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# INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES



## Modeling the Relationship between its Capability, Organizational Performance and Customer Satisfaction

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### Abstract

IT Capability has been viewed as an enabler of internal and external firm collaboration, which is critical for advanced logistics and supply chain management. Firm collaboration and information sharing, in turn, are expected to improve organization performance leading to improved customer satisfaction. A model of the relationship between IT capability and organisational performance is proposed and tested, using empirical data in a military organization. The findings show that IT capability directly impacts firm performance through staff satisfaction which links to customer satisfaction. This findings has important implications for managers as they evaluate investment as well as performance improvement in enterprise information technologies especially in logistics and supply chain.

### Introduction

This research investigates the relationship between Information Technology Capability (IT) towards Organizational Performance of the Fleet Supply Depot (FSD) of the Malaysian Royal Navy (RMN) in delivering its core business. In this research the Organizational Performance is linked and measured to the staff satisfaction.

The Royal Malaysian Navy (RMN), as the frontliner in the defense of Malaysian sovereignty, believes that IT Capability can assist the organization's Operations and Logistics to achieve its strategic objectives. For logistics activity, a vital factor emphasized by the RMN is *how to enhance its logisticians' capability in fulfilling its fleet requirements?* Obviously by having sophisticated system, it will help the logisticians to perform their tasks at highest level subsequently able to deliver all

requirements rapidly. RMN has taken appropriate actions by implementing many initiatives to transform its depot from manual operation to electronic operation. As a result many systems have been successfully developed by RMN in order to enhance its capability in doing its core business and one of the systems is Automated Storage Retrieval System (ASRS) which has been operational at the Fleet Supply Depot (FSD), a main depot in Lumut RMN Base since 1998.

In general, FSD is responsible to deliver spare parts to RMN Fleet and bases that should be delivered on time in order to ensure the readiness of the fleet as well as bases should be at the highest level. There are two (2) elements under ASRS namely Storage Robotic System and Demand-and-Delivery Management System. The establishment of ASRS has given an opportunity to RMN to develop Demand-and Delivery Management System known as *Sistem Pengurusan Inventory Armada Version 2 (SPIA V2)* in which the system has an ability to manage demand and delivery process from accepting demands up to preparing spares to be delivered to customers namely ships.

Currently, SPIA V2 has the ability to facilitate FSD Staffs in handling the Demand-and Delivery Process effectively as well as has enhanced the staffs' ability to respond to all demands rapidly. SPIA V2 makes time as a vital factor to meet the customers' expectations. Customers require FSD to deliver their demands on time as well as zero mistake in term of required products and their quantities.

In general for current practice, most system developments in RMN just emphasized about technology that have been brought in by vendors with *minor* focus about Process as well as People that will use the technology. This problem has been raised by officers who are experts in Information Technology (IT) during a discussion with regard to SPIA Version 2 way forward. The main reason is to ensure FSD must have sufficient staff that are competent in managing the system effectively and know-how to meet customer satisfaction. Information Technology (IT) Experts in RMN also believes the system (Technology) should facilitate the Business Process at all levels to meet the Customers Satisfaction. Technology and Business Process should be worked together, including People. People or Staff of FSD should be considered as a critical factor that will determine the success of FSD in meeting its customer satisfaction since they are the *front line* in engaging with the customers.

Feedback from the operational staff pertaining to customer satisfaction can be a very important input that can be used by the management in order to enhance FSD capability in fulfilling customers' requirements. The input will inform to the management what the staffs reckon pertaining to dimensions namely People, Process and Technology which have strong relationship towards customers' satisfaction. The input can be used as a rudiment by the management in developing future systems since there is an intention to expand ASRS's capability especially SPIA V2 due to many new inventories and spare parts will be stored at FSD in future.

Until now, there is no research that has been conducted by FSD in order to determine which dimensions should be emphasized by the management in order to enhance the current systems as well as in the development of new systems in RMN. This research aims to determine what

dimensions that staffs in FSD reckon should be emphasized in order to ensure FSD can meet its customer satisfaction based on People-Process-Technology Model (PPT Model).

Principally the PPT Model is a model that emphasizes about those three (3) dimensions as a main ingredient for organizational transformation to be more dynamic and effective. The model has been well accepted by many academia as well as industrial practitioners around the globe (Maltaverne, 2015).

These dimensions will be segregated under Information Technology Capability in order to determine which dimensions have strong relationship toward Organizational Performance in which by managing the dimensions seriously, it will drive the performance of the organization to move to the next level. In this research context, Organizational Performance is referred to Customer Satisfaction in which it will be evaluated based on feedbacks attained from the staffs via the dedicated Questionnaire (Construct).

This research has used SPIA version 2 (SPIA v2) as a platform to be assessed and Staffs at Fleet Supply Depots as respondents in order to examine the relationship between Information Technology Capability (People-Process-Technology) and Customer Satisfaction based on Staffs' Perception.

### **Literature Review**

In general, Information Technology (IT) Capability can influence Employee Performance (EP) of an organization in meeting Customer Satisfaction (CS) (Imran, Maqbool & Shafique, 2014).

The optimization of IT usage to all level can contribute to the performance of the organizations or companies (Wilson, Iravo, Tirimba & Ombui, 2015). The technology has been used a medium to monitor the product delivery processes have been conducted in proper way, so that the product can be delivered to customers on time. The word of *On Time* is a measurement to evaluate the company performance in fulfilling its customers' expectation.

Al-Saraireh (2013) stated in his article that there is an impact of investment in information technology to improve the ability to make decisions in industrial companies, as when any information has been available to decision maker it will be a management tool that can direct decisions to use this information, take advantage of investment opportunities, and identify obstacles, strengths and weaknesses. Besides that, there is an investment impact in information technology to improve the internal operations of the Jordanian industrial companies (Al-Saraireh, 2013). Al-Saraireh's statement have a *same tune* with Kithinji's view in which she believed that the organization should invest more in modern technology, thus it can help the organization to minimize communication costs, enhance efficiency and increase sharing of information which will eventually lead to improve performance (Kithinji, 2015)

However, other than system capability factor, organizations or companies are required to take into their consideration of People (Human Resource) factor. Theoretically, People is a main mover to the

success of organizations or companies in embarking Information Technology (IT) system as a main tool to perform their obligations. Without preparing competent and skilful workforces, the system can't be operated accordingly, thus, it can't facilitate the organizations or companies to achieve their goals, and can lead to the increment of operational costs. Due to that reason, the organizations or companies should provide trainings to their workforces, so that they can acquire sufficient knowledge and skills pertaining to the system. Based on Hasan and Nadzar (2010) they agreed that all personnel should be sufficiently exposed to the systems and technologies currently used in the organization by providing extensive training programs.

Business Process in any organizations or companies relatively will give some impacts to the performance of the organizations or companies. Principally if the organizations or companies have effective processes in doing their business, they in general will enhance their capability to be more competitive advantage furthermore will embrace their customers' expectation or satisfaction effectively. According to Folarin and Hassan (2015), the speedy process of Tesco's Delivery Service has helped Tesco Malaysia to satisfy and retain its customers. Thus, the organizations or companies should ensure their business processes should be implemented in proper way in order to meet their customers' satisfaction. Wilson, Iravo, Tirimba and Ombui (2015) also had found that the business process of logistics firms in Nairobi County had increased customers confident, subsequently had influenced the increment of the performance of those logistics firms.

Besides that, the failure of the organizations or companies for not considering Processes dimension, in general will lead to negative consequences. Itumalla (2012) in her research pertaining to Information Technology and Service Quality in Health Care in India had found that the failure of the private hospitals in India to take into their consideration about processes relate to communication, promptness and availability had affected findings of the study in which in the study Customer Satisfaction Index (CSI) was 75.87 out of 100. Hananu, Abdul-Hannan and Abdul-Rasheed (2015) had used e-banking (Technology and Process) as well as knowledge workers (People) in order to evaluate the effect of information communication (ICT) on quality services delivery in banking industry.

The above studies in general had shown to us that People, Business Process and Technology had contributed the great impacts toward Customers Satisfaction in which by ignoring those dimensions, it will make the organizations or companies will lose their capability to perform their core business, simultaneously fail to fulfill their Customer Satisfaction.

There are many empirical studies with regard to the relationship between Information Technology (IT) Capability and Organizational Performance in private and public sectors but not in military environment. This current research is to go in depth and examine the People-Process-Technology Model in military environment.

### **Information Technology Capability**

Information Technology (IT) Capability in principle relates to many dimensions namely Infrastructure, human resources, IT related resources and business experience (Karimi, Amini & Latifi, 2014). IT

Capability of an organization is geared towards *what the system can contribute to the organization's* strategic, tactical and operational level to simultaneously create some improvement that can enhance the efficiency and effectiveness of the organization (Wilson *et.al.* 2015). In this study we are focusing on three (3) dimensions namely People, Process and Technology and segregate those dimensions under an Independent Variable known as IT Capability.

This model has been developed by Professor Harold J. Leavitt in the 1965 (Maltaverne, 2015). Harvard Business Review has quoted that "*advanced tools can transform the way you run innovation and operations. But it's the way you manage the tool and the people that use them that will unlock or hold back their potential*" (Thomke, 2015). Those dimensions in principal are interconnected in which we can't ignore those dimensions if we want to ensure our organization can be a dynamic organization that relevant with current and future requirements even at some extend this model can be considered as the holistic Organization Model (Clarkston Consulting, 2009). Details about those dimensions are followed:

- a. **People (Staffs).** This dimension has focused on two (2) key players in FSD namely administrators and operators. Generally, those groups are the *first line* for FSD in engaging with customers from ships in which their inefficiencies in handling the customers will create negative impact to FSD image. Besides that, those groups are also involved in managing and handling SPIA V2. These require those groups to acquire certain competency in order to ensure the system can perform at highest level at any time and the customers will feel satisfy with the services that have been provided by FSD. Thus, competency is a main criteria to be assessed in the questionnaire in order to examine whether this dimension will influence Customer Satisfaction or otherwise.
- b. **Process (Business Process).** This dimension focuses on the Business Process embedded and implemented in SPIA and how the Process can help FSD staffs to fulfill customers' expectation. The results from the research pertaining to this dimension will tell us about the effectiveness of the Process in handling the customers' requirements in term of responsiveness (Business Process Time-Lapse) ; for instance *is the data easy to retrieve ? How long it will take to obtain the required data? Is the system responsive?* and zero mistake in retrieving required data.
- c. **Technology (System).** This dimension focuses on three aspects namely hardware and software of SPIA as well as availability of current networking in which those aspects will be managed and operated by FSD Staffs in order to deliver services to customers. This research will examine the strength of this dimension in meeting Customer Satisfaction either as a main dimension or only a supporting dimension.

### **Organizational Performance**

In general there are many definitions of organizational performance. Achieving better results by understanding and managing performance within an agreed framework of planned goals, standard

and competency requirements (Armstrong, 2009) can be considered as one definition of organizational performance. Furthermore, there are also many ways organizational performance is measured. A common practice in measuring the organizational performance is based on some measure of financial and non financial performance.

This research has defined Organizational Performance as a measurement tool to evaluate the capability of an organization in satisfying its customers. Specific to the system under study (SPIA), since the customers are mainly internal customers, customer satisfaction can be measured via employees satisfaction and their perceived customer satisfaction.

**Proposed Conceptual Model of the ITC and OP**

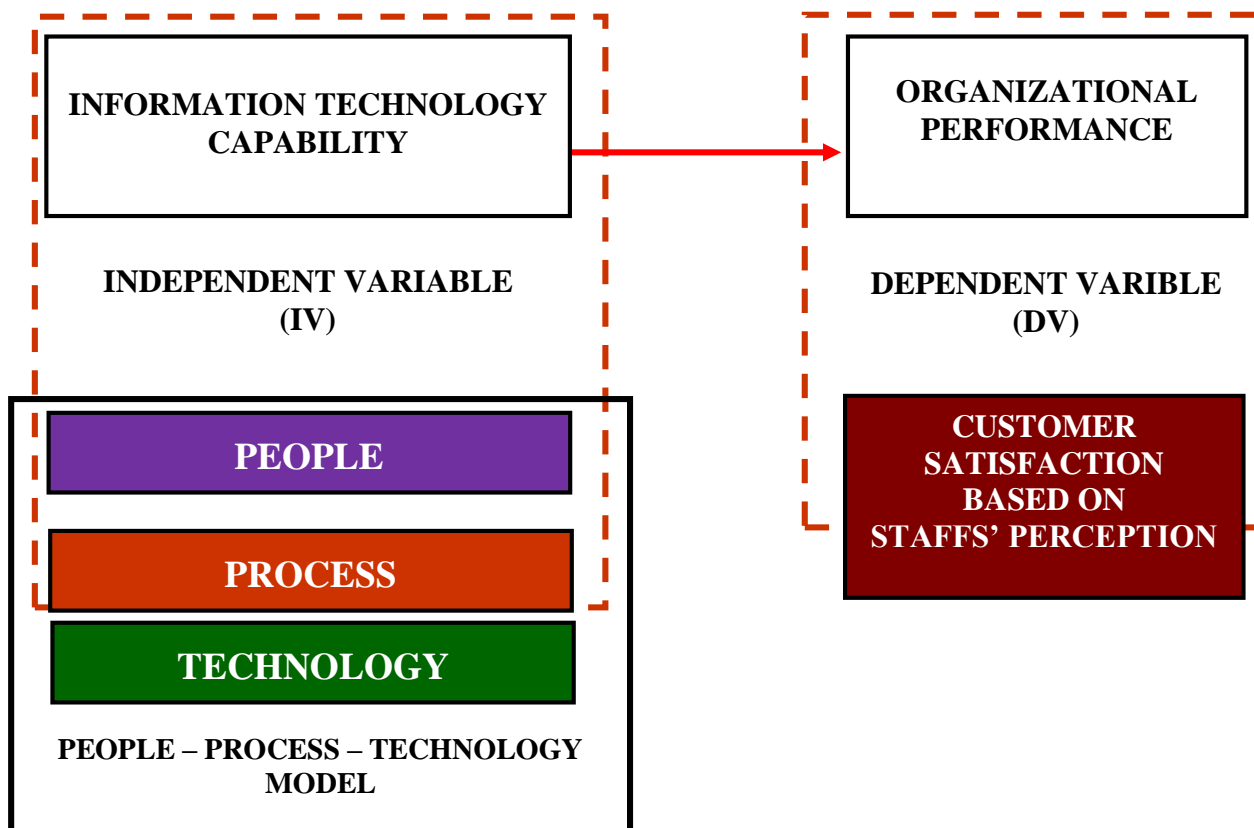


Diagram 1: The Conceptual Framework

**Research Methodology**

For this research, the most appropriate design is a correlational study, based on (Sekaran & Bougie, 2016). The correlational study should be conducted when the researchers are deliberately interested to examine the relationship between Independent Variables (IV) and Dependent Variable (DV) generally associated to the problem. In this study, we are interested to evaluate the relationship of three (3) dimensions of Information Technology Capability namely People, Process and Technology toward the dimension of Organizational Performance (OP) namely Customer Satisfaction (CS).

The population of this study is the personnel of FSD who are engaging with SPIA Version 2 (SPIA v2), in principal who are working at Procurement Department, Electronic Data Process Department (EDPO) obviously is a department which is responsible to administrate SPIA v2, as well as Stores. The overall populations of those departments are approximately 203 personnel.

### Hypotheses

- a.  $H_{a1}$ : There is a significant relationship between People (Staff) and Staffs' Perception towards Customer Satisfaction.
- b.  $H_{a2}$ : There is a significant relationship between Process (Business Process) and Staffs' Perception towards Customer Satisfaction.
- c.  $H_{a3}$ : There is a significant relationship between Technology (System) and Staffs' Perception towards Customer Satisfaction.

### Research Instrument

The instrument has been developed using previous research (Daniel, Ashar, Ihsan-Ur-Rehman and Shahbaz, 2012; AL-Gharaibeh and Malkawi, 2013; Otiso, Chelangat and Bonuke, 2012; and Bakhat and Aziz, 2012).

### Findings of the Study

#### Reliability Analysis

This study had conducted Cronbach's Alpha Testing in order to evaluate the reliability of the measurement tool (Cresswell & Cresswell, 2017). This analysis is a mandatory analysis that should be conducted in order to determine either the measurement tool can be used in this study or vice versa. As a result the Cronbach's alpha for the measurement tool should be more than 0.7 in which the value had indicated that all measurement items were reliable to be used in this study. Details about the analysis are shown in the below table:

- a. The Cronbach's alpha of Independent Variable 1 (IV 1) namely People is 0.806 and the figure is indicated that the Internal Consistency Reliability of this Independent Variable 1 (IV 1) can be considered as Good. Details about the analysis are shown in the below table:

		N	%
Cases	Valid	160	100.0
	Excluded <sup>a</sup>	0	.0
	Total	160	100.0



a. Listwise deletion based on all variables in the procedure.

Reliability Statistics	
Cronbach's Alpha	N of Items
.806	10

Table 1.1: The Cronbach's Alpha Value of People

b. Furthermore, the Cronbach's alpha of Independent Variable 2 (IV 2) namely Process is 0.818 and the figure is indicated that the Internal Consistency Reliability of this DV can be considered as Good. Details about the analysis are shown in the below table:

Case Processing Summary			
		N	%
Cases	Valid	160	100.0
	Excluded <sup>a</sup>	0	.0
	Total	160	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics	
Cronbach's Alpha	N of Items
.818	10

Table 1.2: The Cronbach's Alpha Value of Process

d. Other than that, the Cronbach's Alpha of Dependent Variable (DV) namely Staffs' Perception towards Customer Satisfaction is 0.847 and the figure is indicated that the Internal Consistency Reliability of this DV can be considered as Good. Details about the analysis are shown Table 1.2.

### Normality Analysis

After establishing the reliability of the constructs, normality analysis was performed to ensure the distribution of scores on the dependent factors are normally distributed. This was done through analyzing skewness, Q-Q Plot and the Boxplot. All these tests confirm that the distribution is approximately normally distributed without any presence of outliers.

### Correlation Analysis

This study had used correlation analysis in order to determine the strength of relationship between Independent Variables (IV) and Dependent Variable (DV) by obtaining Coefficient Correlation r-Value.

The results had been generated by SPSS pertaining to the relationship between Independent Variables (IV) and Dependent Variable (DV) are shown in the below tables:

		PEOPLE	PROCESS	SYSTEM	STAFF PERCEPTION TOWARDS CUSTOMER SATISFACTION
PEOPLE	Pearson Correlation	1	.719**	.625**	.497**
	Sig. (2-tailed)		.000	.000	.000
	N	160	160	160	160
PROCESS	Pearson Correlation	.719**	1	.746**	.631**
	Sig. (2-tailed)	.000		.000	.000
	N	160	160	160	160
SYSTEM	Pearson Correlation	.625**	.746**	1	.551**
	Sig. (2-tailed)	.000	.000		.000
	N	160	160	160	160
STAFF PERCEPTION TOWARDS CUSTOMER SATISFACTION	Pearson Correlation	.497**	.631**	.551**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	160	160	160	160

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 1.3: Details of Correlation Analysis of Independent Variable and Dependent Variable (Staffs' Perception towards Customer Satisfaction)

A general overview about the above results obviously had shown that all dimensions have positive correlation in which it means every dimension will react in tandem move. Detail overviews about the results as follow:

- a. Pertaining to the Relationship between Independent Variables (IV) and Dependent Variable (DV), the coefficient correlation result had portrayed that the relationship between Staffs' Perception towards Customer Satisfaction and Process is the strongest correlation if

we compare to other relationships in which the r-value is 0.631, highest than other relationships.

b. In addition, in term of the Degree of Association we can conclude that the degree of the relationship of two (2) dimensions towards Staffs Perception towards Customer Satisfaction namely Process and Technology can be considered as Moderate due to the figure of the r-value of those dimensions are fallen within the range of 0.5 - 0.8.

c. Mean while the degree of the relationship between People and Staffs Perception towards Customer Satisfaction is weak due to its r-value falls within the range of 0.2 - 0.5.

d. Details about the relationship between Independent Variables (IV) and Dependent Variable (DV) are shown in the below table:

S/No	Relationship	Magnitude of r - Value	Degree of Association
1.	People - Staffs' Perception	0.497	Weak
2.	Process – Staffs' Perception	0.631	Moderate
3.	Technology - Staffs' Perception	0.551	Moderate

Table 1.4: The Degree of Association among Dimensions

The above result is inclined to some previous studies that indicated Process is the most dominant dimension that have strong and positive relationship towards Customer Satisfaction for instance, (Bakhat and Aziz, 2012), (Folarin and Hassan, 2015) and many other researches.

Based on the Correlation Analysis result, we can infer that all of the alternate hypotheses are accepted due to r-Value more than 0.5 (please refer to Table 1.4). Those results mean all Independence Variables (IV) have significant relationship toward Dependent Variable (DV).

### Conclusions and Future Work

Based on the above findings we can conclude that all Independent Variables (IV) namely People, Process and Technology have been proven by SPSS that have relationship with the dimension of Organizational Performance namely Customer Satisfaction (Dependent Variable). However among those variables, Process is the dimension that has the strongest relationship towards Customer Satisfaction based on Staffs' Perception. This result indicates that the management of FSD should handle this dimension appropriately in order to ensure the customers will satisfy with all services provided by FSD.

Thus, the management of FSD should ensure this dimension should be friendly and easy to be handled by Staffs seriously as well as must be reviewed and revised structurally by the third (3<sup>rd</sup>) party

or auditors in order to ensure this dimension is relevant with current environment and requirements, if FSD wants to optimize this dimension in order to sustain its customers' satisfaction. Conversely, the management of FSD is recommended to emphasize other dimensions seriously even though SPSS results indicates two other dimensions namely Technology and People are less important and aren't having great impacts towards Customers Satisfaction based on Staffs' Perception.

This study also shows that People, Process and Technology Model (PPT Model) can be applicable in any environment either in military or non military organizations. This study had shown the model is suitable to evaluate organizational performance of an organization in which this model will give a general view which dimensions should be emphasized by the organization in order to be more effective and competitive advantage in future. By knowing in depth about which dimensions will give great impacts to the organizational performance, it will provide the vivid information to a management to take appropriate actions toward the dimensions in order to meet a goal has been set up by an organization, subsequently it will create an opportunity to the management to produce more holistic action plan pertaining to a system development program at the early stage (Planning Stage).

In general, there are many areas for improvement with regard to this study especially in term of further analyses that can be conducted by other researchers in future.

- (1) Regression Analysis is suggested to be conducted in order to determine which dimension is a most dominance dimension in the relationship between Information Technology (IT) Capability (People-Process-Technology) towards Organizational Performance (Staffs Perception towards Customer Satisfaction).
- (2) A further study to examine the relationship between IT Capability towards Organizational Performance (Staffs Perception towards Customer Satisfaction) is suggested to be conducted in which in the study, researchers are suggested to use Customers as their respondents. Thus, from the study, the researchers will attain patterns of what the customers think about Customer Satisfaction based on three (3) dimensions namely People-Processes-Technology. Furthermore, researchers can conduct a comparative study between the findings on what the staffs thinks about customer satisfaction and the findings on what the customers think about customer satisfaction. This comparative study obviously will give clear picture pertaining to which dimensions of PPT Model will contribute great impacts to Customer Satisfaction.
- (3) A further study to examine the relationship between IT Capability towards Organizational Performance (Staffs Perception towards Customer Satisfaction) is suggested to be conducted by inserting other dimensions like training, job satisfaction and so on in order explore more findings that can expand our perspective with regard to Customer Satisfaction.
- (4) Findings of the study can be used by other researchers who are involved in conducting a research with regard to Information Technology Capability as their additional inputs in order to

produce more holistic write up for their study. Besides that, these findings also can be used as an additional input during teaching-and-learning process in which the findings can be used by lecturers as certified evidences in explaining the relationship between PPT Model towards Organizational Performance or Customer Satisfaction.

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