

Impact of Information Technology Towards Organizational Performance

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ABSTRACT

Since the beginning of the 21st century, numerous organizations have extensively implemented information technology into their operations. With regard to this, it captures the interest of researchers, practitioners, academicians, and policymakers to comprehend the role of organization dynamic capability in information technology and the role of digital leadership in enhancing organizational performance and enabling the information technology process. There was limited study on the impact of technology on the performance of government agencies. Therefore, this research focuses on government agencies in Malaysia. This study was conducted to seek the true role of information technology in organizational performance and the impact of information technology on organizational performance. Through an analysis of the 131 randomly selected workers, this paper investigates the impact of information technology on organizational performance. This study examines the effects of IT Operation, IT Knowledge, and IT Competence on the performance of an organization. In this research, SPSS was used for normality and reliability analysis, as well as descriptive organization multiple regression analysis. The result revealed that only IT Competence has a positive impact on organizational performance. The finding also revealed that the impact of information technology on the performance of an organization is minimal and contributes a minor impact.

Keywords: Information Technology, Organization Performance, IT Knowledge, IT Competency, IT Operation

INTRODUCTION

Information technology (IT) has transformed the way people work and interact. According to [19] IT is an instrument used by companies to look for innovative ways of operating and relay information to achieve economic gains. Furthermore, [8] supports that information technology has always been recognized as important to an organization's survival and growth. IT has played an integral part and essential support in growing an organization. In current years Information technology is very crucial to all organizations [2].

Meanwhile, [1] has mentioned that the goal of information technology in an organization is to provide better insights for higher management and managers with information for more precision in planning and controlling business. Moreover, the introduction of new technology can help organizations to be more flexible and effective in management functions. New technology can remove unnecessary workflow and cut it short to create a more productive organization.

The new technology that exists in recent years is expected to boost organizational outcomes and performance. Nevertheless, there is still a need to understand the impact of the contribution of IT on organizational performance. That evidence may guide higher management in making decisions on IT investments [5]. Therefore, highly effective information technology has improved efficiency in the organization's daily operations, which has affected better business performance and a stronger organization. [9], mentions that many organizations have started to adopt the use of information technology for their day to day. Organizations are rapidly moving onward to Information Technology to develop business solutions to improve both efficiency and effectiveness of the organization which can, enhance productivity and service quality, achieve dynamic stability, and compete for new markets. Information technology plays a role as a core function for business functions, operations, products, and services.

The way that an organization manages investments in Information Technology plays a vital part in organizational efficiency and effectiveness. Furthermore, IT has a role in the business model and the critical drivers of success. In general, as stated [6] an organization learns if the range of its potential behavior is changed. Thus, this study has been held to seek the role of information technology in organizational performance.

LITERATURE REVIEW

Organization Performance

Organizational performance is a universal term that is defined as a group of individuals that work in a group. Yet there is still lacking a unified definition which makes it hard for researchers to correspond on the meaning of organizational performance. Performance is the main focus of every organization [20], and it is also applied to government agencies. Organizational performance is concerned in relation to the processes that must be carried out to ensure optimal performance, it is concluded that the performance of an organization cannot be separated from the factors that can affect performance such as technology, quality of the physical environment, culture, leadership and motivation [19]. In modern days, it is generally accepted by researchers that technology does bring a significant impact on organizational performance [10], [12]. For example, information technology applications can be used to improve the level of competency of administrative functions in an organization and to enhance

the effectiveness of front-end activities. According to [15], to improve overall organizational performance, the organization must ensure to improve employee performance to a better performance than they already had. These applications also can be used as tools to impose better organization on tasks and to provide better information to managers. Organizations around the world have different objectives. But all organizations share one main objective which is to earn profits by increasing performance [21]. According to [16], the objective of all organizations is profit. The success of any organization depends on its employees' performance; therefore, poor employee outcomes are disadvantageous to a given company's success. Performance is measured using ten questions that are being prepared across three segments which are individual, group, and organization [14].

IT Operation

IT operation defines as the operation of information technology in the organization on a daily basis operation and on higher management functionality such as decision-making and data collection on markets and statistics. IT operations focus on daily routine operational tasks. IT operation is crucial as it is the heart of the information technology in an organization. IT operationally is very close to behalf of the conceptual issues at hand as it holds both the information technology tools as well as the knowledge that are used for it [20]. Changing operations from old to new technology is not an easy task as it requires change in workflow and adapting to IT Operations may take time. Problems on it can be overcome with a good direction from the organization and thru IT Knowledge which can lead to skilled employees. In terms of hardware procurement and provisioning, network infrastructure, server and device administration, IT operations, and help desk support, IT operations should be extremely efficient and incorporate lean concepts and culture [22]. Problems and questions as mentioned has been highlighted in the questionnaire in this study.

IT Knowledge

In the current modern organization, knowledge is one of the core assets in any organization in the world, it is also playing a major part in technological capital. In recent years Organizations are trying to apply IT to improve their organizational performance. According to [12] based on the terms of technology education, the statement that, at least in terms of technology education, the contrast between knowing how and not being aware of it holds true. Technological knowledge is essential for technological activities such as innovation and the use of technological artifacts. Knowledge comes in many different kinds. Either it is kept in hard data or shared through communication between staff in communication. IT Knowledge leads to IT competency which is also crucial for organizational performance. Based on a variety of knowledge in the context of technology education, organizations primarily need to examine which discipline they aim to expose to employees. The overall aim of technology education is regularly acknowledged internationally to mean the development of technological capability. IT knowledge also includes experimentation that has been run in the organization in order to create a new competitive advantage factor that can bring benefits to the organization. In the same way through experimentation, staff can gain new knowledge which can lead to a more skilled staff that has driven through better organizational performance [6]. This study has examined the literature on IT knowledge in the questionnaire in order to gain information on how an organization reacts toward IT knowledge and examine how it affects the organization's performance.

IT Competency

According to [10], competency has two main definitions that have been identified which outputs or outcome of training which leads to skilled performance. The second definition is input which is required to achieve skill performance. Both definitions are used to describe organizational and individual. Competency is defined as having an understanding of proper concepts and processes skills of design and realization, the ability to apply knowledge and skills by thinking and acting confidently, imaginatively, creatively, and with sensitivity, and the ability to evaluate technology [3]. Even though the definition has provided a good insight into these definitions of 14 and what it means to be technologically competent, there are still gaps left about the concept of IT Competency itself. In order to measure the concept of IT competency, [6] has divided IT Competency into 3 main categories, and each of the categories has been questioned in the survey that has been distributed to the respondent. As such, these measures reflect the presence of physical IT assets, the knowledge of how to use them, as well as their use in practice giving the second-order latent variable a comprehensive reflection of how IT is used in the organization.

Conceptual Framework

In Huber's theory, IT is positioned as the independent variable while a number of organizational aspects are treated as dependent variables in order to provide a more comprehensive understanding of how IT and organizations operate. Figure 1 depicts a conceptual framework that was adopted and adapted from [6] based on their research, which was designed around the independent variables of IT Operation, IT Knowledge, and IT Competency. Based on the conceptual framework, the following hypotheses were developed.

- Hypothesis 1: IT Knowledge has a significant positive impact on Organization Performance.
- Hypothesis 2: IT Competency has a significant positive impact on Organization Performance.
- Hypothesis 3: IT Operation has a significant positive impact on Organization Performance.

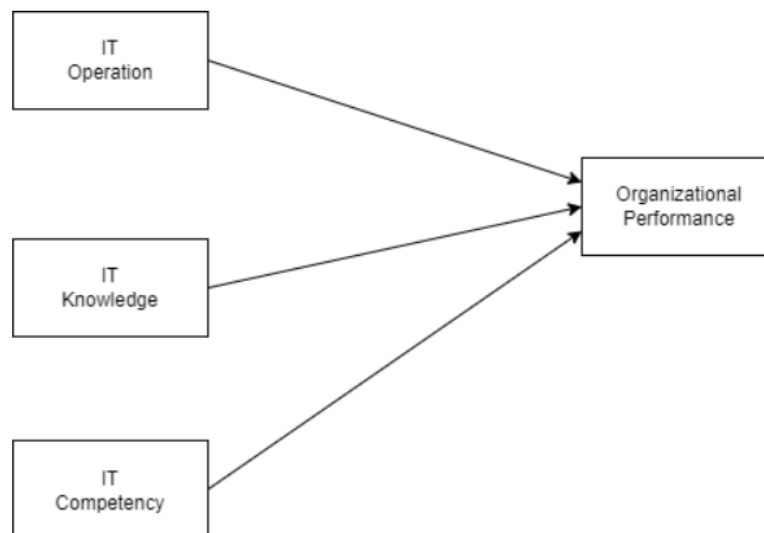


Figure 1: The conceptual framework

RESEARCH METHOD

Research Design, Sampling, and Response Rate

Research design is the base to provide an appropriate framework for a study [17]. In this study, a quantitative research approach has been chosen for conducting this research. The research design for this study is a correlational study. For this study, the researcher tried to investigate the relationship between IT Operation, IT Knowledge, IT Competence, and Organization Performance.

A survey was done among 131 employees at a government agency in Malaysia. The G*Power software was used to compute the sample size for this study, and the total sample size needed is 119 respondents, based on the calculation effect size $f^2:0.15$, $\alpha=0.05$ and the number of predictors=3 (IT Knowledge, IT Competency, IT Operations). The power is set at 95%. The respondents were chosen via purposive sampling. Purposive Sampling characteristic collects a homogeneous purposive sample thus suitable for the purpose of this research. The target population is from different levels from clerical up to managerial level. All of this target group understands and comprehends the IT nature in the organization's working environment.

Measurement and Data Collection

Based on the literature review, variables were derived, and measures were developed. The questionnaire has been divided into five components which are demographic, IT Operation, IT Competency, IT Knowledge, and Organizational Performance. In measuring the demographic profile of the respondents, the participants were requested to complete the questions about their demographic backgrounds, such as gender, age, occupation, and working experience. The questionnaire in this study has been adopted from previous studies. The questionnaire with six items was adapted to measure IT Operation. Every five items were adapted from a questionnaire to measure IT Knowledge, IT Competency, and Organizational Performance. All questionnaire items were measured on a 5-point Likert-scale response ranging from 1 (strongly disagree) to 5 (strongly agree).

A pre-testing was conducted to verify that the questions to be used as the questionnaire are free from vagueness, and bias, and the respondents can understand the questions. Pre-testing is also essential to avoid poor data quality and prevent or reduce items' deletion during the measurement model evaluation [7]. For this study, two (2) experts were invited for the pre-testing phase to provide feedback regarding the questionnaire items. A modification based on the pre-testing was used to generate the final version of the instrument for this study. After receiving feedback from professionals and laypeople alike, the final questionnaire was refined with some changes to the wording for more precision and the removal of some jargon, acronyms, and terminology.

In collecting data for this study, the researcher needs to get ethical approval since that is the procedure from the DPPS (Department of Postgraduate and Professional Studies) under the Faculty of Business and Management. In this research, questionnaires have been distributed through various social media mediums such as Twitter, Facebook, and WhatsApp. Data collected were coded and analyzed using SPSS, descriptive and inferential statistics. Regression analyses were done to determine the relationship between the variables under study. A total of 140 sets of questionnaires were distributed to the respondents, and there were only 131 questionnaires that were returned yielding 93.5 % of the response rate.

FINDINGS AND DISCUSSION

Data were analyzed using SPSS version 26. Normality tests, reliability tests, and demographic analysis were employed. Multiple regression analysis was performed to investigate the relationship between variables. Findings revealed that most of the respondents are the majority were male which is 71 respondents (54.2%) while 60 of the respondents were female (45.8%). As shown in Table 1, can see that males are leaner towards giving cooperation in completing the survey and involving in this study. Thus, it can be concluded that the numbers of male respondents were higher compared to the female respondents. Meanwhile, for the age category, the majority of the respondents' age were over 40 years old, which totals 40 employees (30.5%). The next largest age group was in between 25-30 years old with a total of 34 employees (26.0%), followed by the workers with 30-35 years old age groups and 35- 40 years old, which shows 21 out of 131 respondents (16.0%). In contrast, the least category of age among respondents was between 18-25 years old, which shows only 15 respondents (11.5%). next demographic factor, respondents are divided according to their occupation level. For the occupation question, it was found that most of the employees were working in scope Executive level group which has a total of 64 (48.9%), followed by the Managerial level, which shows a total of 35 (26.7%). The next level is the administrative level, which totals 29 (22.1%). The least from the occupation level are from others which only 3 (2.3%). From the study, it was found that most of the respondents are from the executive-level group. The table also indicated the experience. From the table, it can be seen that most of the employees had experience in the 3-5 years group, with a total of 63 (48.1%). Next, the experience followed by 6-10 years, shows 47 (35.9%) and 10-15 years with a total of 19 employees (14.5%). The least experience of more than 15 years group, which means only 2 out of 131 (1.5%). The study found that the most significant and high experience was a group working for 3-5 years.

Table 1: Demographic Profile of the Respondents and Relationship with Job Satisfaction

Demographic Profile	Frequency	Percentage
Gender		
Male	71	54.2
Female	60	45.8
Age		
18 - 25	15	11.5
25 - 30	34	26
30 - 35	21	16
35 - 40	21	16
above 40	40	30.5
Occupation		
Managerial Level	35	26.7
Executive Level	64	48.9
Administrative Level	29	22.1
Others	3	2.3
Experience		
3-5 Years	63	48.1
6-10 Years	47	35.9
10-15 Years	19	14.5
More than 15 years	2	1.5

Mean, and standard deviation was used in this study's descriptive statistics. The arithmetic mean's central tendency was measured using the mean, while the most powerful dispersion measure, the standard deviation, was utilised to quantify the square root of variance variability [18]. Table 2 below presents the mean and standard deviation for the dependent variable (employee job performance) and independent variable (knowledge sharing, communication, decision-making) in this study. In this study, the data set was tested on all items of the research variables to determine the normal distribution of the sample. The normality test results indicated that the values are within the cut-offs of +3. Hence it agrees with the suggestion provided by [11], which states that all items of the research variables should be normally distributed, as shown in Table 2.

Table 2: Mean and Standard Deviation for Variables

	Mean	Std. Deviation	Skewness	Kurtosis
IT Operation	3.9593	.54932	-1.437	3.254
IT Knowledge	3.9664	.95600	-.856	.366
IT Competency	4.0412	.51900	-.917	1.043
Organization Performance	4.0931	.64321	-.268	.038

Reliability Analysis

Reliability analysis was carried out using Cronbach coefficient alpha which assesses the internal consistency of items. As suggested by [13], values above 0.7 were considered reliable (Table 3). Cronbach's alpha for all the variables was above 0.7, indicating a good internal consistency among the items.

Table 3: Reliability for each variable

Variable	No of items	Reliability	Internal consistency
IT Operation	6	0.799	Acceptable
IT Knowledge	5	0.987	Good
IT Competency	5	0.726	Acceptable
Organization Performance	5	0.994	Excellent

Multiple Regression Analysis

Multiple regression was used to assess the relationship between IT Operation, IT Knowledge, IT Competency, and Organization Performance. Preliminary analyses were conducted to ensure no violation of normality, linearity, multicollinearity, and homoscedasticity assumptions. The results in Table 4 from the analyses denote that IT Operation ($t=0.861$, $p>0.05$), IT Knowledge ($t=1.115$, $p>0.05$), and IT Competency ($t= 3.110$, $p< 0.05$) influence Organizational Performance. The R^2 of 0.134 implies independent variable (IT Operation, IT Knowledge, IT Competency) and dependent variables (Organizational Performance) explained 13.4 percent of the variance independent variable. Meanwhile, the other 86.6 percent of the variance in dependent variables was not explained by IT Operation, IT Knowledge, and IT Competency which clearly shows it gives a low impact on Organizational Performance. Based on Table 4 the largest beta coefficient is IT Competency which is ($\beta=0.347$, $p=0.002$, $p<0.05$). This concludes that this variable's IT Competency makes the strongest unique contribution to explaining the dependent variables when the variance is explained by all other variables in the model. However, IT Operation and IT Knowledge were not supported with the value of ($\beta=0.094$, $p=0.416$, $p>0.05$), and ($\beta=0.070$, $p=0.267$, $p>0.05$).

The findings confirmed that only IT Competency has a significant positive relationship with Organizational Performance whereas the other two variables IT Operation and IT Knowledge none. The finding of IT Knowledge is consistent with the previous study by [6]. In that study, the researcher mentions that in order for IT Knowledge to affect organizational performance, it needs a mediator. The findings also support the statement by [4], which mentions that the associations between Information technology and organizational performance have shown that basic models of the firm don't easily capture real-world dynamics of the use of Information Technology in practice over time.

Table 4: Results of Multiple Regression Analysis.

Independent Variables	Standardized Coefficients	t	Sig.
	Beta (β)		
IT Operation	0.094	0.861	0.416
IT Knowledge	0.070	1.115	0.267
IT Competency	0.347	3.110	0.002
R Square	0.134		
Adjusted R Square	0.113		

CONCLUSION

Based on the result found in this study it can conclude that the connections between IT and organisational performance have revealed that oversimplified organisational models have difficulty capturing the actual dynamics of how IT is used in practise over time [4]. The research outcome has likely been much more complicated in reality than the oversimplified models considered. This study is the ongoing process of understanding that technology can deliver what the organization wants to achieve. Because of the cycle's compounding nature, it would be challenging to separate causes from effects if they were only examined at one point in time, making it difficult to attribute performance outcomes. If only a cross section of the population is studied, it is impossible to adequately separate the impact of technology and performance from other aspects. As a result, researchers trying to better understand these linkages has have to deal with this complexity, which may lead to fruitful research prospects for more integrative and longitudinal studies. As there is a weaker correlation between information technology and organisational performance. Another study with additional components for IT investment, IT policies and procedures, and IT governance might be conducted. Future research in this area has persuaded senior management to invest in technology with the goal of maximising return on investment using technology.

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