

A STUDY ON HOW INFORMATION TECHNOLOGY INFLUENCE ORGANIZATION PERFORMANCE IN TERMS OF DECISION MAKING AND PRODUCTIVITY

Zakaria Saleh¹

¹The American Intercontinental University,

Ahmad Mashhour²,

²University of Bahrain,

Yaser Al-khateeb³

³University of Bahrain,

ABSTRACT

Information technology plays an important role on productivity of organizations. Measuring and improving the efficiency and effectiveness of information technology on productivity has high-priority budget issues for numerous organizations. The primary objective of the present survey is to study the impact of information technology on productivity and decision-making process in the organization.

We have examined the direct impact of Information technology on the organizations that rely on information technology and are leveraging the technology in their decision making to improve productivity. The results of this study indicate that using information technology can impact the performance of an organization and can increase the profitability of the organization by saving cost. Regression and correlation tests are applied to measure relationship between the different identified variables. The results show that there is positive relationship between performance of the organization and information technology.

Keywords: Information technology, Organization's performance, Productivity, effectiveness, efficiency.

INTRODUCTION

Organizations try to improve their performance by investment in information technology. Nowadays, organizations are seeking out ways to reinforce their competitive position and improve their productivity. Accordingly, there is an increasing consciousness of the necessity to derive profit through investing in IT where IT becomes a significant driving force behind many business improvements. As the utilization and commercialization of IT becomes more widespread throughout the world, the adoption of novel IT can generate new business opportunities and socioeconomic changes (Burhanudin, 2019; Ghobakhloo, 2011).



In order to improve the organizational productivity and enhance the employees ' level of ethics, organizations should understand the dimensions of the Information Management, and clearly define the resources and manage them well across the organizational boundaries. Researches have shown that organizations lack the formal Information sharing practices fail to leverage the technology for business innovation and growth (O'Neill &Adya, 2007). Several rescuers have the critical information required by strategic and operation management and concluded that information technology are critical for the efficiency of decision-making in the organization (Fabunmi, 2003; Knight Moore, 2005). Some studies have presented that the relationship between IT and productivity is not positive. But, most studies have concluded that IT affects the productivity and efficiency positively. This study will assist different parties involved with adoption process including managers, vendors, consultants, and governments to achieve a practical synopsis of the IT adoption process. So, this research describes how information technology can be used to decentralize decision making, improve business processes and productivity.

THE PURPOSE OF THE RESEARCH

Advances in information technology over the past years have led to a broad range of systems that managers currently use to make decisions, and workers rely on in their day to day business activities. However, many of the previous studies indicate insignificance of the impact of information technology on productivity of the organizations. Some researches indicated that the development of computers has been a significant factor in increasing productivity (ISR, 2003), while others such as Gordon (2000) have noted a lag in productivity growth caused by computers, and found computers to be as a slight factor. This research studies the impact of information technology on productivity and decision making process in the organization. The significant of this research to conduct a more study and explore the extent to which information technology are used to make effective decisions, and how it impacts productivity, after all those years.

LITERATURE REVIEW

According to Dierckx and Stroeken (1999), IT applications is a significant driving force behind many socioeconomic changes. The adoption of innovative IT can generate numerous new benefits and business opportunities. Accordingly, there is an increasing consciousness of the necessity to derive profit through investing in IT since IT significantly assist organization through supplying required infrastructure necessary for providing appropriate types of information at the Interdisciplinary right time. IT can also provide competitiveness through integration between supply chain partners and inter-organizational functions, as well as by providing critical information (Bhagwat and Sharma, 2007).

Evaluating and managing the effective delivery of IT services is an issue which has been brought into sharper relief recently. University of Wolverhampton (Worrall, 1998). Productivity comes from working smarter, which normally requires new production technologies and techniques (Smith, 2008). Productivity improvement has a crucial role in



increasing profit by reducing cost of development. Firms adapting and using IT can improve the production process and labor productivity. IT is a key driver of productivity and pioneer to accelerate the industry in economic growth (Abri and Mahmoudzadeh, 2015). Information technology (IT) is the major contributor to the progress plays and plays an important role on increasing productivity in many organizations, and studies show that IT, organizational actions and interaction of these two have positive impacts on productivity (Ghorbanzad and Beig 2012), which should result in cost reduction, but in some cases the relationship between technology spending and productivity may be more complex than just a static linear relationship between both variables (Lang, 2009; Lau et al., 2013), Studies found that Information technology have revolutionized the management of contemporary organizations and introduced a paradigm shift in the way businesses operate (Bere, 2014), and the results clearly demonstrate that information technology has a positive impact on productivity. Smith (2008) research concentrated on two independent variables, improved business processes and decentralized decision making. Information technology was shown to be a moderating variable for decentralized decision making and improved business processes.

Shahiduzamana (2014), found in their study of information technology and the role of changes that have over economic growth and productivity in Australia have used data for 1975-2011 to evaluate the changing roles of technology on economic growth and productivity in Australia, where the study found the evidence of significant contribution of IT in economic growth and productivity. Information technology are used in organization for business operation, and studies some found strong advancement in the field of information technology through which an organization can easily achieved the strategic objectives, and that it can help in decision support, venture management, resource and people management and data base retrieval application. Also, proper implementation of the technology in organization found to be helping in control and monitoring of the employees and over all organization activities (Aral, 2010). In a study conducted in the context of large organizations, Awan and Majeed (2015) provided empirical support for a positive relationship between business performance and the alignment of business strategy and MIS strategy.

RESEARCH METHOD

A survey instrument in the form of questionnaire was developed and constructed from several previous studies on impact of Information technology usage on productivity and business process improvement, and from other studies that that covered the overall performance and efficiency of the workforce (Smith, 2008; Worrall, 1998). Several questions were constructed in the questionnaire based on the objectives of the research. Gathering information from the customer in the interaction to understand the customer more thoroughly and better serve him or her. Likert-type Scale questions are used in order to identify the respondents' perceptions towards engaging in M-commerce. Table 1 explains the Questionnaire's items.



RESEARCH HYPOTHESIS AND MODELING

The concept of how information technology influences performance in terms of decision making and productivity, we have established eight Hypotheses as listed below. While none of the Hypothesis mention information technology, the questions provided to the participants explicitly indicates that. So, the listed Hypothesis shell is assumed to be tested in terms of using information technology. The reason why we decided to do it this way, it is easier to state and explain. This can be further indicated by looking at the study's assumed relationships between the independent variables and the dependent variables, which is illustrated in Figure 1.

The detailed relationships between the independent variables and the dependent variables of the study have been modeled and are being presented in Figure 2. There are eight hypothesis developed in this study in order to properly evaluated the intended objectives of the study. The Hypothesis are listed next.

- H01: The speed of completing work directly affects efficiency
- H02: The precision of completing work directly affects efficiency
- H03: Proper control directly affects reaching planning objectives
- H04: Proper decision directly affects reaching planning objectives
- H05: The efficiency of completing work directly effects cost
- H06: Reaching planning objectives directly affects effectiveness
- H07: Management effectiveness is directly affected reduced cost
- H08: Management effectiveness is directly affected by efficiency



Item #	Item	Source
1	Completing tasks have benefited from improved information technology	(Smith, 2008)
2	The company routinely pursues cost reductions through information technology.	(Smith, 2008)
3	The company provides the information technology tools necessary for its employees to be successful.	(Smith, 2008)
4	The company's information technology strategy aligns with its business strategy.	(Smith, 2008)
5	The company uses information technology to facilitate new processes that constitute a better way of doing business.	(Smith, 2008)
6	The company uses information technology to facilitate operational efficiency.	(Smith, 2008)
7	The company uses information technology to control the quality of products/services.	(Smith, 2008)
8	The company is working towards establishing a service-oriented architecture.	(Smith, 2008)
9	The company has modeled its business processes.	(Smith, 2008)
10	The company uses Information technology to make the necessary decisions in order to take advantage of business opportunities.	(Smith, 2008)
11	The company uses Information technology decision making in The company.	(Smith, 2008)
12	Information technology provides better coordination among functional areas in The company.	(Smith, 2008)
13	The company has increased its management's span of control through information technology.	(Smith, 2008)
14	The company is more efficient than the majority of its competition.	(Smith, 2008)
15	The company is more effective than the majority of its competition.	(Smith, 2008)
16	The company uses information technology to improve the productivity of labor through automation.	(Smith, 2008)
17	The company uses information technology to improve the levels of production.	(Smith, 2008)
18	The company is effective at using information technology for business innovation.	(Smith, 2008)
19	Employees have a high degree of technical competence in using systems	(Worrall, 1998)
20	Employees have confidence in systems.	(Worrall, 1998)
21	The company uses information technology to provide Fast response to remedy problems.	(Worrall, 1998)
22	The company uses information technology to improve responsiveness to changing user needs.	(Worrall, 1998)
23	Employees have good understanding of the system.	(Worrall, 1998)
24	The company uses information technology to improve personal productivity.	(Worrall, 1998)
25	The company uses information technology to enhance cost-effectiveness.	(Worrall, 1998)
26	The company uses information technology to monitor performance in delivering the services.	(Worrall, 1998)
27	The company aligned of information technology plan with the overall corporate plan.	(Worrall, 1998)
28	Employees have a high degree of personal control over their systems.	(Worrall, 1998)
29	The company uses information technology for measurement of benefits derived by the user.	(Worrall, 1998)
30	The company uses information technology to enrich the working experience of the user.	(Worrall, 1998)

Table 1: The Questionnaire's items of the Study

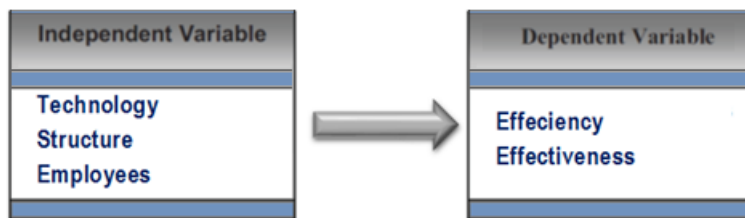


Figure 1: The Study independent variables and the dependent variables

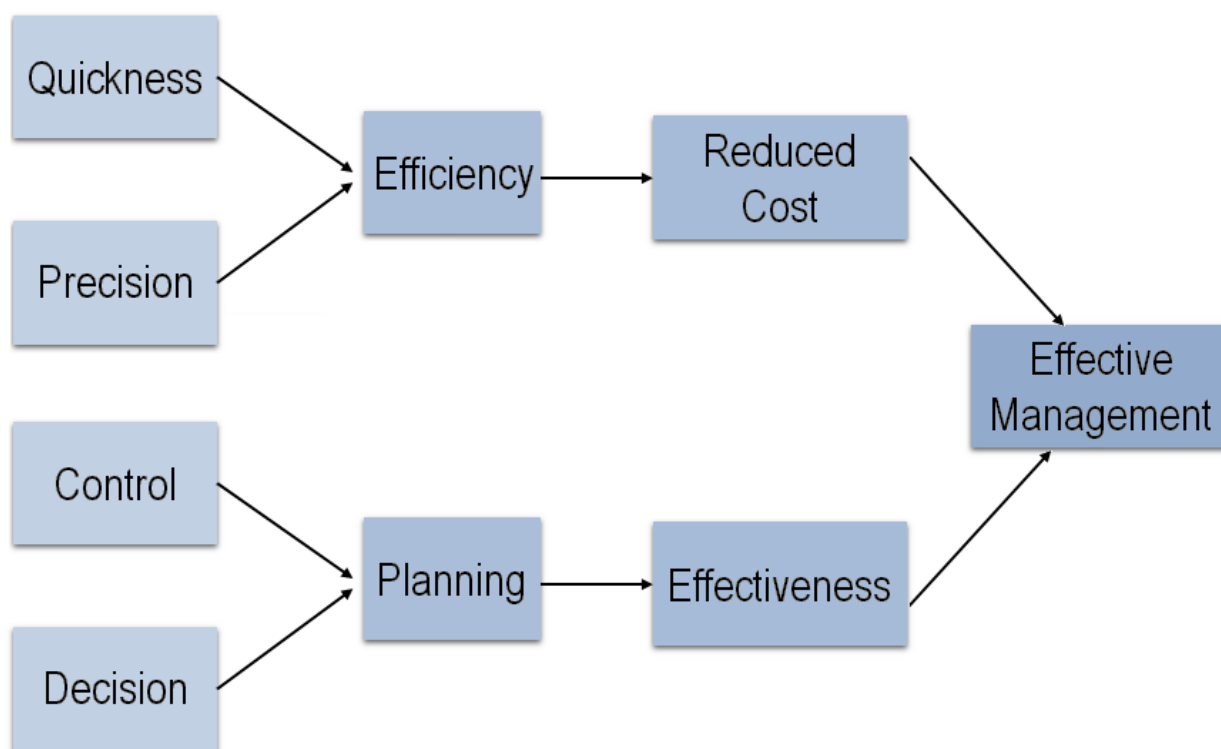


Figure 2: The relationships between the independent and the dependent variables

ANALYSIS AND HYPOTHESIS TESTING

The First Hypothesis (H01): The speed of completing work directly affects efficiency. Testing this hypothesis, in the scale of 1 to 7, the mean score for speed of completing work found to be 3.37 and the mean score for the efficiency is 4.28. The standard deviation of the speed of completing work is 1.56 and the median is 5.23, where standard deviation of the efficiency 0.76 and the median is 5. A Pearson's correlation was run to determine the relationship between the participants' speed of completing work and the efficiency. There was a very strong, positive correlation ($r = 0.78$, $N=257$, $p < .001$).



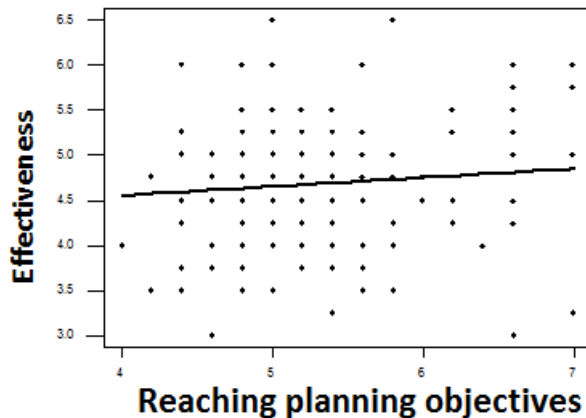
The Second Hypothesis (H02): The precision of completing work directly affects efficiency. The mean score for precision of completing work found to be 5.54 and the standard deviation of the efficiency 0.76. We tested to see if the slope significantly different from zero, and found that there was a very strong, positive correlation between precision of completing work and efficiency ($r = 0.91$, $N=257$ $p < .001$).

The Third Hypothesis (H03): Proper control directly affects reaching planning objectives. Testing this hypothesis, the mean score for proper control is 4.47 and the standard deviation of the reaching planning objectives score is 1.31. Testing the correlation between proper control and reaching planning objectives, we found that the P value to be ($r = 0.76$, $N=257$, $p < .001$) which is considered strong.

The Fourth Hypothesis (H04): Proper decision directly affects reaching planning objectives. To seek the association between proper decision and reaching planning objectives, the mean score for proper decision is 4.13, the median is 4.22, and the standard deviation of t of reaching planning objectives score is 1.31. The Pearson correlation coefficient is found to be ($r = 0.29$, $N=257$, $p < 0.05$). This means the positive correlation between the two measurements is statistically significant though it is weak.

The Fifth Hypothesis (H05): The efficiency of completing work directly effects cost. The Pearson correlation coefficient between the efficiency of completing work a positive influence on cost is ($r = 0.71$, $N=257$, $p < 0.01$), which indicates a strong positive correlation, and that the correlation is very significant.

The Sixth Hypothesis (H06): Reaching planning objectives directly affects effectiveness. Testing this hypothesis, the mean score for effectiveness is 4.76 and the standard deviation of the level of security 1.12 and the median score is 5.11. The Pearson correlation coefficient between reaching planning objectives directly and effectiveness found to be 0.07, which indicates a very weak positive correlation and considered not extremely significant (which was somewhat strange that an organization would reach it's planning objectives and not be effective). Looking at Figure 3, which demonstrates the linear regression plot of the reaching planning objectives and effectiveness. If we trim the three unusual observations resided at the bottom right corner of the box, then the Pearson correlation coefficient between the two measurements will be 0.16 and the corresponding P-value will be 0.04 or 4%. This means the positive correlation between the two measurements is statistically significant (at 5% significant level) though it is not strong.



The Seventh Hypothesis (H07): Management effectiveness is directly affected by reduced cost. We stated to see if there is a correlation between management effectiveness and reduced cost we found that the P value to be ($r = 0.81$, $N=257$, $p < .001$), therefore we can accept the hypothesis

The Eight Hypothesis (H08): Management effectiveness is directly affected by efficiency
a. We stated to see if there is a correlation between management effectiveness and efficiency, we found that the P value to be ($r = 0.83$, $N=257$, $p < .001$). Based on the above testing result, we can accept the hypothesis

CONCLUSION

A significant amount of research has attempted to determine if information technology is a good investment for an organization. And, because these investments can be substantial, companies want to ensure that their investment will yield the results they expect.

This study is intended to determine how companies can make the most of an information technology investment. The data collected and analyzed by this study shows that organizations should increase productivity by using information technology. This research also supports the idea that using IT in decision making and controlling will increase productivity and management effectiveness. Information technology has been found to be a significant factor influencing the performance in terms of proper decision making and productivity. Using Information technology is important because it does influence the speed of completing work, reusing cost, and thus directly affecting efficiency.

Information technology has been found to be a significant factor in providing proper control over employees performance and influencing the proper decision making to reach planning objectives. The findings show that in order to measure the effectiveness of a plan, management have to use information technology to link their objectives to the way they plan to achieve, control employees performance, and monitor the effectiveness of their plans. Information technology can be used to evaluate if a plan is being effective,



while allowing for using the resources being allocate according to the plan in order to deliver the expected results. Managers need to use information technology to continually evaluate use of resources and performance to check if their targets are reached with efficiency effectiveness.

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