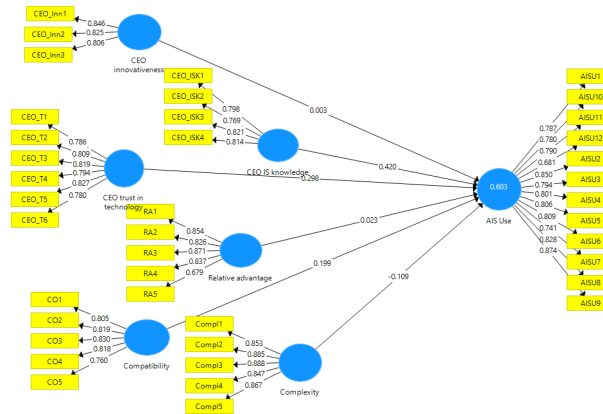


Fig. 2. The PLS algorithm of the measurement model

4.3.1. Internal Consistency Reliability and Convergent Validity

The composite reliability (CR) of the model was tested to measure the internal consistency reliability. Table 6 showed that all values are above .60, which fulfilled the criteria (Sarstedt et al., 2019). Likewise, convergent validity is elucidated by Hair et al., (2017) as the degree to which a latent construct explains the variance of its indicators. Moreover, Table 6 shows that 50% of each variance is attained by each construct (i.e., AVE is equal to and greater than 0.50), which is above the threshold value given by Hair et al., (2017).

Table 6
Reliability and validity of the constructs

Construct	Items	loading	Composite Reliability (CR)	Average Variance Extracted (AVE)
CEO innovativeness	CEO-Inn1	.846	.865	.682
	CEO-Inn2	.825		
	CEO-Inn3	.806		
CEO IS Knowledge	CEO-ISk1	.798	.877	.641
	CEO-ISk2	.769		
	CEO-ISk3	.821		
	CEO-ISk4	.814		
CEO trust in Technology	CEO-T1	.786	.916	.644
	CEO-T2	.809		
	CEO-T3	.819		
	CEO-T4	.794		
	CEO-T5	.827		
	CEO-T6	.780		
Relative Advantage	RA1	.854	.908	.666
	RA2	.826		
	RA3	.871		
	RA4	.837		
	RA5	.679		
Compatibility	CO1	.805	.903	.651
	CO2	.819		
	CO3	.830		
	CO4	.818		
	CO5	.760		
Complexity	Comp1	.853	.939	.753
	Comp2	.885		
	Comp3	.888		
	Comp4	.847		
	Comp5	.867		
AIS Use	AISU1	.787	.954	.634
	AISU2	.850		
	AISU3	.794		
	AISU4	.801		
	AISU5	.806		
	AISU6	.809		
	AISU7	.741		
	AISU8	.828		
	AISU9	.874		
	AISU10	.780		
	AISU11	.790		
	AISU12	.681		

4.3.2. Discriminant Validity

The square root of AVE given by Fornell and Larcker (1981) defines discriminating validity. Furthermore, Fornell and Larcker (1981) propose that the value of the AVE square root should be greater than the latent variables, which indicates a discriminating value. Table 7 revealed that all the diagonal values are greater than the other latent variable values. Likewise, the second criterion is to measure the validity of the constructs provided by Gold et al., (2001) and Kline (2015), including the two commonly used parameters with the cutoff points HTMT.85 and HTMT.90, respectively, to evaluate the HTMT values. The values shown in Table 8 are less than the threshold values.

Table 7
Discriminant validity matrix (Fornell-Larcker Criterion).

	AIS Use	CEO IS knowledge	CEO innovativeness	CEO trust in technology	Compatibility	Complexity	Relative Advantage
AIS Use	.796						
CEO IS knowledge	.685	.801					
CEO innovativeness	-.342	-.317	.826				
CEO trust in technology	.667	.611	-.460	.803			
Compatibility	.547	.447	-.347	.577	.807		
Complexity	-.155	-.034	.102	-.088	-.015	.868	
Relative Advantage	-.362	-.392	.258	-.439	-.515	-.111	0.816

4.4. Structure Model

After the measurement model, the next move was towards the structural model assessment. As discussed by Sarstedt et al., (2019), inner modelling is given in a structural model by considering path coefficients and t-values of direct relationships. In

addition, Hair et al., (2017) suggested that the t-value should be greater than 1.96 to decide the significant relationship and further used in decision making on the above-proposed hypotheses. Fig. 3 shows the structural model of the study.

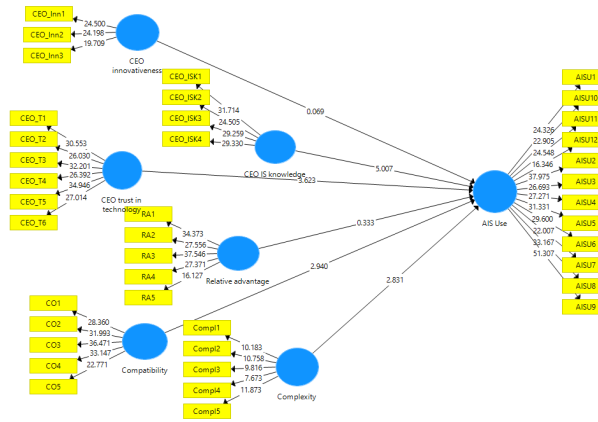


Fig. 3. Assessment of structure model.

4.4.1. Assessment of Structural Model

Table 8 summarizes the hypotheses testing results, where the hypotheses were supported to have a t-value greater than 1.96. Therefore, four (04) out of the six (06) direct relationship hypotheses were supported in the current study. The second direct hypothesis is not supported; the direct impact from CEO innovativeness (CEO-INN) to AIS use (AISU) is not positively significant (β value = .003; $T = .069$; $p > .05$). Likewise, the result demonstrates that the first hypothesis, which is CEO IS knowledge (CEO-ISK), has a significant positive impact on the use of AIS (AISU) ($\beta = .420$; $T = 5.007$; $p < .05$), is supported. In addition, the third hypothesis is supported, as the CEO trust in technology has a significant direct impact on AIS use ($\beta = .298$; $T = 3.623$; $p < .05$). The fourth relationship, i.e., compatibility (CO) has a significant positive impact on the use of AIS (AISU) ($\beta = .199$; $T = 2.940$; $p < .05$), and therefore, supported. Similarly, the fifth hypothesis is supported, as the complexity has a significant direct impact on AIS use ($\beta = -.109$; $T = 2.831$; $p < .05$). The sixth direct hypothesis is not supported, the direct impact from relative advantage (RA) to AIS use (AISU) is not positively significant (β value = .023; $T = .333$; $p > .05$). Lastly, the results of this study show that the influence of control variable (firm size) was found statistically insignificant, which indicated that this variable did not cause any significant variance in AIS use.

Table 8
Hypotheses testing results.

Relationship	Std. Beta	T Values	P Values	Decision
CEO-ISK → AISU	.420	5.007	.000	Supported
CEO-INN → AISU	.003	.069	.945	Not Supported
CEO-T → AISU	.298	3.623	.000	Supported
CO → AISU	.199	2.940	.003	Supported
Compl → AISU	-.109	2.831	.005	Supported
RA → AISU	.023	.333	.739	Not Supported
FS → AISU	-.007	.226	.822	Not Supported

Note: ISK = information system knowledge, INN=innovativeness, T = trust in technology, CO = compatibility, Compl = complexity, RA= relative advantage, FS= firm size (control variable), AISU =accounting information system use.

4.4.2. Assessment of Coefficient of Determination (R^2), Effect Size (f^2), and Predictive Relevance (Q^2)

The coefficient of determination (R^2) describes the degree of variation caused by all exogenous variables in the endogenous variable. In addition, Hair et al., (2019) presented the threshold values for the appropriate coefficient of determination values as .75 as substantial, .50 as moderate, and .25 as a weak degree. The value displayed in Table 10 predicted that the coefficient of determination of the endogenous variable (AISU) has a moderate level of predictive accuracy.

Table 10
The coefficient of determination and effect size.

Construct	R2	f2	Q2
CEO IS knowledge (ISK)	.603	.268	.372
CEO innovativeness (INN)		.000	
CEO trust in technology(T)		.103	
Compatibility (CO)		.057	
Complexity (Compl)		.029	
Relative advantage (RA)		.001	
AIS Use (AISU)			

After the analysis of the coefficient of determination (R^2), there is a need to examine the effect size (f^2) of all of the latent variables of the study. To measure the effect size (f^2) of a specific model, the threshold values range from .02, .15, and .35 for no, medium, and high effect sizes. The current study showed no and medium effect size of the studied model. Likewise, the acceptance level of predictive relevance (Q^2) above 0 indicates that exogenous variables have predictive significance for the model's endogenous variables (Hair et al., 2019). Thus, it can be found in Table 12 that the $Q^2 = .346$ value is greater than zero. Therefore, the current research model has sufficiently predictive relevance.

5. Discussion

The primary purpose of a discussion is to assess whether the outcomes of the study are consistent with the objectives of the study. The current study provided a theoretical framework to examine CEO characteristics and technological factors on AIS use in Jordanian companies. The theoretical foundation of this study is based on the Diffusion of innovation (DOI) and the TOE framework. To achieve the objectives of the study, six hypotheses were formulated for empirical testing. Consequently, four out of six hypotheses were supported.

Beginning with the CEO characteristics, the results of this study revealed that CEO IS knowledge was found to have a positive and significant impact on AIS use. This result confirms the prevailing belief that businesses with CEOs who are more knowledgeable about IT/IS (e.g., AIS) and more likely to adopt IT, implies that the decision to implement the particular technology depends on the degree of IT experience and knowledge of the CEO. This empirical result corroborates the findings of other studies that reported CEO IS knowledge as the most important factor associated with technological innovation adoption literature (Ilin et al., 2017; Khalil and Zainuddin 2015; Muathe and Muraguri-Makau 2020; Nair et al., 2019; Rahayu and Day 2015; Safari et al., 2015). Therefore, CEO IS knowledge is an important determinant for the decision to use AIS among Jordanian companies. Further, CEO trust in technology was also found to have a positive and significant impact on AIS use in Jordanian firms. This result is in accordance with previous studies that found that CEO trust in technology is the most important factor associated with IT/IS adoption literature (Alkhatir et al., 2018; Khalil and Zainuddin 2015; Khayer et al., 2021). Hence, it is underpinning the assertion that businesses with more technology-trusting CEOs are more inclined to use IT/IS (e.g., AIS).

On the other hand, CEO innovativeness was found to have an insignificant impact on AIS use among Jordanian firms. Surprisingly, this finding is inconsistent with the previous literature (Hameed and Counsell 2012; Lorente-Martinez et al., 2020; Yuniarty et al., 2019; Rahayu and Day 2015; Ramayah et al., 2016; Thong 1999). As we believed that the higher the innovativeness of the CEO, the more positive toward IT adoption (e.g., AIS). However, the empirical result is consistent with previous literature on the IS/IT use and adoption (Muathe and Muraguri-Makau 2020), who found CEO innovativeness as an insignificant predictor of technology adoption. Thus, the findings of this study further reveal that one of the major plausible explanations with regard to the insignificant relationship between CEO innovativeness and AIS use in Jordanian companies could be the use of AIS is more affected by other internal factors like complexity and cost and this is in line with (Lutfi et al., 2022).

Regarding, the technological factors, the findings of this study indicated that compatibility has a significant positive effect on the AIS use among Jordanian companies, consistent with the DOI theory and with numerous previous researches that perceived compatibility has a significant positive relationship with several IS/IT applications (Thong 1999; Wang et al., 2016). In this vein, companies tend to use technology such as AIS more extensively when they perceive AIS to be highly compatible with existing business practices, work processes and IT infrastructure. Although, in the literature, complexity remains a significant impediment for the use of technological innovation (Maroufkhani et al., 2020), as per the findings of the current study, complexity has a significant relationship with the use of AIS in Jordanian companies.

Furthermore, in the present study, relative advantage has appeared as an insignificant factor for the use of AIS. The result is not consistent of DOI theory as well as previous studies that have shown a substantial effect of relative advantage on several other IT/IS applications (Marei et al., 2023; Lutfi et al., 2022). However, the study results are consistent with previous literature (Lutfi et al., 2020), which found an insignificant influence of relative advantage on IT/IS adoption/use. One potential explanation is that regardless of firms' differing affordability, AIS currently seems to be obtained easily. This may be because many AISs have become low cost over time because of strong competition (Ali et al., 2012). Therefore, the low-cost and ease of possession of AIS as well as the desirability of imitating competitors in equivalent industries would inspire and encourage an owner/ CEO of firms to embrace a system regardless of any benefits and advantages consideration.

6. Implications

This study has empirically elaborated on the factors affecting AIS use among Jordanian companies and the effect of firm size as a control variable on AIS use. The present study results have significant theoretical and practical implications for AIS and companies. Theoretically, we use the DOI theory as the foundation and extend the TOE framework by adding CEO characteristics to provide greater clarity on the factors influencing AIS use at an organizational level. The current study also expands on factors influencing AIS decision making that have received little attention in previous research. Moreover, despite the mention of firm size in the literature as one factor of AIS use, scant empirical studies have examined the control effect of

firm size among innovation studies. The current study provides empirical evidence on the control effect of firm size. As a result, the present study has contributed theoretically to the literature and served to enhance the pool of knowledge and understanding. Therefore, this study provides a progressive insight into the issues related to the use of AIS and, ultimately firm performance.

In terms of practical study contributions, the results also provide several important implications to company's CEOs/ managers and practitioners, industry leaders, and policymakers. Based on specific factors of the CEO characteristics and technological factors in the context of Jordanian companies, this study comes up with useful, practical implications. The introduction of Accounting Information Systems (AIS) is expected to enhance the long-term performance of companies in Jordan. This study makes a valuable contribution by offering practical guidelines for policymakers, governmental regulators, and senior management. These entities can strategically focus on promoting the adoption of AIS within Jordanian companies. Furthermore, the established and validated model serves as a tool for CEOs and managers in companies to identify critical factors that play a significant role in fostering the widespread utilization of AIS. From a policymaker's standpoint, the government can play a more pivotal role by providing support and raising awareness among companies, enabling them to have increased accessibility to AIS technologies. The government of Jordan should enhance awareness within companies regarding the significance of AIS usage and the tangible benefits derived from its implementation.

7. Limitations and future research

The implications of the current study are only useful for Jordanian companies, specifically for Manufacturing, Trade and Service sectors. However, similar research can be conducted using the same theoretical foundation in other developing countries. Furthermore, the study model can be useful for other industries. Moreover, future researchers can build on the significant factors including new factors and measures that will provide new insights for AIS use determinants and extends the model by including other untested factors from the four major characteristics of technology adoption, such as CEO, organizational, technological, and environmental.

8. Conclusion

This study identified a significant and positive association between CEO IS knowledge, CEO trust in technology, compatibility, complexity, and AIS use among Jordanian companies from different industrial sectors. CEO characteristics are significant factors of AIS use in Jordanian companies. These findings further endorsed the significant role of CEOs in Jordanian companies. The outcome of this study hopefully can help provide useful guidelines for companies in terms of AIS use to survive in the dynamic business environment faced with stiff competition.

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