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Analysis Influence of Knowledge Management on Innovation and Performance of Organization

PriandhikaArendra[1], Kamalul Azmi Putri[2], Imanuel Rino Rumamby[3], Mercia[4]

[1,2,3,4]*Information Systems Management Department, BINUS Graduate Program – Master of Information SystemsManagement, Bina Nusantara University, Jakarta, Indonesia 11480*

Abstract: The purpose of this research is to analyze the influence of Knowledge Management process (knowledge acquisition, knowledge sharing and knowledge utilization) contained in the Knowledge Management System on technical innovation, non-technical innovation, and organizational performance. The method used in this research is quantitative method by distributing questionnaires and targeting organizations that implement Knowledge Management System and analyze if Knowledge Management System especially on Knowledge Management Process influences technical innovation, non-technical innovation, and organizational performance on the organization. The results showed that there is a positive influence between Knowledge Management Process on Technical Innovation and Non-Technical Innovation, but not on Organizational Performance directly.

Keywords: Knowledge Management System, Knowledge Management Process, Innovation, Organizational Performance

1. Introduction

1.1. Background

In the highly competitive business logging of this era of globalization, innovation is a very important thing for any organization to maintain the existence of their business. innovation is an idea, concept, practice or object that is recognized and accepted as something new by a person or group to adopt [11]. Innovation will provide a competitive value for an organization where it will bring the organization to enhance new strategies in the business as well as improve the organization's own performance. One of the factors that affect innovation within organizations is how organizations manage their knowledge. Basically, knowledge is the main foundation of the creation of innovation within the organization, therefore the management / management of good knowledge will affect the ability of an organization in competing for the existence of their business. Knowledge management is the way organizations manage their employees, identify their knowledge, store and share it with teams, improve the quality and value of such knowledge to generate knowledge-based innovation [7].

One tool that can be used to manage knowledge is the Knowledge Management System. Knowledge Management System (KMS) is a tool that gives the organization the ability to collect, manage and enhance any existing knowledge within an organization. knowledge management system is an information technology that enables organizations to manage knowledge effectively and efficiently [3]. Utilization of a good Knowledge Management System will give the organization a new way to manage their knowledge. Any knowledge that has been managed in the Knowledge Management System can be utilized by organizations to improve and even improve their business strategy, which can refer organizations to continue innovation. The question here is whether the Knowledge Management System (KMS) can affect the Innovation and organizational performance within the organization?

The purpose of this study is to analyze the influence of Knowledge Management on innovation in the organization both technical innovation and non-technical innovation and analyze the effect on the organizational performance. This research will target organizations that have used knowledge management systems (KMS) and analyze the influence of KMS they use on the Innovation and Performance of the organization.

1.2. Research Problem

Based on the background that has been described, it will get the question as follows:

1) Does the Knowledge Management System affect the technical innovations within the organization?
2) Does the Knowledge process in the Knowledge Management System affect Non-Technical innovations within the organization?
3) Is the Knowledge Management process in the Knowledge Management System affecting the Organizational Performance?
4) Do both Technical and Non-Technical Innovations affect organizational performance?

1.3. Research Objectives

The objectives achieved in this research are the following:

1) Analyze the influence of Knowledge Management System on Technical Innovation within the organization.
2) Analyze the influence of Knowledge Management System on Non-Technical Innovation within the organization.
3) Analyzing the influence of Knowledge Management System on the Performance of the Organization.
4) Analyze the effects of both technical and non-technical Innovation on the Organizational Performance.

2. Theoretical Framework and Hypothesis Development

2.1. Knowledge Management

Knowledge management is a series of activities used by an organization or company to identify, create, explain, and distribute knowledge for reuse, discovery, and learning within the organization. Basically, knowledge management is about increasing the use of organizational knowledge through information management practices and organizational learning to achieve competitive advantage in decision making. According to [23], knowledge management can be defined as a process for identifying, selecting, organizing and disseminating vital information and skills that are part of the company in the form of structured. Knowledge management is an activity to identify, create, organize and disseminate critical intellectual assets of an organization for a long time so that the sustainability of an organization continues sustainable, [9]. Knowledge management is defined as a systematic and organizational process to share, transfer, create, use, and store human knowledge to improve organizational performance [10].

2.2. Knowledge Management System (KMS)

Knowledge Management System (KMS) is a knowledge-based information system that supports the creation, organization and dissemination of business knowledge to workers and managers within the company as a whole [22]. Knowledge management system is an information technology that enables organizations to manage knowledge effectively and efficiently. Knowledge management system can connect and interaction between people in organization to communicate and collaborate [3].

KMS is a knowledge-based information system that supports the creation, organization and dissemination of business knowledge to workers and managers within the company as a whole, [22]. Knowledge management system (KMS) is an information system applied to the organization. That is, KMS is an IT-based system developed to support and improve organization processes in the creation, storage / retrieval, transfer, and application of knowledge [2].

2.3. Innovation

According to [5], innovation refers to the introduction of new combinations of important production factors into the production system. Innovation capital is the competence of organizing and conducting research and development, giving birth to new technology and new products to meet customer demand. Engaging new products, new technologies, new markets, new materials and new combinations. [13] defines innovation as a knowledge process aimed at creating new Knowledge directed towards the development of sustainable and commercial solutions. Innovation is the process by which knowledge is acquired, shared and assimilated with the aim of creating new knowledge, which embodies products and services. [13] also stated that Innovation is the adoption of a new idea or behavior for the organization. Innovation can be a new product, a new service or a new technology. Innovation related to Change, which can be radical or incremental.

Basically, innovation in the organization can be divided into 2 categorize, which are technical innovation that refers to the implementation of ideas about the development of products or services, processes, and technology contained in an organization. The second is non-technical innovation or commonly referred to as managerial innovation that refers to development in management, process, sales strategy, etc., which is found in the business practices of the organization.

2.4. Organizational Performance

Performance is an outcome (output) of a certain process performed by all components of the organization against certain sources used (input), which can be interpreted as a result of a series of process activities undertaken to achieve a particular goal organization. Organizational performance is an achievement level indicator that can be achieved and reflects the success of an organization, and is the result achieved from the behavior of members of the organization.

Organizational performance is the end result of an activity in carrying out job responsibilities efficiently and effectively. Leaders must understand the factors that contribute to the organization's performance, because the leader must manage the organization's performance so that the organization, work unit, or work group of leaders reaches the highest goal achievement [18]. Organizational performance deals with factors such as profitability, service delivery, customer satisfaction, market share growth, and increased productivity and sales. Therefore, organizational performance is influenced by the number of individuals, groups, tasks, technology, structural, managerial and environmental factors [17].

3. Research Methods

3.1. Conceptual Framework

The basis of this research is to determine the effect of Knowledge Management Process contained in the Knowledge Management System (KMS) to the Technical Innovation, Innovation Non-Technical and Organizational Performance. Based on this it developed a conceptual framework that can be seen in Figure 1.

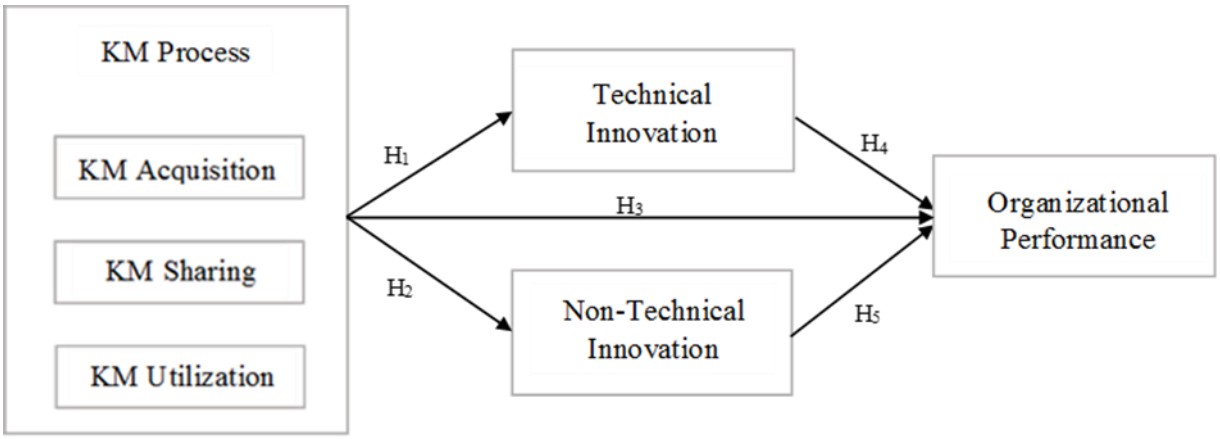

Figure 1: Conceptual Framework

According tothe conceptual framework of this research, it can be generated hypotheses as follows:

H1: Knowledge Management has significant effect on Technical Innovation.
H2: Knowledge Management has significant effect on Non-Technical Innovation.
H3: Knowledge Management has significant effect on Organization Performance.
H4: Technical Innovation has significant effect on Organization Performance.
H5: Non-Technical Innovation has a significant effect on Organizational Performance.

3.2. Sampling Techniques

This research is explanatory research. Explanatory research (explanatory research) is a research to test the hypothesis between variables hypothesized. In the type of explanatory research, the research process begins with the identification of the problem, then make the formulation of the problem. The hypothesis formulated based on research issues with the bases on concepts that have been discovered previously and theories that already exist. The Sampling method from this research is the probability sampling with simple random sampling technique, where sampling is done randomly without considering of any existing level. Determination of sample using Slovin formula with error rate 5%, by formula:

$$n = \frac{N}{1 + (N * e^2)}$$

3.3. Variable Measurement

There are two variable that will be analyzed in this research, which are independent and dependent variable where this research will examine about the relationship between independent variable to variable dependent. Independent variable (X) in this research refers to Knowledge Management Process found in Knowledge Management System implemented, where the component of Knowledge Management Process is divided into 3 components, Knowledge Acquisition, Knowledge Sharing, and Knowledge Utilization.

1) Employees gain knowledge from different sources: Customer, Partner and other employees. (KMA.Q1)
2) Employees continue to collect information relevant to their operations and activities. (KMA.Q2)

3) The organization allows employees to get to know the work of other employees within an organization. (KMA.Q3)
4) Employees exchange their knowledge, ideas, and experiences in a two-way communication process. (KMS.Q1)
5) Employees are focused on sharing best-practice performance with their colleagues. (KMS.Q2)
6) The organization has procedures and means to collect and distribute suggestions from employees, customers / clients, and business partners. (KMS.Q3)
7) Organizations effectively manage different sources and types of knowledge. (KMU.Q1)
8) The organization applies the available knowledge to improve its performance. (KMU.Q1)
9) Organizations utilize existing knowledge well and develop it better. (KMU.Q1)

There are 3 Dependent Variable (Y) in this study which are interconnected with each other, among other variables, Technical Innovation, Non-Technical Innovation and Organizational Performance.

1) The organization is able to develop existing products / services to be better and more effective. (TI.Q1)
2) Organizations are able to provide innovative products / services that are not owned by other competitors. (TI.Q2)
3) Organizations are able to improve novelty on their products and services. (TI.Q3)
4) Organizations introduce new things into business strategies and ways of doing business. (NTI.Q1)
5) The organization introduces many new things into business processes and management methods. (NTI.Q2)
6) The organization is able to change management and business strategy according to the changing environment. (NTI.Q2)
7) The organization is able to respond quickly and effectively to technological and market changes. (OP.Q1)
8) Employee productivity within the organization gets better than ever before. (OP.Q2)
9) The organization is able to develop new products / services for the better. (OP.Q3)

Each indicator will be measured using 5 point-likert scale i.e.; 1 = Strongly Disagree, 2 = Disagree, 3 = Hesitate, 4 = Agree, 5 = strongly Agree.

4. Analysis and Discussion

This study uses Variance-based partial least square (PLS) or called partial least squares structural equation modeling (PLS-SEM). There are several steps of data analysis performed in SEM-PLS method is to analyze or test to outer model or measurement model, inner model or structural model, and hypothesis testing.

4.1. Measurement Model

Convergent Validity is a measure of the validity of the reflexive indicator as a variable gauge that can be seen from the outer loading of each variable indicator. The Convergent Validity test can be evaluated in 3-stages by analyze outer loading, composite reliability, and Average Variance Extracted (AVE), where the suggested value for outer loading is set at> 0.7, AVE should be> 0.5 and composite reliability composite (CR) must be > 0.7. Figure 4.1 refers to the construct KM Process in the model conceptualized as the 2nd order construct. Thus, this study used a recurrent indicator approach method to model 2nd factor in PLS analysis.

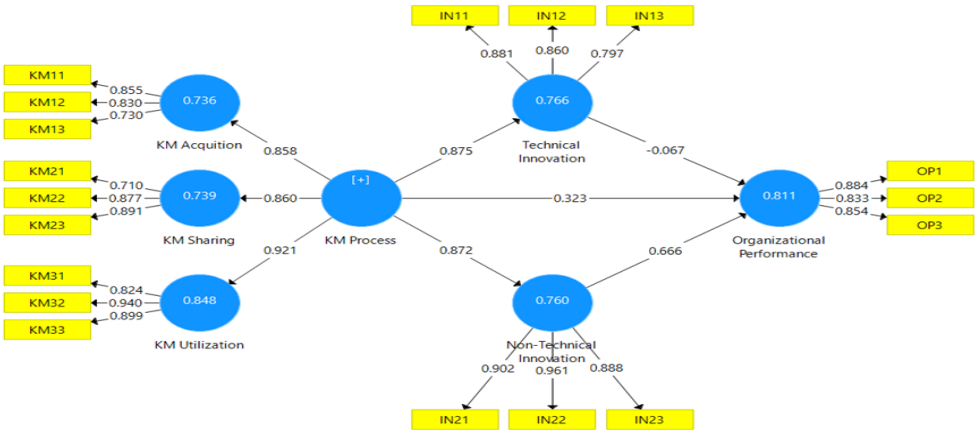

Figure 2: Measurement Model

T**able 1:** Measurement Model Detail

Latent Variable	Manifest Variable	Loadings	AVE	CR	Cronbach's Alpha
KM Acquisition	KM11	0.855	0.651	0.848	0.734
	KM12	0.830			
	KM13	0.730			
KM Sharing	KM21	0.710	0.689	0.868	0.770
	KM22	0.877			
	KM23	0.891			
KM Utilization	KM31	0.824	0.790	0.919	0.866
	KM32	0.940			
	KM33	0.899			
Technical Innovation	IN11	0.881	0.717	0.884	0.803
	IN12	0.860			
	IN13	0.797			
Non-Technical Innovation	IN21	0.902	0.841	0.941	0.905
	IN22	0.961			
	IN23	0.888			
Organizational Performance	OP1	0.884	0.734	0.892	0.819
	OP2	0.833			
	OP3	0.854			

4.2. Outer Loading

Outer loadings are tables containing the loading factor to indicate the correlation between indicators with latent variables. Based on the results of the measurement model in Table 4.1, all indicators have loadings above 0.7 which means the measurement indicates that the measurement model exceeds the suggested value so that it shows enough convergence validity.

4.3. Discriminant Validity

Discriminant validity of the measurement model with reflexive indicator is assessed based on cross loading measurement with Construct. If the construct correlation with the measurement item is greater than the size of the other construct, then it indicates that the latent construct predicts the size on their block is better than the size on the other block. Another way of measuring discriminant validity is to see the square root value of average variance extracted (AVE). Based on the measurement model in Table 4.1 the entire construct has an Average Variance Extracted (AVE) value above 0.5 which means that all constructs have high discriminant validity.

4.4. Composite Reliability

The last analysis on the outer model is the reliability test. Reliability test can be measured by 2 criteria that is composite reliability and conbach's alpha from block indicator which measure construct. Construct can be declared reliable if the value of composite reliability and Cronbach's Alpha above 0.07. based on measurement model in table 4.1, all construct has composite reliability value and cronbach's alpha above 0.7 so it can be concluded that each construct has high reliability.

4.5. Structural Model Analysis

Evaluation of Structural model or inner model is aims to examine the relationship between construct and R Square of the research model. The structural model is evaluated by using R-Square to explain the effect of the independent variable on the dependent variable.

Table 2: R Square

Latent Variable	R Square
Non-Technical Innovation	0.760
Organizational Performance	0.811
Technical Innovation	0.766

Table 4.2 shows the value of R Square of each variable. The value of R Square for Non-Technical Innovation is 0.760. which meaning that KM Process is able to explain its effect on Non-Technical Innovation variable by 76%. The value of R Square for Organizational is 0.811, which means KM Process is able to explain its effect on organizational performance variable of 81.2%. R Square for Technical Innovation is 0.766, which means KM Process is able to explain its effect on technical innovation of 76.7%.

4.6. Inner Model Analysis

Hypothesis testing is based on the values contained in the structural model analysis, the level of significance of the path coefficient is obtained from the-t value and the standardized path coefficient value, where the -t value must have a loading factor greater than the critical value (> 1.96) and the standardized path coefficient value (p)> 0.05.

Table 3: Inner Model Result

Latent Variable	Original Sample (O)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values	Significant Effect
KM Process -> KM Acquisition	0.858	0.096	8.977	0.000	Accepted
KM Process -> KM Sharing	0.860	0.057	15.151	0.000	Accepted
KM Process -> KM Utilization	0.921	0.033	27.523	0.000	Accepted
KM Process -> Non-Technical Innovation	0.872	0.048	18.240	0.000	Accepted
KM Process -> Organizational Performance	0.323	0.274	1.179	0.239	Not Accepted
KM Process -> Technical Innovation	0.875	0.095	9.220	0.000	Accepted
Non-Technical Innovation -> Organizational Performance	0.666	0.263	2.535	0.012	Accepted
Technical Innovation -> Organizational Performance	-0.067	0.282	0.239	0.811	Not Accepted

According on the result of the analysis of Inner model contained in table 4.3, it can be concluded as follows:

H1: The hypothesis that Knowledge Management has significant effect on Technical Innovation is acceptable. With T-statistic value of 9.23> T-table of 1.96 and the direction of positive coefficient is 0.875.

H2: The hypothesis that Knowledge Management has a significant effect on acceptable Non-Technical Innovations. With T-statistic value of 18.24> T-table of 1.96 and the direction of positive coefficient is 0.872.

H3: The hypothesis that Knowledge Management has significant effect on Organization Performance is rejected. With T-statistic value of 1.179 <T-table of 1.96 and the direction of positive coefficient is 0.323.

H4: The hypothesis that Technical Innovation has significant effect on Organization Performance is rejected. With the T-statistic value of 0.239 <T-table of 1.96 and the negative coefficient is -0.067.

H5: The hypothesis that Non-Technical Innovation has a significant effect on Organizational Performance can be accepted. With T-statistic value of 2.535> T-table of 1.96 and the direction of positive coefficient is 0.666.

5. Conclusions and Suggestions

5.1. Conclusions

This study aims to analyze the influence of Knowledge Management System (KMS), especially in Knowledge Management Process at KMS to Technical Innovation, Non-Technical Innovation, and organizational learning. According on the results of the analysis, it can be concluded that Knowledge Management Process has a significant influence on non-technical innovation and technical innovation, but not on organizational learning. Technical innovation has no significant influence on organizational learning. The influence of technical innovation refers more to the innovation on the product or service offered by the company so that it is expected to affect the growth of the organization but not on the performance of the organization. In contrast, non-technical innovation has a significant influence on organizational learning where non-technical innovation refers to innovation in management, strategy, and structural improvement within the company, which will give positive influence to both internal and organizational performance itself.

5.2. Suggestions

Further research is needed on factors beyond the Knowledge Management Process that can affect the performance of the organization. So, the organization is able to know what are the factors of Knowledge Management System that can affect the performance of the organization.

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