INFORMATION TECHNOLOGY AND ITS IMPACT ON THE FINANCIAL PERFORMANCE: AN APPLIED STUDY IN INDUSTRIAL COMPANIES (MINING AND EXTRACTION)

Dr. Basman Omar Aldalayeen

University of Finance and Banking, Faculty of Finance and Banking, Karak

Dr . Wahid Rath'n Moh'd Alkhatatneh

University of Tabuk, College of Business Administration, Duba

Dr. Ahmad Saleh AL-Sukkar

The World Islamic Sciences and Education University

Abstract

This study aimed to identify the impact of using the Information Technology (IT), the financial performance of the industrial companies (Mining and Extraction). The questionnaire was used to collect the data of to achieve the objectives of study and distribute that were following: Assessment Managers, Assistants, Heads of Departments, Administrative Assistant and Workers in Middle Management, the random sample were (176) respondent. The researchers extracted the financial performance indicators data which used from 2009 to 2012, according to the annual report of Amman Stock Exchange for the year 2012 and the Statistical Package of Social Sciences (SPSS) that have been used it to analyze the data and the study found a number of results were most notably. The presence impact of IT with its variables together which were represented as follows (systems complementary, networking capabilities and databases) in the financial performance, light of findings of study recommended a number for recommendations and notably such as providing an effective working environment in industrial companies focusing on the information technology which companies are able to achieve competitive advantages.

Keywords: Information technology, financial performance, industrial companies

Theoretical Background of the Study

Rapid technological development has led to the speed of achievement, especially with citizens growing desire to obtain multiple services in a more sophisticated way and accurately

to traditional management failure to respond to those desires led to the need of reconsidering the systems and methods of management services.

However, the organizations increased the interest in Information Technology (IT) due to the successful and great role in the various administrative aspects, where contributed in a significant and important changes represented in reducing the cost of production processes, improve the level of prices, increase the speed of achievement and quality improvement, which contributed to increasing the competitiveness of these organizations, and achieve its goals in survival, development and expansion in its work performance, working on what this technology has offer of means and appropriate tools.

Also, concept of IT did not have a comprehensive definition like other new concepts, there were many varied definitions depending on the intellectual vision and perspectives of researchers and writers, (Michel, 1990) defined it as: Means that used to produce process, store, retrieve, and Send information, whether it is in the form of written digital or image. Where the outputs of the information technology are represented in the appearance of many areas of development like a sophisticated program, which include expert systems, artificial intelligence, databases, office automation, Internet, extranet, e-mail and remote communications technology.

In this context, we find that information technology depends mainly on the use of techniques and software also its applications depends on several stages to its launch (Turban et al., 1999), from data acquisition, which includes the organization, tab, storage, coding, analysis to get to the results ranked stage processing to take advantage of them at the appropriate time.

In this we note that information technology represents the technological aspect of the information system which is also used as an alternative to it at other times.

The number of researchers dealt with the subject of information technology and its impact on business organizations from several different directions, Wingers and Albert (2000) by their study entitled that Three Essays on the impact of information technology on the organization of companies were results of the study showed that IT coupled with the direction towards small-sized companies in traditional industries and with the direction toward large-sized companies in information-based industries.

Also, the study conducted by Hitt, (1997) entitled economic analysis of information technology and regulation, the results were showed that organizations that using these systems to achieve higher levels of investment returns in information technology, and showed that IT is associated with increased productivity in dimensional range. Another study

conducted by Isobe et al., (2008) aimed to identify the nature of the relationship between technological capabilities and performance of companies, the study found that the technological capacity significantly and positively associated with companies' performance.

Also, the study by García and Navas (2007), aimed to analyze the relationship between technological capabilities and company's success. The study showed technological capabilities overall affect the success of the company. Also, the research by Ortega (2010), identify the role of technological capabilities in the rate of the relationship between competitive strategies and performance on one hand and the relationship between cost orientation and performance on the other hand.

The study by Mishra and Agarwal, (2012), aimed to examine the organizational use of information technology based on innovation on a sample of electronic companies. The study concluded to propose a model supports the work in electronic markets as well as to identify a combination of factors that related to the impact of information technology.

The research by Madsen, 2010 explained use of IT in the world of competition works on the formulation and the formation of business strategy, the information revolution and the development of technologies has led to what became known as cognitive employment, also contributed to the change of work and its time and place which has become known as the default organizations, which organizations should understand and recognize the necessity to deal with it by all the its considerations.

Also, Madsen (2010), in his study clarified that many of the successes that the organizations gained there are several factors behind them, including what is the organization owned of capabilities as the writers and researchers contrast to identify these factors and named it according to the contrast, the strategies adopted, the powers, competitive conditions and differences in perspectives property.

The financial of any individual or company is the backbone of an individual or a company, and if the company missed this backbone will miss its balance, so the financial performance is the main ingredient of the companies, which help its continuation and growth, A proper financial performance provides a full range of accurate and reliable information to compare the actual performance of the company's activities through specific indicators are obtained from the actual performance and compare it either in specific percentages or specific targets and thus determine if there is any deviations. Based on what came in above the current study seeks to demonstrate the impact of information technology on financial performance.

Problem Statement

Awareness of the researchers about the importance of using the IT in general industrial Jordanian shareholding public companies particularly, this research came to highlight the information technology and its impact on the financial performance through a theoretical and applied framework to a sample of employees in industrial companies (Mining and Extraction). The problem of the study can be clarified through the following questions:

1. Does the information technology with its variables that are (systems integrative, networking capabilities, databases) affect in financial performance in industrial companies (Mining and Extraction)?
2. What is the level of the employees (Assessment Managers, Assistants, Heads of Departments, Administrative Assistant and Workers in Middle Management) for IT variables?

Hypothesis of Research

The hypothesis of the study are Following as shown Figure 1:

H1: There is no statistically significant effect at the level of significance at **($0.05 \leq \alpha$)** of the IT with its variables that are (systems integrative, networking capabilities, databases) In financial performance (return on equity, return on investment, stock price to its profitability, market value to book value, daily stock price). In industrial companies (Mining and Extraction).

The Research Model

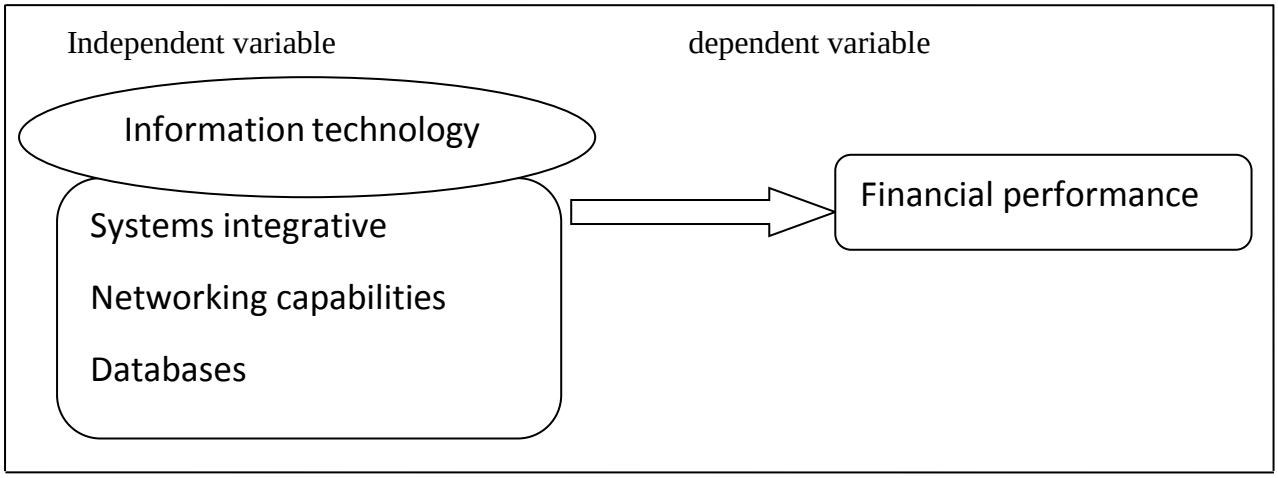

Figure 1: The Research Model

Objectives of the study

The aims of this study to identify the impact of using the IT in financial performance at industrial companies, by following:

1. To identify levels and areas of using the information technology in industrial companies.

2. To determine the level of financial performance reached with the companies under study.
3. To make recommendations and proposals that may contribute to increase the financial performance and enhance the role of information technology in industrial companies.
4. To provide information for researchers and interested people and decision-makers in the management of the organizations.

The Research Significant

The importance research are following points:

- Improving the quality of organizations, and to increase its' productivity speed in order to face the growing demands for the customers public.
- The theoretical importance of the researched variables.
- This study is a starting point for research-direction that care in focusing on studies related to information technology and its role in business organizations.
- The importance of the researched organizations which are industrial companies, being a tributary of the Jordanian economy tributaries.

Methodology of Research:

The researchers in this study adopted two approaches of research methodology:

1. **Descriptive analytical approach:** to review the most important literature related to the subject of the study, as well as previous studies to cover the theoretical aspect of the study.
2. Field research approach: was used to cover the practical side of this study, to extract conclusions that related to the independent variable (IT) by relying on a questionnaire designed for the purposes of this study, As for the dependent variable data have been extracted for the financial performance indicators **(ROE** Return on equity, **ROI** Return on Investment, **P / E** stock price to profitability, **M / B** market value to book, **Volatility** daily stock price variation**)**, For the period 2009 - 2012, according to the annual report of the Amman Stock Exchange for the year 2012, according to the recognized scientific steps.

The study population

The study population consisted of all industrial companies (Mining and Extraction). The Public participation companies in Jordan that listed on the Amman Stock Exchange that reached (16) companies and according to the annual report of Amman Stock Exchange for

the year 2012, **The sample of the study** included (12) of the industrial companies (**Mining and Extraction**). During the period 2009 – 2012.

The researchers were able to obtain reports through which access to financial indicators that relate to the financial performance (return on equity, return on Investment, stock price to its profitability, market value to book value, daily stock price). Regarding to the information related to the independent variable the researchers polled a random sample through a simple questionnaire of (283) of the managers, Assistants, heads of departments, an Administrative Assistant, working in middle management in companies of the extractive and mining industries that listed in the Stock Exchange, (8) Were excluded because its unfit, thus the sample stabilized at (176) and analyzed of the total community.

Table (1) the names of the companies and the number of managers and heads of departments in the Central administering and questionnaires

Company	Establishment Date	Managers and department heads	Distributed questionnaires	Retrieved questionnaires
The Public Mining / Tadenko	1973	30	10	7
Arab Aluminum manufacturing	1976	90	30	25
National Steel Industry	1979	30	10	5
Jordan Phosphate Mines	1953	250	40	26
Arab Potash	1958	100	30	15
Jordan Steel	1967	70	30	15
National Aluminum / Nalco	1994	75	30	7
Jordanian rock wool manufacturing	1988	60	15	9
Jordan Cement / Lafarge	1957	110	30	25
National oil and electricity production from the oil rock	2007	25	13	7

The chemical polymerization Company	**1990**	**30**	**15**	**10**
Mining and Chemical Industries Company	**1993**	**80**	**30**	**25**
Total (12)		**950**	**283**	**176**

Tool Validity and Stability

To verify the validity of the questionnaire it was presented to a group of professors and experts in the field of computer and financial to know its suitability to measure the variables of the study, as noted some observations loaned sufficient importance.

However, applied the Equation of Cronbach Alpha as the accepted value (Alpha> 0.60) in humanitarian research, it has reached 81%. With regard to the limits adopted by this study when commenting on the arithmetic average the researchers has identified three levels (high, medium, weak) (from (1) - less than 2.33 weak) - (2.34-3.56 medium) - (3.57-5 high).

Statistical Methods

The researchers used the statistical methods within the SPSS of data analysis, where researchers used the averages and standard deviations and multiple regression analysis in order to test hypotheses.

Descriptive statistics Results for the study questions

The arithmetic average and the standard deviation of the study questions for the independent variables were extracted and summarized in Table (2).

Table (2) averages and standard deviations and the level of study sample Answers

Number	Statement	Arithmetic mean	Standard deviation
Integrative systems			
1	**The use of information technology lead to achieve coordination and integration between the various activities**	**4.12**	**.646**
2	**Information technology helps companies to develop integrated activities**	**4.11**	**.681**
3	**The use of information technology lead to enable companies to integrate several operations in a single operation**	**4.10**	**.684**
4	**The using of information technology in the company facilitate the coordination between operations in different departments**	**4.08**	**.769**
5	**The use of information technology lead to increase company's ability to coordinate between the various tasks of the operations**	**4.04**	**.753**
		4.09	
Networking capabilities			
6	**Networks in place in the company contain new services and applications at high speed**	**4.53**	**.589**
7	**The company uses different communication devices in the completion of its various operations.**	**4.44**	**.703**

8	**Flow of information between the different administrative levels in the organization easily and as needed.**	**4.31**	**.713**
9	**The company works on the use of the Internet as a as a way of communication to facilitate the exchange of information and data between users and the company.**	**4.21**	**.676**
Total			
Databases			
10	**Database are protected, so that it difficult to manipulate.**	**3.96**	**.742**
11	**The necessary data can be retrieved from database when needed.**	**3.94**	**.735**
12	**Common database allows the bank's reporting capabilities and the capacity to ask questions and receive answer**	**3.98**	**.740**
13	**Availability of data, information and files with the mutual relationship and stored on computer media**	**4.01**	**.575**
Total			

Table (4) the arithmetic mean and standard deviation of financial performance indicators for the sample companies (2009 - 2012)

The study sample	ROE		ROI		P/E		M/B		Volatility	
	Standard deviation	arithmetic mean	Standard deviation	arithmetic mean	Standard deviation	arithmetic mean	Standard deviation	arithmetic mean	Standard deviation	arithmetic mean
The Public Mining Tadenko	**0.43**	**3.54**	**0.15**	**3.51**	**0.02**	**3.46**	**0.06**	**3.40**	**0.34**	**3.49**
Arab Aluminium manufacturing	**0.23**	**3.57**	**0.34**	**3.59**	**0.01**	**3.58**	**0.07**	**3.45**	**0.25**	**3.13**
National Steel Industry	**0.13**	**3.55**	**0.43**	**3.54**	**0.02**	**3.53**	**0.05**	**3.54**	**0.27**	**3.30**
Jordan Phosphate Mines	**0.63**	**3.58**	**0.25**	**3.60**	**0.01**	**3.59**	**0.04**	**3.66**	**0.31**	**3.64**
Arab Potash	**0.25**	**3.60**	**0.33**	**3.60**	**0.08**	**3.61**	**0.01**	**3.59**	**0.27**	**3.62**
Jordan Steel	**0.11**	**3.52**	**0.05**	**3.52**	**0.02**	**3.54**	**0.03**	**3.47**	**0.29**	**3.32**
National Aluminum / Nalco	**0.33**	**3. 69**	**0.63**	**3.66**	**0.03**	**3.71**	**0.02**	**3.75**	**0.40**	**3.59**
Jordanian rock wool manufacturing	**0.05**	**3.56**	**0.02**	**3.49**	**0.01**	**3.52**	**0.15**	**3.53**	**0.27**	**3.31**
Northern Cement	**0.23**	**2.34**	**0.87**	**3.31**	**0.01**	**2.45**	**0.34**	**2.76**	**0.26**	**3.31**
National oil production and electricity from oil rock	**0.02**	**3.35**	**0.10**	**3.57**	**0.04**	**3.38**	**2.71**	**3.02**	**0.24**	**3.19**

Polymerization company	**0.09**	**3.37**	**0.28**	**3.52**	**0.06**	**3.38**	**0.10**	**2.59**	**0.29**	**3.10**
Mining and Chemical Industries	**0.12**	**3.48**	**0.20**	**3.30**	**0.03**	**3.41**	**0.12**	**3.22**	**0.31**	**3.05**

From the above at the table that showed arithmetical means of financial performance indicators of the company National Aluminum company, Arab Potash, and the phosphate mines exceeded the arithmetic means of other companies and by all indications, the arithmetic mean of all the indicators came highly and those ratios ranged between (3.85 - 3.59), while the arithmetical means of the performance indicators for the Northern Cement Company was law and by all indications.

Data Analysis and Hypothesis Testing

HO1: No statistically significant effect at the level of significance **$(0.05 \leq \alpha)$** for information technology with its variables (integrative systems, networking capabilities, databases) in financial performance (return on equity, return on investment, stock price to its profitability, market value to book value, daily stock price). In industrial companies (Mining and Extraction).

To test these hypotheses multiple regression was used, as shown in the table below.

Table (4) the results of multiple regression of the impact of information technology with its variables on the financial performance

Statement	(R)	(R^2)	(F) Calculated	(F) crosstabulated	Beta	* sig
The impact Information Technology with its variables: integrative systems; networking capabilities; databases In financial performance (ROE)	**0.782**	**0.701**	**59.532**	**1.654**	**0.332**	**0.000**
The impact Information Technology with its variables: integrative systems; networking capabilities; databases In financial performance (ROI)	**0.886**	**0.786**	**69.633**	**1.654**	**0.439**	**0.000**
The impact Information Technology with its variables: integrative systems; networking capabilities; databases In financial performance (P/E)	**0.945**	**0.894**	**62.432**	**1.654**	**0.604**	**0.000**
The impact Information Technology with its variables: integrative systems; networking capabilities; databases In financial performance (M B)	**0.795**	**0.632**	**53.147**	**1.654**	**0.662**	**0.000**
The impact Information Technology with its variables: integrative systems; networking capabilities; databases In financial performance (**Volatility**)	**0.852**	**0.726**	**50.273**	**1.654**	**0.643**	**0.000**

Seen from the data contained in the previous table (3) that the F values calculated for this hypothesis was (**69.633 -59.532- 62.432 - 53.147 - 50.273)** is greater than the cross tabulated value of F amount that was **(1.645),** As the decision rule indicate to rejection of nihilism hypothesis if the calculated value of F greater than cross tabulated value of F, so that the alternative hypothesis which states that "no statistically significant effect of information technology with its variables of (integrative systems, networking capabilities, databases) in financial performance in industrial companies (Mining and Extraction) " will be accepted.

This is confirmed by the value of significance (Sig.) amounting to zero, where it is less than 5%. Note that the coefficient (Beta) has reached (0.332 - 0.439-0.604 -0.662-0.643) indicate that the Direction is a positive relationship between the independent variable and the dependent variable.

Results and recommendations:

- Results of the study showed through the Answers of the (sample) in industrial companies (Mining and Extraction) that the level of their assessment of the importance of the dimensions of information technology was high; despite the existence of a differentiation between dimension and another.
- The results showed the financial performance indicators that arithmetic averages of the National Company for the aluminum manufacturing and the Arab Potash Company and Phosphate Mines Company was high and by all indications, while the results showed decline of the arithmetic averages of the North Cement Company.
- The results showed the presence of a statistically significant impact of information technology with its variables combined (integrative systems, the capacity of networks, databases) in financial performance in industrial companies (Mining and Extraction).

❖ Based on these findings, the study recommends industrial companies and other organizations, with the following:

✓ Providing an effective working environment in industrial companies focused on information technology by which companies are able to achieve competitive advantages because the focus on technology that enables companies to develop strategic decisions in the long run.

- ✓ Support The Information Technology Departments by supplying them with budgets and qualified and trained human resources so as to enhance the presence of these companies and their role in improving its performance. (Paquin, 1990; Turban, 1999)

References:

Paquin, M. (1990). Information technology management: an integrated approach: summary: Canadian Workplace Automation Research Centre .

Turban, E., & Miclean, E. (1999). InformationTéchnology forManagement, Making, connections for Stratégic Advanteg.

Roger carter, Information technology (1991). MADE simple books, (2 ed) London, P 08.

Wenger, Albert E, (2000). Three Essays on The Influence of Information Technology on the Organization of Firms. DAL-A 60/01.

Hitt, M, (1997). Economic Analysis of Information Technology and Organization, DAL-A 58-03.

Turban, E, & Miclean, E, & we Therbey, j (1999). Information, Téchnology for Management, Making, connections for Stratégic Advantege, 2 nd ed, john wiley & sons, lnc, new york, p 103.

Isobe, Takehiko; Shige Makino & David B, (2008). Technological Capabilities and Firm Performance: The Case of Small Manufacturing Firms in Japan, Asia Pacific Journal of Management, Vol. 25:413 – 428.

García~Muina, F. E & Navas~López, J. E, (2007). Explaining and Measuring Success in New Business: The Effect of Technological Capabilities on Firm Results, Technovation, Vol.27, No. 1/2:30~46.

Ortega, María José Ruiz, (2010). Competitive Strategies and Firm Performance: Technological Capabilities' Moderating Roles", Journal of Business Research, Vol.63:1273 – 1281.

Mishra, Abhay Nath & Agarwal, Ritu, (2012). Technological Frames, Organizational Capabilities, and IT Use: An Empirical Investigation of Electronic Procurement. Information Systems Research, Vol 21, No.2: 249-270.

Madsen, P. M., & Desai, V, (2010). Failing to Learn? The Effects of Failure and Success on Organizational Learning in the Global Orbital Launch Vehicle Industry, Academy of Management Journal , 53: 451–476.