

Validating the Framework of the Accounting Information Systems Components and Firm Performance: A Conceptual Study

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Abstract: - The aim of this research is to propose a conceptual framework that links the Accounting Information System components with the Firm Performance. The framework contained the Availability, the Security and the Integrity, the Confidentiality and Privacy, and the System Quality as independent variable, with Firm financial and non-financial performance among the Jordanian Firms as dependent variable. The researcher followed the quantitative research methodology by testing the measurement model of the conceptual framework by checking the convergent and discriminant validity of the framework. The researcher used the mean of survey questionnaire as a research instrument, on which the researcher developed a 31 items questionnaire and distributed 350 questionnaires, and received 263 fully answered questionnaire. The findings of this study revealed that the scores of factor loadings and AVE did not achieve the recommended level of 0.4 and 0.5 respectively, which required a modification on the research model in the second run, on which the researcher achieve a satisfactory level of Factor loadings, Composite Reliability, Cronbach Alpha, and AVE. However, the scores of the Fornell and Larcker Criterion and HTMT which confirmed the discriminant validity. This study was limited to the measurement model analysis only, an empirical study with both the measurement and structural model will be a great addition to the future studies.

Key-Words: - Accounting Information System, Firm Performance, Jordan, SysTrust framework, Validity

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1 Introduction

Accounting information has an important role in making the various decisions regarding the financial and economic issues. It has also a significant influence on the survival of the organizations [1]. The effective systems of the internal control are considered an essential to the successful operation of the business and the accounting and administrative control. It helps the AIS division to generate and provide reliable and relevant information. In the AIS environment, the characteristics of the internal controls can affect the operations and the management, and thus it affects the internal control in general. In addition, such internal controls are run in order to ensure the achievement of the operational goals and the performance [2].

It is generally believed that investment in the AIS can provide an important opportunities for the organizations to enhance the effectiveness of the

business process [3]. Accounting information systems (AIS) add a value to the organization, timely and accurate information, perform the main activities efficiently and effectively, enhance the quality and efficiency of the financial process [4]. The AIS is considered as one of the most important systems in the organizations [5]. It aims to provide the necessary information for the management. Such information lead to help the management effectively to performed their duties in planning, monitoring the firm's resource, decision-making and enhance the performance [6].

The effective implementation of the AIS has several benefits such as, improvement the work quality, flow of the product, flexibility, motivation and development of using the software application, develop the capability of employees in solve the different problems, and increased the employees' productivity and their performance regarding the production cost [7]. In addition, using of the AIS is

able to improve the firm productivity and develop the employees' work, innovation and their attitude [8], and facilitating the decisions making within the organizations [1]. However, several prior studies regarding the firm performance, such as Marashdeh, (2014); Aldehayyat et al., (2017); Aktan et al., (2018) and Al Matari and Mgammal, (2019) have been conducted in some developing countries, such as United Arab Emirates, Saudi Arabia and also in Jordanian context, which is considered as beachhead for the modern technologies and the modern practices of the business in the Middle East or North Africa (MENA) [9]–[12].

The AIS must be kept safe and protected always given that it involves a very sensitive and confidential information. Therefore, it is very important for the organizations to secure their sensitive information securely, due to the threat to the information is rapidly increasing in malicious attacks on the organizations' IT infrastructure, which can influence the business continuity. In addition, penalties of the inadequate security can make the organizations suffer substantial fiscal loss. Given that the information technology is playing an essential function in the businesses, the likelihood of the security threats will increase. Consequently, organizations are always encouraged to invest in the comprehensive and strong IT security set-ups in order to protect and safeguard the accessibility, the integrity and the confidentiality of the accounting and financial information from vulnerable of the threat given that it can lead to substantial financial consequences of the organizations, losing the customers, as well as impairment of good will amongst others [2].

Several prior studies regarding the firm performance, such as [9]–[12] have been conducted in some developing countries, such as United Arab Emirates, Saudi Arabia and also in Jordanian context, which is considered as beachhead for the modern technologies and the modern practices of the business in the Middle East or North Africa (MENA). But the limitation of these studies is that most of them focused on the association of the firms' performance with the corporate governance mechanisms. Several previous studies indicated that further concern should be paid towards the association between the AIS, internal control and technology systems and the firms' performance [13], [14].

Furthermore, the current study attempted to bridge several gaps in the body of literature. The first gap is lack of the studies on the AIS conducted in the developing countries like Jordan [15]. Furthermore, the second gap was covering the needs to investigate how the mentioned innovations will be used in AIS to enhance the benefits, performance and risks [16].

Therefore, the current study will help to bridge all of the aforementioned gaps through evaluating the effectiveness of the internal control in the AIS on the firm performance (the financial and the non-financial) through integrated and comprehensive approach. In addition, the current study has purpose to address the previous mentioned limitations in the prior studies and further to enhance our understanding of the significance and effectiveness AIS in the Jordanian business context as a developing economy. The current study explores and examines the important factors within the AIS which lead to the system's effectiveness to be ongoing and stable system. In particular, this study will examine the relationship between AIS' factors, namely; (the Availability, the Security and Integrity, the Confidentiality and Privacy, and the System Quality) and their effects on the Jordanian firm performance, through a survey on a larger scale in order to get a broader perspective about the relationships between AIS and firm performance.

Putting into consideration the aforementioned gaps and problems cited in the pieces of literature, the current study's aim is to propose a conceptual framework that links the Accounting Information System components with the Firm Performance. The framework contained the Availability, the Security and the Integrity, the Confidentiality and Privacy, and the System Quality as independent variable, with Firm financial and non-financial performance among the Jordanian Firms as dependent variable.

2 Literature Review

Accounting information system considered as the most significant part in the managerial information systems. Thus, accounting information that obtained from the AIS is a type of the basic knowledge for the effective management system. Moreover, data gained from the accounting system with the computer base ensures extremely significant contributions to the success the management systems. The following Table 1 describes some definitions of the accounting information system.

Table 1. Definition of Accounting Information System

Author	Definition
[17]	A collection of data and processing procedures that creates needs information for its users
[7]	A system which has several functions such as collecting, processing, categorizing the data, reporting the financial events, and provide the associated information in order to storing the information, keeping the inventories records and decision making, as well as provide the needed financial reports.
[18]	The unified structure in the entity, like the business organization, which employs the physical resources or any components in order to transform the economic data to the useful accounting information, fulfilling the various needs of the information to the variety of the users”
[1]	Structure in which the business uses in order to gather, store, direct, process, recovers and reports its financial information. So that, it can be utilized through the owners, the accountants, the advisor, the analysts, the managers, internal and external auditors as well as the regulatory and the tax agencies.
[19]	It is the system which is responsible for the accumulation, storage and handling of accounting and financial data that is used to inward administration choice making, comprising the nonfinancial exchanges or transactions that specifically influence the preparing of monetary exchanges?
[20]	A combination of several subsystems, procedures and policies that working together to collect and provide the needed information to support the decision-making process.

According to Romney et al. (2017), AIS is system which collects, stores, records and address the data in order to produce the information that used in the decision making [21]. It is basically reflect an integration of several subsystems processing or sub accounting information systems, given that each transaction processing system have a transaction processing cycle so that AIS [4].

Hall (2012) identified why we need to the AIS in the organizations as follows: (i) provide the needed data regarding the used organizational resources (ii) provide the relevant data regarding the decision making, (iii) provide the data which enhances the efficiency of the employees [22]. There are several studies provide evidence that the accounting information provide able to provide benefits to the decisions-makers of organizations and all of the stakeholders [23], [24].

2.1 Components of the AIS

In the typical organizational environment setting, the AISs are consists of various components. According to Romney et al. (2017), and Ganyam and Ivungu (2019), the AISs are consists of a six components, namely; Individuals, Software, Data, Information technology infrastructure, internal control measures, procedures [15], [21].

In addition, the quality of the system information, quality of the system itself and its service [25], [26], and the infrastructure of the Information Technology (IT) factors within the AIS are considered some of the most important factors that affect the effectiveness of AIS in the organizations, given that they enables the companies to easily tracking, recording and production the financial and the accounting statements, as well as such factors can quickly process the firm transactions into financial statements [15], [27] In the current study, the components of the AIS consist of the following components: Security and Integrity, Availability, Confidentiality and Privacy and System Quality.

2.1.1 Availability

According to Al-Dmour (2018), the availability is considered as an process of an accessibility that characterised by an end-user capacity to use the accounting information system in the adaptation with the schedules and the agenda of the companies, and whenever it’s needed [14]. Using AIS means performing the inputting process in flawless and in quality way, upgrading storing, and re-establishing process in the time chosen. In this regard, there are several conceivable sorts of the threats to the availability of the AIS such as: failures of the hardware or the software, the natural and the man-made disasters, the human mistake, the different viruses, and attacks of rejection-of-the services and other acts of harm. It can be ensure the availability of AIS through keeping up all of the hardware, the providing equipment repairs immediately when needed and provide the accurate working framework environment, which must to be free of the software

conflicts [28]. One of the studies was conducted by Olugbode et al. (2018) with aim to implement new integrated business and supporting IT systems by studying the role of the system availability and how it would streamline operations, increase internal efficiency, facilitate sustained growth and increase firm performance using a case-study approach. The findings of this research illustrated a significant and positive role of system availability on the firm performance [29]. Moreover, Ismail and King (2019) conducted a study focused on measuring the availability of accounting information systems (AIS) and how it affects the firm performance. The researchers found that it is important as only after a firm analyses its accounting information availability can it have a clear idea on how to invest in new technology or utilise the available technology effectively and improve firm performance [30].

Availability is associated to the accounting information have to be available when it's be required by the customers at any time [31], [32]. In addition, the availability reflect the availability of operation and use of the system when needed at any times, which involves reduce the downtime of the system, develop the plans in order to face any disasters, avoiding information loss and reducing the possibility of expected loss [33].

The investment in quality of the AISs, such as, the security, reliability use and the integration and the availability of the needed and timely information have an important role to support the organizations' performance. Consequently, the organizations are encouraged to pay more attention to invest in such components in their accounting information system in order to improve the organizations' performance [34]. In their study, Rosa and Purfini (2019) found the organizations with quality accounting information system - the system that fulfilled some elements such as availability of the information, reliability use and accessibility- have been able to enhance their performance, and the success of the organizations is significantly depend on availability of the information within the accounting information system [34].

2.1.2 Confidentiality and Privacy

The confidentiality can be defined as “the information or data are not available and not disclosed to the unauthorised users”. It is protecting the information in the storage and the transmission. The confidentiality can be compromised when the information be available or can be reached by the unauthorised users or be disclosed to any one need to know [14]. The keenness of the organizations in ensuring the confidentiality of their information

regarding the organization's accounting systems, and facing the viruses and the cybercrimes, lead to increasing in the reliability of the information for the investors and the beneficiaries [35]. The effective AIS able maintains the confidentiality and protect the sensitive accounting information from the unauthorized disclosure [1].

The confidentiality is related to protection of the sensitive accounting and financial information from the unauthorized disclosure [32]. In addition, it has been emphasized that assurance of the confidentiality and privacy, security and integrity, and availability will affect significantly and positively the users' attitude towards the accounting information system [36]. With aim to enhance understanding of the effect of customer data privacy on firm performance, Martin et al. (2017) conducted their study on 414 public companies in several European cities. The researchers, at both firm and customer levels, confirm that data privacy generates negative outcomes for firms, including negative abnormal stock returns and damaging customer behaviours [37]. In addition, the aim of this study is to assess the role of data privacy on the Indonesian firms' performance in light of issuing new data protection bills form the Ministry of Communication and Information. The researchers found that. The researchers found that data privacy played a significant role for the Indonesian firms' performance [38].

Confidentiality is roughly equivalent to privacy. Several organizations nowadays are taken various measures in order to ensure that the confidentiality and the privacy are designed to prevent the access of the wrong users to their sensitive information, and to ensure that only the right users are able to reach such information. Access should be restricted only to the users who are authorised to reach the needed information [14]. In any system, there must be high level of the privacy and confidentiality regarding the information. The information also must be limited only for those authorized [23].

2.1.3 Security and Integrity

The issue of measuring the costs and the benefits of the investment in the information security was one of the reasons why the organizations do not allocate their resources to the information security [2]. The security principle applies to protect the systems from the unauthorised access by anyone. When the systems have restricted access, then it will help in preventing the possible exploitation, resources theft or the software misuse of firm system, as well as the inappropriate and unsuitable use, the access to the system, modification or damage and disclosure of the information. The main factors to safeguard the

system represents in allow the authorised access in the firm system according to the necessity and deny the unauthorised access in the all other cases [14].

Boritz (2005) conducted a study to determine the significant attributes of the information integrity and the related issues [39]. Boritz (2005) considered the information security as one of the main attributes for the information integrity. The integrity is associated to the accuracy and the completeness of the accounting information and its validity regarding the customers' value or expectation [32]. Moreover, Olugbode et al. (2018) also studied the integrity of IT systems with the growth of firm performance using a case-study approach. The findings of this research showed that a significant and positive role of integrity of IT systems on the firm performance [29]. In addition, Sundram et al. (2020) investigated the role of information technology integration with firm performance in Malaysia. The researchers found that the relationship between information technology integration and firm performance measures [40].

The integrity of the processing and the security of the system are considered as a significant characteristic for any organization. The integrity of the processing represents the completeness and accuracy, the timeliness, the validity and the authorization of the system processing. The integrity is be exist when the system performs the intended role in unimpaired way, free from the unauthorised and/or the inadvertent manipulation [14], [39]. In addition, Dimitrov (2014) identified several benefits of the security such as; increased data safety, recover and transfer the data in a fast way, centralization, and improve the security software mechanisms and maintenance [41]. It is very important to the organizations to investing in various security technologies, and considering the importance of the information and the non-information technology that associated to the security investment factors. Further, it is vital for the organizations to understand the influences of investment in the information security on the performance [2]. Al-Dmour and Al-Dmour (2018) showed that the indicators of the organization performance (financial and non-financial indicators) can be significantly predicted through the reliability of the AIS such as the security and the integrity [42].

2.1.4 System Quality

AIS is categorized as a successfully executed system if the outcomes of the AIS can be utilized in the decision-making particularly that associated decision to the financial reporting, performance and

the supporting decision [43]. The success of any system of the information can be influenced by several factors or dimensions. DeLone and McLean (1992) in their study "Information Systems Success" describe several factors or dimensions of any information system to be success, one of these factors is the system quality [44]. Regarding the system quality, the system must be consciously and integrated designed to create an effective and an efficient process [45], due to the system quality is positively and significantly affect the net benefits of the AIS [46].

System quality is considered as a significant indicator in measuring quality of the AIS. This quality is utilized when evaluating the contribution of the information systems in the organization activities and it's describe the measures of the information processing system itself [44]. Al-Mamary et al. (2018) conducted a study to explain the relationship between system quality and information quality with organizational performance. The researchers found a positive relationship between system quality, information quality with organizational performance [47]. Moreover, Leibert (2019) carried out a study to analyse and compare the system quality of hospitals participating in highly integrated systems with non-integrated hospitals based on outcome measures involving hospital performance. The results of the review demonstrate that there is a statistically significant positive difference between the system quality and hospitals' organizational performance.

Generally, system quality is associated to whether any "bug/error" is exist or not in the system, user interface consistency, easy to use, quality of the document, program quality, the encryption and its maintainability [48]. In addition, system quality reflects ability of the information processing in the firm system itself and assess the software and system's information from the technical perspective [49].

2.2 Accounting Information System and the Organization Performance

There are several prior studies carried out regarding the relationship between the AIS and the organization performance. Ironkwe and Nwaiwu (2018) revealed that the AIS has a significant and positive influence on the financial and the non-financial performance indicators [50]. Daoud and Triki (2013), and, Beg (2018) revealed on a significant association between AIS and the organization's performance improvement [20], [51]. Trabulsi (2018) showed that using the AIS is significantly affect all dimensions of the

organization performance, namely, cost reduction, improve the quality and effective decision-making [13].

Patel (2015) found that the accounting information system has an important function in decisions-making regarding the financial and the economic issues, as well as the profitability and survival of the organizations [1]. Prasad and Green (2015) revealed on a positive and significant influence of the dynamic AIS capability (flexible system, intelligent system, and professionals accountants) with overall organization performance [52]. Hla and Teru (2015) AIS has an important role to improve the organization performance, as it is facilitating the decisions-making, internal controls, quality of the financial statements, organization's transaction and improve the economic system [53]. While Soudani (2012) revealed that although the AIS is very useful for the organizational performance, there is no any relationship between the AIS and the performance management [54].

2.3 Overview of the Conceptual Framework

The SysTrust service framework is an assurance service that was jointly developed by AICPA and CICA. It is designed to increase the comfort of management, customers, and business partners with systems that support a business or particular activity. According to the AICPA (2013), SysTrust is an assurance service that independently tests and verifies a system's reliability [55]. The AICPA succinctly describes the overall purpose of SysTrust in the following way: Developments in information technology provide far greater power to companies at far lower costs. As business dependence on information technology increases, tolerance decreases for systems that are not secure, and these systems become unavailable when needed and unable to produce accurate information on a consistent basis. An unreliable system can cause a chain of events that negatively affect a company and its customers, suppliers, and business partners [56]. This study applies the SysTrust service framework. Overall, this research examines the Availability, the Security and the Integrity, the Confidentiality and Privacy, and the System Quality to determine Firm financial and non-financial performance among the Jordanian Firms listed on Amman Stock Exchange. As such, Figure 1 displays the proposed framework. As a conclusion of the literature review, the performance of the firms has attracted additional interest, due to its widespread relevance in most of the organizations activities. The performance is an opinion, explanation or perception of the actual reality. According to Fatihudin and Mochklas

(2018) [57], firm performance is the ability of the firms to control its resources and as to achieve the desired results. The definition of the performance still ambiguous and this explains why it's measured through various instruments and measurements. In most cases, various measurements such as; profitability, efficiency, earning, financial and non-financial indicators, competitiveness as well as productivity are used to measure the performance. According to Noyé (2002) [58], the performance can be achieved when the business outcome matches the organization's objectives. Thus, the performance is not only a mere outcome or result, but it can be achieved through the reviewed outcome after comparing the objectives with the outcome [59].

Thibault et al. (2002), and Nang (2017) [60], [61] reveal that the factors that may affect the organizations performance could be attributed to several factors such as use of the technology, operating location, business strategies, organization structure, goals and motives, the attributes of the employees and networking and systems as an important factors in affecting the performance of the organizations. It is generally believed that there is no single factor can fully measure the firm performance in all aspects [62]–[64].

Nowadays, the demand of the accounting information system increasing due to its high impact on the firms' performance [65]. The AIS are considered a significant mechanism for the organizations' effective management, and decision-making, as well as controlling activities. It's an effective tool for decision-making to controlling and coordinating the organization's activities. In addition, it's critical to the produce quality accounting information on the time and provide such information to the decision makers. In other words, AIS has a significant influence on the organizational effectiveness [66].

In addition, AIS considered as a significant tools in which, are incorporated in the Information and the Technology systems area. Such systems were designed in order to help in manage and control of the daily activities that associated to the organization's economic-financial issues. In addition, the overwhelming advance in technology field lead to open the possibility of generating and using the accounting information from a strategic viewpoint [3].

Currently, the demand of the AIS is increasing given that its high impact on the firms performance [65]. Most of the prior literatures were conducted in the advanced countries where the techniques of the computerized accounting systems have been widely

accepted. Therefore, further research in the developing countries is recommended in this field to fill the gap in literature [15].

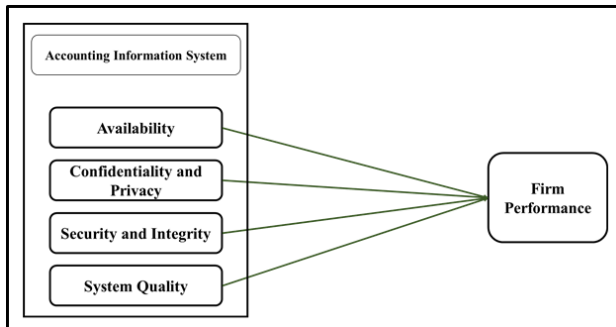


Fig.1: Proposed Conceptual Framework

3 Research Methods

In this research, the researcher will utilize quantitative research methods. Primary data was collected from employees working for Jordanian firms that use Accounting Information Systems and listed on Amman Stock Exchange in the industrial and Service Sector. According to the records of Amman Stock Exchange (2021), a total of 70 firms were listed as industrial or Service firms [67]. Therefore, the researcher distributed a total of 350 questionnaires, on which 263 out of 350 were returned and fully answered and valid for analysis, which represent a total of 75.1%. From the 263 valid questionnaires, 159 came from the firms that are working in the Services sector (out of 200 questionnaire distributed). The Industrial sector came second with 104 valid questionnaire (out of 150 ones). The results illustrated in Table 2.

Table 2. Response rate

#	Ministry	Questionnaires Distributed	Respondents
1	Services sector	200	159
2	Industrial sector	150	104
Total		350	263

4 Instrument Development

The development of instruments was carefully executed to reflect the nature of this research. As such, the questionnaire was designed to include 31 items, and the variables were measured using the five-point Likert scale, with five standing for ‘Strongly Agree’ and one standing for ‘Strongly Disagree’. Since the participants spoke Arabic, the

survey needed to be accurately translated from English to Arabic. As a result, a reverse translation was conducted, which is a common method for determining the accuracy of a translation in a cross-cultural survey [68]. Furthermore, the validated instruments listed in Table 3 were adopted from relevant prior researches to measure the variables in this research.

Table 3. Research Instrument

Construct	No of Items	Adapted	Citation
AIS Availability	4	AVA1: The entity’s system availability is periodically reviewed by an authorised people AVA2: There are procedures to ensure that personnel responsible for the design and development the system availability features are qualified to fulfil their responsibilities AVA3: Employees are trained to make substitute copies of the programs AVA4: Procedures exist to provide for backup, offsite storage, restoration, and disaster recovery	[69]
AIS Security and Integrity	6	SNI1: The firm’s security policies has approved security requirements of authorised users SNI2: The firm’s system security is periodically compared with the defined system security policies. SNI3: A security awareness program has been implemented to communicate the entity’s IT security policies to employees. SNI4: There are special tests to make sure of the integration of input data before processing SNI5: The firm’s processing integrity and related security policies are established by a designated individual or group SNI6: The firm’s administration develops procedures to ensure the completion and accuracy of data	[69]
AIS Confidentiality and Privacy (CNP)	7	CNP1: The firm’s system confidentiality is periodically reviewed by a designated individual or group. CNP2: The firm publishes its confidentiality and related security policies	[69]

		<p>on its corporate intranet. CNP3: The process for informing the entity about breaches of confidentiality is communicated to authorised users. CNP4: The firm defines documents, communicates, and assigns accountability for its privacy policies. CNP5: The firm describes the choices available to the individual with respect to the disclosure of personal information. CNP6: The system confidentiality and requirements are communicated to authorised users. CNP7: The firm provides identifies the purposes for which personal information is collected, used, retained, and disclosed</p>	
AIS System Quality (SYQ)	6	<p>SYQ1: The system is flexible SYQ2: AIS is regularly examined and maintained by IT unit staff. SYQ3: The tutorials or instructions provided by AIS help to use the system easily. SYQ4: The processing speed of the AIS assists in accomplishing work very fast. SYQ5: The antivirus software prevents the systems from being attacked by virus SYQ6: User login is required to access always</p>	[26]
Firm Performance	8	<p>PER1: The Company has the ability to exploit all its resources available to the fullest, contributing to achieving profits. PER2: The Company tracks the policy of reducing indirect expenditure on activities in order to increase profits. PER3: The volume of the company's profits are suitable with the quality of products and the nature of the services provided by customers. PER4: The Company is increasing the wealth of shareholders and achieving real returns on investment. PER5: The Company's profits distributed to shareholders with their tendencies and</p>	[26], [70]

		<p>expectations. PER6: The Company applies effective methods and policies that increase the amount of future cash flow. PER7: Encourage access to new markets with a view to increasing sales from services provided and increasing return on investment. PER8: The investments of the Regional and International Company offer profits investment targets for the company.</p>	
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5 Results and Analysis

The current study has assessed the measurement model in two steps consisting of the assessment of the Convergent Validity and the Discriminant Validity. However, before these two steps, a brief explanation is given regarding the respondents' profiles.

5.1 Respondent Profile

The first segment of the instrument compiled information on background profile of the respondents which comprises of their Gender, Sector, Experience, Organization Age, and System. The characteristics of each demographic profile are described below in Table 4.

Table 4. Respondent Profile (Frequencies)

Construct	Options	Frequency	Percent
Gender	Male	175	66.5
	Female	88	33.5
Sector	Services sector	159	60.5
	Industrial sector	104	39.5
Experience	Less than 5 years	107	40.7
	5 – 9 years	121	46.0
	10- 15 years	26	9.9
	More than 15 years	9	3.4
Organization Age	Less than 5 years	35	13.3
	5 – 9 years	78	29.7
	10- 15 years	115	43.7
	More than 15 years	35	13.3
System	A combination of manual and computer	43	16.3

	processed		
	Completely computerized	220	83.7
	Total	263	100.0

5.2 Convergent Validity

The research model of this study was tested using SmartPLS 3.3. In addition, an examination was conducted regarding the measurement model (validity and reliability of the measures). As a result, all of the constructs recorded composite reliability values higher than 0.7 for each group of data. Which are above the cutoff point for Cronbach's Alpha (0.7), as recommended by Hair et al. (2017). In addition, not all of the constructs in the first run recorded AVE values higher than 0.5 for each group of data [71], as the lowest AVE value reported is for Firm Performance (PER) (0.429), followed by Confidentiality and Privacy (CNP) (0.438), System Quality (SYQ) (0.520), Availability (AVA) (0.615) and Security and Integrity (SNI) (0.660). Furthermore, CNP1, PER4, and PER8 scored low factor loadings (-.100, .364, and .145 respectively) which all were below the recommended level of 0.4 by Ramayah et al. (2018). Therefore, a form of modification was considered in the second run and, consequently, CNP1, PER4 and PER8 were deleted to achieve satisfactory levels of AVE and factor loadings [72]. Overall, all variables have achieved the cut-off point, as illustrated in Table 5 and Figure 2.

Table 5. Convergent Validity Results

Construct	Item	Factor Loading	Cronbach's Alpha	CR	AVE
Availability (AVA)	AVA1	.761	.795	.865	.617
	AVA2	.808			
	AVA3	.830			
	AVA4	.738			
Confidentiality and Privacy (CNP)	CNP2	.691	.807	.860	.509
	CNP3	.727			
	CNP4	.823			
	CNP5	.754			
	CNP6	.618			
	CNP7	.649			
Security and Integrity (SNI)	SNI1	.715	.896	.920	.659
	SNI2	.768			
	SNI3	.849			
	SNI4	.843			
	SNI5	.848			
	SNI6	.839			
System Quality (SYQ)	SYQ1	.790	.815	.866	.521
	SYQ2	.817			
	SYQ3	.703			
	SYQ4	.606			

	SYQ5	.660			
	SYQ6	.732			
Firm Performance (PER)	PER1	.654	.840	.880	.550
	PER2	.809			
	PER3	.760			
	PER5	.717			
	PER6	.760			
	PER7	.741			

(*) CNP1, PER4 and PER8 were deleted due to low factor loading, Cronbach's Alpha, and AVE, as follows:

- CNP AVE was 0.438 before deleting CNP1 (factor loading - 0.100)
- PER AVE was 0.429 before deleting both of PER4 (factor loading 0.364) and PER8 (factor loading 0.145)

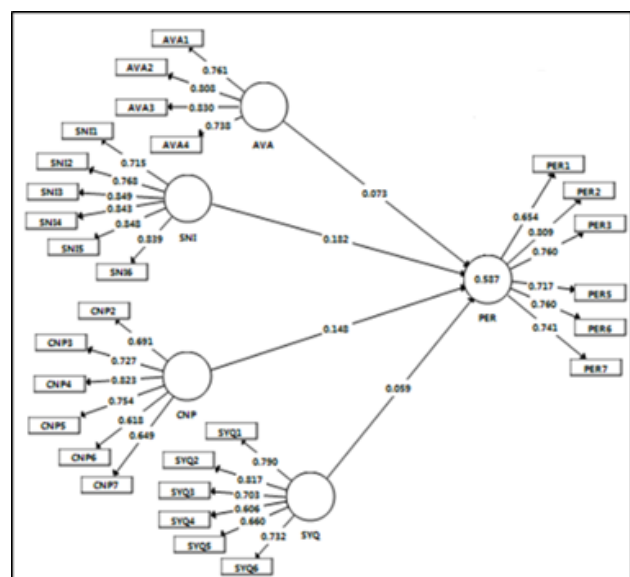


Fig. 2: PLS algorithms results

5.3 Discriminant Validity

Secondly, the discriminant validity was examined to assess how truly distinct a construct is from other constructs. In the area of distinguishing validity, the correlations between variables. The estimation of the model did not exceed 0.95, as suggested by Kline (2016) [73], and the validity was tested based on measurements of the square root of the average variance calculated for a construct and the correlations between constructs [73], [74]. Hence, Table 6 contains the results of the Fornell and Larcker Criterion and shows no value above the recommended cutoff point of 0.95 [74].

Table 6. Fornell and Larcker Criterion

Constructs	AVA	CNP	PER	SNI	SYQ
AVA	.785				
CNP	.410	.713			

PER	.417	.597	.742		
SNI	.445	.656	.679	.812	
SYQ	.523	.648	.634	.749	.722

Moreover, the Heterotrait-Monotrait ratio (HTMT) is a calculation that estimates the actual correlation between two constructs if they were properly assessed (i.e., if they were perfectly reliable) [71], [75]. Furthermore, HTMT is the average of all correlations of indicators across constructs measuring different constructs (i.e., HTMT correlations) compared to the (geometric) mean of the average correlations of indicators measuring the same construct (i.e., HTMT correlations) and can be used to assess discriminant validity, on which Gold et al. (2001) recommended the accepted level of HTMT to be below 0.90. As such, the accepted level of HTMT is 0.90 can be seen in Table 7.

Table 7 HTMT Criterion

Constructs	AVA	CNP	PER	SNI	SYQ
AVA					
CNP	.479				
PER	.464	.675			
SNI	.522	.755	.744		
SYQ	.666	.751	.710	.859	

6 Discussions

The aim of this study is to propose a conceptual framework that links the Accounting Information System components with the Firm Performance. The framework contained the Availability, the Security and the Integrity, the Confidentiality and Privacy, and the System Quality as independent variable, with Firm financial and non-financial performance among the Jordanian Firms as dependent variable. The statistical data analysis was carried out using Smart PLS 3.3, and revealed that all of the constructs recorded composite reliability and Cronbach's Alpha values higher than 0.7 for each group of data, which are above the cutoff point as recommended by Hair et al. (2017). In addition, a modification on the model was required as not all of the constructs in the first run recorded AVE values higher than 0.5 for each group of data. Furthermore, three items (namely; CNP1, PER4, and PER8) scored low factor loadings which all were below the recommended level of 0.4 by Ramayah et al. (2018).

Therefore, the above mentioned items were deleted to achieve satisfactory levels of AVE and factor loadings [72]. In addition, Fornell and Larcker Criterion and shows no value above the recommended cutoff point of 0.95 as recommended by Fornell and Larcker (1981) and Kline (2016), while HTMT Criterion scored also a satisfactory level below 0.90 as recommended by Gold et al. (2001) and Hair et al. (2017). [71], [75]

The findings of this study were inconsistent with the published literature. Al-Dmour (2018) carried out a study aimed to examine the impact of the implementation of SysTrust's framework (availability, security, integrity processing, confidentiality, and privacy) as an internal control method for assuring reliability of Accounting Information System on the business performance (financial and non-financial indicators). The findings of the study support the proposition that availability of SysTrust requirements as internal method for assuring the availability of AIS is positively linked to business performance. Therefore, a better understanding of the influence of SysTrust principles upon business performance and quality of financial reporting should be viewed as whole rather than isolated fragments. The magnitude and significance of the loading estimate indicate that all of these five principles of SysTrust are relevant in predicating business performance and quality financial reporting [14]. Furthermore, the study of Martin et al., (2017) aimed to enhance understanding of the effect of customer data privacy on firm performance. The results showed that confirm that data privacy generates negative outcomes for firms, including negative abnormal stock returns and damaging customer behaviours [37]. However, disagreeing with the researcher's findings, Syaaid (2019) study aims at identifying the impact of the reliability of the accounting information systems (security, confidentiality, privacy, the integrity of processes and readiness) on the stock prices of Jordanian industrial companies in Amman Stock Exchange. The results of the multiple regression analysis showed a statistically significant effect on the reliability of accounting information systems in their dimensions (security, confidentiality, privacy, integrity of processes, and readiness) on the stock prices of Jordanian industrial companies in Amman Stock Exchange, where the moral effect appeared in all dimensions, except (integrity of processes) [76]. Moreover, Al-Okaily et al. (2020) explored the influence of Accounting Information System (AIS) success or effectiveness factors namely system quality, information quality, service quality and training quality on the

organizational benefits of listed Jordanian firms using a DeLone and McLean Information System (IS) success model. The results show that system quality did not have any significant impact on the organizational benefits in context of this research [77].

7 Theoretical and Practical Implications

The goal of this research is to investigate which elements are associated with the performance of Jordanian businesses. As independent factors, the researchers looked at the availability, the security and the integrity, the confidentiality and privacy, and the overall system quality of the system. This study reveals a statistically significant relationship between the availability, the security and the integrity, the confidentiality and privacy from hand, and the firm performance of Jordanian firms, which supports the findings of the majority of previously published literature on the subject of availability. However, in contrast to some of the published material, System Quality was shown to be unimportant when it came to Firm Performance in this study.

Furthermore, in terms of methodological implications, the study presents a viable model to lead researchers through the process of answering research questions and describing the important components of the investigation. Furthermore, in order to fulfil the research aims and provide answers to the research questions, the study takes an academic approach. The study's methodology is divided into many parts that must be completed in order to meet the objectives. It is necessary to review the literature pertaining to system trust in the fields of finance management and accounting information systems, particularly in Jordan, so that theories and factors appropriate to the area and environment of this study can be identified, and a research model can be developed to guide future research.

Furthermore, the questionnaires were designed and tested prior to being used in the data gathering process. In this research, data were gathered using a quantitative approach by randomly distributing the questionnaire to respondents using probability sample selection processes. A pilot study was also carried out to ensure that the data collection technique was effective. The reliability and validity of the items in the construct are tested using Cronbach's alpha and factor analysis approaches, which are used in this research. To conclude, the

study analyses and presents its results, which include measurement and structural model analysis to examine the link between dependent and independent variables as well as assessing research hypotheses using Smart PLS and IBM SPSS, among other techniques.

Its theoretical implications are numerous, the most important of which is that it will contribute to the body of literature by conducting a comprehensive study dedicated to Jordanian firms and conceptualising what are the variables that affect the firms that use accounting information systems, which many studies have been limited in their scope and have not included this aspect. For this reason, the research design of this study was properly thought out in order to bridge this gap and theoretically address the challenge generated by this gap.

8 Limitations and Future Recommendations

This research was surrounded with many limitations. The current study did not consider the factors of technology's adoption, like perceived usefulness, ease of use, social norms...etc. in addition, the sample of the current study was limited only for the personnel working in accounting management or IT professional positions. This study was conducted only to show the validity of the conceptual framework using the measurement model analysis. This study has a lot of potentials, many of them could be addressed here in order to make sure that future researchers are aware of them. For instance; focusing on other types of models, like technology adoption or Diffusion of innovation among the Jordanian firms as case study with systematic selection would generate different types of results on the factors that affect Firm Performance. Moreover, an empirical study that consider both of the measurement and structural model may be the perfect completion of the current study results. In this study, System Quality was considered as independent variable while a good sum of studies focused on the dimensions of the system quality as independent variables, it is recommended that the future studies may consider the Service or System Quality and associate them with Performance in a holistic study.

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