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The Effect of IT Use on Organizational Performance in Terms of Organizational Learning in the Healthcare Industry

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ABSTRACT

The use of IT has been massively used in improving organizational performance, including the performance of health institutions. Improved performance can be achieved by various schemes, one of which is increasing organizational learning. For this reason, this study is an attempt to examine information and technology in an effort to increase absorptive capacity in the role of organizational learning in the health care industry. The method used in this research is quantitative with an online survey. Structural equation modeling is used to analyze the path analysis test. The results of this study indicate that IT has a positive influence on organizational learning, both the first outcome, namely knowledge transfer and the second outcome, namely absorptive capacity, as well as on the performance of health care institutions. This research provides both theoretical and practical contributions. The theoretical contribution is adding literacy related to IT functions to improve organizational performance in the role of organizational learning. While, the practical contribution is to provide a view that in the implementation of IT it is necessary to pay attention to organizational learning so that IT functions properly.

Keywords: Information Technology, Organization Learning, Healthcare Industry, Performance

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INTRODUCTION

The use of IT is increasing in all organizations, including hospitals and other health institutions (Spatharou, Hieronimus, & Jenkins, 2020). In addition, data shows the use of IT in healthcare institutions has increased during the COVID-19 pandemic (Thilakarathne et al., 2020). This is due to efforts to limit direct interaction between humans to reduce the transmission of the coronavirus. In addition, before the pandemic the use of IT also showed an increase, this was attempted to improve organizational performance (Pinsonneault et al., 2017). IT use contributes to health service performance, financial performance, patient satisfaction, quality of care (Venkatesh et al., 2011), business process & patient satisfaction (Amor & Ghannouchi, 2017) and organizational performance (balanced scorecard approach) (Grigoroudis et al., 2012). Many previous studies have investigated organizational improvement through IT implementation, such as research from Venkatest et al.

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(2011) and Pinsonneault et al (2017). Venkatesh et al. (2011) researched IT related to increasing quality of care through a scheme of network position. While Pinsonneault et al. (2017 investigate IT in terms of improving organizational performance through the quality of care. Raymond et al. (2015) examine the use of IT in increasing knowledge management using an absorptive capacity perspective (Raymond et al., 2015). While in the non-healthcare organization, implementing IT is used to increase organizational performance in the scheme of organizational learning (Iyengar et al., 2015).

Several previous studies show that there are many schemes that can be used to improve organizational performance through IT implementation. However, there are still few studies that look at organizational learning in hospitals. The organizational learning process in hospitals is interesting to examine because hospitals are unique organizations, namely non-profit organizations, service organizations, and have various organizational members or employees, namely physicians and administrative staff. For this reason, the learning process in hospitals is difficult to predict and interesting to study. Organizational learning mechanisms are observable structures, procedures, or routines that enable organizational members to interact for the purpose of learning (Friedman et al., 2005). Organizational learning is a learning process in an organization that sees how the process of knowledge transfer and absorptive capacity is carried out (Iyengar et al., 2015). Knowledge transfer itself is how organizations can disseminate knowledge from data, information, and data owned to all members of the organization through various media or directly (Alavi & Leidner, 2001). Meanwhile, absorptive capacity is how organizations can absorb knowledge, namely data and information to be transformed into real activities (Cohen & Levinthal, 1990).

While related to organizational performance, hospital performance has differences from other organizations that cannot be seen only from finance performance but more such as process, customer, quality of care, and so on (Khalifa & Khalid, 2015). According to Venkatest et al. (2011), Hospital performance can be seen from the whole process of organization, such as quality of care. For this reason, this study intends to examine the influence of IT in efforts to improve the organization of healthcare institutions through organizational learning schemes. This research is expected to be able to provide theoretical and practical contributions related to IT implementation in an effort to improve organizational performance in organizational learning schemes.

HIT and Organizational Learning

Health information technology is the use of information, communication and technology in a healthcare organization which includes software, hardware, and communication tools that use to the organization's operational and strategic activities (Ives & Jarvenpaa, 1991). The use of HIT in hospitals has many functions, ranging from communication to patient and operational treatment processes, as a data storage tool, as well as administrative activities (Greenhalgh et al., 2009). While organizational learning mechanisms focus on the ways in which organizations gather knowledge, put it into practice, and then assess the results of those actions. The fundamental tenet is that organizations are cognitive beings capable of experimenting, observing, and altering their behavior to enhance performance (Robey et al., 2000). The first two objectives of organizational learning are absorptive capacity and the effectiveness of knowledge transfer. The interplay between two entities (individuals, groups or teams, organizations, etc.), namely the source and the recipient of the information transfer, is what determines how effective the knowledge transfer is (Alavi & Leidner, 2001). The ability of a company to "recognize the value of new knowledge, assimilate it, and apply it to economic purposes" is known as its "absorptive capacity" (Cohen & Levinthal, 1990). The concept of absorptive capacity has become crucial in explaining how companies locate and apply knowledge to affect performance (Cohen & Levinthal, 1990; Roberts et al., 2012). Roberts et al. (2012) distinguish absorptive capacity from the firm's existing knowledge resource base in their latest study of the absorptive capacity in the IS literature by defining it as an organizational dynamic capability as opposed to an asset.

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Both of the elements of this description of learning processes as applied to IT use that IT use is a structural arrangement and that IT use makes it possible to gather, store, and share organizational knowledge-are supported by earlier IS research. Alavi and Leidner (2001), for instance, contend that the use of IT within businesses can enable, assist, and even enhance the knowledge production, storage, transmission, and application processes. In the context of a healthcare organization, organizational learning is central to managing the learning requirements in complex interconnected dynamic systems where all have to know common background knowledge along with shared meta-knowledge of roles and responsibilities to execute their assigned functions, communicate and transfer the flow of pertinent information and collectively provide safe patient care.

While the majority of IS literature has suggested that information transmission through the use of IT has an indirect impact on absorptive ability, subsequent studies have started to investigate a direct relationship (Roberts et al., 2012). For instance, in a setting of new product development, Pavlou and El Sawy (2006) investigate the use of IT and its effect on absorptive ability (Pavlou & El Sawy, 2006). Similar to this, Malhotra et al. (2005) investigated the influence of information systems on absorptive capacity in a supply-chain setting. In line with this more contemporary perspective, we propose that the franchisee's internal IT use directly affects its absorptive ability.

Prior research has supported the idea that efficient knowledge transfer raises absorptive ability (Argote and Miron-Spektor 2011; Caloghirou et al. 2004; Gold et al. 2001). Cohen and Levinthal (1990) emphasize the significance of knowledge transfers within and across units as a key driver of the development of absorptive capacity in their seminal paper. These claims that successful information transfers within the business increase absorptive ability have been echoed by other academics (Manfreda et al., 2014; Roberts et al., 2012).
H1 : IT has a positive influence to knowledge transfer effectiveness
H2 : IT has a positive influence to absorptive capacity
H3 : IT has a posirive influence to organizational performance
H4 : Knowledge transfer effectiveness has positive influence to absorptive capacity

Organizational learning and organizational performance
Greater absorptive capacity enables businesses to continuously replenish their knowledge reserves and use them to leverage any changes in their environment (Malhotra et al., 2005). This beneficial relationship between absorptive capacity and performance has been reaffirmed by numerous investigations. Greater levels of organizational learning in the setting of healthcare are more likely to improve performance (Lyman & Moore, 2019). Healthcare will be better equipped to estimate the commercial potential of the new knowledge with higher degrees of absorptive capacity (Volberda et al., 2010). As a result, a company with a high capacity for absorption will be more adept at identifying and avoiding performance-impacting plans and methods. In the healthcare context, organizational learning has positive influence to performance, including team performance (Lee et al., 2014). Through organizational learning, physician and administrative staff can improve patient satisfaction, quality of care and outcome (Lyman et al., 2019).
H5 : Knowledge transfer effectiveness has positive influence to organizational performance
H6 : Absorptive capacity has a positive influence to organizational performance

METHODS

This study uses a quantitative study dengan descriptive analysis. Data was collected by purposive sampling method. Regarding data collection using online surveys. Online surveys are carried out by distributing Google Forms through social media such as WhatsApp, Facebook, IG and Line (Statista, 2022). The choice of the platform was made because Asians use the platform a lot. The criteria for respondents in this study were physicist and administrative staff in the healthcare industry, including doctors, nurses, laboratory assistants and staff. Respondents in the study came from several

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countries, namely Indonesia, Taiwan, Thailand, and others. Regarding healthcare institutions including hospital type A to D. Regarding measurement variables, IT use, knowledge transfer effectiveness and absorptive capacity adopted from Iyengar et al. (2015). While the organizational performance of healthcare institutions adopts from Grigoroudis et al. (2012). Measurements were made on a Likert scale from 1 to 5, where 1 was strongly disagree and 5 was strongly disagree.

The total respondents are 231 with a valid number of 205. After cleaning the data, 24 outlier data were deleted due to several things including duplication of data, data that did not match the characteristics and incomplete data. The respondent profile is quite varied from four different countries, different professions, different types of healthcare institutions. So, this makes a good generalization of the results for healthcare as a whole. In detail, the respondent profile can be seen in table 1 below.

Table 1. Respondent characteristic

Country	Indonesia	177
	Taiwan	5
	Thailand	21
	US	1
	India	1
Age	> 40	15
	20-30	143
	31-40	47
Occupation	Administrative staff	40
	Doctor	43
	Manager	2
	Medical Analyst	4
	Midwife	12
	Nurse	91
	Pharmacist	11
	Radiologist	2
Work Experience	> 20 years	13
	10-20 years	24
	3-10 years	79
	< 3 years	89
Institution type	Private	26
	Public	179

Source: Data Processed, 2022

While the analysis is carried out using structural equation modeling (SEM) with smart PLS version 3. SEM is used to test the relationship between variables or path analysis with the type of research is psychometric. In the measurement model's outcome, Nasirun et al. report the value for item loading, reliability using composite reliability (CR), and convergent validity using average variance extracted (AVE).

RESULTS AND DISCUSSION

The result of reliability and validity are shown in table 2. The threshold value for accepting a load was 0.60. The indicators for outer loadings ought to be larger than 0.6, as recommended by Hair et al., (2017). The CR indicator, which should be more than 0.70 (Hair et al., 2019), is used to assess

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the model's dependability. According to Table 2, all of the constructs for both groups have CR values above 0.70, demonstrating that the constructs are reliable. Finally, AVE values are used to assess the convergence validity. Because it shows that the construct accounts for 50% of the variance, an AVE minimum of 0.50 is preferred (Hair Jr et al., 2017). Table 2 shows that all of the AVEs for both groups' contracts are greater than 0.50, indicating that all of the AVEs are suitable for further investigation. Fornell-Larcker Standard Table 3 displays the Fornell-Larcker criterion and demonstrates that the discriminant validity is satisfactory.

Table 2. Validity and reliability

Construct	Item	Loading	AVE	CR	Cronbach's Alpha	Rho_A
IT Use	IU1	0,879	0,754	0,902	0,837	0,841
	IU2	0,894				
	IU3	0,832				
KTE	KTE1	0,766	0,704	0,935	0,916	0,921
	KTE2	0,814				
	KTE3	0,862				
	KTE4	0,874				
	KTE5	0,876				
	KTE6	0,839				
AC	AC1	DELETED	0,730	0,960	0,953	0,954
	AC2	0,829				
	AC3	0,786				
	AC4	0,869				
	AC5	0,881				
	AC6	0,900				
	AC7	0,888				
	AC8	0,868				
	AC9	0,826				
	AC10	0,835				
Organizational Performance	OP1	0,768	0,622	0,908	0,878	0,880
	OP2	0,782				
	OP3	0,822				
	OP4	0,861				
	OP5	DELETED				
	OP6	DELETED				
	OP7	0,745				
	OP8	DELETED				
	OP9	0,749				

Source: Data Processed, 2022

Tabel 3. Descriminant Validity – Fornell-Larckel Criterion

	AC	IU	KTE	OP
AC	0,854			
IU	0,583	0,869		
KTE	0,659	0,728	0,839	
OP	0,744	0,547	0,560	0,789

Source: Data Processed, 2022

Based on the SEM test conducted, it was found that from the 6 hypotheses, there was 1 hypothesis which was not significant. Hypothesis 1 and 2 show that IT use is proven to affect knowledge transfer absorptive capacity. Also, hypothesis 3 examines the direct effect of IT with organizational

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performance showing significant positive results. While hypothesis 4 knowledge transfer has a positive effect on absorptive capacity. Hypothesis 6 absoptive capacity has an influence on organizational performance. However, the results are different in hypothesis 5 which shows that knowledge transfer effective transfer does not have a direct effect on organizational performance. Viewed from the Beta value, IT Use has the largest beta value, which means that IT Use plays a very important role in knowledge transfer effectiveness. While R^2 Organizational performance has the greatest value, meaning that organizational performance is quite well explained by the existing variables, namely knowledge transfer effectiveness, absorptive capability and IT Use. While the value of the Fit model shows a good value, which is seen from the NFI is 0.823 and Chi_Square is 765.529.

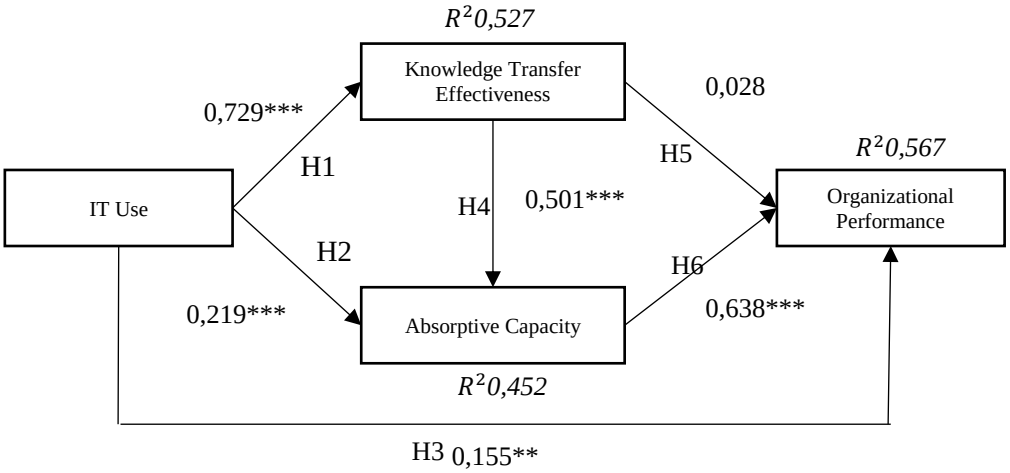

Figure 1. Hypothesis result
Source: Data Processed, 2022

The results above show that organizational performance is influenced by the use of IT through organizational learning mechanisms, namely knowledge transfer effectiveness and absorptive capacity. This shows that IT implementation affects two outputs of the learning process, namely knowledge transfer and absorptive capability. Knowledge transfer effectiveness is how an organization can disseminate information and then absorptive capability is how the organization can absorb, change, acquire and turn that knowledge into a real activity. This supports the research conducted by Iyengar et al. (2015) and in the context of healthcare, the use of IT is influential in administrative operational activities and patient care (Pinsonneault et al., 2017; Venkatesh et al., 2011). The second, is the second outcome of organizational learning, namely absorptive capacity has an influence on organizational performance. This means that the ability to absorb, acquire and transform knowledge into real activities has an effect on organizational performance. While the first outcome, namely knowledge transfer effectiveness, does not have a direct influence on organizational performance. This means that knowledge dissemination needs to be absorbed and transformed into activities, then activities affect performance. This is in accordance with research conducted by Raymond et al. (2015). The last is hypothesis 3, IT use actually has a direct influence on performance. This means that the use of IT can directly have an impact on performance such as the operational effectiveness of hospital services.

CONCLUSION

This study examines the effect of using IT on organizational performance based on organizational learning schemes in the healthcare industry. This quantitative study found that IT has an influence on organizational performance through organizational learning, and organizational learning,

especially the output of both absorptive capacities, has a positive effect on organizational learning, but differs from knowledge transfer effectiveness which does not have a direct effect on organizational performance. This research has a contribution to fill the research gap related to organizational learning in the healthcare industry by analyzing IT implementation. While the practical contribution is to provide an overview that in implementing IT it is necessary to pay attention to changes in the learning process that occur in the organization. Because not always IT implementation can have a good learning and operational effect. In addition, this study also has drawbacks, namely, only looking at the direct effect, not analyzing the indirect effect between IT implementation, organizational learning and organizational performance. In future research, it is expected to carry out a comprehensive analysis by analyzing direct and indirect impacts.

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