JMBS Journal of Management and Business Studies

e-ISSN: 2976 – 2308 55
Volume 1 Number 1 November 2022, 55 ~ 74
DOI: https://doi.org/10.37698/jmbs.v1i1.147

The Influence of Information and Communication Technology – Savvy on Firm Performance: A Case Study of Kolej Yayasan Pahang in Kuantan, Malaysia

Nornahar Ghani[1] & Normadiana A. Manan[1]
[1]University College of Yayasan Pahang

ARTICLE INFO

Article history:

Received Aug 15, 2022
Revised Oct 20, 2022
Accepted Nov 10, 2022

Keywords:

Information,
Communication Technology,
Firm Performance

Clonflict of Interest:

None

Funding:

None

ABSTRACT

Information and communication technologies (ICT) and its ICT-savvy in the workplace had become an important factor to enhance the firm's performance domestically and globally. This study investigates the influence of ICT–savvy among operational management of Kolej Yayasan Pahang on firm performance. A popular study in developed countries has now been adopted in Malaysia with the main purpose of investigating the relationship between ICT-savvy and firm performance in the context of a developing country namely Malaysia. This study aims to examine the influence of ICT awareness, ICT usage, ICT competencies, and ICT capabilities among operational management on firm performance in terms of productivity, competitive advantages, sustainability, and accessibility. Resource–Based View Theory (RBV) has been applied in this study. This study used a quantitative survey methodology using self-administered survey questionnaires to collect data from a sample of 176 operational management staff of Kolej Yayasan Pahang. Data collected have been analysed by using Statistical Package for Social Sciences (SPSS) as a tool by applying multiple regression analysis to identify the relationship between the independent variable and dependent variable. This study provides a vital business implication for Kolej Yayasan Pahang in improving performance in domestic as well as international markets. Kolej Yayasan Pahang may use findings from this study to formulate or modify policies and regulations that should enhance the international competitiveness of Kolej Yayasan Pahang in domestic and world markets.

Corresponding Author: Nornahar Ghani, University College of Yayasan Pahang, Kampus Utama, Tanjung Lumpur, 26060 Kuantan, Pahang. Tel. +60-10-2042119. E-mail: nornahar@ucyp.edu.my.

1. Introduction

Information and communication technology (ICT) is presently the most significant business intermediary and is widely used by a variety of businesses and industries. Since ICT was developed, businesses that did not use ICT would be far behind. ICT trends are essential and fundamental tools for company success in industrialised nations like the United States and Japan. ICT's quick development has changed and improved business paradigms and company performance. Alam and Noor (2009) mentioned that some empirical studies confirm the positive effect of ICT on firm performance in terms of productivity, profitability, market value, and market share. Large industries in Malaysia are concerned about how new technologies, like ICT, might assist daily operations and improve firm performance. In the study "The Perception of ICT Adoption in Small Medium Enterprise," respondents concur that ICT are useful and that they can observe the beneficial effects on business performance. A company's vulnerability should be eradicated if it refuses to embrace the

most recent technology out of concern that it will fall behind rivals and face intense rivalry in the future. They also agree that a firm should have IT-savvy employees to ensure its sustainability (Nur, Rozmi, Nordin, & Bakar, 2018). Information and Communication Technology – savvy or ICT- savvy are referring to people engaged and proficient in the use of information and communication technology in their daily lives. In the workplace, ICT- a savvy employee is indispensable for smooth work (Tore Stahl, 2017). Applying ICT in the workplace is proven to have a positive relationship with firm performance. Several studies have been conducted in this area. The usage of ICT by library employees should begin as early as feasible to enhance and improve their working environment. Every academic library must implement ICT to promote productivity and deliver services effectively, which will boost organisational or institutional performance.

Kolej Yayasan Pahang is one of the prominent higher learning institutions on the east coast of Malaysia. Kolej Yayasan Pahang (KYP) had already adopted information technology (IT) since 2001. In addition, KYP has been designated and recognized as a Multimedia Super Corridor (MSC) status. KYP also signed a collaborative program with Universiti Teknologi Malaysia (UTM) in offering IT and multimedia courses and rental computer labs for the community.

1.1 Problem Statement

The vision of Kolej Yayasan Pahang to become a university soon needs this college to complete the criteria in these five years. The 2018 Rating for Higher Education Institutions in Malaysia (SETARA 18) which is outlined by the Ministry of Higher Malaysia Education (MOHE) has set out to be a full university, KYP needs to have capable staff, financial sustainability, good institutional reputation, student satisfaction on facilities. Therefore, it is important for staff, especially the operational management group to be ICT- savvy in carrying out their work together to help meet those criteria. If KYP does not try to meet SITARA 18 requirements, this college will not be able to compete with more than 200 other educational institutions in Malaysia to become a university. This meets the demands of modern consumers who are concerned about the standing and effectiveness of educational institutions as places to further their education.

According to the 6 outlined KYP's Qualities Objective, one of which is to have high competency workers and to provide skill upgrades. Also, the Company's Philosophy of Human Resources emphasised that employees at all levels in the organisation should have high knowledge, skills, capabilities, creativity, and innovation as they are the most important asset in the Kolej Yayasan Pahang (KYP) especially the operational management category. With 3000 enrolments of students, KYP has 306 employees including the management, lecturers, administrative staff, and supporting staff. The main players of employees are operational management (administration and support staff). So, Information systems are a vital element needed for KYP to enhance its competitive advantages and accessibility locally and globally. For example, Open Malaysia University (OUM) uses online administration, teaching, and learning to conduct its business. Now, this university has become a place of choice for major study among working adults because of its accessibility and efficiency at any time.

Looking at this significance, the Information Management Department (IMD) tries its hardest to equip ICT facilities among KYP employees to support their routine tasks. IMD already develops 13 online systems through the KYP staff portal to make sure it helps in the workplace. The systems are E-Leave, E-Finger, E-Notice, E-VOC, E-Document, E-Appraisal, E- Payroll, E-Resource, E-Marketing, E-Asset, E-Perolehan, E-Quality, and E-Survey. But the problem is their mastery of using this system is still below 70% (IMD Report 2018). A workplace without ICT - savvy will be affected by delays in the work process, missing documents, reduced productivity, and increased purchasing of paper and toner (Awais et al., 2012). These also show by KYP Finance Report the increase in this cost from 2015 until 2017. The effect of delays in the work process and missing documents, low efficiency, and cost increase will influence staff performance. KYP will not achieve SETARA 18 and impact firm performance such as productivity, competitive advantages, and accessibility. The present study will concentrate on the relationship between information and communication technology-savvy among operational management in form performance in Kolej Yayasan Pahang to build a competitive institution in both the domestic and international markets. This is due to the significant contribution of information and communication technology-savvy and the lack of clear conclusions towards their development in private higher learning institutions in Malaysia. From the tracing of the problem statement, we hope this study can provide a relevant guideline to KYP’s senior management and its employees to make sure their ICT- savvy will achieve above 90%.

1.2 The Objective of The Study

This study aims to determine the impact of operational management's ICT savvy on company performance in terms of ICT awareness, ICT usage, ICT competencies, and ICT capabilities. The specific research objectives are:

i. To investigate the influence of ICT awareness on firm performance.
ii. To investigate the influence of ICT usage on firm performance.
iii. To investigate the influence of ICT competencies on firm performance.
iv. To investigate the influence of ICT capabilities on firm performance.

1.3 Research Questions

The purpose of this study is to better understand the nature of ICT proficiency among operational management staff at Kolej Yayasan Pahang. The research questions are:

i. What is the influence of ICT awareness on firm performance?
ii. What is the influence of ICT usage on firm performance?
iii. What is the influence of ICT competencies on firm performance?
iv. What is the influence of ICT capabilities on firm performance?

1.4 Scope of the Research

This research will be conducted at Kolej Yayasan Pahang, Kuantan, Malaysia. The populations of the study are 176 operational management employees of KYP as in Figure 1 below.

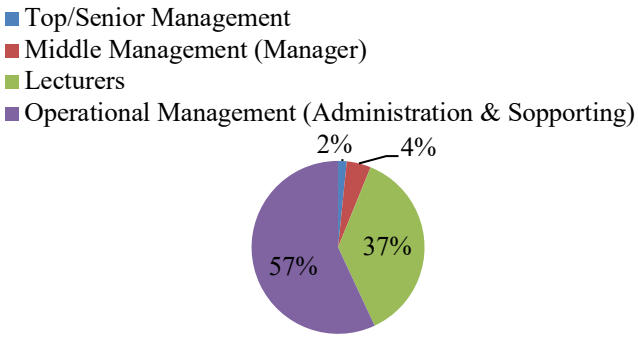

Figure 1. *57% of KYP employees consist of Operational Management*

(Source: Human Resource Department)

Operational management at the bottom layer of the firm consists of administration workers, production workers, service workers, and data workers (Prentice Hall, 2007). This research will take about 9 months to complete by focusing on the main elements of ICT- savvy ICT awareness, usage, competencies, and capabilities and their relationship with firm performance (productivity, competitive advantages, sustainability, and accessibility).

1.5 Research Gap

By examining the research issue that is related to higher education institutions in Malaysia, this study helps to diversify the industry's focus. Normally research is done in Malaysia with more focus on Small and Medium Enterprises (SMEs) and how ICT adoption will impact performance. New independent variable: ICT capability is introduced to look at how it will reflect on firm productivity and create a competitive advantage for a company. Previous studies on ICT- savvy relate firm performance with the increase in productivity, creating a competitive advantage and sustainability. In this research, a new dimension of firm performance has been introduced which is firm accessibility. This accessibility will look at the college's ability to access it everywhere and anytime. Accessibility is needed to support college internationalisation and globalisation.

1.6 Significance of the Study

This study investigates the influence of ICT awareness, ICT usage, ICT competencies, and ICT capabilities in the workplace that are applied by operational management and how it will affect the firm performance in terms of firm productivity, competitive advantages, sustainability, and accessibility of Kolej Yayasan Pahang. It is hoped that this research will assist Kolej Yayasan Pahang in terms of:

- The Management - provide the management a guideline to solve, set up, upgrade, and maintain the level of ICT- savvy in the workplace, and finally, it will contribute to achieving KYP's Qualities Objective, the Company's Philosophy of Human Resources, and High Firm Performance.
- Human Resource Department - allow the Human Resource Department to plan comprehensive training for operational management and other employees.

- IMD Department - to prepare the best solution based on ICT level such as KYP Portal into mobile apps (KYP Portal Apps).
- Operational Management - initiative for self-learning and mastery of ICT up to 90% above.

1.7 Value of the Study

At the end of this research, the influence of ICT- savvy and firm performance can be identified. The findings of this study can be used to provide senior management with recommendations and ideas, and to other departments such as Human Resource Department, IMD Department, and its Operational Management to fully utilise ICT in the workplace to improve KYP performance.

2. Literature Review

This chapter gives a summary of earlier studies on the impact of ICT savvy on company performance, discusses relevant theories from other researchers, and develops a conceptual framework from existing literature.

2.1 Information and Communication Technology (ICT) - savvy

Information and Communication Technology – savvy or ICT- savvy are referring to people engaged and proficient in the use of information and communication technology in their daily lives. In the workplace, ICT- a savvy employee is indispensable for smooth work (Tore Stahl, 2017). A review of the literature found that Information and Communication Technologies (ICT) rapidly changes and there is plenty of research related to ICT-savvy. In their study "The link between ICT adoption and company success in Malaysia and Indonesia," Ong and Habidin (2016) noted that there are more Internet and mobile users in Malaysia. The percentage of internet users in Malaysia is 76.9% of the total population, according to the Malaysia Communication and Multimedia Commission, while the percentage of users at work is 58.7%

a. ICT Awareness

ICT awareness entails being aware of the availability, significance, and applications of ICT tools. To improve the use of ICT facilities, potential ICT users should be provided with a variety of ICT awareness programs. This can be done through organising promotional activities like workshops, seminars, conferences, and public lectures as well as using print and electronic media resources including newspapers, magazines, newsletters, and websites.

b. ICT Usage

Utilising information and communication technologies in daily life is known as ICT usage (Hagsten, 2014). According to Yusuf (2013), to measure the level of competence and potential expectations, the extent of general ICT uptake must be known to estimate the magnitude of ICT usage and adoption.

c. ICT Competencies

ICT competencies can be viewed as a unique set of performance standards, a prerequisite for a particular career, and the capacity to fulfil tasks (Sandberg & Pinnington 2009).

d. ICT Capabilities

ICT capabilities provide for the effective and responsible use of ICT for access, creation, and communication of information and ideas, as well as for problem-solving and collaborative work (Lew Sok Leng, 2017).

2.2 Firm Performance

Performance is considering ICT's impact on efficiency, effectiveness, competitiveness, and intangible benefits (Liang, You, Liu, 2010; Consoli, 2012; Santos, Brito, 2012; Bayo-Moriones, Billon, Lera-Lopez, 2013). Firm performance is a capability of an organisation to produce desired results. In business, firm performance measures how well a small and medium enterprise achieves its purpose. It also is making a judgement on how the organisation achieves its purpose. It is a result of how the organisation is managed to create value for customers and other stakeholders.

a. Productivity

Productivity shows the capability of an organization to produce desired results. To be productive, firms must hire skilled managers to organise inputs, solve problems, and plan. As a result, the productivity of a firm depends on the way its production is organised. Gosen, J (2009) said that the efficient use of ICT in SMEs leads to increased organisational performance, productivity, and access to the market.

ICT implementation in the workplace is a valuable factor to produce a quality work process. According to Sabrina Adam & Batiah Mahadi (2016) in the research “The Effectiveness of Knowledge Management Towards Organisational Performance of Internet Business in Malaysia”, to transform the nation into a digital

economy, there are several ICT initiatives continue to be implemented when looking toward Tenth Malaysia Plan (Tenth Plan), 2011-2015 (Economic Planning Unit, 2011). However, in the Eleventh Malaysia Plan (Eleventh Plan), 2016- 2020, the government has emphasised driving ICT in the knowledge economy through innovation and productivity to enhance competitiveness and wealth creation.

b. Competitive Advantage

According to Porter (1990), a company's competitive edge is what drives its performance. It demonstrates a company's capacity to provide customers with greater value, either through price reductions or through the provision of improved perks and services that support higher prices. Alam and Noor (2009, 112-125) contend that ICT gives businesses opportunities to compete on a global scale with increased efficiency when discussing the function of ICT for firm competitiveness.

c. Sustainability

Funk (2003) defines sustainability as "development that meets the needs of the present generation without jeopardising future generations' ability to meet their own needs" in the article "Sustainability and Performance. "Sustainability involves the use of ICT contributing to the green company such as less use of printed material and less energy. This research has been done among Ghana SMEs in which 80% use ICT in their business contributes to firm sustainability (Asare, 2015).

d. Accessibility

Market access is the process of ensuring that all eligible patients who might benefit from the brand have prompt, continued access to it at the appropriate cost. Businesses aim to expand their market access domestically, abroad, and globally in addition to making a profit and expanding so that they can leave a legacy or remain viable in the global economy.

2.3 Recent Study

The effects of information and communication technology on SMEs performance have also sparked much debate in the literature among researchers, academics, and practitioners in the fields of management science and computing, as there are currently few studies published in which the effects of information and communication technology on firm performance have not been demonstrated very clearly (Kossai & Piglet, 2012).

2.4 Underpinning Theory

a. Resource-Based View (RBV)

ICT knowledge can be advantageous for organisations with sufficient planning before adoption. Through an online portal and other ICT applications and technologies, they acquire a competitive advantage. ICT utilisation by ICT -savvy can be the resourceful medium or platform for Kolej Yayasan Pahang to gain a competitive advantage. This situation can be supported by the theory of Resource- Based View (RBV). RBV stipulates that the fundamental sources and drivers of competitive advantage and superior performance are chiefly associated with the attributes of resources and capabilities, which are valuable and costly to copy (Barney, 1991).

The significance of ICT - savvy to Kolej Yayasan Pahang hopefully brings this business more productive; creates competitive advantage, sustainability, and accessibility. The "effective implementation of the task through great utilisation of resources" is in line with the perspectives of the Resource-Based View theory.

2.5 Conceptual Framework

An independent variable influences the dependent variable in either a positive or negative way (Kothari.2008). This research proposes a framework to investigate ICT-savvy and its relationship to firm performance. This study identifies there are four independent variables (IV) that contribute to the dependent variable (DV). The four independent variables that influence dependent variables are ICT awareness, ICT usage, ICT competencies, and ICT capabilities. Firm performance in terms of productivity, competitive advantage, sustainability, and accessibility are selected dependent variables for this study.

a. The Influence of ICT Awareness on Firm Performance

Employee ICT awareness is critical for driving business objectives. The balance between information and resources has changed so far in favour of the former, according to research from nations at the vanguard of the global economy, that knowledge has possibly surpassed land, tools, and labour as the most important element influencing living standards. Based on the Report on World Development (1999), the most technologically advanced economies in the world today are truly knowledge-based.

b. The Influence of ICT Usage on Firm Performance

As cited by Premkumar (2003) in "A meta-analysis of research on information technology implementation in small business", the utilisation and commercialization of information and communication technology become more widespread throughout the world. Findings from the research "The relationship between ICT adoption and business performance in Malaysia and Indonesia" that computers are widely used among businesses in Labuan. 97% of the companies surveyed use computers. Kimutai and Nairobi said again that literacy levels of ICTs result in organisational learning and knowledge in business, and mastery of the use of ICTs in business is evident by assessing how often and flawless their personal use of it. Employees using ICTs or ICT – savvy and the number of employees using the internet in the organisation may be used to measure use, but mastery is much better assessed by proficiency in use, hence the need to review ICT support issues in the organisation. ICT usage showed a positive relationship to firm performance via consistency, effectiveness, efficiency, and level of integration of ICT use.

c. *The Influence of ICT Competencies on Firm Performance*

According to this study, professional competency is the ability to do a professional task in the field of information technology while having the necessary skills. According to Allison (1999), to fully capitalise on the benefits of ICT-savvy in business, workforce skill shortages must be addressed. The successful implementation of technology is inextricably linked with a skilled and knowledgeable workforce.

d. The Influence of ICT Capabilities on Firm Performance

Lew Sok Leng (2017) mentioned in their research "Impacts of Information Technology Capabilities on Small and Medium Enterprises and Large Enterprises" knowledge acts as a foundation for ICT capabilities. Employees as an asset in the organisation must have a high knowledge and skills in multiple fields such as communication and the ability to explore ICT. This study presents four hypotheses based on the literature evaluation and conceptual framework mentioned above:

H1: There is a positive relationship between ICT Awareness and firm performance

H2: There is a positive relationship between ICT Usage and firm performance

H3: There is a positive relationship between ICT Competencies and firm performance

H4: There is a positive relationship between ICT Capabilities and firm performance

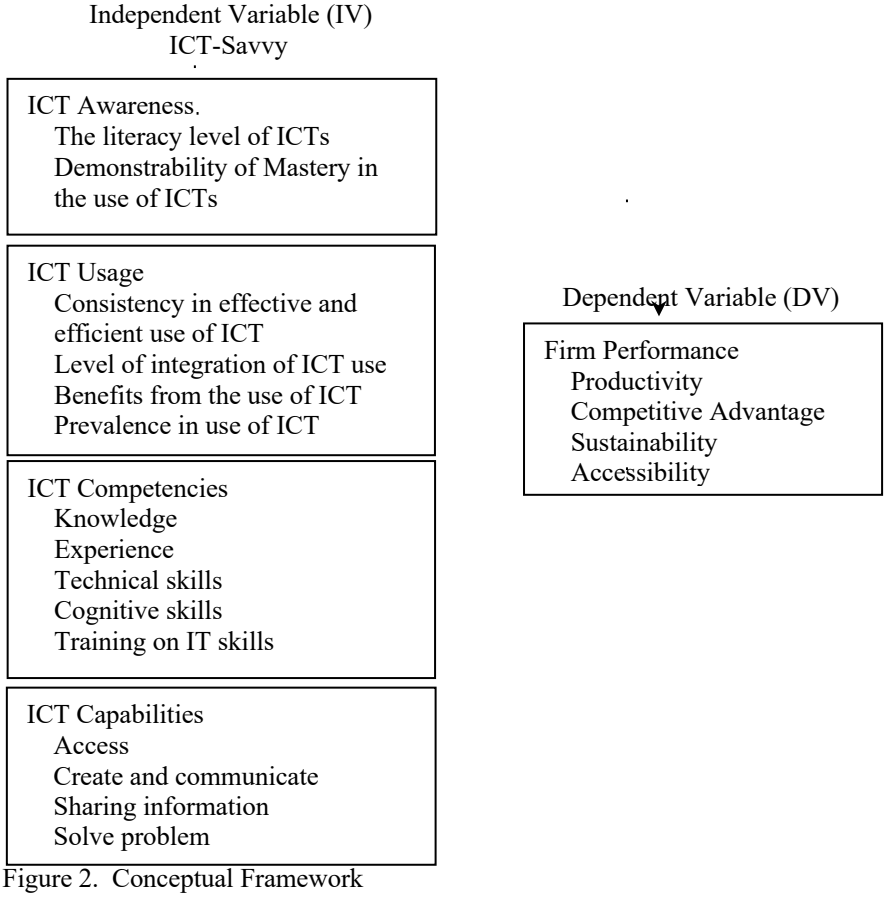

Figure 2. Conceptual Framework

3. Research Method

3.1 Research Design

This investigation was carried out using a quantitative approach in this paper. In a case study investigation at Kolej Yayasan Pahang, this report evaluates the impacts or relationship between ICT-savvy and company performance. In quantitative research, occurrences are counted and measured as well as a set of numerical data is statistically analysed. Quantitative research can be named as the research problem in very clear and defined terms. Additionally, the independent and dependent variables were properly and clearly defined in quantitative research. A more persuasive interpretation of the questionnaire data is also produced in this study by employing a quantitative technique.

3.2 Data Collection Method

Sekaran and Bougie (2010) assert that data collection techniques are a crucial component of research design. The consistency of the stimulus across all respondents, the capacity to gather data from a sizable sample with wide geographic coverage, and a larger sample population are all advantages of the self-administered questionnaire (Bourque and Fielder, 2003).

3.3 Sampling Design

a. Sampling Unit

The sample size for this study is about 167 staff from operational management groups and respondents. This sample is considered time-consuming and a resource for this study.

b. Sampling Element

The selected respondents are among the operational management staff of KYP because operational management at the bottom layer of the firm consists of administration workers, production workers, service workers, and data workers who are an asset to the company.

c. Sampling Technique

Non-probability sampling is a sampling technique that can be used in this research project. Non-probability sampling is a sampling technique in which the samples are gathered in a manner that does not give all individuals in the population the same chance of being chosen (Castillo, 2008). Non-probability sampling enables the researcher to obtain preliminary data quickly. Quota sampling is a non-probability sampling technique in which the assembled sample contains the same proportions of individuals as the entire population in terms of known characteristics or focused phenomena, as well as age.

d. Sampling Size

The samples are focused on 167 staff from operational management. According to Krejcie and Morgan, 1970, the sample sizes must be between 118 to 123 and should be returned to analyse for population, n= 170 - 180.

e. Respondent Background

The research population for this study was drawn from Kolej Yayasan Pahang. The respondent will be the operating management staff from KYP Kampus Taman Gelora and Kampus Indera Mahkota. It comes from various backgrounds of work such as the Facility Management Department, Technical Management Department, Human Resource Department, Student Affairs Department, and Information Management Department which involve 6 main positions.

Table 1. *Position of Respondents*

Position	Total Staff
Senior Executive, Executive, Assistant Executive	63
Assistant Admin	9
Driver	9
Technician, Assistant Technician	18
Security	58
General Worker, Housekeeping	19
Total	176

3.4 Research Instrument

a. Questionnaire Design

The questionnaires are used in this study to investigate the relationship between ICT – savvy in terms of their awareness, usage, competencies, and capabilities on firm performance. The study sought information in three areas:

- Respondent's backgrounds
- Respondents' ICT-savvy relates to their ICT awareness, ICT usage, ICT competencies, and ICT capabilities
- Firm performance

b. Questionnaire Reliability and Validity

To ensure the reliability of the survey's content, the authors followed Field's (Bourque & Fielder, 2003; Bryman, 2013) instructions.

- An in-depth literature review concerning the factors analysed in this study was conducted.
- Original questionnaires were adapted since these were already developed and tested, enabling a comparison with further studies.
- Questions were adapted due to the different sample characteristics.
- Additional questions were developed which have not been found in prior questionnaires.

A reliability test for each independent and dependent variable of the study will be performed, and Cronbach's alpha coefficients should be above 0.70 for all four independent variables and dependent variables. The internal reliability test can be carried out using the SPSS software. Face validity and content validity must be completed first in this study. Face validity was achieved through a variety of feedback sources, including a small group and meetings with the HRD and the IMD Department. Furthermore, the questionnaire was subjected to a pre-test conducted by a few academics. As a result, the study's content and questionnaire were evaluated multiple times to ensure face validity.

All question items that have been developed will be reviewed by Expert Opinions such as the management team (Top Management, IT Manager, Human Resource Manager) and academicians in Kolej Yayasan Pahang to validate and upgrade the questionnaire. A simple random sampling technique will be used in this study. The questionnaire will be in Dwi-language, English, and Bahasa Melayu.

c. Likert Scale

In this study, the independent variable, and the dependent variable will be measured with about 30 statements/questions and measured with 5 points on a Likert's scale of 1-5 from every staff's point of view.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

The questionnaires using a cross-sectional study include details in the section below:

- Section (A) - respondent's position, age, gender, race, highest educational attainment, and position in the workplace.
- Section (B) - respondents' ICT-savvy that relates to ICT awareness, ICT usage, ICT competencies, and ICT capabilities.
- Section (C) - measure the firm performance in terms of productivity, competitive advantage, sustainability, and accessibility.

3.5 Data Collection Procedures

The researcher will visit all the departments involved in KYP and the departments' questionnaires to the staff picked through purposive sampling. The questionnaires were then collected by the researcher for data analysis. The questionnaire's findings were then carefully analysed to come up with a proper report.

3.6 Data Processing

Data processing is a procedure of data preparation of checking, editing, coding, transcribing, and specifying any special or unusual treatment data. The objective of data processing is to identify the completeness and validity of the data before analysing it (Hair, 2007).

First, researchers will check and edit all the questionnaires after receiving feedback from respondents to ensure respondents are fully answering the questions in the questionnaire. The accuracy and the reason that respondents respond to the questions have to be concerned. Researchers must guide and explain to the respondent while respondents doing the questionnaire to reduce their understanding. In this paper, clear

instruction was given. Then, researchers have to code and categorise respondents into mutually exclusive groups. After that, researchers will be using Statistical Package for the Social Sciences (SPSS) software to key in the response as important data. This software can help researchers to check and find out any errors throughout the process.

3.7 Data Analyses

Data analysis is the data that has been collected and organized to attain the research objective, systematic identification of patterns in information gathered, and decides the ways information will be organised, classify, compare, and display it. Therefore, the research used SPSS computer software to resolve the collected data. Data analysis includes reliability analysis, descriptive statistical analysis, Pearson's correlation analysis, and regression analysis.

a. Reliability Analysis

The degree to which measures are free of random errors and thus produce consistent results is defined as reliability (Zikmund, 2003). The extent to which a scale produces consistent results when repeated measurements on the variables of concern are also referred to as reliability (Malhotra, 2007). Cronbach's alpha is a commonly used indicator of reliability (Nunnally, 1978). This technique calculates how well the items on the scale represent the domain of the construct being measured. A minimum acceptable alpha coefficient of 0.7 is usually recommended. This study's independent and dependent variables were subjected to reliability analysis.

b. Descriptive Statistic Analysis

To determine the general background of the respondents in this study, a descriptive analysis was performed. The descriptive analysis serves as the foundation for any additional statistical analysis. Data summarization and transformation into an understandable and interpretable format are part of descriptive analysis.

c. Pearson's Correlation Analysis

The purpose of Pearson's correlation analysis is to determine the strength of the linear relationship between independent and dependent variables. The correlation coefficient was calculated using the Pearson product-moment correlation method (r). This can take any value between -1 and +1. A correlation coefficient of -1 or +1 indicates that there is a perfect correlation between the two variables; +1 indicates that the two variables will rise and fall together, and -1 indicates that the two variables will move in the opposite direction, indicating an inverse relationship. When the value of r is negative, it indicates a negative linear correlation; when the value of r is positive, it indicates a positive linear correlation. The maximum number could be either +1 or -1; a correlation of zero indicates that there is no relationship.

The p-value, or level of significance, is the probability of obtaining results as extreme as the one observed. If the p-value is less than 0.05 and the confidence level is less than 95%, the correlation is significant, and the two variables are linearly related. If the p-value is greater than or equal to 0.05, the correlation is insignificant, and the two variables are not linearly related. The strength of the relationship between the independent variables and the dependent variable is measured using a value ranging from 0 to 1.0. Values between 0.8 and 1.0 indicate a very strong positive correlation, values between 0.6 and 0.8 indicate a strong positive correlation, values between 0.4 and 0.6 indicate a moderate positive correlation, values between 0.2 and 0.4 indicate a weak positive correlation, and values between 0.0 and 0.2 indicate very weak positive correlation. The strength of the correlation is shown in Table 2.

Table 2. *Pearson Correlation Indicator*

Values (r)	Strengths
0.8 - 1.0	Very Strong Positive Correlation
0.6 - 0.8	Strong Positive Correlation
0.4 - 0.6	Moderate Positive Correlation
0.2 - 0.4	Weak Positive Correlation
0.0 - 0.2	Very Weak Positive Correlation

d. Factor Analysis

Factor analysis is a data reduction technique that is used to reduce many variables to a smaller set of underlying factors that summarise the important information contained in the variables. To achieve the regression analysis in this study, an item with outliers among variables less than 0.05 will be deleted.

e. *Regression Analysis*

Regression analysis is a popular method for determining the linear relationship between two or more variables. It determines the proportion of the variable that can be explained by the independent variables.

4. Results and Discussion

This chapter presents results and data analysis referring to the four (4) research questions which have been presented in this study. Research questions for this study are:

i. What is the influence of ICT awareness on firm performance?
ii. What is the influence of ICT usage on firm performance?
iii. What is the influence of ICT competencies on firm performance?
iv. What is the influence of ICT capabilities on firm performance?

4.1 Response Rate

The questionnaires were administered to 176 focus groups from operational management staff in Kolej Yayasan Pahang, who responded to 154, which had an 88% response rate. Response rate also influences the resignation of staff, retirement, and staff end of the contract. This was because of administering the questionnaire through face to face and online.

4.2 Reliability Analysis

Reliability analysis was conducted for the independent variable and dependent variable and the results are presented in tables 3 and 4 below. A pilot test with 30 respondents was conducted, before the actual study. This is to ensure that the items in the questionnaire have at least the minimum reliability value and are valid for this study.

Table 3. *Pilot Test for Reliability Analysis*

Variables	Items	Number of Items	Cronbach's Alpha	Number of Items Deleted
Independent Variable	ICT Awareness	6	0.866	0
	ICT Usage	6	0.791	0
	ICT Competencies	6	0.884	0
	ICT Capabilities	6	0.936	0
Dependent Variable	Firm Performance	6	0.863	0

Based on table 3 for independent variables and dependent variables, all the items are in good and excellent value, which is above 0.8. So, this makes the questionnaire valid and can be used in the actual study.

Table 4. *Actual Reliability Analysis*

Variables	Items	Number of Items	Cronbach's Alpha	Number of Items Deleted
Independent Variable	ICT Awareness	6	0.963	0
	ICT Usage	6	0.929	0
	ICT Competencies	6	0.957	0
	ICT Capabilities	6	0.967	0
Dependent Variable	Firm Performance	6	0.957	0

Based on table 4, actual reliability analysis for independent variables, the item ICT Capabilities has the highest Cronbach's Alpha value, with 0.967. It is followed by the item ICT Awareness, with 0.963. The item ICT Competencies comes next, with 0.957. The item ICT Usage comes last, with 0.929. For the dependent variable, the item firm performance has a value of 0.957.

4.3 Descriptive Statistic Analysis

A descriptive analysis was performed to establish the demographic characteristics of the respondents that participated in this study. All the data are present in table 5 to table 9 below.

Table 5. Gender Distribution of Respondent

Gender	Frequency	Percentage
Male	99	64.3
Female	55	35.7
Total	154	100

Table 5 summarises the highest gender of respondents comes from males with a frequency of 99 equal to 64.3%, then, females with a frequency of 55 equal to 35.7%.

Table 6. *Ethnicity of Respondent*

Ethnicity	Frequency	Percentage
Malay	123	79.9
Chinese	3	1.9
Indian	19	12.3
Others	9	5.8
Total	154	100

Table 6 summarises that the highest ethnicity of respondents comes from Malay with a frequency of 123 equal to 79.9%, and the second highest is from Indian with a frequency of 51 equal to 12.3%. The third comes from others with a frequency of 9 equal to 5.8% and the lowest are from Chinese with a frequency of 3 equal to 1.9%.

Table 7. *Service Duration of Respondent*

Service Duration	Frequency	Percentage
Below than 1 year	22	14.3
1 – 5 years	55	35.7
5 – 10 years	33	21.4
10 years above	44	28.6
Total	154	100

Table 7 summarises that the highest service duration of respondents comes from 1 – 5 years with a frequency of 55 equal to 35.7%, second is 10 years above in service duration with a frequency of 28.6%, third is 5 – 10 years with a frequency 33 equal to 21.4%. The lowest comes from below than 1-year service duration with a frequency of 22 equal to 14.3%.

Table 8. *Education Level of Respondent*

Education Level	Frequency	Percentage
SPM/Certificate	73	47.4
Diploma	41	26.6
Bachelor	14	9.1
Others	26	16.9
Total	154	100

Table 8 summarises that the highest education level of respondents is SPM/ Certificate with a frequency of 73 equal to 47.4%, second is Diploma with a frequency of 41 equal to 26.6%, third is others with a frequency of 26 equal to 26 and the lowest is Bachelor with frequency 14 equal to 9.1%.

Table 9. *Position Distribution of Respondent*

Position	Frequency	Percentage
General Worker/Housekeeping	16	10.4
Security	62	40.3
Driver	9	5.8
Technician/Assistant Technician	7	4.5
Assistant Admin	10	6.5
Senior Executive/ Executive/ Assistant Executive	50	32.5
Total	154	100

Table 9 summarises that the highest position of respondent comes from Security with a frequency of 62 equal to 40.3%. The second comes from Senior Executive/ Executive/ Assistant Executive with a frequency of 50 equal to 32.5%. Third, comes from General Worker/ Housekeeping with frequency 16 equal to 10.4%, Fourth, comes from Assistant Admin with frequency 10 equal to 6.5 %, Fifth, comes from position driver with a frequency 9 equal to 5.8% and the lowest is Technician/ Assistant Technician with frequency 7 equal 4.5%.

4.4 Mean and Standard Deviation Analysis

The normal distribution is represented in Tables 10 and 11 by a family of curves defined uniquely by two parameters, which are the mean and the standard deviation of the population.

Table 10. *ICT Savvy*

Items for ICT Awareness, n=154	Minimum	Maximum	Mean	Standard Deviation
1. The online KYP Staff Portal to support my job scope.	1	5	3.47	1.284
2. The online KYP Staff Portal is user-friendly to interact.	1	5	3.46	1.211
3. I am aware that many systems can be accessed through KYP Staff Portal.	1	5	3.66	1.093
4. I believe using the online KYP Staff Portal gives more advantages to my job scope.	1	5	3.40	1.341
5. I'm professionally handling problems while using ICT to ensure the continuity of job performance.	1	5	3.24	1.334
6. I am adequately trained on the use of ICT in the workplace.	1	5	2.86	1.248

Items for ICT Usage, n=154	Minimum	Maximum	Mean	Standard Deviation
1. I regularly access the Internet for search information.	1	5	3.61	1.349
2. I use emails to communicate with other staff.	1	5	3.18	1.239
3. Applying a Recorded Leave thru E-Leave System is more convenient.	1	5	3.58	1.214
4. E-Finger report provides thru KYP Staff Portal help me in time management.	1	5	3.42	1.214
5. I use an online system provided thru KYP Staff Portal to smooth out my work process.	1	5	3.29	1.262
6. I use an online system provided thru KYP Staff Portal to smooth out my work process.	2	5	3.66	0.787

Items for ICT Competencies, n=154	Minimum	Maximum	Mean	Standard Deviation
1. Using ICT helps me be more competent in the workplace.	1	5	3.64	1.303
2. Using ICT in the workplace, I can work with the deadline.	1	5	3.46	1.232
3. Using ICT in the workplace, I can work under pressure.	1	5	3.19	1.113
4. Technical skills gained from ICT usage will enhance my work performance.	1	5	3.38	1.139
5. System in the KYP Staff Portal diversifies my work completion methods.	1	5	3.38	1.121
6. Training and development on ICT will enhance ICT Competencies among UCYP staff.	1	5	3.66	1.111

Items for ICT Capabilities, n=154	Minimum	Maximum	Mean	Standard Deviation
1. ICT helps me to manage my tasks.	1	5	3.40	1.186
2. I'm communicating using ICT for immediate response.	1	5	3.31	1.354
3. ICT facilities allow me to organise my digital files.	1	5	3.26	1.267
4. ICT can complete my work in large quantities.	1	5	3.38	1.155
5. ICT allows me for flexibility in working even out of office.	1	5	3.38	1.150
6. ICT usages in the workplace make me an excellent staff member.	1	5	3.26	1.187

Table 11. *Firm Performance*

Items for Firm Performance, n=154	Minimum	Maximum	Mean	Standard Deviation
1. Using ICT in the workplace helps me to increase productivity.	2	5	3.63	0.900
2. Implementation of ICT in the workplace makes company UCYP more competitive.	1	5	3.79	0.949
3. ICT contributes to "Green Company" that will bring about firm sustainability.	1	5	3.77	0.807
4. Accessibility of internal and external information through the usage of ICT will contribute to higher UCYP performance.	1	5	3.85	0.831
5. Achieving sustainability through the usage of ICT will enable UCYP to continue supporting human capital and firm performance.	1	5	3.79	0.919
6. The usage of ICT will put UCYP in a favourable and superior business position.	1	5	3.79	0.870

Table 12. *Mean and Standard Deviation Analysis*

	ICT Awareness	ICT Usage	ICT Competencies	ICT Capabilities	Firm Performance
Mean	20.0909	20.7338	20.7013	19.9870	22.6104
Std. Deviation	6.91911	6.14109	6.37718	6.76978	4.79012
Minimum	6.00	9.00	7.00	8.00	11.00
Maximum	31.00	30.00	30.00	30.00	30.00

Table 12 showed the mean and standard deviation for each available item in this study. This table also gives an insight into how respondents answer their questions. The dependent variable items use a 1- strongly disagree to 5- strongly agree scale.

For the independent variable (iv) items, the top items are "I am aware that are many systems can be accessed thru KYP Staff Portal" [mean =3.66, standard deviation=1.093], "I use online system provided thru KYP Staff Portal to smooth out my work process" [mean=3.66, standard deviation=0.787] and "Training and development on ICT will enhance ICT Competencies among UCYP staff" [mean=3.66, standard deviation=1.111]. The lowest is "I adequately trained on the use of ICT in the workplace" [mean=2.86, standard deviation=1.248]. For the independent variable (IV), the top items are "Accessibility of internal and external information through the usage of ICT will contribute to higher UCYP performance" [mean = 3.85, standard deviation=0.831].

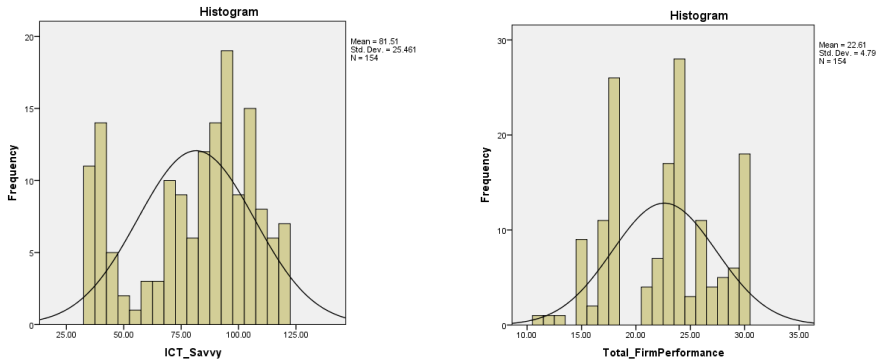

Figure 3. *Standard Deviation Histogram Graph*

Figure 3 shows that the standard deviation does not have a high value (0.787 - 1.354), indicating that the answers are almost evenly scattered for all independent variables. The standard deviation for firm performance does not have a high value (0.807 - 0.949), indicating that the answers are almost evenly scattered.

4.5 Pearson Correlation Analysis

The Pearson Correlation Analysis was employed among variables. The correlation will determine if there is a significant relationship between all variables in the study. Based on table 13, there is a very strong positive correlation between all independent variables and dependent variables. The result reveals that ICTAwareness, ICT Usage, ICT Competencies, and ICT capabilities correlation value to a firm performance ($r=0.810$, $p<0.01$), ($r=0.839$, $p<0.01$), ($r=0.840$, $p<0.05$) and ($r=0.855$, $p<0.05$).

Table 13. *Pearson Correlation Analysis*

	ICT Awareness	ICT Usage	ICT Competencies	ICT Capabilities	Firm Performance
ICT Awareness	1				
ICT Usage	0.923	1			
ICT Competencies	0.911	0.920	1		
ICT Capabilities	0.924	0.933	0.941	1	
Firm Performance	0.810	0.839	0.840	0.855	1

4.6 One-way ANOVA

One-way analysis of variance (ANOVA) is appropriate to use in this case study to compare the means of more than two groups or the level of an independent variable.

Table 14. *ANOVA For Factor "Age" And ICT - Savvy*

Age	ICT - savvy			
	Mean	Std. Deviation	Minimum	Maximum
25 and below	74.5000	28.25217	36.00	120.00
Between 26 - 45	89.6000	23.11779	36.00	120.00
Above 46	73.4706	23.87664	35.00	116.00
Total	81.5130	25.46104	35.00	120.00

Table 14 above shows descriptive statistics based on factor age toward ICT savvy. The higher mean age is between 26 – 45 with a mean value of 89.6000, the second is aged 25 and below with a mean value74.5000, and the lowest are aged above 46 with a mean value of 73.4706. ANOVA results show that the factor of age toward ICT-savvy with Sig .000 is most significant.

Table 15. *ANOVA For Factor "Service Duration" And ICT- Savvy*

Service Duration	ICT - Savvy			
	Mean	Std. Deviation	Minimum	Maximum
Below than 1 year	72.0000	26.15157	35.00	120.00
1-5 years	90.7091	17.51790	39.00	120.00
5 – 10 years	66.0909	28.96157	36.00	118.00
10 years above	86.3409	24.53943	37.00	120.00
Total	81.5130	25.46104	35.00	120.00

Table 15 above shows that descriptive statistics show on factor service duration toward ICT savvy. The higher mean is service duration 1-5 years with a mean value of 90.7091, second is service duration 10 years above with a mean value of 86.3409, third is below than 1 year with a mean value of 72.0000 and the lowest is service duration 5 – 10 years with mean value 66.0909. ANOVA results show that the factor of service duration toward ICT savvy with Sig .000 is the utmost significant.

Table 16. *ANOVA For Factor "Position" And ICT- Savvy*.

Position	ICT Savvy			
	Mean	Std. Deviation	Minimum	Maximum
General Worker/ Housekeeping	50.5000	15.53061	36.00	77.00
Security	73.1452	27.71923	35.00	120.00
Driver	89.4444	6.83943	79.00	99.00
Technician/Assistant Technician	66.4286	12.29983	51.00	87.00
Assistant Admin	92.2000	9.64711	79.00	113.00
Senior Executive/Executive/Assistant Executive	100.3600	10.86609	70.00	120.00
Total	81.5130	25.46104	35.00	120.00

Table 16 above shows descriptive statistics based on factor position toward ICT -savvy. The higher mean is the position Senior Executive/ Executive/ Assistant Executive with a mean value of 100.3600, second is

Assistant Admin with a mean value of 92.2000, third is Driver with a mean value of 89.4444, fourth is Security with a mean value of 73.1452, fifth is Technician/ Assistant Technician with mean value 66.4286 and the lowest are General worker/ Housekeeping with mean value 50.5000. ANOVA results show that the factor of position toward ICT-savvy with Sig .000 is the most significant.

4.7 Factor Analysis

When the researcher's goal is to create a reliable test, factor analysis is another way to determine whether items are selected into the same construct.

4.8 Regression Analysis

The result of this regression is an equation that represents the prediction of a dependent variable from the independent variables. This analysis is used when independent variables are correlated with one another and with the dependent variable.

Table 17. *Model Summary*

Model	R	R square	Adjusted R square	Std. Error of the Estimate
1	.866[a]	.750	.743	2.42867

a. Predictor: (Constant), Total_ICT Awareness, Total_ICT Usage, Total_ICT Competencies, Total_ICT Capabilities
b. Dependent Variable: Total_Firm Performance

In the model summary in table 17, the change in the relevant independent variables explains the change in firm performance to the extent of 86.6 % since the R^2 value is 0.750. The R^2, which is the explained variance, is the square of the multiple R (0.866) ^{2}.

Table 18. *Coefficients (a)*

Model		Unstandardized Coefficients		Standardised Coefficients		Sig
		B	Std. Error	Beta	t	
1	(Constant)	1.542	0.121		12.747	.000
	ICT Awareness	-.028	.084	-.041	-.337	.737
	ICT Usage	.207	.102	.266	2.030	.044
	ICT Competencies	.170	.099	.226	1.723	.087
	ICT Capabilities	.306	.104	.432	2.948	.004

Table 18 shows the researcher which of the two variables has the greatest influence on the variance in firm performance. The researcher discovered the number in the beta is 0.432 for ICT Capabilities and 0.266 for ICT Usage, which is the independent variable, and is significant at the 0.004 and 0.044 levels in the column Beta under Standardised Coefficients. Research also found the number in the beta is -.041 for ICT awareness and the beta is .226 for ICT competencies is not significant at the 0.737 and 0.087 values.

Table 19. *Regression Analysis Result*

Hypothesis	Remarks
ICT awareness influences firm performance.	Not Significant
ICT usage influences firm performance.	Significant
ICT competencies influence firm performance.	Not Significant
ICT capabilities influence firm performance.	Significant

The result is summarised in table 19 above where "ICT usage influences firm performance" and "ICT capabilities influence firm performance" is significant in this study. Meanwhile "ICT awareness influences firm performance" and "ICT competencies influence firm performance" are not significant.

4.9 Summary of Finding

Demographic factors in this case study are referring to age, gender, ethnicity, service duration, education, and position. The ages that are involved in this study showed that the highest focus group are 48.7% between ages 26 -45, the second is 33.1% between ages above 46 and the lower are 18.2% age 25 and below. The majority 64.3% are male and 35.7& are female. Most ethnicity comes from 79.9% are Malay, 12.3% are Indian, 5.8% are others and 1.9% are Chinese. Referring to the focus group, in terms of their service duration, the highest is 35.7% from 1 – 5 years, the second is 28.6% from 10 years above, the third is 21.4% from 5 – 10 years and the lower is 14.3% from below than 1 year. Education background involved in this study 47.4% are SPM/ Certificate, 26.6% are Diploma, 16.9% are others and the rest 9.1% are from qualification Bachelor. Most of the operational management staff positions are 40.3% security, 32.5% Senior Executive/ Executive/ Assistant Executive, 10.4% General Worker/ Housekeeping, 6.5% Assistant Admin, 5.8% Driver, and the rest 4.5% Technician/Assistant Technician.

Actual reliability analysis for independent variables found that the item ICT Capabilities has the highest Cronbach's Alpha value, with 0.967. It is followed by the item ICT Awareness, with 0.963. The item ICT Competencies comes next, with 0.957. The item ICT Usage comes last, with 0.929. For the dependent variable, the item firm performance has a value of 0.957. Actual reliability analysis presents items that are of most excellent value. The result showed the standard deviation does not have a high value (0.787 - 1.354), indicating that the answers are almost evenly scattered for all independent variables. The standard deviation for firm performance does not have a high value (0.807 - 0.949), indicating that the answers are almost evenly scattered. Result of the correlation indicate is a very strong positive correlation on ICT Awareness, ICT Usage, ICT Competencies, and ICT Capabilities correlation value to firm performance ($r=0.810$, $p<0.01$), ($r=0.839$, $p<0.01$), ($r=0.840$, $p<0.05$) and ($r=0.855$, $p<0.05$). It was hypothesized that a positive relationship exists between all variables. The result indicates the descriptive statistics based on a factor of age toward ICT - savvy. The higher mean is aged 26 – 45 with a mean value of 89.6000, the second is aged 25 and below with a mean value of 74.5000, and the lowest are aged above 46 with a mean value of 73.4706. ANOVA results showed that the factor of age toward ICT- savvy with Sig .000 is most significant.

Meanwhile, the result showed the descriptive statistics based on factor service duration toward ICT- savvy. The higher mean is a service duration of 1-5 years with a mean value of 90.7091, the second is a service dura of 10 years above with a mean value of 86.3409, the third is below than 1 year with a mean value of 72.0000 and the lowest are service duration of 5 – 10 years with mean value 66.0909. ANOVA results showed that the factor of service duration toward ICT- savvy with Sig .000 is the most significant. The result also investigates the descriptive statistics based on factor position toward ICT -savvy. The higher mean is the position Senior Executive/ Executive/ Assistant Executive with a mean value of 100.3600, second is Assistant Admin with a mean value of 92.2000, third is Driver with a mean value 8of 9.4444, fourth is Security with a mean value of 73.1452, fifth is Technician/ Assistant Technician with mean value 66.4286 and the lowest is General worker/ Housekeeping with mean value 50.5000. ANOVA results showed that the factor of position toward ICT- savvy with Sig .000 is most significant. In short, these three factors greatly influence no significant ICT awareness in Kolej Yayasan Pahang.

The result from regression analysis sees which of the two variables influences the variance in firm performance. In the column Beta under Standardised Coefficients, the result indicates the number in the beta is 0.432 for ICT Capabilities and 0.266 for ICT Usage, which is the independent variable, which is significant at the 0.004 and 0.044 levels. Results also found the number in the beta is 0.266 for ICT competencies and -0.041 for ICT Awareness is not significant at the 0.087 and 0.737 levels. Now we can conclude that from this regression, ICT usage and ICT capabilities are significant to firm performance whereas ICT awareness and ICT competencies are not significant to firm performance.

4.10 Discussion of Finding

This study tested a model that leads to a better understanding of the variables that leads to KYP firm performance. The influence of information and communication technology–savvy (ICT-savvy) on firm performance also looks at its relationship. In simple words, influence is about the relationship. Influence means the capacity or power to have an effect, control or manipulate something or someone (Behrouz, Subhash, Shafagat, Rathish, 2017). In this study, a linear regression model was used to investigate the relationship between ICT-savvy and firm performance. Below are the research questions which led to this study.

a. Relationship Between ICT Awareness and Firm Performance

The first research question for this study was stated as follows: What is the influence of ICT awareness on firm performance? According to analytic results, there is no significance between ICT awareness with firm performance. Descriptive analyses indicate that 48.7%of respondents or focus groups come from ages 26 – 45 and 33.1% are above 46. The Focus group from this age is generation X where they are tough to adapt to any changes or revolution in ICT in the business line and workplace. Resistance to change has affected the relationship between ICT awareness to firm performance. Service duration also influences the result where 35.7% are in service for 1 – 5 years in KYP. It means the majority are still new in their position. Now, most of them will be more focused on resolving their duties and responsibilities in their respective fields than to understand ICT awareness. New staff usually are limited to getting comprehensive training from the company as well as high training cost. The company also focuses more on training long-serving staff. Besides that, the higher position in this focus group is security which is 40.3%. Work of nature also impacts this result where it is not significant. The nature of security work, which focuses on maintaining safety and supervision, causes them to be less aware of the importance of ICT in the workplace and its impact on productivity, sustainability, competitive advantages, and accessibility.

The result reveals no significant relationship also supported by the result of one-way ANOVA. Descriptive statistics based on age factor toward ICT- savvy where the highest mean is the age between 26 – 45 with mean value 89.6000, second is age 25 and below with mean value74.5000 and the lowest are age above 46 with mean value 73.4706. ANOVA results showed that the factor of age toward ICT- savvy with Sig .000 is most significant. It can be explained that the age factor is much related to the ICT- savvy. Descriptive statistics based on factor service duration toward ICT- savvy where higher mean are service duration 1-5 years with mean value 90.7091, second is service duration 10 years above with mean value 86.3409, third is below than 1 year with mean value 72.0000 and the lowest are service duration 5 – 10 years with mean value 66.0909. ANOVA results showed that the factor of service duration toward ICT- savvy with Sig .000 is the most significant. It can be explained that the service duration factor is much related to the ICT- savvy.

b. Relationship Between ICT Usage and Firm Performance

The second research question for this study was stated as follows: What is the influence of ICT usage on firm performance? According to analytic results, there is a significant relationship between ICT usage with firm performance. In other research "The Impact of Highly-skilled ICT Labour on Firm Performance: Empirical Evidence from Six European Countries".

Furthermore, ICT usage showed a positive relationship with firm performance via consistency, effectiveness, and efficiency level of integration of ICT use (Chairoel and Pujani, 2015). They determined that the scale of ICT usage and action was necessary to ascertain the extent of general ICT uptake so that the level of expertise and possible expectations could be gauged. Citation from Junaidah Hashim (2007) from "Information Communication Technology (ICT) Adoption Among SME Owners in Malaysia" mentions that to achieve firm productivity, small businesses in Malaysia need to catch up with new management and economic trends such as IT use, k-economy, and e-commerce. From the perspective of Pearson Correlation Analysis, results showed that in general there is a strong positive relationship between ICT usage and firm performance where the value is 0.839. The utilisation of ICT in the workplace mostly is used especially because it simplifies and speeds up the process of work

c. Relationship Between ICT Competencies and Firm Performance

The third research question for this study was stated as follows: What is the influence of ICT competencies on firm performance? According to analytic results, there is no significant difference between ICT competencies with firm performance. However, Kuleelung's (2015) research in Thailand on ICT competencies with scope, organisational agility, and firm performance shows the result that there is no relationship between ICT competencies among managers. In this case study, competency does not influence business excellence. From the analysis of the demographic profile using one-way ANOVA, competencies are also very dependent on their age, service duration, and position. Age, service duration, and position showed the result with mean values of e 81.5130, 81.5130, and 81.5130. The standard maximum that should be achieved is 120.00. Results emphasise that the competencies of staff on ICT are still at an abstemious level. The internal factor may affect their competencies such as lack of ICT training and limitation on their job scope and responsibilities. Normally, to be competent in doing something, we need more on the frequency of use.

In Malaysia, we are still in the process of educating people about the importance of ICT utilisation in all sectors such as education, business, engineering, health, science, and others. According to the Malaysia Communication and Multimedia Commission in 2017, the percentage of internet users in Malaysia is 76.9 % of the population while the report of the percentage of Internet users in the workplace is 58.7%. It is supported by the Eleventh Malaysia Plan (Eleventh Plan), 2016- 2020, the government has emphasised driving ICT in the knowledge economy through innovation and productivity to enhance competitiveness and wealth creation. The competencies of individuals on ICT to adapt to their workplace and business are also depending on awareness, comprehensive training, and government support agendas.

ICT adoption and its competencies are always discussed in terms of the small and medium enterprises (SME) or business sector. So, we can observe that most of the results showed that ICT -savvy is influential or significant to the firm performance. The lack of research studies on higher learning areas limits the relationship between ICT- savvy to firm performance. Sometimes, the attitudes of employees are highly contributed to ICT competencies. Their attitudes in a comfortable zone make it difficult to make a change and seek and apply awareness, especially for those who have long served in KYP.

d. Relationship Between ICT Capabilities and Firm Performance

The second research question for this study was stated as follows: What is the influence of ICT capabilities on firm performance? According to analytic results, there is a significant relationship between ICT capabilities with firm performance. This is consistent with the result reported by several previous studies. Lew Sok Leng (2017) mentioned in their research "Impacts of Information Technology Capabilities on Small

and Medium Enterprises and Large Enterprises" knowledge acts as a foundation for ICT capabilities. Employees as an asset in the organisation must have a high knowledge and skills in multiple fields such as communication and the ability to explore ICT. Analysis correlation showed ICT usages have a relationship with ICT capabilities where the value is 0.933. The excellent result captures that ICT usage can contribute to and influence mastery of ICT capabilities.

4.11 Implications

a. Theoretical Implications

Theoretically, this study was designed to fill in some gaps that have been highlighted in chapter one where there is a dearth of research investigating the influence between ICT - savvy and firm performance. A new independent variable: ICT capabilities are proven that reflect on firm productivity and create a competitive advantage for a company. The strong positive relationship indicates that this new variable affects firm performance in all aspects of research such as productivity, competitive advantage, sustainability, and accessibility. ICT capabilities enable the use of ICT effectively and appropriately to access, create and communicate information and ideas, solve problems and work collaboratively. Accessibility is needed to support college internationalisation and globalisation. Since the two new variables have a very strong positive correlation with each other, this conceptual framework is useful for future studies. Analysis of the result displays that these two variables are significant to each other.

b. Managerial Implications

The value of this study was that at the end of this research, the result we can use to propose an idea as a research contribution to the managerial phases. The results of this study can be used to give a guideline and idea to the top management, Human Resource Department, IMD Department, and its Operational Management to fully utilise ICT in the workplace to improve KYP performance. This study provides the management with a guideline to solve, set up, upgrade, and maintain the level of ICT- savvy in the workplace, and finally, it will contribute to achieving KYP's Qualities Objective, the Company's Philosophy of Human Resources, and High Firm Performance.

As the result of an average or moderate level of ICT awareness, ICT usage, ICT competencies, and ICT capabilities allows the Human Resource Department to plan comprehensive training for operational management and other employees. Since ICT usage is still not achieved an excellent standard in its utilisation, IMD Department can prepare the best solution based on the ICT level such as KYP Portal into mobile apps (KYP Portal Apps). It gives the opportunities from this multilevel position to access the system anytime and everywhere. This study involves an operational management staff where the report from the IMD Department says that their mastery of using this system is still below 70%. From this research, we found that only 68% of ICT savvy among KYP operational management staff. So, KYP can comprehensively plan staff development as an Initiative for self-learning and to up their mastery of ICT to 90% or above.

5. Conclusion

The research conducted at Kolej Yayasan Pahang emphasises the influence of Information and Communication Technology – savvy (ICT -savvy) on firm performance. This study is important to give value and contributions to higher learning education and Kolej Yayasan Pahang itself to acknowledge that the relationship between ICT influence influences firm performance in terms of productivity, generating sustainability, creating competitive advantages, and accessibility. In the literature review, we found that ICT-savvy is significant to firm performance. This study found that there is a significant relationship between ICT usage and ICT capabilities toward firm performance. Although, the finding also showed that there is no significant relationship between ICT awareness and ICT competencies toward firm performance. The differences in this relationship are based on its justifications such as result analysis, literature review, and opinions.

The problem statements raised show the true situation of ICT mastery in KYP is below 70%. This research provides value and contribution to provide an idea to the top management, Human Resource Department, IMD Department, and its Operational Management to fully utilise ICT in the workplace to improve KYP performance. The proposed guideline is to provide comprehensive training on ICT, create awareness and upgrade the system or website to use applications such as KYP Portal Apps. A new framework proposed for future research will give more value to the researcher in engaging their study on ICT -savvy.

5.1 Recommendations and Suggestions for Future Research

ICT savvy is highly related to their components such as awareness, usage, competencies, and capabilities in impacting firm performance either on non-financial performance or financial performance. This study is more focused on non-financial performance like productivity, sustainability, competitive advantages, and

accessibility. For future study, we suggest looking at the influence of ICT -savvy on financial firm performance. This research is conducted from the view of three levels in a firm top, middle and operational management levels. We propose to conduct a future study with the new framework as in figure 4 below.

The proposed future framework is focused on the nature of work and how ICT- savvy in this scope will influence firm performance. A new factor to investigate a framework based on result findings is that ANOVA analysis showed that the Mean for every position is depending on the nature of work, we are also recommending for future studies upgrade the scope of respondents to the big scale to get an accurate result and enlarge this study to higher learning in Malaysia. So, from that, this research hopefully will give more contributions to the education sector together to achieve sustainability from ICT savvy.

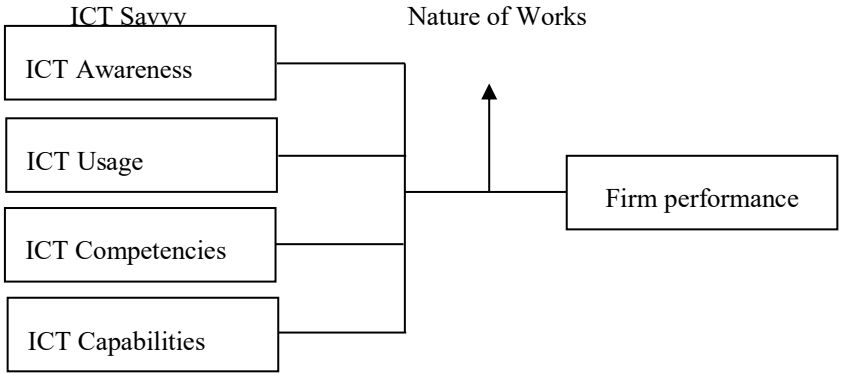

Figure 4. *Proposed Future Framework*

References

Asare, A. O. (2015). *Barriers of ICT Innovation towards Sustainable Growth of SMEs: a Case Study of Ghana*, *4*(11), 121–126.

Alam, S. S., & Noor, M. K. M. (2009). ICT adoption in small and medium enterprises: an empirical evidence of service sectors in Malaysia. *International Journal of Business and Management, 4*(2), 112.

Allison I.K. (1999) Information systems professional development: a work-based learning model. *ContinuingProfessional Development Journal*, *2*(3), 86-92.

Awais, M.; Irfan, M.; Bidal, M.; Samin, T. (2012). Helpful business value of advance bal information the system, *IJCSI International Journal of Computer Science Issues, 9*(2), 415–422. ISSN 1694-0814.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17, pp. 99–120.

Bayo-Moriones, A., Billón, M., & Lera-López, F. (2013). Perceived performance effects of ICT manufacturing SMEs. *Industrial Management & Data Systems*, *113*(1), 117-135.

Bourque, L., & Fielder, E. P. (2003). *How to Conduct Self-Administered and Mail Surveys* (Vol. 3). Sage.

Castillo, C., Donato, D., Gionis, A., & Mishne, G. (2008, February). Finding high-quality content in social media. In *Proceedings of the 2008 International Conference on Web Search and Data Mining*, 183-194.

Consoli, D. (2012). Literature analysis on determinant factors and the impact of ICT in SMEs. *Procedia-social and behavioral sciences*, *62*, 93-97.

Funk K. (2003). Sustainability and performance. *MIT Sloan Management Review Winter*, 65-70.

Gosen, J., (2009). Creating comparative advantage for micro-enterprises through e-governance. *Int. J. of Electronic Governance*, *2*(2/3), 239 - 250.

Hagsten, E. (2014). The impact of highly skilled ict labour on firm performance: empirical evidence from six European countries. *Institute For Prospective Technological Studies Digital Economy Working Paper 2014 / 02*

Hair, J. F., Money, A. H., Samouel, P., & Page, M. (2007). *Research Methods for Business. Education & Training.*

Kimutai, B., & Nairobi, O. (2016). *Influence Of Information and Communication Technology on Performance of Small and Medium Enterprises: A Case of Kibra Constituency, Nairobi County, Kenya*.

Kossaï, M., & PIGET, E. P. (2012). Utilisation des technologies de l'information et des communications (TIC) et performance économique des PME tunisiennes: une étude économétrique. *Brussels Economic Review*, *55*(2).

Kothari, C. R. (2008). *Research Methodology: Methods and Techniques.* New Delhi: New Age International Publishers.

Liang, T. P., You, J. J., & Liu, C. C. (2010). A resource-based perspective on information technology and firm performance: a meta-analysis. *Industrial Management & Data Systems*, 110(8), pp. 1138-1158.

Lew Sook Leng (2017). Impacts of information technology capabilities on small and medium enterprises (smes) and large enterprises. *Journal of Innovation Management in Small & Medium Enterprises,* 1-9.

Nur, A., Rozmi, A., Nordin, A., & Bakar, M. I. A. (2018). The perception of ict adoption in small medium enterprise: a SWOT analysis, *International Journal of Innovation and Business Strategy, 9*(1), 69–79.

Ong, S. Y. Y., Habidin, N. F., Salleh, M. I., & Fuzi, N. M. (2016). The relationship between ICT adoption and business performance in Malaysia and Indonesia, *Malaysian Journal of Society and Space, 12*(12), 40–49

Premkumar, G. (2003). A meta-analysis of research on information technology implementation in small business. *Journal of organisational computing and electronic commerce*, *13*(2), 91-121.

Sandberg, J., Pinnington, A. H. (2009). Professional competence is a way of being an existential ontological perspective. *Journal of Management Studies, 46*(7), 1138-1170.

Santos, J. B. & Brito, L. A. L. (2012). Toward a subjective measurement model for firm performance. *Brazilian Administration Review (BAR).*

Sabrinah Adam & Batiah (2016). The effectiveness of knowledge management towards organisational performance of internet business in Malaysia. *Malaysian Journal of Business and Economics, 3*(1), 68 – 80.

Small-Medium Enterprise Report (2017). From http://www.smecorp.gov.my.

Ståhl, T. (2017). How ICT savvy are digital natives? *Nordic Journal of Digital Literacy 12*(3), pp. 89-108.

Thareerat Kuleelung (2015). Organisational agility and firm performance: evidence from information and communication technology (ICT) businesses in Thailand. *The Business and Management Review*, *7*(1), 206-217.

World Bank. (1998). *World development report 1998/1999: Knowledge for development*. The World Bank.

Yusuf, A. A. (2013*). Impact of ICT on SMEs – Case Rwanda*. Unpublished degree dissertation, Turku University of Applied Science.

The Authors:

Nornahar Ghani, Assistant Manager at Research and Industry Linkages, University College of Yayasan Pahang, Kuantan, Malaysia. Her research interest includes Entrepreneurship, Business and Information Technology. E-mail: nornahar@ucyp.edu.my.

Normadiana A. Manan (https://orcid.org/0000-0001-7526-3065), Lecturer at Faculty of Management and Research Management Centre, University College of Yayasan Pahang, Malaysia. Her research interest includes Management and Human Resource Management. E-mail: normadiana@ucyp.edu.my.