

The Effectiveness of the Accounting Information System Under the Enterprise Resources Planning (ERP)

A Study on Al Hassan Qualified Industrial Zone's (QIZ) Companies

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Abstract

This study aimed to identify the effectiveness of the accounting information system for companies that adopting "Enterprise Resource Planning (ERP)" systems, and its relationship with the quality of accounting outputs (information) and the internal control. To achieve the goal of this study, the researcher chooses companies that located in Al Hassan Industrial Zone, particularly companies that uses ERP systems. A questionnaire designed and distributed to a sample of accountants and financial managers who works at such companies. The researcher used means and frequencies to describe the sample of the study and the questionnaire responses besides *t* test to test the hypotheses of this study. The results showed that the integration of accounting information system within the ERP system improving the quality of accounting outputs and the internal control in companies. More studies are required on this field to support the result of current study and to expand the accounting literature on this issue. Companies also recommended to adopt ERP systems because it will improve their performance.

Key Words: Accounting, ERP systems, Internal Control, Quality of Information.

1. Introduction

Accounting aims, as an information system, to provide various users with different forms of useful information to meet their various needs. Therefore, accounting seeks to take advantage of the surrounding circumstances in order to improve the quality and quantity of information and the delivery mechanism to users. The relationship between accounting and the computer began in the sixties of the last century. This relationship continued to evolve, and expanded in the eighties of the last century due to the development of the network and decision-support systems when it took a broader dimension and more flexible known as the computerization of accounting. Recently, as a result, several accounting software developed to be popular on the shelves (off the shelf) shops to become accessible to most interested in them at reasonable cost. (Mash'hour, 2002, p 9).

On the other hand, although there are some organizations that prefer to develop their own programs, either by them selves or through professionals, multi business organizations recently adopted the use of comprehensive business systems contain several sub-systems including accounting system. These systems are known as ERP (Enterprise Resources Planning) system, which is characterized by providing integrated incompatible results to the departments and assist them to improve the quality of their decisions and the preparation of comprehensive integrated plans. (Brehm & Gomez, 2010).

As many software companies produce Enterprise Resource Planning systems (ERP), such systems have spread globally and locally here in Jordan. Following to the transformation of the companies to the use of accounting computerized systems which become a part of Enterprise Resources Planning system, it became inevitable to recognize such systems and their performance.

2. Questions of the Study

Companies that use ERP system pay high cost for the system in addition to the cost of operation, technical and professional. This perhaps raises so many questions about such a shift; the most important – in the point of view of the researcher – are the following:

- Does ERP improve the outputs of the accounting information system?
- Does ERP improve the internal control of the accounting information system?

3. Importance of the Study

The high costs associated with the transformation of business organizations to implement the Enterprise Resource Planning (ERP) system, the requirements of requalification of employees and staff, its impacts on working hours and the performance of the work and the management programs and plans, the study has focused to identify the effectiveness of the information system of accounting in light of this transformation. We know that such system has certain significance in the decision-making processes, whether internal or external, as well as its role in the competition atmosphere, protection of property and confidentiality of operations and the information security.

The study also drives its importance as it is considered – as far as the researcher knowledge – the first study in Jordan that studied the effectiveness of the integrated accounting information system in the Enterprise Resources Planning (ERP) system.

4. Objectives of the Study

This study aims to:

- Examine if ERP improves the outputs of the accounting information system.
- Examine if ERP improves the internal control of the accounting information system.

5. Hypothesis:

The study hypothesis can be formulated in form of alternative hypothesis as follows:

- H 1: Enterprise Resources Planning system "ERP improves the quality of accounting information systems outputs.
- H 2: Enterprise Resources Planning System "ERP" improves the internal control of the accounting information systems.

6. Literature Review

There are many researchers such as Scapens & Jazayeri, (2003); Spathis & Constantinides, (2004); Nicolaou, (2004); and Galani, et al, (2010) studied the relationship between (ERP) and quality of accounting information. For example; Scapens & Jazayeri, (2003) who aimed to identify the system as a result of the implementation of Enterprise Resources Planning (ERP) system in the management accounting, especially after the wide spread use of these systems, particularly in large companies. They indicated that there is a lack of addressing the issue of ERP in the accounting literature. They explored the experience of the American system (SAP) and concluded that the implementation of the Enterprise Resources Planning (ERP) system decreases the routine administrative functions, provides the managers directly with useful information and increases of the role of managerial accountants. They recommended for further studies to be carried out on the application of ERP system and managerial accounting. Also, Spathis & Constantinides, (2004) studied the improvements offered by the ERP system to the process of

accounting information in business and to identify the ways to develop ERP system therein in the future. They surveyed a sample of (26) Greek companies applying ERP system using a questionnaire. They used the mean and standard deviation to describe the collected data. They found that the ERP system improves the effectiveness of internal control in business organizations as well as improves the quality of accounting information and increase its reliability. It also encourages the managements towards improving their performance. The study recommended the other companies to implement the ERP system because of its positive effects on the financial and administrative performance of companies. Correspondingly, Nicolaou, (2004) suggested that the successful adoption of information technology parameters would be beneficial to organizations, and the widespread ERP system would affect the various stages and steps of organizations work process. He aimed to examine the impact of the adoption of ERP system on the financial performance of companies. He used data for (247) US companies that applied ERP system. He found that there is an improvement in companies' financial performance after two years of adoption ERP. He recommended that further research should be conducted on this area.

Rasmy, et.al, (2009) explored the reasons of declining a successful implementation of ERP system in Egypt. They studied (45) Egyptian companies which apply ERP system in Egypt. They concluded that the knowledge or culture-based affected the application of ERP system negatively. Al-Qataweh, (2005) determined the impact of the use of information technology on the effectiveness of accounting information systems. He studied the financial institutions listed in the First Market in Amman Stock Exchange which consists of (23) financial institutions including banks and insurance companies. Two questionnaires were developed and distributed to a number of the financial and information technology departments of these companies. means and frequencies were used to describe the sample of study. Also t-test was used to test the significant of hypotheses of the study. He found there is impact for information technology on the effectiveness of accounting information systems. He recommended that there is a need to pay attention to training and more researches on this issues. Nicolaou & Bhattacherya (2006) aimed to examine the long-term financial performance as a result of changes in the ERP system. The results revealed that companies which implement ERP system showed early improvements in the financial performance more than others. Rehahleh & Siam, (2007) evaluated the effectiveness of computerized accounting information systems in the Jordanian commercial banks in light of technological development through testing the quality, flexibility, simplicity and confidentiality of these systems. Therefore, they developed a questionnaire and distributed (45) questionnaire to the financial departments in commercial banks listed on the Amman Stock Exchange. Only (42) questionnaire were returned and satiable for statistical analysis purposes. They found that the computerized accounting information systems in the banks has high quality, flexible simple and reliable. Rodney (2009) focused on identifying the contributions of accountants in the process of implementing ERP system in the post-implementation phase. A questionnaire was sent to a sample of (219) graduates of the Institute of Chartered Accountant Administrative Accounting of America. The study used frequencies and t-test to test hypotheses besides linear regression analysis. He found that there is a positive relationship between the contribution of accountants, especially those with technical skills and successful implementation of ERP. Galani, et al. (2010) aimed to explain the effect of the ERP system on accounting information system and the practices of administrative accounting through a field study carried out on a sample of Greek companies, from the perspective of users of the system. The results showed that the ERP system improves the quality of information and increase satisfaction with the management and users on the performance of their organization. The study also found that the ERP system improves the function of administrative accounting and thus the performance of management, increase their ability to take appropriate decisions, facilitate the proper application of new accounting practice, assist in reducing costs, establishing linkages with suppliers and reduce response time to customer needs.

7. Methodology

In terms of testing the hypotheses, descriptive analysis was conducted to test the questionnaire responses. i.e this study sent questionnaires to the financial managers and accountants who working in companies that located at Al Hassan Qualified Industrial Zone in Irbid which are 28 companies¹.

8. Population of the Study

Table 1 shows the number of questionnaires that distributed to the respondents . only 63 (75%) of them were returned, and 21 (25%) not returned.

9. Reliability of the measurement

Cronbach's Alpha was used to test the reliability of measurement which achieved (0.76) which considered as high reliable.

10. Characteristics of the Study Sample

Table 2 shows the respondents profile, i.e. it shows that (80.9 %) of respondents are accountants, while only (19.1%) are financial managers. most of the respondents has a bachelor degree (60.3%), while the others either have diploma degree (23.9%) or master degree (15.8%) and none of them has PhD degree. The table shows also that there are (34.9%) have 1 to 5 years experience. The majority of respondents (55.5%) have 6 to 10 years experience and the remaining (9.6 %) have experience more than ten years and less that fifteen years experience.

11. Description of the Responses by the Sample of the Study

Tables 3 and 4 show the descriptive analysis of the questionnaire responses by using means and standard deviation.

Table 3 describes the answers of the respondents related to the quality of the accounting outputs by integration of the accounting system into the ERP system. The analysis results show that there is an enhancement in these characteristics as the mean for these characteristics is above zero, which means that they tend to agree. The response on item 7 of the questionnaire which stipulates "the ERP systems maximize the accuracy of the accounting information" got highest ratio of agreement as the mean of this item was (1.237) with standard deviation (0.676).

Table 4 describes the responses related to the internal control enhancement of the accounting information system of business organizations which applying the ERP systems. The analysis shows there is an enhancement as the mean of the responses was above zero which means it tends to agree. Item 6 of the questionnaire stipulated that the ERP systems enable the concerned to follow up all the internal and external operations of the organization accurately. the mean of this item was (1.286) which tend to agreement with standard (0.723).

12. Hypothesis Test and Discussion the Study Results

Kolmogorove-Smirnov (KS) test was used to test hypotheses. The test was run on the averages of the answers obtained to determine whether the answers were subject to the normal distribution. The results of the test in question - as shown in Table 5 all of the distributions of averages of answers had been distributed normally. Then t-test was used to test hypotheses of study with a baseline.

¹ The responses were coded as 1 if the answer was agree, 2 if the answer was strongly agree, 0 for the answer neutral -1 if the answer was not agree, and -2 if the answer was strongly not agree

12.1 Hypothesis 1

Table 6 below shows the results of significant value (α) at (0.035) which is less than (0.05) which means that the alternative hypothesis accepted that states improving Enterprise Resources Planning (ERP) systems improves the quality of the outputs of the accounting information systems.

12.2 Hypothesis 2

Table 7 herein below shows the results of testing hypothesis that states “improving Enterprise Resources Planning (ERP) systems improves controlling the internal control controls of the accounting information systems”. It is obvious in table 8 that the level of significant (α) is (0.012) which is less than (0.05) which means that the alternative hypothesis is accepted and of the null hypothesis is rejected.

Conclusions and Recommendations

Based on the aforementioned results; conclusions of the study can be summarized as follows:

The integration of the accounting information system within the Enterprise Resources Planning (ERP) Systems would increase the relevance of accounting information and reduce the degree of uncertainty to the decision maker. In addition, ERP systems contribute in providing a much clearer picture for the overall activities of the business organization, its financial position and accounting position as well in particular. Similarly ERP provide the financial and accounting information in easy and understandable way and on proper time.

This study found that ERP systems facilitate comparison processes of the financial statements of a business organization over time, which enable the decision makers for better evaluation of the performance. Also, the use of ERP systems leads to the increase the reliability of accounting information systems through maintaining confidentiality, privacy and security of information. Finally, the findings of this study highlighted that the use of ERP system increases the possibility of monitoring all financial and accounting operation to make sure of the proper implementation accurately and smoothly by the competent authorities.

Hence, the study recommends to encourage different business organizations in Jordan to move toward the adoption of ERP application because its benefit to them in the field of control and decision-making. Furthermore, its recommended to expand using ERP system's among organizations, business owners and managers to highlight the advantages and benefits of this system in facilitating the work progress and simplifying procedures. It is important to support local software's companies to develop the various systems and deployment of ERP and increasing production in order to reduce costs and improve its performance locally. Eventually, there is a need for more studies on this area to support the results of the current study and to expand the literature on this important issue.

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Table 1: Questionnaire Responses

Statement	Number	%
Returned Questionnaires	63	75
Questionnaire not returned	21	25
Total	84	100

Table 2: Distribution of the Sample According to Job Title

Job Title	Frequency	%
Financial Manager	12	19.1
Accountant	51	80.9
Total	63	100

Academic Qualification	Frequency	%
Diploma or less	15	23.9
Bachelor	38	60.3
Master	10	15.8
PhD	0	0
Total	63	100
Experience	Frequency	%
1-5 YEARS	22	34.9
6-10 years	35	55.5
10-15 years	6	9.6
16 and higher	0	0
TOTAL	63	100

Table 3 : The quality of the Output in ERP systems

Ser. No.	Statement	Arithmetic Mean	Dev. Standard
1	ERP improves the ability of understanding the information provided to the decision-makers	0.789	1.529
2	ERP increases the accuracy of information provided to decision-makers and decrease it errors.	0.799	0.998
3	ERP contributes in neutrality of the provided information and honest	0.664	0.871
4	ERP increases the benefit of the provided information to the decision-makers	0.785	1.014
5	ERP contributes in improving the feedback information provided to decision-makers	0.889	0.840
6	ERP increase the consensus of the decision-makers about the provided information	0.680	1.104
7	ERP increase the accuracy of the information provided to the decision-makers.	1.237	0.767
8	ERP improves the outputs in reducing the risk of uncertainty to the decision makers	1.026	0.853
9	ERP improves the possibility of comparing the performance of the organization with itself through time	1.137	0.979
10	ERP improves the possibility of comparing the performance of the organization with other similar organizations	0.735	0.871
11	ERP adds a predictive value to the information provided to various decision makers	0.891	0.864
12	ERP improves timing of providing the information to the decision makers	0.883	0.711

Table 4 The Internal Control of the Accounting Information system under ERP systems

Ser. No.	Statement	Arithmetic Mean	Dev. Standard
1	ERP improves the controls of breaking through or trespassing the system	0.690	1.188
2	ERP regulates the access of professionals to the system according to their level of authorization	0.797	1.402
3	ERP contributes in separating the discrepant tasks among the organization employees	0.823	1.819
4	ERP improves the execution of all works of the organization in smooth & effective way	0.760	1.104
5	ERP enables the linkage of all in and out terminals of the organization properly and appropriately	1.099	0.930
6	ERP enables the organization to follow up all the in and out operations of the organization accurately	1.286	0.723
7	ERP deals with all appropriate methods which provide security against the internal and external threats (example, antivirus)	0.901	1.843
8	ERP enhances the possibility of following up the workers or users performance to ensure proper on time completion of work and accurately	0.822	0.937
9	ERP facilitates the proper operations that enable the controller to follow up and evaluate the work in accurate way	0.186	1.286
10	ERP provides proper documents that enable the controller to follow up work and evaluate the performance accurately	0.973	0.785
11	ERP provides the methods that ensure proper data entry and processing to the obtain the required outputs	0.828	1.159
12	ERP provides a library and archive to all files, programs and data which can be stored in separate tools	1.150	0.663
13	ERP helps to make sure that the input data are accredited to the organization and were entered properly	1.290	0.548

Table 5: The form of distribution the study sample average of answers

Statement	(α) significant level	Form of distribution
Average answers of 1 st Hypothesis	0.165	Normal
Average answers of 2 nd Hypothesis	0.259	Normal

Table 6: The Result of the First Hypothesis Test

Value of (t) Spreadsheet	Calculated (t) value	Level of significant (α)	Result of Null Hypothesis
1.96	8.528	0.035	Rejection

Table 7: The Result of the Second Hypothesis Test

Value of (t) Spreadsheet	Calculated (t) value	Level of significant (α)	Result of Null Hypothesis
1.96	11.356	0.012	Rejection

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