

Uncertain Supply Chain Management

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The role of the application of an accounting system in raising the efficiency of the supply chain in Jordanian hospitals

Nehad Ibrahim Ineizeh^{a*}, Obada Jebreen Hussein^b, Abdul Razzak Alshehadeh^c and Ismail Younes Yamin^a

^aFaculty of Business, Amman Arab University, Amman Jordan

^bTeesside University, United Kingdom

^cFaculty of Business, Al-Zaytoonah University of Jordan, Amman, 11733, Jordan

ABSTRACT

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Hospitals may keep track of all financial transactions using an accounting system. It can produce thorough hospital reports that give management or other interested parties a clear set of information to help them raise the efficiency of the supply chain. Therefore, the goal of this study was to look into the role of the application of an accounting system (AS) in raising the efficiency of the supply chain (SC) in Jordanian hospitals. A questionnaire was used as the data collection method. The descriptive statistical analysis was carried out using SPSS. In addition, 134 employees from these hospitals took part in the survey, according to the results of this study, AS plays a significant role in developing and raising the efficiency of SC in Jordanian hospitals.

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1. Introduction

The accounting system (AS) quality is a declaration of a situation in which management AS generates management accounting information that managers can utilize to carry out their tasks (Suzan et al., 2019). Information Systems, like AS, cover a wide range of issues. Accounting processes have evolved substantially over time, especially as information systems have advanced (Kocsis, 2019). The AS attempts to develop multiple means for users to obtain access to the plethora of information needed, whether for their hospital or for personal usage (Jarrah & Iskandar, 2019). As a result, it's a quantification method in which the accounting system makes use of hidden concerns to increase the amount and quality of data as well as the efficient distribution of data to end-users (Dalle, 2020). Quality and efficiency, particularly in the SC, internal control frameworks, and decision-making, can be improved by a good AS, institution, or organization (Al-Abbas, 2022). AS can also help hospitals and institutions generate value by developing quality and efficiency, particularly in the areas of SC efficiency, internal control mechanisms, and decision-making (Abdallah, 2013). This means that because these procedures are computerized, all manual procedures that can lead to errors can be reduced, beginning with data collection, recording, and summarizing and ending with financial situations and financial activity reporting (Setyaningsih et al., 2021). SC is one of the most important factors in determining a firm's competitive edge. Businesses aim to respond and offer their services to the market as rapidly as possible in today's competitive marketplace. The market for information technology is huge and rising. Finance, accounting, and SC are all being transformed by cloud computing. Daily events determine a hospital's value and the lag and gap in responding makes organizations less effective. The utilization of information technology is critical for SC improvement (Abunar &

* Corresponding author

E-mail address n.ineizeh@aau.edu.jo (N. I. Ineizeh)

Zerban, 2016). That the relevance of information technology is unavoidable in today's information-driven business environment, supply chain accounting systems have risen in favour of information-intensive enterprises as a result of the relevance of information technology. The supply chain accounting systems' reliability grows over time as a result of the correct and timely flow of accounting systems. As a result, the supply chain accounting system has become an essential component of any hospital in the modern day (Kadhim & Latif, 2019). As a result, AIS participates in and supports SC activities since they are components of the organization's information systems (Ditkaew et al., 2020). Therefore, the accounting system supply chain works in the same way as any other information system, collecting raw data at first and then disseminating usable data to decision-makers. Decision-makers can make efficient and timely economic decisions thanks to the rapid and accurate flow of information. In order to survive the digital revolution, hospitals are attempting to connect their information management systems. The accounting system supply chain enhances financial activity transparency within hospitals. Because of the significant public stake in government organizations, the accounting system supply chain is more relevant (Kadhim & Latif, 2019). SC is intended to handle trade flows more intelligently and cost-effectively (Al-Zaqeba et al., 2022). Furthermore, while the SC is a significant management tool in companies, it tends to be used more frequently in small and medium-sized firms (Almatarneh et al., 2022).

2. Literature review

2.1 Accounting Systems (AS)

AS supports management in regulating the economic-financial area of the firm, the idea of developing and deploying AS should lead to the formulation of a strategic perspective, given the importance of AS to all organizations, dealing with increased uncertainty in a competitive market should be a top priority. To match their information, hospitals must upgrade their systems and data processing capabilities (Issam, 2012), whereas accounting refers to a system that presents information about a certain hospital for multiple groups of people to review. Accounting data can assist users in determining their next steps (Aldegheishem & Alzamil, 2022). Accounting is a procedure that uses accounting records to help create financial statements. Because it delivers important information to managers at various levels, an AS is a critical technology for any hotel (Saeidi, 2014). Managers could do a better job of fulfilling their responsibilities if they utilized this data, especially in terms of planning, controlling resources, evaluating performance, and making choices. People, equipment, policies, and procedures all work together in an AS to gather data and turn it into meaningful information. It is a system composed of interconnected subsystems that work together to offer decision-makers timely, accurate, and trustworthy data (Beg, 2018).

AS a firm component that provides users with financial event processing for decision-making (AL-yasar et al., 2019). The nature of a hotel's reporting, and hence its performance, is determined by its accounting quality, according to Odero (2014). AS are developed to make accounting easier. A systematic approach to data gathering input and processing is also termed AS. Furthermore, as mentioned by Al-Dalaien and Khan (2018) AS follows established norms, regulations, methods, procedures, and techniques. Also, the AS efficiently makes timely data or information about an organization's operations available for interested parties (e.g., customers, employers, owners, etc.) to examine to assist their activities. AS records and transforms transaction and event data into information that businesses may utilize to plan, control, and operate their operations. A computerized AS also provides simplicity of use and utility, which improves SC operations and reduces a variety of challenges. As a result, the computerized AS is critical to improving SC accuracy (Waluyo, 2019), managers are provided with suitable accounting information for the various phases of the SC. Such accounting information can also help external stakeholders reduce their risks (Velayutham et al., 2021).

2.2 Input Data

The financial data represents the input of the AS based on the counted and recorded documentary session. The initial point of the work order and the initial basic needs required to operate the system are formed by input data. It could be in the form of numbers, forms, and fees reflecting the specific case or cases, or it could be in the form of a descriptive administrative example (Alshammari, 2022). It is possible that the input of one system is the output of another or that new inputs are introduced through feedback or through interdependence, integration, and coordination relationships between systems (Jarrah & Almatarneh, 2021). The input dataset in the accounting system is obtained from objective evidence supporting the financial events of document discretion, and data is prepared by other system components. As previously stated, data sources can be internal or external, and data is collected and stored in database management before being transformed into information. In this regard, AS is a tool that is integrated into IT to aid management and control (Soudani, 2012), the first operational phase of AS is data collection, with the goal of ensuring that valid, complete, and accurate data is entered. This phase facilitates relevance and performance, and the system should only obtain and collect relevant data at a single point in time (Alshebli, 2022). It is critical for managers to use the least amount of input to achieve the best possible output from their AS data, with the traditional premise of input and data recording being challenged by the recognition that systems can influence data quality. In order to eliminate errors, information must be accurate during the initial phase (input), with input control being the most important critical success factor of AS (Xu, 2015).

2.3 Data Processing

Data processing is carried out by hardware or forces that convert inputs into outputs by directing and tuning the reaction paths of these inputs using human and material forces and other procedure sets. In the accounting system of operations, the collecting, categorization, and summarizing of performance on input operations data in accounting books and records are following the principles and concepts of accounting regulations (Rishel, 2003). Data processing consists of operations carried out by hardware or forces that transform inputs into outputs by directing these inputs' reaction paths and tuning them with human and material forces, as well as certain other procedures (Dean & Ghemawat, 2008).

2.4 Output Data

Output data is the result of data processing operations (user accounts, reports, magnetic files, or exported check tapes), and it is only tradeable by authorized individuals. Reports and financial statements containing a variety of information derived from operations interactions for the input group in the context of environmental and subjective variables are distributed to those who can use and learn from them (Rishel, 2003). Thus, the advantages of AS can be investigated through its effects on enhancing the decision-making process, input data quality, data processing, and output data (Bento et al., 2014).

2.5 Supply Chain (SC)

The primary goal of SC activities is to meet customer demand by providing things at the lowest possible cost, with the highest possible quality, and in the timeframe deemed appropriate for customers, which is the most recent issue. SC is one of the most effective variables of building competitive advantages for businesses; businesses aim to adapt and supply their services to the market as quickly as possible (Abunar & Zerban, 2016). The ability to create and retrieve high-quality information will be critical in the future. Business control will be aided by technology, and corporations will better manage stakeholder relationships. SC represents the most advanced stage of purchasing, procurement, and other SC activities (Almatarneh et al., 2022). SC is a relatively new and fast-increasing discipline that is transforming how manufacturing and non-manufacturing organizations satisfy the expectations of their consumers. SC development coordination has become increasingly critical as new types of organizations arise, such as virtual businesses and global manufacturing (Arzu Akyuz & Erman Erkan, 2010). SC refers to a set of methods that assist two or more businesses in the same SCM in improving their performance (Jarrah et al., 2022), where the almost many firms now have strategic management systems in place that generate critical strategic information linked to ongoing study and monitoring of environmental challenges, including those pertinent to SC (Heng et al., 2005).

3. Hypothesis Development

Requires recognizing the value of technological data in management and providing training to staff to improve the efficiency of AS. Using basic linear regression, Beg (2018) discovered that AIS has a considerable impact on the financial success of the enterprises under consideration. According to Dalle's (2020) findings, AIS and SC have a positive relationship with the CE of the textile industry. Al-Omouh et al. (2022) discovered that intellectual capital has a significant impact on SC agility, combined knowledge evolution, and corporate sustainability. According to Djanegara et al. (2018) institutional isomorphic pressures and the organization's learning management function influence AIS investment decisions. A number of AS technology investment decisions have an impact on the organization's success. In a study by Ditkaew et al. (2020) found AIS quality has a positive influence on SCM. Based on the findings of Waluyo (2019), AS has a substantial positive link with SC accuracy, and AS assists SC operations, increasing SC accuracy. According to the conclusions of Dalles' study (2020), the SC process has a beneficial mediation impact on the linkages between the AIS and carbon emission, as well as the structure of energy consumption and carbon emission. Despite the fact that it is widely acknowledged that AIS has a significant impact on a company's performance. The findings of Jarrah et al. (2023) showed that the Internal Control System had an effect on the connection between the Accounting Information System and Employee Performance.

The Doktoralina and Apollo (2019), finding strategic management accounting methods have a substantial beneficial link with SC outcomes. According to Hasyim and Jabid (2019), the AS has a significant influence on SC activities. While Setyaningsih & colleagues (2021). In the study by Azhar et al. (2022), AS impacts SCM practices more inherently, and SCM techniques heavily influence its accounting procedures. According to the findings of Kadhim & Latif, (2019), all respondents agreed that an SC and AIS is a good way for gaining a competitive edge in terms of cost reduction, expanding the scope of the company, and strengthening the internal control system. Based on the previous discussion, the following hypotheses were developed:

H₁: *Input Data in the AS has a significant role in raising the efficiency of the SC in Jordanian hospitals.*

H₂: *Data Processing in the AS has a significant role in raising the efficiency of the SC in Jordanian hospitals.*

H₃: *Output Data in the AS has a significant role in raising the efficiency of the SC in Jordanian hospitals.*

4. Research Methodology

This study created a standardized table to determine the sample size for the study. The present study looked at the employed in Jordanian hospitals. The complete level of individuals or items of interest that the researcher wishes to explore is referred to as the researcher's population. The population frame also includes a list of all the elements in the population from which the sample was drawn (Sekaran, 2003). Notably, a study is conducted to benefit the population. As a result, giving a test to every single person in the population may produce erroneous findings (Castillo, 2009). The sample size is influenced by several characteristics, including the required level of precision, the number of variables analyzed, and the statistical methods used; according to Sekaran (2003). A questionnaire was used to gather data for this study, which investigated the role of the application of an accounting system in raising the efficiency of the supply chain in Jordanian hospitals.

5. Results and Hypothesis Testing

The mean and standard deviation (D.S.) were determined for mean averages ranging from (4.12 to 3.77). Furthermore, the average variance extracted (AVE) values in this investigation were all greater than the required threshold of 0.50 (Hair et al., 2017), indicating that convergent validity was reached. The study's validity and reliability were assessed using Cronbach alpha. Cronbach's alpha is an internal consistency metric that measures how strongly a group of items is linked. Cronbach's alpha, in other words, is a consistency or reliability coefficient rather than a statistical test. The number of items and average inter-correlation can also be used to determine Cronbach alpha. The greatest Cronbach alpha value was 0.88 for Input Data. As indicated in Table 1, the greatest dependability value was 0.83 for Output Data efficiency, with an alpha of 0.79 for SC and 0.76 for Data Processing, demonstrating reliability acceptance.

Table 1

The results of the means, standard deviation (S.D.) and Cronbach's Alpha and AVE

Variables	Mean	S.D.	Alpha	AVE (> 0.5)
Input Data	4.12	0.23	0.866	0.642
Data Processing	3.77	0.81	0.874	0.515
Output Data	3.98	0.56	0.805	0.549
Supply Chain	3.84	0.63	0.855	0.615

5.1 Multicollinearity

Multicollinearity occurs when the Variation Inflation Factor (VIF) value is less than 10.0 and the Tolerance value is greater than 0.05 (Pallant, 2016), collinearity is one of the most important issues to consider before performing multivariate analysis. When the correlation between variables is high, it is assumed that they have Multicollinearity problems. SPSS was used to perform a multicollinearity analysis. The lowest tolerance value is 0.380, while the highest VIF is 1.601. This demonstrates that all tolerance values are greater than 0.05, whereas VIF values are less than 10.0. As a result, there are no Multicollinearity issues among the variables in this study. As shown in Table 2:

Table 2

Multicollinearity Analysis

Variable	Tolerance	VIF
Input Data	.535	2.201
Data Processing	.380	1.601
Output Data	.402	2.780

Dependent Variable: Supply Chain

5.2 Normality test and ANOVA test

Prior to doing the ANOVA test, the Shapiro-Wilk test was carried out (The null hypothesis is the data come from the normal distribution). Table 3 demonstrates that since the p-value was greater than 0.05, all dependent variables followed a normal distribution.

Table 3

Normality test (Shapiro-Wilk test)

	Statistic	Df	Sig.
Input Data	0.988	134	0.121
Data Processing	0.985	134	0.233
Output Data	0.989	134	0.123
Supply Chain	0.899	134	0.751

5.3 Multiple Regression

In order to assess how well a model fits the data and how much each predictor contributes to the total variance explained, multiple regressions can also be utilized, where the role of AS in raising the efficiency of the SC in Jordanian hospitals was investigated using multiple regression models. You might be interested in learning how much variation in performance can be explained by test anxiety, revision time, lecture attendance, and gender in general, as well as the relative contributions of each independent variable to explaining the variance. The results are shown in Table 4:

Table 4
Result of Multiple Regressions test

Independent Variable	Coefficient				
	Unstandardized coefficients (B)	Standard error	Standardized coefficients (β)	Value of "t"	Sig "t"
Constant	1.235	0.226			
Input Data	0.334	0.053	0.205	5.315	.000
Data Processing	0.461	0.063	0.220	4.428	.000
Output Data	0.385	0.061	0.244	6.380	.000
ANOVA Results	Value of "F"		"F" sig		
	312.105		0.000		
Model summary	Multiple correlation coefficient (R)		Coefficient of Determination (R ²)		Durbin-Watson
	0.644		0.415		1.472

DV: Supply Chain

The results in Table 4 show the role of the AS in raising the efficiency of the SC in Jordanian hospitals, the "F" value, in this case, was 312.105, which was statistically significant at 0.00. The R-value was 0.644, while the R² was 0.415. Furthermore, as appears to play a larger role in raising the efficiency of the supply chain in Jordanian hospitals. To ensure a normal distribution, the independence of errors was also confirmed by calculating the Durbin-Watson value, which should be between (1.5) and (2.5) (Turner, 2020), and Table 4 presents that Durbin-Watson value is 1.472. The t value for input data was 5.315, 4.428 for data processing, and 6.380 for output data. As a result, every hypothesis was supported.

The regression equation is:

$$\text{Supply Chain} = 1.235 + 0.334 (\text{Input Data}) + 0.461 (\text{Data Processing}) + 0.385 (\text{Output Data})$$

6. Conclusions

The AS quality ensures the data's integrity, dependability, and completeness while also controlling its security as a type of corporate asset comparable to others, where the Jordanian hospitals utilize AS which allows them to obtain important data and validate the outcome of planned actions. The system manages requests for improvements to existing systems and creates annual reports with forward-looking data that aids in the creation of expectations and projections about the hospital's future. Top management can use the system to define and monitor hotel regulations. Furthermore, the goal of this study was to investigate the role of the application of an AS in raising the efficiency of the SC in Jordanian hospitals. According to the results of this study, the AS in the hospitals provides a significant influence in raising the efficiency of the SC in Jordanian hospitals. Therefore, due to its significant and useful function in expanding the supply chain and improving performance levels in the hospital, the study advises that Jordanian hospitals enhance their accounting systems and development.

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