

Analyzing IT Resources Impact on Organizational Capabilities and Customer Benefits in Thailand Non-Profit Sector

Sakulrat Yangyuen, Tanapon Jensuttiwetchakul

Management Information Systems Program, Department of Information Technology Management,
Faculty of Information Technology and Digital Innovation, King Mongkut's University of
Technology North Bangkok, Thailand.

s6107021910043@email.kmutnb.ac.th, tanapon.j@itd.kmutnb.ac.th

Abstract. This study aims to explore how non-profit organizations (NPOs) in Thailand use IT and non-IT resources to create benefits for customers. The proposed research model consists of three parts. First, resources are associated with organizational assets, which can be classified into IT resources and non-IT resources. Second, organizational capabilities are the organization's activities to create compelling services or approaches to providing customer services to non-profit organizations. The capabilities can be divided into internal capabilities and external capabilities. Finally, customer benefit is the customer's value or service that recipients receive from various organizational services. It comprises available information and customer relationship performance. This study used an empirical approach to explain the causal relationship. An online questionnaire was used as the data collection method. It was sent to 445 NPOs in Thailand in various types, such as the Prime Minister, Ministry, Non-Government, Parliament, Court, Independent Public Agencies, State Enterprise, Provincial Administration, Special Unit, Professional Control Agency, University, Public Organization, and Universities. The survey received responses from 284 non-profit organizations (NPOs). The results indicate that IT and non-IT resources significantly influence organizations' internal and external capabilities. They also indirectly influence customer benefits. This timely research highlights the strategic importance of investing in IT skills and customer knowledge management as key drivers of sectoral evolution.

Keywords: IT Mediation Effects, Public Service Optimization, Indirect Effects, Unlocking Value, IT Resource, Dynamic capabilities theory, Customer benefit

1. Introduction

For decades, non-profit organizations (NPOs) have played a key role in supporting society in various aspects. Some focused on improving citizens' quality of life by providing essential services (Jay et al., 2010; Wright, 2015; Prominent et al., 2020). Others aimed to alleviate the difficulties of the poor (Prominent et al., 2020). These activities not only address societal needs but also contribute to socio-economic development in any society (Benjamin et al., 2010; Rhay-Hung et al., 2010).

However, in order to achieve this mission in the long run, NPOs often face some challenges. One of the most common challenges is a lack of resource (Prominent et al., 2020). Generally, they have to operate under limited resource condition (Mel, 2006). For example, some over rely on donor funding. Others operate based on volunteers. In this uncertain situation, if NPOs use these resources carelessly, they may vanish quickly (Glen, 2007). Consequently, it is difficult for NPOs to maintain their service quality.

Many researchers suggested that NPOs should run like for-profit organizations (Teruyo & John, 2014; Prominent et al., 2020; Jay et al., 2010). They should plan to bring in new resources and effectively utilize them (Jay et al., 2010; Prominent et al., 2020).

In research on for-profit organizations, the resource-based view (RBV) is commonly used to explain how a company's resources impact its performance (Birger, 1984; Jay, 1991). This perspective has been widely applied across different industries (Michael et al., 2000; Valdir, Filho & Roberto, 2020). These studies indicated that the resources of many organizations play a crucial role in enhancing their performance, particularly in financial aspects such as sales, market share, turnover, return on investment (ROI), and return on equity (ROE) (Val et al., 2003; Ting-Peng et al., 2010).

This research aims to apply RBV to non-profit organizations. However, the objectives of NPOs are quite different from those of for-profit organizations. While for-profit organizations basically focus on profitability, NPOs are more focused on customer benefit. The NPOs can provide benefits to customers through a variety of services. For example, the social mission of the nonprofit organizations can be made in different ways, such as the publication of information, and educational activities (seminars, training, and courses). Moreover, refugee or unemployment has specific basic needs such as food, medical care, and housing (Akingbola, 2020). With these differences, RBV cannot be directly applied to NPOs. To be more applicable to this context, service quality was used instead of profitability.

Moreover, recent research indicated that information technology (IT) can be used for improving operational activities and also delivering services. IT is used as a tool to generate value and competitive advantage whether prompt services, productivity enhancement, cost reduction, improved supplier and customer relationships, etc (Nigel et al., 2004). Organizations propose applications tailored to the customer, better knowledge establishes a personalized relationship and helps organization's to better understand customers' needs. In this way, clients obtain essential value products while creating products or services by customer-centric (Wu et al., 2013) and increase value service to the customer. Accordingly, IT positively influences organizational performance to achieve business goals (Joseph & Pratim, 2017). The benefit is the essential criteria for created organization and customer value. The technology can be a key tool for NPOs to both manage their resources and create benefits for customers in the digital age.

In Thailand, NPOs normally confront the same fate as those in other countries. They have to operate with limited resources, which normally rely on donations, grants, and voluntary work (Howard & Cyril, 1991). They also have to deliver a variety of services to customers, such as the spread of COVID-19, NPOs face a shortage of personnel and volunteers to care for patients (Akingbola, 2020). They serve the poor with increasing service demands. IT helps NPOs to drive their mission and expand their areas, venues of action and uses toward achieving organizational goals (Debora et al., 2019) with limit of resources (Kerry et al., 2021). Telecommuting is one of the transformational workplaces to deliver a service (Akingbola, 2020) with safety systems or applications that are implemented to provide quality

healthcare to the individual, community, and society (Rajesh, 2010). Moreover, with the effect of COVID-19, Thai NPOs were also forced to deliver their service to customers through an online platform (Debora et al., 2019). Understanding this phenomenon may shed new light on the study of NPOs.

Based on the reasons above, this paper aims to explore how NPOs in Thailand use IT and non-IT resources to create benefits for customers through organizational capability development. To explain the mechanism, this paper adopted a resource-based view, dynamic capabilities, and customer benefit. The following research questions are formulated:

RQ1. What is the relationship between IT and non-IT Resources and organization capabilities in NPOs?

RQ2. What is the relationship between organizational capabilities and customer benefits in NPOs?

2. Theoretical Foundation

This study adopts three theories to explain the relationship between resources and customer benefits. First, the resource-based view serves as the fundamental theory for explaining different types of resources in non-profit organizations (NPOs). Second, dynamic capability theory (DCT) plays a key role in elaborating on how these organizations turn their resources into organizational capabilities. Finally, customer benefits are derived from the quality of customer-oriented service. These theories are further explained in the following sections, along with the important constructs.

2.1. The Resource-based theory (RBV)

The resource-based theory emphasizes the significance of organizational resources in attaining competitive advantages (Ting-Peng et al., 2010). Resources are pivotal for managing and operating organizations to do business or provide services in a non-profit organization to achieve its mission and achieve competitive advantage by acquiring or developing capabilities with unique characteristics that are difficult to imitate (Joseph & Pratim, 2017). Resources are a source of the production process and make ability and exploitation from tangible and intangible assets. Organizations tangible assets comprise property, equipment, and supplies, while intangible assets comprise intellectual property, patents, trademarks, customer relationships, and brands, including employees (Alan, 2008).

Information technology is part of the organization's resources (Shi-Ming et al., 2006), which was created and derived as a service for non-profit organizations (Kristina, 2012; Dinesh et al., 2016). By adding information, adopting technologies such as analytics, big data, and cloud to improve performance to transform organization service (Joseph & Pratim, 2017). On the other hand, non-IT resources are related to organization performance by using resources and managing activity for creating social return and value creation for non-profit organizations. For example, employees serve customers with a service mind, provide high-quality service, provide timely service, or meet the customer's needs. Consequently, resources are important for creating value for firm performance and clients.

In this aspect, this study defines resources consist of IT resources related to information technology, that is, computers, peripherals, software, processors operating systems, as well as information technology personnel and knowledge (Anandhi, 2000) and non-IT resources relate structure, assets, processes, management, innovation, people, reputation, training, organization systems, innovation, and culture that besides IT resources (Linda et al., 2002).

IT Resource (ITR) is information technology equipment or tools intended to generate value for operating organization activities, which consists of hardware, software, infrastructure, security, information communication technology, and business applications (Nigel et al., 2004). It improves business processes, synthesis, and integration of operational activities in organizational boundaries and across organizational boundaries. For instance, public service in non-profit organizations, such as water resources management by geographical scope, helps firms manage watersheds or floods. Public health ensures the nation's health, so health information technology provides health status for monitoring

healthcare programs and coverage to healthcare utilization with accurate and timely information, safety, and efficiency. Education services use online databases to manage registers or library systems. In most circumstances, IT resources change operation management and customer behavior to receive a service. From the examples mentioned, IT infrastructure is a basic structure that drives operations to provide more effective and efficient care management that is a bridge for shared information delivery. Accordingly, IT Investment is an expenditure for IT Resources that is important for non-profit organizations to provide foundation services. Moreover, IT support quality is skills and knowledge in line with the organization's IT investment and infrastructure (Hsin-Ginn et al., 2002) to contributes organizational performance.

Non-IT Resource (NITR) refers to human resources (HR) to support non-profit organizations by individuals or groups to run a business and mission (Simon et al., 2018) and training for improving employee skills and abilities to develop specific organizational skills, which support organization's mission and their career. Giving example, volunteers who come to help may receive little or no compensation. The result is their competence or skill mismatch firm characteristics, so staff training to build skills or new skills for employees long-term training to reach their highest potential and to prepare employees to cope with changing conditions and uncertainties that arise in the future (Elizabeth, 2018). Whereas non-profits provide a service with technology that leads IT training to develop technical skills for both employees and volunteers so specific technical skills relate to the organization's operations. They can apply in the actual work, encouraging employees or volunteers to perform according to organizational goals. Those are important to drive the organization to operate efficiently and achieve its.

This research investigates a mechanism in non-profit organizations to pursue strategy management to operate its mission and improve the essence of the resource to create social benefits and a sustainable competitive advantage.

2.2. Dynamic capabilities theory

Dynamic capabilities theory is a theory used to explain how organizations interact with resources to improve customers' satisfaction (Preeti et al., 2021). Evolved from resource-based theory, dynamic capabilities theory not only illustrates resources sufficient to operate organizational routines but also managerial skills and internal competencies to address management and changes in the business environment (Aboobucker et al., 2020). Moreover, with dynamic capabilities, organizations can sense changes in the environment, including consumer behavior. These details can help organizations better utilize resources for supporting valuable products or services (David et al., 1997), which leads to enhance customer relationships. Accordingly, dynamic capabilities play a key role in running organizational operations and enhancing customer relationships. Dynamic capabilities can be divided into two dimensions: internal capability and external capability.

Internal capability (IntCap) is the organization's ability to allocate and use organizational resources to increase efficiency (John et al., 2007), including administration or fostering collaboration between departments. Moreover, information system (IS) resources also play a role in improving the ability of the work system and developing innovation in the operation of organizations through IS planning, management skills, and IT experience (Ting-Peng et al., 2010).

On the other hand, external capability (ExtCap) is organizational agility in decision-making responses, agility to adapt to the external environment, and the ability to work with things outside the organization, such as customers, service users, or stakeholders (Sakulrat & Tanapon, 2023). It refers to the organization's ability to analyze opportunities and threats by focusing on external data to develop new services or products to meet customer needs and create a sustainable competitive advantage (Siqing et al., 2018). In summary, external capability explains decision-making agility to change resources for responding to rapid changes and customer knowledge to improve good relationships and better service.

This study examines these two capabilities that can impact and drive nonprofit organizations to

improve public service or service innovation and contribute to customer benefit.

2.3. Customer Benefit

Customer Benefit refers to value creation for companies focusing on creating customer-perceived value by offering expedient benefits (Yi-Min et al., 2017), which is the customer's or service recipients' value received from various services (Rhay-Hung et al., 2010). It arises from the value co-creator, which is always a customer because all enterprises are service-oriented from the customer perspective (Ae & Kyung, 2018). In the same manner, non-profit organizations offer all deliver services aligned with the mission to create suitable to customer benefits. This benefits relevance in terms of increased availability information and customer satisfaction with infrastructure and application abstraction (Benjamin et al., 2010). Consequently, we propose two determinants to measure customer benefit in non-profit organizations focusing on reliability and responsiveness of available information, measured as the quality of information services, and customer relationship performance, measured in terms of customer satisfaction and retention.

Available information (Ainf) refers to data or information with prompt service in a reliable and accurate manner (Diane et al., 1997; Xu et al., 2019). Technology changes the customer behavior pattern, so customers depend upon online information with continuity of services. As a result, the organization arranges to create, prepare, and process data, which is a process to obtain information relevant to the organization and customer. This information has to be used with accuracy and timeliness delivering information or reports that use the user needs at the right time in order to optimize precise functions (Li & Yangyong, 2015). In effect, available information is essential to create customer value with accuracy, timeliness, and reliability.

Customer relationship performance (CRP) explains customer satisfaction and retention by decreasing complaints, and a good customer relationship affects the chances of customer retention (Bhenu et al., 2022). Enterprises need to manage customer interactions to establish and maintain long-term customer relationships to run the business. Consequently, design services and facilities should consider customer needs or behavior to increase customer satisfaction and relationships with decreased complaint behavior (Wen-Bao, 2007). Customer relationship performance is the relationship between customers and organizations that involves client benefits, enhancing customer satisfaction and retention (Leo et al., 2005).

This paper aims to study assessment of service quality from the perspective of customer benefits which focusing on measuring reliability to available information and responsiveness to customer relationship performance. The objectiveness is to enhance customer benefit and create sustainable competitive advantage for non-profit organization.

2.4. Research Model and Hypotheses

2.4.1. Research Model

The Research model is based on the resource-based (RBV) theory as a resource, the dynamic capabilities theory as a dynamic capability, and customer benefit to measure an organization performance from customer perspective. The research model focuses on eight hypotheses to explain the relationships and measure customer benefit in non-profit organizations. It is shown in Fig. 1 as follows.

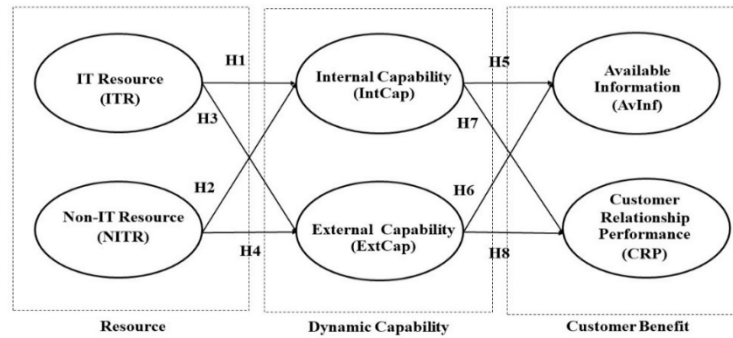


Fig. 1: The Research Model

2.4.2. Hypothesis Development

To formulate hypotheses, this research adopts two theories and one perspective to explore the relationship between organizational resources and customer benefits, encompassing six constructs. IT resources and non-IT resources represent constructs based on the Resource-Based View (RBV) theory, while internal and external capabilities are constructs grounded in dynamic capabilities. The constructs under customer benefit include available information and customer relationship performance. Consequently, this study investigates the relationship and elucidates how information technology plays a pivotal role in driving and creating organizational capabilities, thereby impacting customer benefits in non-profit organizations.

2.4.2.1. The relationship between IT resources, non-IT resources, and internal capability.

To investigate the proposed perspective, which identifies valuable resources to drive internal capability, IT resources and non-IT resources are emphasized. IT resources encompass computers, operating systems, servers, mainframes, or cloud computing; conversely, non-IT resources include human resources, staff training, and IT support quality. Internal capability is the ability to manage and use resources to enhance organizational performance. IT resources are key to enhancing internal capability by adopting new technology, utilizing IT infrastructure, and acquiring technical skills to increase personal performance and achieve higher productivity in management and technical skills. For example, in the next ten years, cloud computing will play a pivotal role in computing applications, improving accessibility, scalability, and reducing operating costs for enterprises. Consequently, organizations build internal capability to set strategic goals, implement strategies, formulate investment plans, and re-engineer business processes through a combination of management and IT skills (Shivam et al., 2019).

Additionally, non-IT resources involve employees selected for their knowledge, abilities, characteristics, or experiences suitable for the job and organization (J., 2014). High-potential employees possess the competence, attributes, and knowledge to achieve the organization's mission. For instance, in public health, a health management information system designed to support operational management and plan health programs is implemented with input from policymakers, clinicians, and health service users, reflecting management's ability to support the business domain (Rajesh, 2010). Talented employees in this context articulate specific requirements and needs relevant to business operations and organizational goals with higher competency and specific skills, building up internal capability through human resources to improve organizational performance.

In non-profit organizations, IT resources and non-IT resources are expected to contribute to internal capability, enhancing the ability to run organizational activities and deliver services to achieve organizational goals and missions. Therefore, the hypothesis is formulated as follows:

H1: IT Resource affects to Internal Capability of a non-profit organization.

H2: Non-IT Resource affects to Internal Capability of a non-profit organization.

2.4.2.2. The relationship between IT resources, non-IT resources, and external capability.

IT resources include computer and communications technology infrastructure, a central platform, and a shared database (Shu-Hui, 2004). External capability refers to making timely decisions in response to changes in the external environment. IT resources facilitate support operations and decision-making agility to develop a business strategy for running the business and protecting the organization before disruption. For example, an enterprise develops business intelligence to analyze performance, customer behavior, risk, and impact. A dashboard shows indicators to monitor the business environment, analyze external situations, and make timely decisions to solve business and customer problems. This indicates that IT resources influence external capability through the use of business intelligence.

Non-IT resources refer to human resources engaged in business operations across various areas to enhance work efficiency. This reflects operational speed, strategic decision agility, and the ability to respond to customers or service (Laurie & Daniel, 2008). It generates augmented organizational agility and uses customer knowledge for the primary mission. For instance, CEOs or senior executives analyze strategies to study the internal and external environment for making suitable decisions regarding new products and services to meet customers' expectations and to transmit strategic decision-making in-house. Accordingly, non-IT resources result in external capability to increase organizational performance and develop customer relationships.

Recently, external change has become a significant concern for non-profit organizations. These inferences concentrate on IT and non-IT resources carrying forward external dynamic capability by doing and analyzing the environment for preparing strategic planning to drive a non-profit organization to competitive advantage. This is the origin of the relationship between resources and external capabilities, so we consider the hypotheses below:

H3: IT Resource affects to External Capability of a non-profit organization.

H4: Non-IT Resource affects to External Capability of a non-profit organization.

2.4.2.3. The relationship between internal capability, external capability and available information.

Internal capability is the ability to manage the business according to the organization's goals and mission, such as management and IT skills. Available information represents accuracy, reliability, and timeliness related to data processed in various areas. A non-profit organization's mission is linked to social change, and most of its activities can be performed through technologies and online platforms (Debora et al., 2019). IT skills enable data to demonstrate a natural entity, and database design completes the data structure for creating multiple reports with accuracy, reliable information, and timely service (Asagba & Edward 2010). For example, customer knowledge relates to feedback, suggestions, complaints, or problems that prompt an organization to update and analyze the customer knowledge system based on prompt service, accuracy, and dependability to create innovation, services, or products to enhance customer benefit and the organization's mission and target (Li & Yangyong, 2015). Accordingly, internal capability creates available information to maximize customer benefits and support a non-profit organization's mission.

External capability relates to decision-making agility, which analyzes the external environment and creates strategies to develop products or services with a customer-centric approach and customer knowledge (Wageeh, 2016a). It is essential to provide solutions and solve organizational and customer problems with good quality and timely support for the client. The pandemic is changing customer behavior, and consumers are opting for digitization, impacting organizations through transformation. Collecting and evaluating relevant information to identify opportunities and threats in the surrounding environment helps enterprises interpret events to deploy systems and serve information to their customers with prompt service, accuracy, and reliability to gain a competitive advantage. Thus, external capabilities influence available information to serve customers with updates, accuracy, consistency, and timely service.

Two important aspects of dynamic capability tend to improve customer benefit with available information to deliver accuracy, reliability, and timeliness and provide good service to the customer. Accordingly, this study posits the hypothesis as follows:

H5: Internal Capability affects to Available Information of a non-profit organization.

H6: External Capability affects to Available Information of a non-profit organization.

2.4.2.4. The relationship between internal capability, external capability and customer relationship performance

Non-profit organizations focus on maximizing benefits for the customer, measured in terms of service quality and social impact. Indeed, being customer-centric is the key to developing services, innovations, products, and service applications that create a good customer relationship through internal capabilities. For example, technological developments use big data predictive analytics to enhance business performance, impacting the requirements of analytics models and using specialized management skills to create policy simulations directing solutions to business problems (Shivam et al., 2019). Moreover, it helps examine or consider data and information in depth for decision-making, such as solving customer problems, analyzing customer data, and responding to customer needs to retain customers or service users within the organization in the long term (Rabindra & Sasi, 1992). Therefore, internal capabilities tend to affect customer relationship performance by developing, practicing, and using skills to run a business and provide services or products that meet customer needs.

External capability is decision-making agility related to faster operations in problem-solving or creating opportunities to improve products or services to reach an organization's target change (Wageeh, 2016b) or a quick response to a dynamic environment. It helps organizations improve relationships with customer satisfaction and retention. For example, the Central Bank has begun to establish long-term relationships with customers by creating financial innovations or products. The organization uses suggestions, requirements, or knowledge from customers or service recipients to improve services, solve problems through financial instruments, increase customer satisfaction, and maintain long-term relationships. External capability builds relationships to satisfy customer retention and help changing enterprises achieve their mission and sustainable competitive advantage.

Eventually, this study explores the mechanisms by which an organization's capabilities create sustainable customer relationship performance, which is the fountainhead of this hypothesis.

H7: Internal Capability affects to Customer Relationship Performance of a non-profit organization.

H8: External Capability affects to Customer Relationship Performance of a non-profit organization.

3. Research Methodology

This study aims to explore how non-profit organizations (NPOs) in Thailand use IT and non-IT resources to create customer benefits. A survey research design was used to explain this relationship. The measurement scales were developed as opinion-based constructs to assess organizational resources, dynamic capabilities, and customer benefits, reflecting the service quality of non-profit organizations

(Barbara, 1993). The final questionnaire contained 45 items. Survey responses were obtained from corporate executives or representatives of non-profit organizations through online questionnaires, using a seven-point Likert scale (Barbara, 1993; E. et al., 2005), ranging from 1 = strongly disagree to 7 = strongly agree.

Due to a limited number of responses, Partial Least Squares-Structural Equation Modeling (PLS-SEM) was adopted for data analysis. The reliability and validity of the measurement were tested before hypotheses testing. Because the research model consists of both first-order and second-order constructs, lower-order components (LOCs) and higher-order components (HOCs) were considered when conducting reliability and validity tests. Descriptive statistics were presented to reflect the similarity between the sample and the population.

3.1. Population and Sample Size

In this study, the population comprises Thai non-profit organizations, including the Office of the Prime Minister, Ministry, non-government agencies, Parliament, Court, Independent Public Agencies, Public Organization, State Enterprise, Provincial Administration, Special Unit, Professional Control Agency, University, and Public Organization in Thailand. A total of 445 organizations were surveyed using an online questionnaire to collect data from executives, representatives, or individuals with decision-making powers regarding the use of IT resources (Susana & Joaquin, 2012; Ngoc et al., 2020).

The instrument was developed based on a theoretical framework and a literature review establishing connections among the study objectives (Ajay, 2017). The research boundaries rely on a literature review of RBV and dynamic capability theory (Detmar & Curtis, 1989). The instrument uses simple language to create and logically order the questions (Ajay, 2017) and evaluates content validity by five academic researchers to ensure the survey questionnaire is clear and comprehensive; all items measure the model's constructs (Ashraf, 2023). The measurement includes 45 indicators and questions, as outlined in Table 1.

Table 1: Indicators and questions

Measurement Items	Indicators	Questions	Authors
IT Investment	ITINV1	I think my organization has a suitable IT investment project.	(Terry et al., 2006)
	ITINV2	I think my organization has a good IT investment strategy.	
	ITINV3	I think my organization has a reasonable investment budget.	
IT Infrastructure	ITINF1	My organization has a good IT infrastructure	(Xiaobo et al., 2010)
	ITINF2	My organization's IT infrastructure can be adapted in the future.	
	ITINF3	The organization's IT system helps us to work with other departments effectively.	
IT support quality	ITSQ1	My IT personnel are encouraged to improve their technical skills.	(Paul, 2008)
	ITSQ2	My IT personnel are trained on a variety of programming tools and methods.	
Human Resource	HR1	My organization has appropriate qualification for each position	(Corine & David, 2019)
	HR2	My organization has appropriately identified and recruited talents in various fields.	
	HR3	How does my organization select people appropriately	
	HR4	My organization has an appropriate evaluation of personnel performance	
	HR5	My organization has been promoted appropriately	
Staff training	ST1	My organization has enough budget for personnel development	(Eric et al., 2014)
	ST2	My organization has a plan to develop suitable personnel.	
	ST3	My organization has a continuous human resource development program	
IT Training	ITT1	My organization has an adequate plan to develop IT capabilities for all personnel IT related training.	(Hüseyin, 2000)
	ITT2	My organization encourages people to closely follow current technology trends IT	
	ITT3	My IT organization regularly encourages IT employees to learn new technology or related business	
Management Skills	MS1	My corporate executives have the ability to planning.	(Gabriela, 2016)
	MS2	My corporate executives have the ability to manage projects.	
	MS3	My organization's executives have the ability to make decisions and solve problems.	
IT Skills	ITS1	Most of the people in my organization have high IT skills	(Eric et al., 2014)
	ITS2	Most of the personnel within my organization are capable of using information technology to perform.	
	ITS3	My organization's personnel have the ability to apply technology to work in a variety of ways.	
Decision-Making Agility	DMA1	My organization can analyze customer-related milestones, competitors, and technology in a timely manner	(Wageeh, 2016)
	DMA2	My organization is able to identify opportunities and threats to changes in customers, competitors and technology in a timely	
	DMA3	My organization is able to implement an action plan to meet customer needs in a timely	
	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	CK1	My organization has regular communication and interaction/communication with customers.	(Mohammed & Mohammed, 2012)
	CK2	My organization collects and updates customer information on a regular basis.	

Measurement Items	Indicators	Questions	Authors
	CK3	My organization uses customer data to identify appropriate communication channels.	
	CK4	My organization has a learning process to understand customer needs and offer appropriate products or services to customers.	
Accuracy	AC1	My organization provides accurate information to customers or clients	(James et al., 2002)
Reliability	RL1	My organization has a high level of credibility	
Timeliness	TL1	My organization can provide information to customers or clients with speed.	(Yolande et al., 1997)
	TL2	My organization can provide information immediately.	
Customer satisfaction	CS1	Products or services offered by the organization are developed with customer satisfaction as the priority.	(Mohammed & Mohammed, 2012)
	CS2	My organization's information system enables organizations to better interact with their customers.	
	CS3	My organization has reduced customer complaints achieving customer satisfaction	
Customer Retention	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.	
	CR4	My organization has systematically managed efforts to meet customer expectations.	

The sample size in this study follows to the sample-to-item ratio method. Researchers have recommended a ratio of at least 5-to-1 between the sample size and the number of items (Richard & G., 1983; Peter, 1994; Diana, 2006) With 45 items in this study, the minimum required sample size is 225.

3.2. Data Collection Methods and Characteristic of Sample

The data collection for this research involved an online questionnaire distributed to 445 organizations, including government agencies, state enterprises, and public organizations. The data collection methods follow these steps. First, a letter was sent to request support from the target group (Yolande et al., 1997). Second, the researcher contacted and coordinated with the organizations to inquire about the letter. Additionally, courtesy was requested in answering the questionnaire (Lawrence & Francis, 2006). However, the organizations independently considered the questionnaire responses. Third, respondents were responded to, ensuring comprehensive information, understanding, and independent decision-making before obtaining consent for participation (Debbie, 2003). Finally, data collection was based on precise measurements of the variables to address the research question (Ashraf, 2023; Debbie, 2003). There are 284 organizations that responded to the questionnaires. Thus, the response rate is 63.8%.

To ensure the sample is a good representative of the population, sample characteristics were investigated along with population characteristics. The details are shown in Table 2.

Table 2: Characteristics of the population and sample

Organization Type	the population		the sample	
	Frequency	Percent	Frequency	Percent
Government agencies: ministries, bureaus, departments	202	45.39	187	65.85
Non-Government agencies	52	11.69	16	5.63
Public Organization	32	7.19	20	7.04
Foundation or Association	10	2.25	-	-
Religious places: temples, churches, mosques	3	0.67	-	-
Educational institutions: universities, colleges, schools, non-formal education centers	81	18.20	24	8.45
Hospital: Hospital, Public Health Office	8	1.80	-	-
Other: Courts and Provinces etc.	57	12.81	37	13.03
Total	445	100.00	284	100.00

4. Measurement Model Validation

This research model is the reflective-reflective model, or hierarchical common factor model, consisting of higher-order components (HOCs) and lower-order components (LOCs). Higher-order components represent a more general construct referred to as an abstract dimension, while lower-order components are referred to as more concrete subdimensions (Marko et al., 2019; Nicole et al., 2022). These allow the coincident modeling of the higher-order construct and its subcomponents into especially aspects involved in aggregate constructs. (Nicole et al., 2022). This structure enables modeling the higher-order

construct and its subcomponents, involving aspects of aggregate constructs (Jörg et al., 2016). While observed variables represent reflective indicators of lower-order components, the lower-order components also represent reflective indicators of higher-order components (Marko et al., 2019).

This research consists of eight higher-order constructs and fifteen lower-order constructs, containing forty-five observed variables. The details and relationships are presented in Table 3.

Table 3: Variables and Measurement Items

Variables		Measurement Items	Authors
Resource	IT Resource	IT Investment	(Terry et al., 2006)
		IT Infrastructure	(Xiaobo et al., 2010)
		IT Support Quality	(Paul, 2008)
	Non-IT Resource	Human Resource	(Corine & David, 2019)
		Staff Training	(Eric et al., 2014)
		IT Training	(Hüseyin, 2000)
Dynamic Capability	Internal Capability	Management Skills	(Gabriela, 2016)
		IT Skills	(Eric et al., 2014)
	External Capability	Decision Making Agility	(Wageeh, 2016)
		Customer Knowledge	(Mohammed & Mohammed, 2012)
Customer Benefit	Avariable Information	Accuracy	(James et al., 2002)
		Reliability	
		Timeliness	(Yolande et al., 1997)
	Customer Relationship Performance	Customer Satisfaction	(Mohammed & Mohammed, 2012)
		Customer Retention	

In statistical analysis with PLS-SEM, this study follows the following steps. First, the measurement model of LOCs was validated by using internal consistency, convergent validity, and discriminant validity. Second, the measurement model for HOCs was validated. The latent variable scores of the LOCs were used as indicators of HOCs. Reliabilities, average variance extracted (AVE), Cronbach's alpha, and discriminant validity were explore (Marko et al., 2019; Jörg et al., 2016). Finally, all hypotheses were tested through the structural equation model. Path coefficient, p-value, and R^2 were evaluated (Marko et al., 2019; Jan-Michael et al., 2012).

4.1. Measurement Model of LOCs

To assess the reliability and validity of the measurement model for LOCs, this study examined Cronbach's alpha, composite reliability, and average variance extract (AVE). The Cronbach's alpha and composite reliability scores for all constructs in LOCs exceeded 0.7, indicating strong measurement reliability (Joe et al., 2011; Fernando et al., 2021). Additionally, AVE scores surpassing 0.5 demonstrate convergent validity (Ken & Kay, 2013). Details are presented in Table 4.

Table 4: LOCs: Internal consistency reliability and Convergent validity

Measurement Items	Indicator reliability		Internal consistency reliability		Convergent validity	Results
	Indicators	Item Loadings	Cronbach's Alpha	Composite reliability	AVE	
IT Investment (ITINV)	ITINV1	0.961	0.949	0.952	0.907	Reliable
	ITINV2	0.960				
	ITINV3	0.936				
IT Infrastructure (ITINF)	ITINF1	0.902	0.901	0.903	0.835	Reliable
	ITINF2	0.913				
	ITINF3	0.926				
IT support quality (ITSQ)	ITSQ1	0.960	0.913	0.913	0.920	Reliable
	ITSQ2	0.958				
Human Resource (HR)	HR1	0.846	0.936	0.937	0.797	Reliable
	HR2	0.910				
	HR3	0.918				
	HR4	0.903				
	HR5	0.885				
Staff training (ST)	ST1	0.862	0.903	0.919	0.838	Reliable
	ST2	0.947				
	ST3	0.935				
IT Training (ITT)	ITT1	0.918	0.916	0.916	0.856	

Measurement Items	Indicator reliability		Internal consistency reliability		Convergent validity	Results
	Indicators	Item Loadings	Cronbach's Alpha	Composite reliability	AVE	
Management Skills (MS)	ITT2	0.944	0.972	0.972	0.947	Reliable
	ITT3	0.914				
	MS1	0.973				
IT Skills (ITS)	MS2	0.973	0.944	0.945	0.900	Reliable
	MS3	0.973				
	ITS1	0.938				
Decision-Making Agility (DMA)	ITS2	0.955	0.971	0.971	0.896	Reliable
	ITS3	0.953				
	DMA1	0.935				
Customer Knowledge (CK)	DMA2	0.951	0.945	0.946	0.859	Reliable
	DMA3	0.962				
	DMA4	0.958				
Accuracy (AC)	DMA5	0.927	1.000	1.000	1.000	Reliable
	CK1	0.914				
	CK2	0.918				
Reliability (RL)	CK3	0.933	1.000	1.000	1.000	Reliable
	CK4	0.944				
	AC1	1.000				
Timeliness (TL)	RL1	1.000	0.921	0.921	0.926	Reliable
	TL1	0.963				
	TL2	0.962				
Customer satisfaction (CS)	CS1	0.924	0.869	0.889	0.792	Reliable
	CS2	0.917				
	CS3	0.826				
Customer Retention (CR)	CR1	0.913	0.923	0.927	0.813	Reliable
	CR2	0.905				
	CR3	0.884				
	CR4	0.904				

Furthermore, the measurement model underwent an assessment of discriminant validity, where all square roots of AVE scores exceeded the correlations between the involved constructs (Joe et al., 2011; A. et al., 2016; S., 2022). These are shown in Table 5.

Table 5: LOCs: Discriminant validity: Fornell-Larcker criterion

	AC	CK	CR	CS	DMA	HR	ITINF	ITINV	ITS	ITSQ	ITT	MS	RL	ST	TL
AC	1.000														
CK	0.710	0.927													
CR	0.710	0.849	0.902												
CS	0.714	0.898	0.861	0.890											
DMA	0.746	0.874	0.820	0.842	0.947										
HR	0.622	0.713	0.661	0.691	0.745	0.893									
ITINF	0.635	0.767	0.689	0.747	0.768	0.677	0.914								
ITINV	0.668	0.744	0.684	0.744	0.788	0.683	0.849	0.952							
ITS	0.630	0.767	0.676	0.752	0.789	0.682	0.780	0.756	0.949						
ITSQ	0.674	0.754	0.676	0.730	0.761	0.690	0.722	0.791	0.742	0.959					
ITT	0.654	0.752	0.675	0.728	0.775	0.697	0.776	0.772	0.780	0.883	0.925				
MS	0.638	0.782	0.762	0.754	0.808	0.720	0.673	0.688	0.637	0.624	0.614	0.973			
RL	0.767	0.752	0.731	0.767	0.783	0.706	0.731	0.746	0.682	0.701	0.669	0.689	1.000		
ST	0.624	0.702	0.654	0.672	0.711	0.744	0.679	0.729	0.669	0.786	0.811	0.651	0.619	0.915	
TL	0.788	0.819	0.763	0.785	0.846	0.696	0.749	0.760	0.753	0.722	0.736	0.710	0.791	0.656	0.962

4.2. Measurement Model of HOCs

In this step, latent variable scores were used to form the higher-order constructs (Christian et al., 2018). Fifteen lower-order constructs served as indicators for six higher-order constructs. Similar to LOCs, reliability and validity were assessed. Cronbach's alpha and composite reliability scores for all

constructs in HOCs were above 0.7, indicating measurement reliability (Mohammed et al., 2023). Additionally, AVE scores exceeding 0.5 affirm convergent validity (Riffat et al., 2023). Further details can be found in Table 6.

Table 6: Internal consistency reliability and Convergent validity

Construct	Item	Loadings	Cronbach's Alpha	Composite reliability	AVE
IT Resource (ITR)	ITINV	0.926	0.917	0.918	0.859
	ITINF	0.951			
	ITSQ	0.902			
Non-IT Resource (NITR)	HR	0.891	0.900	0.901	0.834
	ST	0.930			
	ITT	0.918			
Internal Capability (IntCap)	MS	0.902	0.778	0.779	0.819
	ITS	0.907			
External Capability (ExtCap)	DMA	0.968	0.933	0.933	0.937
	CK	0.968			
Avariable Information (AvInf)	AC	0.916	0.915	0.919	0.855
	RL	0.922			
	TL	0.935			
Customer Relationship Performance (CRP)	CS	0.966	0.926	0.927	0.931
	CR	0.963			

Additionally, the measurement model was evaluated for discriminant validity, with all square roots of AVE scores surpassing the correlations between the respective constructs (S., 2022 ; Fauzan & Tuga, 2023). The details were shown in Table 7.

Table 7: Discriminant validity: Fornell-Larcker criterion

Variables	Mean	S.D.	AvInf	CRP	ExtCap	ITR	IntCap	NITR
Avariable Information (AvInf)	5.4718	1.11649	0.924					
Customer Relationship Performance (CRP)	5.4859	1.10403	0.837	0.965				
External Capability (ExtCap)	5.2007	1.24060	0.869	0.913	0.968			
IT Resource (ITR)	5.1761	1.19952	0.830	0.797	0.852	0.927		
Internal Capability (IntCap)	5.4014	1.12511	0.820	0.843	0.898	0.849	0.905	
Non-IT Resource (NITR)	5.3415	1.14322	0.790	0.773	0.830	0.877	0.832	0.913

4.3. Structural Model

In the structural equation model, the model fit, and path coefficients were evaluated. The model fit indices of this research show an acceptable fit, with SRMR at 0.046, d_ ULS at 0.250, d_ G at 0.540, Chi-square at 889.847, and NFI at 0.834 (Fernando et al., 2021). Moreover, all R^2 values, representing the effect of an exogenous variable on an endogenous variable, are above the threshold value of 0.67 (Kevin et al., 2023; Fauzan & Tuga, 2023). The details are shown in Fig. 2.

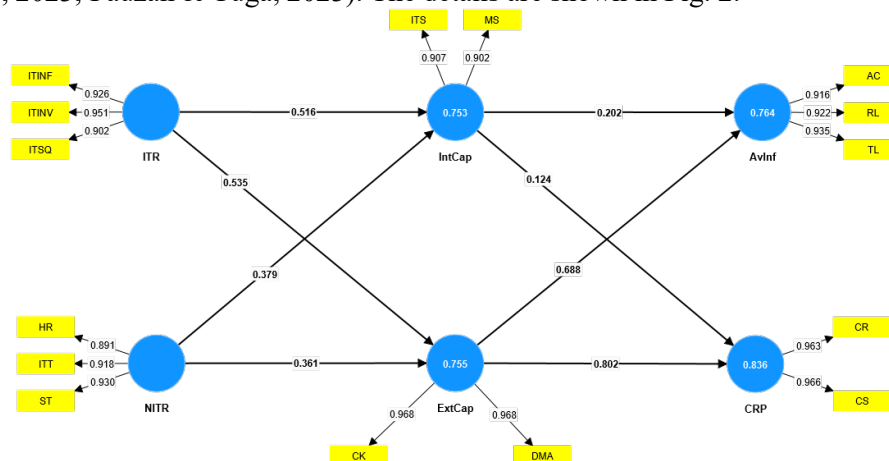


Fig. 2: The structural model validation

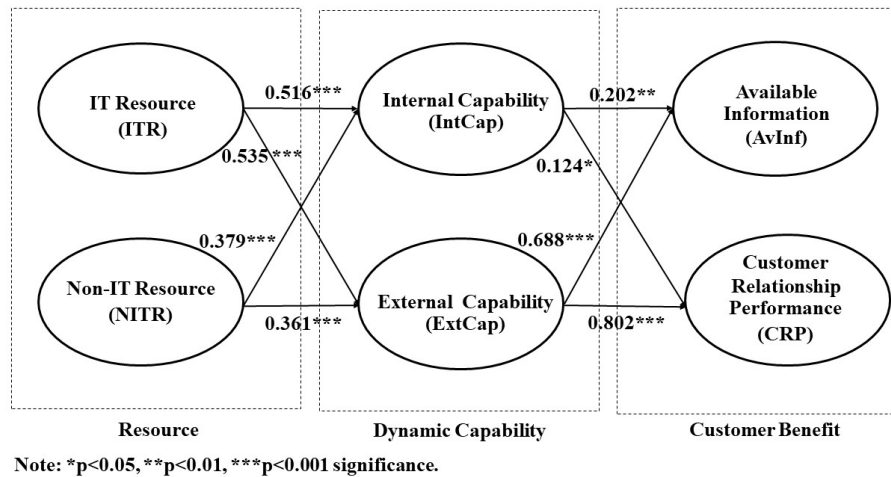


Fig. 3: Results of the structural model

The results of the path coefficients, shown in Fig. 3, confirm all eight hypotheses. The findings are as follows: First, both IT and non-IT resources show a significant influence on internal capability, with coefficients of 0.516 ($p < 0.001$) and 0.379 ($p < 0.001$), respectively, supporting H1 and H2. Second, both IT and non-IT resources exhibit a significant impact on external capability, with coefficients of 0.535 ($p < 0.001$) and 0.361 ($p < 0.001$), respectively, supporting H3 and H4. Third, both internal and external capability demonstrate a significant influence on available information, with coefficients of 0.202 ($p < 0.01$) and 0.688 ($p < 0.001$), respectively, supporting H5 and H6. Finally, both internal and external capability display a significant impact on customer relationship performance, with coefficients of 0.124 ($p < 0.05$) and 0.802 ($p < 0.001$), respectively, supporting H7 and H8.

5. Results and Discussion

5.1. Results

This research aims to investigate how NPOs in Thailand use IT and non-IT resources to create customer benefits through organizational capability development. To achieve the objective, two research questions were developed, and eight hypotheses were postulated. The findings from path analysis indicate that all eight hypotheses are supported, as shown in Table 8.

Table 8: Path coefficient and p-value

Hypothesis	Relationship	Path coefficient	P-value	Result
Hypothesis 1	ITR $\rightarrow$ IntCap	0.516	0.000	Supported
Hypothesis 2	NITR $\rightarrow$ IntCap	0.379	0.000	Supported
Hypothesis 3	ITR $\rightarrow$ ExtCap	0.535	0.000	Supported
Hypothesis 4	NITR $\rightarrow$ ExtCap	0.361	0.000	Supported
Hypothesis 5	IntCap $\rightarrow$ AvInf	0.202	0.005	Supported
Hypothesis 6	ExtCap $\rightarrow$ AvInf	0.688	0.000	Supported
Hypothesis 7	IntCap $\rightarrow$ CRP	0.124	0.039	Supported
Hypothesis 8	ExtCap $\rightarrow$ CRP	0.802	0.000	Supported

Moreover, the results from R^2 indicate that all exogenous variables well explain their endogenous variables. The results are as follows: First, IT and non-IT resources can explain a variance in internal capability of about 75.3% ($R^2 = 0.753$). Second, IT and non-IT resources can explain a variance in external capability of about 75.5% ($R^2 = 0.755$). Third, internal and external capability can explain a variance in available information of about 76.4% ($R^2 = 0.764$). Fourth, internal and external capability can explain a variance in customer relationship performance of about 83.6% ($R^2 = 0.836$).

5.2. Discussion

The resource-based view (RBV) plays an important role in explaining how for-profit organizations

utilize their resources to enhance organizational performance. Due to distinct characteristics, the RBV cannot be directly applied to non-profit organizations. This research aims to address these differences and proposes two research questions. First, what is the relationship between IT and non-IT resources and organizational capabilities in NPOs? Second, what is the relationship between organizational capabilities and customer benefits in NPOs? The research findings shed light on the application of RBV in non-profit organization research.

The first research question is addressed by the results from hypotheses 1 to 4, indicating that resources play a crucial role in creating organizational capabilities. It can be further explained that both IT and non-IT resources contribute to the development of both internal and external capabilities. This aligns with findings from previous research studies on for-profit organizations.

Firstly, the link between IT resources (ITR) and internal capability (IntCap) is supported by earlier research. For instance, Ting-Peng et al., (2010), Colin et al., (2008), and Anandhi, (2000) have highlighted the importance of IT in improving internal operations for a firm, while Grant, (1991), Ravichandran & Chalermsak (2005) underscore the significance of IT in business strategy.

Secondly, the connection between non-IT resources (NITR) and internal capability (IntCap) is also supported by past research. For example, Lyn, (2013) emphasized the importance of skilled workers in the digital age, in which organizations heavily rely on information systems. Skilled workers, along with IT, can further improve internal operations.

Thirdly, the link between IT resources (ITR) and external capability (ExtCap) is supported by earlier research. For example, Xiaofeng & Keng, (2012) explained that IT can help managers make decisions and set strategic competition on time. Doddy & Apol, (2019) suggested that IT can play a part in developing services relevant to customer needs.

Finally, the connection between non-IT resources (NITR) and external capability (ExtCap) is also supported by past research. For example, Majid & Mohammad, (2013), Khawaja & Dr. Nadeem, (2013), and Rima & Mindaugas, (2018) contended that organizational learning, especially IT training, is key for companies to adapt to changing environments. Along with information systems, these skills can help organizations sense and respond to changing environments effectively.

Based on the supporting evidence above, NPOs should manage and utilize their resources in the same manner as for-profit organizations. NPOs should invest in information technology, recruit skilled workers, and provide support for long-term training to improve their internal efficiency and their ability to sense changes in the external environment. This perspective sheds new light on research in non-profit organizations.

The second research question is addressed by the results from hypotheses 5 to 8, indicating that organizational capabilities play a key role in creating customer benefits. It can be further explained that both internal and external capabilities contribute to the generation of available information and improved customer relationship performance. This aligns with findings from previous research studies on service delivery.

Firstly, the link between internal capability (IntCap) and available information (AvInf) is supported by earlier research. For example, Pham, (2017) contended that organizations apply technology in various ways through their staff to promptly deliver business-required services. Through internal improvement, organizations can enhance the speed of service and better maintain its availability.

Secondly, the link between external capability (ExtCap) and available information (AvInf) is supported by previous research. For instance, Shahnawaz et al., (2011), and Michael et al., (2002) explained that organizations need to support various customer groups, each of which generally requires different information or services. With external capability, organizations can provide appropriate responses to different customer groups by delivering accurate information through prompt service (M & H, 2002).

Thirdly, the link between internal capability (IntCap) and customer relationship performance (CRP) is supported by earlier research. For example, Wu et al., (2013), and Wafa et al., (2014). contend that internal capability helps companies make better decisions quickly and solve problems for customers. This can reduce customer complaints and raise customer satisfaction (Susana & Joaquin, 2012).

Finally, the link between external capability (ExtCap) and customer relationship performance (CRP) is supported by previous research. For example, Tiger & Roger, (1998), Wafa et al., (2014), and Juan et al., (2016) explained that external capability, especially customer knowledge, is essential for organizations to provide services that are relevant to customer needs. It leads to achieving customer satisfaction and building long-term relationships with customers (Mohammed & Mohammad, 2015).

Based on the supporting evidence above, NPOs can create customer benefits through organizational capabilities, like service delivery. Internal capability can facilitate NPOs in improving their service in terms of problem resolution. External capability can enable NPOs to deliver services relevant to customer needs. This sheds new light on research in non-profit organizations.

Moreover, the results of this study demonstrate an indirect link between resources and customer benefits through organizational capability. This implies that resources may not directly create benefits for customers. It is necessary for NPOs to manage them to first develop internal and external capabilities. These capabilities can further help create customer benefits, enabling NPOs to avoid bringing in unnecessary resources.

6. Conclusion

The aim of this study is to investigate how non-profit organizations (NPOs) in Thailand use IT and non-IT resources to create customer benefits. A research model was proposed, and an empirical investigation was conducted. This study provides contributions in different areas.

First, this research methodology provides details on how to apply the resource-based view (RBV), dynamic capabilities theory (DCT), and customer value to the context of non-profit organizations. This has laid the foundation for future research in this area that focuses more on organizational resources and organizational capabilities.

Second, the relationship between resources ,IT and non-IT resources, and organizational capabilities, internal and external capabilities, in non-profit organizations was examined. The findings contribute to a better understanding of the fact that non-profit organizations also need to manage their resources to develop organizational capabilities, similar to for-profit organizations.

Third, the relationship between organizational capabilities, internal and external capabilities, and customer benefits, available information and customer relationship performance, in nonprofit organizations was explored. The findings shed new light on how nonprofit organizations can use their capabilities to provide services to their clients. They also highlight the importance of information technology in developing these capabilities.

Finally, the research results point to the mediating effect of organizational capabilities. This finding sheds important light on organizational research. Although resources are important for organizations, researchers should pay more attention to how they can be transformed into capabilities.

7. Implications

This research has implications for both academics and practitioners.

For academics, this study introduces the application of the resource-based view, dynamic capabilities, and customer benefits in research on non-profit organizations. It lays the foundation for further research in this area. The results of this study emphasize the mediating effect of organizational capabilities, which sheds light on further research in these areas.

For practitioners, this study highlights the importance of strategic management in non-profit organizations. NPOs need to improve their internal capabilities. First, the identified key variables, such

as IT investment, IT infrastructure, and staff training, as focus areas for external capability research will help organizations develop strategies and focus on decision-making flexibility and customer knowledge, which are the key factors for accelerating added customer benefits. Secondly, non-profit organizations with a proper focus on customer relationship performance will improve other internal capabilities, such as strategic thinking skills. It is important to accurately recognize changes in competition with dynamic capabilities. Finally, non-profit organizations have improved their internal capabilities to ensure the accuracy, reliability, and timeliness of available information. Increasingly, internal capabilities are needed to increase customer satisfaction and retention.

8. Limitation

This research is not free from limitations. First, the study examines the relationship between resources and customer benefits for non-profit organizations in the Thai context, which may differ from that of other countries. This may limit the generalizability of the results. Second, the measures of client value were developed based on available information and customer relationship performance, which may not reflect all aspects of service quality. Finally, the online survey used in this study is in Thai. Given the great care taken in the double translation, the statistical power might have been reduced.

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