

The Effect of IT Capability on Customer Relationship Performance for Non-Profit Organization: Mediating Role of External Capability

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Abstract—This research contemplates to investigate the relationship between organization capability and customer relationship performance. The proposed research model consists of three parts 1) Internal capability, 2) External capability, and 3) Customer relationship performance. First, internal capability is the organizational competence focused on management skills, IT skills. Second, external capability is the organizational agility focused on speed and responsiveness of decision-making, and customer knowledge in sense of capability to identify and action towards the external change. Finally, customer relationship performance is benefit in term of customer perspective focused on customer satisfaction and customer retention. This study also invents the mediating role of external capabilities on the relationship between the internal capabilities and customer relationship performance for a non-profit organization.

Keywords—IT capability, IT resource, customer relationship performance, internal capability, external capability

I. INTRODUCTION

Customer satisfaction is an important issue for companies to gain and retain their customers. The satisfaction tends to be happened when the customers feel that the products or services can fulfill their needs (Wen-Bao, 2007). When considering in term of non-profit organization, fast and innovative customer services seem to play a key role in creating customer satisfaction. Therefore, the communication between the organization and customers enables the creation of customer data to develop services.

For many years, information technology is seen as important tools in creating customer satisfaction (Darrene and Gregory, 2007). Several organizations adopted information technology to build customer relationships. For example, IT was used as tools for tracking shipment information for both shipment and customers' detail (Jeanne, 2003). The technology allows customers to get needed information. As a result, customer satisfaction is

gradually improved via the information processes (Satish *et al.*, 2005).

However, IT investment is not guaranteed the success in gaining customer satisfaction. There are several factors impeding the success. For example, companies may have limited budget and time constraints for implementing successful technology (John, 1998). Moreover, IT skills is also an important basis for creating customer satisfaction (Ester *et al.*, 2020). In addition, insight information from customers is another important issue in creating customer satisfaction (Darrene and Gregory, 2007).

This research aims to scrutinize the relationship between internal capability and customer relationship performance. Management skills and IT skills are used as representatives of internal competencies, while achieving customer satisfaction and retention are used as representatives of customer relationships. Moreover, this study also explores the mediating role of external capability by taking decision-making agility and customer knowledge into consideration.

II. LITERATURE REVIEW AND HYPOTHESIS

A. Theoretical Foundation

To explore the relationship between organization capability and customer relationship performance, this study adopts resource-based theory (Raduan *et al.*, 2009) and resource-based view theory (Mohammed and Mohammed, 2012) to demonstrate this phenomenon. The detail of organization capability and customer relationship performance will be explained in the following sections.

1) Organization capability

Organization capability is the ability of a company in managing resource, enhancing knowledge, and delivering value for customers (Colin *et al.*, 2008). The capability can be divided into internal capability and external capability. Internal capabilities basically focused on important skills that companies used for managing and

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running their business, especially management skills and IT skills. On the other hand, external capability focused on important skills that companies used reacting on changing environment, especially decision-making agility, and customer knowledge. The details of these capabilities and skills will be presented in the following sections.

a) Internal capability

Internal capability is organizational ability to utilize organizational resource to increase organizational performance such as IS planning, management skills, and IT experience (John *et al.*, 2007). This study used management skills and IT skills as representatives of internal capability. The definition of these skills will be explained in the following.

Management Skills (MS)

Management skills is organization ability to setting goals or targets, developing strategies, and organizing a work process to meet a mission (Joy *et al.*, 1993). Moreover, technical, conceptual, and human is a component of management skills (Seyedeh *et al.*, 2014). Therefore, in sense of this study management skills mean planning and decision-making which affects the overall operations and potential of the organization.

IT Skills (ITS)

IT Skills are consisting of IT hard skills and digital skills. IT skills comprise technology management skills, business functional skills, interpersonal skills, and technical skills (Terry and Douglas, 2001), which are the most important skills for competitive advantage. IT skills adaptability is the ability to programming language & IT platforms (Paul, 2008). The digital component added in The 21st-Century Digital Skills has the following digital skills components: information, communication, collaboration, critical thinking, creativity, and problem-solving (Ester *et al.*, 2020).

b) External capability

External capability is organizational agility consisting of speed, responsiveness of decision-making and customer knowledge in sense of capability to identify and action towards the external change (Majid and Mohammad, 2013). Agile organizations' capabilities are able to cope with the dynamic needs of their customers and help organizations with fierce global competition quickly and efficiently, which consist of attributes are responsiveness, competency, flexibility, and quickness (Rima and Mindaugas, 2018). Organizational agility variable consists of entrepreneurial agility and adaptive agility (Doddy and Apol, 2019).

Decision-Making Agility (DMA)

Decision-making agility is an external capability which focused on identifying and acting towards the external change (Rima and Mindaugas, 2018) based on three factors: "ability to make a decision responsiveness, take action to solve a problem effectively and speed of customer service" for a response to the customer changes and needs. Components of agility consist of speed, responsiveness, competency, and flexibility (Kamran and Mohammad, 2012). Besides that, agility is the ability to survive and continuous improvement through being customer centric in a competitive environment and

dynamic change (Wageeh, 2016). Decision making skills is ability to choose the way to operate an action under the coercion of limited time, information, and resources (Koleola, 2002). There are the ability to solve effective solutions from among alternatives (Tim and David, 2004) which has produced a result in the creation of innovations in customer knowledge for the benefit of competition.

Customer Knowledge (CK)

Customer knowledge is divided into three categories: the organization furnishes information to customers, the firm received knowledge about customers, and feedback from customer (Wu *et al.*, 2013). Actions related to customer information are known as customer knowledge (Alexandra, 2003) and it seems to create an essential competitive advantage (Michael *et al.*, 2002). However, changing technology has no effect on customer knowledge, but the functional quality consists of content to serve a customer (Wen-Bao, 2007) based on customer knowledge. Those are effect customer satisfaction and customer retention.

2) Customer relationship performance

Customer relationship performance is customer benefits in term of customer perspective focuses on customer satisfaction and customer retention (Majid *et al.*, 2018). Internal capabilities and external capabilities lead to organizational performance and benefit (John *et al.*, 2007). Achieving customer satisfaction and customer retention were used as representatives of customer relationship performance.

a) Achieving Customer Satisfaction (ACS)

Achieving customer satisfaction is satisfaction of customers to products and services (Hung-Yi *et al.*, 2011). Customer satisfaction is influenced by individual expectations and perceived that a firm has effectively provided a goods or utility that meets the customer's needs (Emrah, 2010). Time, location, and situation affect a customer's emotions regarding the expected and the actually perceived service (Wen-Bao, 2007). It explains that the principal measurement tool of relationships between firm and customer is satisfaction (Jeanne, 2003). Therefore, the customer satisfaction was used to measure the organization's ability to achieving customer satisfaction.

b) Customer Retention (CR)

Customer retention is customer an effort to keep customers loyal to the agency. It points out to the organization that can still operate from the customer base the organization today and in the future. Customer complains because they are not satisfied (Lawrence and Francis, 2006). Therefore, it implies that if the customer is satisfied, the customer will continue to use the service of the organization. Customer relation management increases relationships between customers and firms (Mohammed and Mohammed, 2012). The firm has a better understanding of the customers' expectations and needs when providing information and listening to their customers to improve service and achieve customer satisfaction and retention. Customer retention was measured in terms of long-term relationships and

systematic management effort to meet customer expectations through customer knowledge.

B. Hypothesis Development

1) The relationship between internal capability and external capability

From resource-based view (RBV), organization capability can be divided into internal capability and external capability (Ting-Peng and Jun-Jer, 2009). Internal capability comprises management skills and IT skills. External capability includes of decision-making agility and customer knowledge. Organizational resources are used through both capabilities.

This study contemplates to explore the relationship between internal capability, management skills and IT skills, and external capability, decision-making agility and customer knowledge. First, the relation from management skills to decision-making agility, and customer knowledge will be explored respectively. Later, the relation from IT skills to decision-making agility, and customer knowledge will be explored respectively.

Managerial skills are involved with the manager decision to adopt technologies for a firm (Ngoc et al., 2020). The technologies will affect the efficiency and effectiveness of the firm. Thereby, with these technologies, manager can be able to adapt to changing circumstances, that influencing better decision-making. Moreover, customer-related decisions are often based on information received from customers. Executives operate from the customer's knowledge base. Therefore, the hypotheses are the followings.

H1: Management skills affects to Decision-Making Agility of a non-profit organization.

H2: Management skills affects to Customer Knowledge of a non-profit organization.

IT competence is related to organizational agility (Doddy and Apol, 2019). It is likely to achieve better management performance through applications, services, or dashboards which to assist executive decision-making. IT skills capacitate the adoption of IT and faster data collection about customer knowledge. Therefore, the assumptions are the followings.

H3: IT skills affects to Decision-Making Agility of a non-profit organization.

H4: IT skills affects to Customer Knowledge of a non-profit organization.

2) The relationship between external capability and customer relationship performance

Customer relationship performance is customer benefits consisting of customer satisfaction and customer retention. This study explores the mediating role of the external capability for enhancing organization performance because customer benefits derived from in-house management capabilities. Agility for changing strategic, solve customers' needs and resolve complaints with speed bring about to customer satisfaction and customer retention (Wageeh, 2016) so we consider the hypotheses below.

H5: Decision-Making Agility affects to Achieving Customer Satisfaction of a non-profit organization.

H6: Decision-Making Agility affects to Customer Retention of a non-profit organization.

Using customer knowledge to improve the service that makes it more responsive to what the customer wants. Therefore, customer more likely to receives a service that meets their needs, it affects their satisfaction. The organization receives information from customers about expected services or problems. Using it to improve service quality, such as faster service delivery, and putting the customer first. Enabling organizations to retain their customers. The hypotheses were shown below.

H7: Customer Knowledge affects to Achieving Customer Satisfaction of a non-profit organization.

H8: Customer Knowledge affects to Customer Retention of a non-profit organization.

Based on the concept of organization capability and customer relationship performance, these bring about eight hypotheses explaining the relationships. The research model and hypotheses were shown in Fig. 1 as follow.

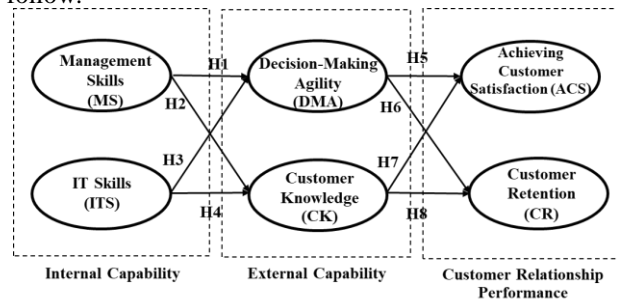


Figure 1. The research model and hypothesis.

III. RESEARCH METHODOLOGY

A. Sampling Method

Data were collected by using online questionnaires. Fifty-four government agencies, state enterprises, public organizations, foundation, church, temple, or school were selected as sample. Executives or decision-makers of the government agencies, state enterprises, public organizations were representative to response to the questionnaire (Damien et al., 2010). Table I shows the percentage of the sample in this study.

TABLE I. THE PERCENTAGE OF THE SAMPLE

Organization Type	Frequency	Percent
Government agencies: ministries, bureaus, departments	1	1.90
Foundation or Association	5	9.30
Religious places: temples, churches, mosques	36	66.70
Educational institutions: universities, colleges, schools, non-formal education centers	7	13.00
Hospital: Hospital, Public Health Office	1	1.90
Other	4	7.40
Total	54	100.00

B. Variables and Measure

The measurement scales were determined for internal capability, external capability, and customer relationship performance to measure the constructs; a list of items shown in Tables II to Table IV. Internal capability comprises management skills and IT skills. Managerial competencies are a part of competitive advantage which management skills is implemented in organizations. Appropriate management skills are usually defined by competencies in planning, organizing, identifying problems, analyzing problems, decision-making, controlling a project, and managing a plan or project to achieve the organization's target (Gabriela, 2016). IT skills are mainly concerned with technology management skills to handling information technology and the potential of implementation technology to the firm (Eric *et al.*, 2014). Therefore, we define the items to be measured internal capability in Table II.

TABLE II. INTERNAL CAPABILITY ITEMS

Internal Capability Items		Authors
Management Skills (MS)	MS1: My corporate executives have the ability to planning. MS2: My corporate executives have the ability to manage projects. MS3: My organization's executives have the ability to make decisions and solve problems.	(Gabriela, 2016)
IT Skills (ITS)	ITS1: Most of the personnel within my organization are capable of using information technology to perform. ITS2: My organization's personnel have the ability to apply technology to work in a variety of ways.	(Eric, Frank, Neil, & S, 2014).

There are two observed variables in external capability. First, decision-making agility are interpreting circumstance, diagnose strengths, weaknesses, opportunities, and threats to solve solution, prioritize action plans, inspecting operations to meet the goals (Wageeh, 2016). Later, customer knowledge is measured by continual communication and interaction with customers, collecting and updating customer data, creating appropriate communication channels, and using customer information to design services or produce products to meet customer need (Mohammed and Mohammed, 2012). Consequently, we design external capability items in Table III.

TABLE III. EXTERNAL CAPABILITY ITEMS

External Capability Items	Authors	
Decision-Making Agility (DMA)	DMA1: My organization can analyze customer-related milestones, competitors, and technology in a timely manner DMA2: My organization is able to identify opportunities and threats to changes in customers, competitors and	(Wageeh, 2016).

External Capability Items	Authors	
technology in a timely manner. DMA3: My organization is able to implement an action plan to meet customer needs in a timely manner. DMA4: My organization is able to implement an action plan in a timely manner in response to the strategic adjustments of competitors. DMA5: My organization is planning action on the timely adoption of new technologies.		
Customer Knowledge (CK)	CK1: My organization has regular communication and interaction/ communication with customers. CK2: My organization collects and updates customer information on a regular basis. CK3: My organization uses customer data to identify appropriate communication channels	(Mohammed, & Mohammed, 2012).

Customer satisfaction and customer retention demonstrate customer relationship performance. Customer complacency and information apply to serving or creating a product for the client. A firm provides services to target groups with a customer-centric approach, customer expectations, and time to maintain long-term relationships. (Mohammed & Mohammed, 2012). These are the criteria to measure customer relationship performance in Table IV.

TABLE IV. CUSTOMER RELATIONSHIP PERFORMANCE ITEMS

Customer Relationship Performance Items	Authors	
Achieving Customer Satisfaction (ACS)	ACS1: Products or services offered by the organization are developed with customer satisfaction as the priority. ACS2: My organization's information system enables organizations to better interact with their customers	(Mohammed, & Mohammed, 2012).
Customer Retention (CR)	CR1: My organization strives to build long-term relationships with customers. CR2: My organization puts customers first. CR3: My organization has an appropriate response to different customer groups.	

Partial Least Squares Structural Equation Modeling includes convergent validity and discriminant validity (Joe, Christian, & Marko, 2011). The conceptual model and hypothesis were estimated by PLS-SEM using SmartPLS 4.0 (Sikandar *et al.*, 2022). The seven-point Likert scale were used in measurement model (Mousumi *et al.*, 2005).

IV. STATISTICAL ANALYSIS

The main conclusion drawn from this study is that external capability impacts customer relationship performance. It is consistent with the hypothesis that is aimed at decision-making agility and customer knowledge.

A. Measurement Model

Reliability of the measurement was reached by considering Cronbach’s alpha of achieving management skills, IT skills, decision-making agility, customer knowledge, achieving customer satisfaction, and customer retention, were 0.932, 0.846, 0.951, 0.921, 0.893, and 0.916 sequentially. It confirms internal consistency in response (Forouzan *et al.*, 2021). Moreover, Convergent validity of the measurement was also reached by considering through the factor loading above 0.5. Cronbach’s alpha and composite reliability value of the initiation is 0.7 and average variance extracted (AVE) above 0.5 (Banji *et al.*, 2021). Consequently, the reliability of the research variables is confirmed. These results are reported in Table V.

TABLE V. MEASUREMENT MODEL

Construct	Item	Loadings	Cronbach’s Alpha	Composite reliability	AVE
Management Skills (MS)	MS1	0.870	0.932	0.934	0.821
	MS2	0.944			
	MS3	0.903			
IT Skills (ITS)	ITS1	0.889	0.846	0.849	0.735
	ITS2	0.824			
Decision-Making Agility (DMA)	DMA1	0.916	0.951	0.951	0.793
	DMA2	0.866			
	DMA3	0.865			
	DMA4	0.885			
	DMA5	0.918			
Customer Knowledge (CK)	CK1	0.895	0.921	0.921	0.795
	CK2	0.881			
	CK3	0.900			
Achieving Customer Satisfaction (ACS)	ACS1	0.860	0.893	0.898	0.810
	ACS2	0.939			
Customer Retention (CR)	CR1	0.888	0.916	0.917	0.785
	CR2	0.869			
	CR3	0.900			

Inner-construct correlation on other constructs in the model is less than the square root of the Average Variance Extracted (AVE), which is demonstrated in Table VI. These results recommend that the measures present acceptable discriminant validity.

TABLE VI. DISCRIMINANT VALIDITY: FORNELL-LARCKER CRITERION

Variables	Mean	S.D.	ACS	CK	CR	DMA	ITS	MS
Achieving Customer Satisfaction (ACS)	4.0185	1.03688	0.900					
Customer Knowledge (CK)	4.8704	1.13348	0.863	0.892				
Customer Retention (CR)	5.4074	1.20562	0.776	0.798	0.886			
Decision-Making Agility (DMA)	4.6481	1.29086	0.841	0.821	0.692	0.890		
IT Skills (ITS)	4.8519	1.21946	0.722	0.672	0.576	0.875	0.857	
Management Skills (MS)	5.1296	1.11670	0.791	0.724	0.682	0.720	0.521	0.906

B. Structural Model

Six hypotheses were confirmed by the path coefficient. Customer knowledge has a expedients relationship with customer retention 0.706 (p<0.05), and achieving customer satisfaction 0.528 (p<0.05). Management and IT skills have a strong relationship with decision-making agility 0.362 (p<0.01), 0.686 (p<0.001), sequentially. Management and IT skills have a relationship with customer knowledge 0.514 (p<0.001), 0.404 (p<0.01), respectively. The results indicated that decision-making agility in external capability is not significantly affected on achieving customer satisfaction and customer retention. There are presented in Table VII given below:

TABLE VII. PATH COEFFICIENT AND P-VALUE

Hypothesis	Relationship	Path coefficient	P-value	Result
Hypothesis 1	MS → DMA	0.362	0.003	Confirmed
Hypothesis 2	MS → CK	0.514	0.000	Confirmed
Hypothesis 3	ITS → DMA	0.686	0.000	Confirmed
Hypothesis 4	ITS → CK	0.404	0.003	Confirmed
Hypothesis 5	DMA → ACS	0.408	0.054	Not Confirmed
Hypothesis 6	DMA → CR	0.112	0.717	Not Confirmed
Hypothesis 7	CK → ACS	0.528	0.012	Confirmed
Hypothesis 8	CK → CR	0.706	0.021	Confirmed

⁶Note: *p<0.05, **p<0.01, ***p<0.001 significance.

R² showed the result of the effect of an exogenous variable on an endogenous variable with the following values: decision-making agility 0.862, customer knowledge 0.644, achieving customer satisfaction 0.799 and customer retention 0.641. Model Fit Summary are SRMR is 0.049 d_ULS 0.408, d_G 1.055, Chi-square 240.971, and NFI 0.801. Fig. 2 showed the results of the structural model.

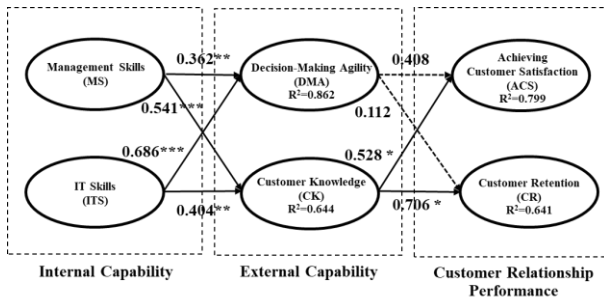


Figure 2. Results of the structural model.

V. DISCUSSION

A. Elucidation

Provenance by the resource-based view, theory describes resource and capability factors that increase the efficiency of an organization (Raduan *et al.*, 2009). A literature review on information systems (IS) related to the resource-based view found that intangible assets lead the organization to create a competitive advantage (T. and Chalermasak, 2005) and lead to the benefit of the organization. As a consequence, management skills about ability to planning, managing projects, make decisions and solve problems affect using information technology to perform and apply in a variety of ways (Eric *et al.*, 2014) as a result from hypothesis 1–hypothesis 4. Decision-Making Agility related to analyzing customer-related milestones, competitors, and technology, identifying opportunities (Paul, 2008). To support change in customers, competitors, and technology, able to implement an action plan to meet customer needs, and plan activities for the adoption of new technologies (Wageeh, 2016) but not sufficient for customer satisfaction and retention a result shown on hypothesis 5–hypothesis 6. In part of customer knowledge, customer data is used to identify effective communication channels, and interaction communication, collection and update customer information. Accordingly, achieving customer satisfaction is a result from information systems enables organizations to interact with their customers, and products or services developed with customer need. To build long-term relationships with customers committed to operating with an emphasis on customer service first and response to the target group that confirm that it affects customer retention confirmed with the results of hypothesis 7–hypothesis 8 (Mohammed & Mohammed, 2012). Therefore, the facts explained external capability is the mediating effect on customer relationship performance. The mediating effect is customer knowledge that is affected by internal capabilities.

B. Future Work

The structural model revealed that the R^2 value of decision-making agility, customer knowledge, achieving customer satisfaction, customer retention and were, 0.862, 0.644, 0.799, and 0.641 respectively. Consequently, the assumption about other elements related to making customer relationship performance. This indicated that there are other factors to explore in examining

relationships with customer relationship performance in a non-profit organization. Human resource is an activity for an organization to achieve its goals (Corine, 2019) and the long-term benefit for the organization. It trained to enhance the personnel competencies. Employee training encourages skill development in various areas such as management, marketing, finance, IT, etc. Consequently, training is an operation for the organization. We will investigate other factors in the organizational resources such as human resources, staff training, etc.

VI. CONCLUSION

The paper contributes to management skills and IT skills affecting customer relationship performance for a non-profit organization through the mediating role of external capabilities by customer knowledge. The results of this study, point out that customer satisfaction and retention arise from the influence of customer knowledge. Management and IT skills have more influence on customer knowledge than decision-making agility. It is interesting to note administrative and IT capabilities bring benefits to the organization. The findings provide worthy guidelines for future research on organizational resources and IT information.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

Sakulrat Yangyuen conducted the research. She analyzed a literature review, designed a research model, hypotheses and questionnaire, and interpreted data as well as wrote the paper. Tanapon Jensuttiwetchakul advised the research, suggested operational guidelines, and approved the final version.

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