

The Degree of the Management Information Systems Use in Jordan Phosphate Mines Company LLC (JPMC)

Eiad Basher Al hyasat

Business Administration, Aqaba University College – Al Balqa Applied University, Jordan

[Abstract] This study aims to identify the management information systems and the degree of their usage in Jordan Phosphate Mines Company, by acknowledging the extent of their use in terms of accuracy, comprehensiveness, timing, clarity and flexibility of information. The study demonstrates that the management information systems are used in terms of accuracy and comprehensiveness, clarity, timing and flexibility of the information in them. Moreover, the study also exhibited that there is not any statistically significant difference in the degree of the use of management information systems of the employees of Jordan Phosphate Company attributed to the variables of gender, age, and occupation. The most important recommendation of the study is the necessity to develop the information system in order to provide brief, concise and adequate information, and thus, the output of the information system will be comprehensive and able to be represented in charts, graphs and other diagrams.

[Keywords] management information systems; Jordan Phosphate Mines Company; accuracy; comprehensiveness; timing; clarity; flexibility of information

Introduction

The technical development that we experience nowadays has made a significant impact on the process of decision-making in companies at different levels, and the technique of management information system is becoming usable to achieve a number of purposes including predicting economic trends, and identifying consumer trends, in addition to many other things that influence the decision making and the priorities of senior management in companies, especially the economies of developed countries that enjoy free economy which is directly related to the development and usage of management information systems in order to achieve corporate objectives (Yagmore, et al, 2003).

Information is considered the main resource necessary for all institutions, because gathering data, processing, and using it effectively, is considered a basic requirement for the success of organizations of various forms in the current era, which is characterized by ongoing and complex environmental changes, and this in turn, forced most institutions to use the information around the clock, in order to make decisions related to various administrative functions such as planning, organizing, directing, and control, however the efficiency of the management system in any organization depends directly on the accuracy, clarity, comprehensiveness and timing of the information.

Hence, the need for systems that collect, process, store and broadcast this information, contribute to the emergence of the so-called management information systems, which are commonly referred to as “a group of regular operations that support the different administrative levels by providing the necessary information to assist in the implementation of the work and in decision-making process, within the administrative body” (Ali, 2005). The importance of management information systems resides in finding the information, then collecting, analyzing and preparing it according to the needs of the various workstations in an institution or a company when needed. Moreover, the information system works to achieve the availability of resources for the organization, and increases the efficiency and productivity of these operations. Therefore, companies have paid special attention to the management information systems and its development in a way that serves the needs of the decision makers.

Jordan Phosphate Mines Company

Jordan Phosphate Mines Company was founded as a public shareholding in 1953; its objectives are to explore, mine and market the phosphates and fertilizer industry, and to contribute to the establishment of related industries under the license of mining and exploration, which was renewed in November 2001 for

a period of twenty years. Phosphates are mainly extracted from the Al- Rashidi mines, the white valley, Hasa, and the Al- Rusaifa mine, where often the inventory is re-carblized. In addition, 7 million tons per year of the rocks are produced in Jordan, which make it the world's sixth largest producer, and the second largest source of phosphate rocks. The company produces chemical fertilizers in the Industrial complex/Aqaba, which enjoys many privileges and exemptions, and is included in the law of Aqaba Special Economic Zone (The weekly export of the National Portfolio Securities for corporate performance, 2010).

Objectives of the Study

This study aims to identify the management information systems and the degree of their usage in the Jordanian Phosphate Company, by acknowledging the extent of their use in terms of accuracy, comprehensiveness, timing, clarity and flexibility of information. However, the degree of the full and effective usage of management information systems determines the impact on the productivity of the system users and thus, affects the performance of the company and the objectives behind its establishment. The study will provide a few recommendations stemming from the results of the study, which will be submitted to the decision makers in the company in order to develop their information systems and increase their information system usage in many areas.

Importance of the Study

The importance of the study stems from the importance of management information systems and the role they play in achieving management objectives, strengthening the competitive position of the company, improving its efficiency and performance, and raising the level of productivity. Therefore, this study aims to detect the degree of the usage of management information systems in one of the most important companies in the Kingdom, which plays an important role in the national economy and that the optimal use of the management information system puts the company on the right track to achieve its intended goals.

Moreover, this study aims to identify the extent of the use of management information systems in the company through the variables of accuracy, comprehensiveness, timing, clarity and flexibility of information in the company.

Hypothesis of the Study

Based on the problem of the study and in order to reach the appropriate solutions, the following hypotheses have been formulated:

The first hypothesis: The management information systems are used in terms of accuracy and comprehensiveness of the information.

The second hypothesis: The management information systems are used in terms of timing and clarity of information.

The third hypothesis: The management information systems are used in terms of flexibility of information.

The fourth hypothesis: There are significant differences in the degree of use of management information systems among staff of Jordan Phosphate Company attributable to the variables of Gender, age, educational qualification, occupation, and service duration.

Problem of the Study

The management information system and its development in the way it fits the policy and objectives of the institution are one of the important issues for decision makers in any company, so therefore, this study aims to answer the following questions:

- 1- Is the management information system used in terms of accuracy and comprehensiveness of the information?
- 2- Is the management information system used in terms of timing and clarity of the information?
- 3- Is the management information system used in terms of flexibility of the information?
- 4- What is the degree of usage for each of the characteristics of the management information system?
- 5- Is there a variance in the degree of usage of the management information systems attributable to the demographic variables?

Definitions

System: “it is a set of interrelated elements (interactive parts), which consensually work together to achieve a set of well planned goals and targets” (Al-Salmi, 2009).

Information: “it is the processed data that has a meaning and a value, used in decision-making” (Al-Sabagh, 2000).

Accuracy: “the proportion of correct information to the total produced information, during a certain period of time” (Olayan & Najdawi, 2008).

Comprehensiveness: “containment of the available or produced information for the basic facts needed by the beneficiaries or the decision makers” (Olayan & Najdawi, 2008).

Clarity: “it means that the information is clear, unambiguous, and coordinated with each other without conflict or contradiction, and are presented in a way meets the needs of the beneficiaries” (Alian, & Najdawi, 2008).

Timing: “it means that the information is timely appropriate for the beneficiaries during its obtainment and processing” (Olayan & Najdawi, 2008 .)

Flexibility: it is “the ability to adapt and facilitate information to meet the diverse needs of the beneficiaries” (Olayan & Najdawi, 2008).

Information Systems: it is “the operations of data collection, operation, and analysis provided to the managers in order to assist in the business implementation, and decision-making within the organization, provided that this information should be appropriate in terms of quality, timing, and cost” (Nino, 2001).

Management: it is “a mental activity related to the implementation of works by others” (Abu-Hilal, 2008).

Management Information System: it is “a group of organized operations that support the different administrative levels with the necessary information to assist in the implementation of the works and decision-making within the administrative body (Al-Salmi, 2009).

Information Technology: it is “a set of computerized systems used by organizations” (Turbon, 2004).

Previous Studies

The following studies are related to this study.

- Roy & Bah (2008). This article addressed the awareness of the use of strategic information for 347 Kuwaiti executives. The most important results indicated that: (1) “environmental scanning” and “vigilant information system” are the most preferred concepts that refer to this operation; (2) executives’ knowledge about strategic information management is average; (3) systematic collection of strategic information is lacking; (4) there is a positive relationship between knowledge of environmental scanning and knowledge of weak signals and strategic information; in addition, there is a positive relationship between knowledge of weak signals and their collection
- Hassan AL-Zubi (2007). This research aimed to identify the relationship between personal and occupational characteristics, The research concluded that (1) there is an acceptable level of information system efficiency, and (2) there are statically differences in the degree of information systems efficiency attributable to the differences of (age, scientific qualifications, length of

service at the company, length of service at the current occupation and the diversity of occupational tasks). The research concluded that companies should pay great attention to the development of information system in accordance with the qualities possessed by its employees and the company must conduct other researches to cover other non-covered aspects in this research.

- Mohammed Harabsheh and Mohammed AL-Maqableh, (2006). The study aimed to identify the management information system in the Directorates of Education by the Heads of Departments from their point of view. In the light of the results, the researchers recommended that it is necessary to develop the status of management information systems. Moreover, It is also necessary to apply different styles of communication such as direct speech, meetings and other updated instruments.
- Suleiman Obaidat (2006). This study aimed to examine the relationship between the management information system and the distribution of power among the different organizational units in terms of the quality of decisions. The findings revealed that there is a positive, strong and statistically significant relationship between the management information system and the distribution of power. Several recommendations were suggested including prioritizing the effect of the management information system on the distribution of power among the organizational units, and encouraging these units to be more cooperative and coordinated.
- Mohammad Mahasneh (2005). The purpose of this study was to determine the effect of the efficiency of management information system on the effectiveness of the decision making process in the Customs' Department. The main result of the respondent's perception to the efficiency of (MIS) reached (3.69) of arithmetic mean, and the decision making process was relatively high with a mean of (3.69). However, the study recommended that the higher management of the Customs' Department should create a suitable environment for effective participation among the users of information, in order to develop and follow up the system.
- Marco Mino (2001). The study was based on the view that the existence of advanced data system positively affects the activation of the certified decisions, which in turn reflect better level of institution performance and quality of services. Due to the increasing significance of the data related to the successful decision making process, it becomes necessary for the successful administrator to implement such a process accurately, and in the proper time by using the best systems to collect, process, and retrieve data when necessary. Results proved the existence of a positive correlation between data systems and the activation of decision-making.
- James Freedman, and Bennett (2008). These types of research draw their importance from the organization's expansion in the vast amount of resources to design, develop, implement and modify information system with combined results. The study findings explained that although the system design may achieve its goal of increasing the perception of access to information, but the level of empowerment may decrease, for the principal seeking to empower the agent. This counter intuitive finding lays the foundation for future research using the empowerment to investigate the role of information accessibility through advanced technologies.
- Jahangir Karimi, et al. (2000). Results of the study suggest that presence and roles of IT steering committees are significantly related to the level and nature of IT management sophistication within firms. Firms interested in achieving the most benefit from their steering committees should carefully select their preferred roles depending on the type and the level of IT management sophistication desired. The article concludes with discussion and implications for IT researchers and firms' executives.
- Jehan Bani Hani, et al. (2009). The ultimate purpose of this study is to investigate the impact of MIS on organization performance from the academic point of view at the Jordanian Universities. The findings showed that the management information systems had a significant impact on organization performance .

- Revichandran and Lertwongsatien (2005) implemented resource-based theory to examine the effects of information systems resources and capabilities on firm performance. The results provide strong support for the research model, suggest that variation in firm performance is explained by the extent to which IT is used to support and enhance the firm's core competencies. The results also support the proposition that an organization's ability to use IT in order to support its core competencies depends on information system functional capabilities, which, in turn, are dependent on the nature of human, technology, and relationship resource of the information system department.
- Study of Bharadwaj (2000) is entitled "The resource-based view of the firm attributes superior financial performance to organizational resource and capabilities" and results indicate that firms that adopt high IT capability tend to outperform a control sample of firms on a variety of profit and cost-based performance measures.
- Nathan Rang and G. Kannabiran (2004). The study seeks to gain an understanding of how Indian organization are designing these information systems function in order to promote the use of information technology for strategic benefits. It also aims to identify critical parameters that would contribute to the effective performance of the information system function in Indian organization.
- Marilyn Booth and George Philip (2005). This paper seeks to explore the management efforts put into the successful exploitation of technology. In the context of this study, information systems management (ISM) is defined as the managerial and technical strategies and competencies that significantly improve or add value to the use of information systems within an organization.
- Uma Vijay Kumar (2009). This paper analyzes the top management control function for information system in small and medium enterprises (SMEs). SMEs extensively rely on information technology resources in their competence in today's global economy. They should have adequate top management control mechanisms in place for their efficient functioning. Top management controls determine how effectively the senior management manages the information system functions in SME. The major tasks at this level consist of planning, organizing, leading and controlling functions. A brief introduction to SME is given at the beginning followed by the different categories of Top Management Controls.

Methodology of the Study

The analytical descriptive approach was adopted in this study where primary data was collected from the study population, and then the collected data was classified, described and analyzed to test the research hypothesis. The study included a theoretical part where the research subject was addressed, based on a number of researches, studies and books that addressed the subject of the study. In addition, it also included a practical part, where the study hypotheses were tested and the results were analyzed to extract the findings and recommendations.

Several statistical tests have been used which are the arithmetic mean, T test, the Cronbach alpha test, the standard deviation, the differences tests using T & F, and the LSD test. As for the answers to the questions, the standard for accepting the question (paragraph) is that for the arithmetic mean to be greater than three, and in order to be significant, the value of t must be greater than the indexed value or the level of significance to be less than 0.05. Description of personal and occupational factors of the respondents are shown in Table 1:

1. Gender: 74.2% of the respondents are males and the rest are female.
2. Age: 37.6% of the respondents age group ranges between 41-50 years, and 36.6% of the sample ranges between 31-40 years, and 18.3% of the respondents age is 30 years or less, and 7.5% of the respondents age is 51 years or above.
3. Scientific qualification: 43% of the study sample hold bachelor's degree, and 32.3% of the study sample hold diploma's degree, while 12.9% hold high school certificate, and 11.8% hold Master's degree.

4. The current occupation: 86% of the study samples are employees, and 7.5% of them are heads of departments, while 6.5% of which occupy the position of department.
5. The period of service in the current position: it appears that 35.5% of the study sample, their services' period is 16 years or more, and 30.1% of them, their services' period are between 11-15 years, 26.9% of those, their services' period ranges between 1-5 years, and 7.5% of those, their services' period ranges between 6-10 years.

Table 1. Frequencies and Percentages of the Respondents' Personality Variables

Factor		Frequency	Percentage
Gender	Males	69	74.2
	Females	24	25.8
Age	30 or less	17	18.3
	31-40	34	36.3
	41-50	35	37.6
	51 or above	7	7.5
Scientific qualification	High school	12	12.9
	Diploma	30	32.3
	Bachelor	40	43.0
	Master	11	11.8
Currant occupation	Department director	6	6.5
	Head of department	7	7.5
	Employee	80	86.0
Service duration in the current occupation	1-5	25	26.9
	6-10	7	7,5
	11-15	28	30.1
	16 or more	33	35.5

Tests of the Study Hypotheses

The First Hypothesis

The management information system is not used in terms of accuracy and comprehensiveness of the information. Table 2 shows that the arithmetic mean of this factor reached 3.66, which is greater than 3.00, and the level of significance is equal to 0.00, which is less than 0.05. Thus, we reject the first hypothesis and acknowledge the use of accuracy and comprehensiveness of the information in the management information systems.

The Second Hypothesis

The management information system is not used in terms of timing and clarity of information. Table 2 shows that the arithmetic mean of this factor is 3.78 which is greater than 3.00, and the level of significance is equal to 0.00 which is less than 0.05. Thus, we reject the second hypothesis, and accept the alternative, which states that timing and clarity of information are used in the management information systems.

The Third Hypothesis

The management information system is not used in terms of flexibility of information. Table 2 shows that the arithmetic mean of this factor is 3.56, which is greater than 3.00, and the level of significance, is equal to 0.00, which is, less than 0.05. Thus, we reject the third hypothesis, and acknowledge that the flexibility of the information is used in the management information systems.

Table 2. The Arithmetical Means, the Levels of Significance, the Saturation of the Paragraphs and Cronbach Alpha Values

No.	Paragraph	Arithmetic Mean	Significance Level t	Saturation	Cronbach Alpha Value
Variable of accuracy and comprehensiveness of the information					
1	The information provided by the system commensurate with the nature of the activities and operations exercised by the employee	4.24	0.00	0.63	-----
2	The system information are obtained from reliable sources	4.25	0.00	0.48	-----
3	The system provides information free of errors	3.65	0.00	0.63	-----
4	The system provides brief and sufficient information	2.94	0.61	0.60	-----
5	The used information system commensurate with the requirements of decisions related to achieving the desired goals	3.85	0.00	0.79	-----
6	The outputs of the information system are comprehensive and represented in graphs and charts	2.89	0.36	0.49	-----
7	The system provides information that meets the needs of the staff at all administrative levels	3.59	0.00	0.71	-----
8	Information provided by the system are developed	3.90	0.00	0.62	-----
		3.66	0.00	-----	0.70
Variable of timing and clarity of information					
9	The system provides the appropriate information in a timely manner	3.84	0.00	0.65	-----
10	The absence of one of the employees do not impede the use of the information at any time	2.78	0.09	0.87	-----
11	The information might be obtained directly from the field	3.98	0.00	0.60	-----
12	Information provided by the system are clear for the completion of administrative tasks	4.09	0.00	0.59	-----
13	The information system provides all the procedures, rules and regulations necessary to carry out the work	3.88	0.00	0.59	-----
14	The information system provides information for job description for all the staff and for all departments	3.80	0.00	0.67	-----
15	The way of information obtainment provide by the system is clear	4.08	0.00	0.66	-----
		3.78	0.00	-----	0.75
Variable of Flexibility of the information					
16	The information system is characterized by full compliance with administrative rules and regulations	3.85	0.00	0.67	-----
17	The information provided by the system is distinguished by taking into account the future needs related to the	3.73	0.00	0.59	-----

	implementation of administrative functions				
18	The information system allows employees to express their opinions in order to be able to contribute to its development whether to add, update, delete or retrieve the required data.	2.63	0.00	0.59	-----
19	The information system takes into account the limitations and constraints of the works in the departments	3.75	0.00	0.65	-----
20	There is cooperation and coordination among the different departments in the exchange of information	3.83	0.00	0.56	-----
		3.56	0.00	-----	0.62
	All combined factors	-----	-----	-----	0.85

The Fourth Hypothesis

There are statistically significant differences in the degree of management information systems usage by the staff of Jordan Phosphate Company attributable to the variables of gender, age, educational qualification, occupation, and the period of service. See Table 3.

Table 3. The Significance Levels for Tests *t*, and *f* Tests for the Differences Related to Personal and Occupational Variables of the Study Sample

<i>Factor</i>	The Significance Level				
	<i>Gender</i>	<i>Age</i>	<i>Scientific qualification</i>	<i>Occupation</i>	<i>Period of service</i>
The accuracy and comprehensiveness of the information	0.65	0.89	0.13	0.44	0.28
Timing, and clarity of the information	0.38	0.56	0.00	0.28	0.02
Flexibility of information	0.53	0.99	0.19	0.47	0.24

According to gender, age and occupation, all the significant levels for all factors are greater than 0.05, which indicates that there is not any statistically significant difference in the degree of the usage of management information systems for the employees of Phosphate Company in Jordan attributable to the variables of gender, age, and occupation.

According to the scientific qualification, there is not any statistically significant difference for the factors of flexibility, accuracy and comprehensiveness of the information, as the significance level for each of them is greater than 0.05. According to the factor of the appropriate timing and clarity of the information, the significance level is less than 0.05, which means that there are statistically significant differences in the extent of the study sample's feelings towards the appropriate timing and clarity of information attributable to the differences in scientific qualifications, and in order to identify the sources of these differences, Tukey test has been conducted, Table 4 exhibits the results of this test, and the results indicate that there are two statistical differences: the first difference is between the high school certificate holders and the bachelors' degree holders, in favor of bachelors' holders; the second difference is between the high school certificate holders and the Master's degree holders, in favor of the Master's holders.

According to the duration of the period of service, there is not any statistically significant difference in the factors of flexibility, accuracy and comprehensiveness of the information, where the significance level for each of them was greater than 0.05, and the significance level of the factor of timing and clarity of the information, was less than 0.05, which means that there are statistically significant differences among the study sample towards the extent of their feelings of timing and clarity of information attributable to their differences scientific qualifications and for the duration of service, and in order to find out the sources of these differences, Tukey test was conducted. Table 4 shows the results of this test,

which indicate that there is one difference between category (6-10) and category (16 and above) in favor of the lesser category.

Table 4. The Results of Tukey Test for Differences in the Timing and Clarity of Information, Attributable the Variables of Educational qualification, and Duration of Service

	High school	Diploma	Bachelor	Master	1-5	6-10	11-15	16 or above
High school	-----	-0.19	*-0.52	*-0.69	XXXX	XXXX	XXXX	XXXX
Diploma		-----	-0.32	-0.50	XXXX	XXXX	XXXX	XXXX
Bachelor			-----	*-0.17	XXXX	XXXX	XXXX	XXXX
Master				-----	XXXX	XXXX	XXXX	XXXX
1-5	XXXX	XXXX	XXXX	XXXX	-----	-0.95	-0.18	0.10
6-10	XXXX	XXXX	XXXX	XXXX		-----	0.41	*0.70
11-15	XXXX	XXXX	XXXX	XXXX			-----	0.29
16 or above	XXXX	XXXX	XXXX	XXXX				-----

*Statically significant

Results Analysis

It has been found that the information produced by the management information systems in Jordan Potash Company is characterized by accuracy and comprehensiveness where the arithmetic mean of this factor has reached 3.66 and the significance level was 0.00, which reinforces the role of these systems in the decision-making process. In addition, the results indicated that this information is characterized by appropriate timing and clarity, where the arithmetic mean has reached 3.78, and the level of significance is 0.00. The output of the management information systems in the Potash Company in Jordan is characterized by flexibility and the arithmetic mean has reached 3.56, and the level of significance is 0.00. Moreover, it has been found that proper timing and clarity of information came in the first rank, then accuracy and comprehensiveness of the information came in second, and the third and last rank was for the flexibility of information. The results also indicated that there are several negative sub-issues characterized in the system:

1. The system does not provide brief, concise, or adequate information where the arithmetic mean has reached 2.94;
2. The output of the information system is not comprehensive and is not represented by graphs or charts, where the arithmetic mean of this paragraph was 2.89;
3. The absence of one of the employees hinders the use of information at any time, where the arithmetic mean was 2.78;
4. The information system does not allow employees to express their opinions in order to be able to contribute to the company development whether to add, update, delete or retrieve the data required, the arithmetic mean was 2.63.

Recommendations of the Study

The study recommends the following:

1. The company has to work on developing the system in order to provide brief, concise, and adequate information, and for the outputs to be comprehensive and represented by diagrams and other graphics.
2. The company has to work on solving the problem of information inaccessibility at the time of the absence of one of the employees.
3. The company has to allow the employees to express their opinions in order to be able to contribute to the development whether to add, update, delete or retrieve the required data.
4. There is a need to use modern techniques in the management information system.
5. The Department of Management Information Systems must provide summaries of the requirements, to the senior management in order to save time.

References

- Al-Zubi, H. (2007). The employee personal and occupational variable affects the efficiency of information system. *Administrator Journal*, 29(108), 73-96.
- Ali, M. (2005). The effect of management information system on the government management. *The Sixth International Architectural Conference*.
- Ala' Al-Salmi, et al. (2009). *The essential of management information technology*. Amman, Jordan: Al-Manaheg for Publishing and Distributing.
- Al-Sabagh, E. (2000). *Information system: Essential and elements*. Jordan: Al-Thakafa for Publishing.
- Bani-hani, J., et al. (2009). The impact of management information system on organizations performance. *Review of Business Research*, 2, 127-137.
- Bharadwaj, A. S. (2000). A resource-based perspective on information technology capability and firm performance: An Empirical investigation. *Journal of MIS Quarterly*, 24(1), 169-196.
- Booth, M., & Philip, G. (2005). Information system management in practice. An empirical Study of UK companies. *International Journal of Information Management*, 287-302.
- Companies Report National Profile Securities, the Weekly Performance of 2010.
- Eliam, R., & Magdawi, A. (2005). *The principle of library management and information*. Jordan Studies Center.
- EL-Gayer, O., et al. (2005). Environmental management information system for sustainable development. *Communications of ALS*, 17, 1- 49.
- Freedman, J. (2008), The effect of information access on persistent voluntary engagement. Boston University. AAT.3298634.
- Gringo, P., et al. (2007). Understanding the relationship between PMS and MIS in SMEs: An organization life cycle perspective. *Computer in Industry Journal*, 58(7), 677-686.
- Gill, D. (2009). Management information systems and strategic performances: The role of top team composition. *International Journal of Information System*, 104-110.
- Harabsheh, M., & AL-Maqableh, M. (2006). The status of the management systems in directorates from their perspective. *Damascus University Journal*, 7(3), 176-199.
- Karimi, J., et al. (2000). The effects of MIS steering committees on information technology management sophistication. *Journal of Management Information*, 2, 2nd edition.
- Kumar, U. V. (2009). Top management control function for information system in small and medium enterprises. *Informatical Economical*, 1(4), 109-115.
- Mino, M. (2001). The effect of data systems competency on the effectiveness of decision-making in the housing. Bank for trade & finance, branches of the north region. *Journal of Irbid for Research*, 4(1), 1-22.
- Mahasneh, M. (2005). The effect of management information system efficiency on the effectiveness of decision-making. *Jordan Journal of Business Administration*, 1, 78-100.
- Obaidat, S. (2006). The relationship between the management information system and the distribution of power between the organizational units and the quality of decision. *Journal of Administrative Science Studies*, 33(2), 302-311.
- Ravichandran, C., & Lertwongsation, C. L. (2005). The resource-based theory to examine how information systems (IS) resources and capabilities affect firm performance. *Journal of Management Information System*, 21(4), 237-276.
- Nathan Rang, N., & Kannabiran, G. (2004). Effective management of information system function: an exploratory study of Indian organizations. *International Journal of Information Management*, 247-266.
- Rouibah, K. (2008). Awareness of the use of strategic information by Kuwaiti executives. *Arab Journal of Administrative Science*, 7(2).
- Turban, L. (2004). Strategic use of information technology. *The Digital Economy*, 3(21).
- Yagmor, A., et al. (2003). Quality of data and the use of information technology in the Saudi share holder companies. *King Saudi University Journal*, 15(1), 1-23.