Critical Success Factors of the Implementation of Knowledge Management at PT XYZ

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The rapid development of science and technologies can enhance competitiveness between companies. Organizations need to properly use their knowledge to gain competitive advantage. Organizations should implement knowledge management to maximize their knowledge. This study aims to determine the critical success factors of the implementation of knowledge management at PT XYZ. This study was conducted using a quantitative approach and a questionnaire as a research instrument. The data analysis used AMOS 21. The results show that the factors affecting the implementation of knowledge management incorporate top management support, information technology infrastructure, organizational structure, organizational culture, and human resources. The most significant factor affecting the implementation of knowledge management is top management support.

Keywords: Knowledge Management, Implementation, Critical Success Factor, AMOS, PT XYZ, SEM.

1. INTRODUCTION

The rapid development of science and technology enhances competitiveness between companies. By utilizing their knowledge, organizations can gain competitive advantages. Organizations can maximize their knowledge in order to gain competitive advantage. Therefore, companies must implement knowledge management to maximize the use of knowledge in their organizations. There are many studies discussing CSF for implementing knowledge management, but there are only a few studies focusing on state-owned firms, especially on toll road enterprises. PT XYZ does have a knowledge management system, but it does not work optimally.

This study will be explaining the critical success factors of knowledge management implementations at PT XYZ. First, a literature review will explain contemporary concepts of Knowledge Management, Critical Success Factors, and Knowledge Management Success Factors. The research model will be constructed from this literature review. All factors of the model are measured using covariance-based Structural Equation Modeling (SEM). The questionnaire was distributed to all employees at PT. XYZ. Subsequently, 120 employees filled in the questionnaire.

2. LITERATURE REVIEW AND HYPHOTESIS DEVELOPMENT

According to Ranjan and Bhatnagar[1], CSF is a parameter or key factor for ensuring the continued success of an organization, and these factors represent those managerial areas that must be given special and continual attention to obtain high performance levels. CSF of knowledge management system is considered an area that must be given particular attention for the successful implementation of knowledge management[2]. On the other hand, CSF will vary across industries[3].

Knowledge sits between information and data as a key component of management success. Knowledge is information that allows for action, decision, and direction. Knowledge management is essentially doing what is needed to get the most out of knowledge resources. Knowledge management has two aspects, namely knowledge management solutions and knowledge management foundations.

Knowledge management solutions are comprised of two components: knowledge management processes and knowledge management systems. Knowledge management processes refer to the ways that organizations handle knowledge at various stages of their lives as companies. There are four main knowledge management processes: knowledge discovery, knowledge capture, knowledge sharing, and knowledge application. Knowledge management solutions also depend on three foundations, namely knowledge management infrastructure, knowledge management mechanism, and knowledge management technology.

A knowledge management foundation comprises all aspects of an organization that support the implementation of knowledge management in the long or short term, such as knowledge management infrastructure, knowledge management mechanism, and knowledge management technology[4].

There are numerous studies about the CSF of implementation knowledge management. The results of a study of existing literature on the subject of management implementation can be seen in Table 1 below:

Table.1. Previous Study on CSF Implementation of Knowledge Management

No	CSF KM Implementation	References
1.	Organizational Culture	[5] [6] [7] [8] [9] [10] [11] [12] [13] [14] [15] [16], [17] [18]
2.	Organizational Structure	[19] [7] [12] [13], [15]
3.	Information Technology Infrastructure	[19] [7] [8] [9] [10] [11] [13] [14] [15] [16]
4.	Top Management Support	[19], [8] [9] [10] [11] [12] [13] [20] [14] [21]
5.	Human Resource	[6] [7] [11] [12] [15]

Organizational Culture

Organizational culture (OC) refers to social norms and value systems stimulating employees, the organizational climate, the management system, shared meanings and symbols, cognitive schemes and required behaviors[22]. Organizational culture is considered to include values that are believed by an organization in order to achieve a sustainable competitive advantage [7]. Dyer and McDonought[4] have conducted surveys on knowledge management that indicate four challenges in the implementation of knowledge management, both technical and non-technical. These are:

1. The organization's members do not have time for knowledge management.
2. The existing organizational culture does not support the knowledge sharing process.
3. The inadequate understanding of knowledge management and its benefits to the organization, and
4. The inability to measure the financial benefits gained as a result of knowledge management being implemented.

Based on these challenges, organizational culture is an important factor in the implementation of knowledge management. PT XYZ regularly gathers their staff for employee bonding, which builds trust. According to Scarborough[23], a comfortable and trusted environment can stimulate employees to create new knowledge in an organization.

H1: Organizational culture has a positive effect on the implementation of knowledge management.

Organizational Structure

Organizational structure has an important role in the implementation of knowledge management because the form of organizational structure can inhibit or support the process of implementation. Besides this, organization structure can drive how employees work and also affect how knowledge is created and shared to others[24]. Organizational structure will affect interaction between employees, the sharing knowledge, and the way decisions are made[4].

Organizations with a centralized structure distance the manager from their employees. This structure also makes it difficult for employees to interact with each other, develop their capabilities, advance, innovate, and share their ideas. Zheng[25] have said that the obstruction of a continuous knowledge flow will inhibit the implementation of knowledge management.

A combination of centralized and decentralized structures can facilitate knowledge management. This combination establishes a new structure comprising a chief knowledge officer, steering committee knowledge management control center, knowledge management department, or R&D and corporate library.

H2: Organizational structure has a positive effect on the implementation of knowledge management.

Information Technology Infrastructure

There are many studies that mention information technology as an important factor of knowledge management implementation. PT XYZ uses a website to achieve the successful implementation of knowledge management. Its purpose is to help employees if they find a problem or device error while they are working. Yeh[12,26] have said that information technology can facilitate the process of knowledge management by providing ease of access to information through quick-searches and the internet, as well as through data saving places like databases, and simplified communication.

H3: Information technology infrastructure has a positive effect on the implementation of knowledge management.

Top Management Support

Top management should be proactive in supporting decisions related to the implementation of knowledge management. This can only happen if top management understands that knowledge management is important. Employees can share knowledge and contribute to organizations in many secure and comfortable ways. To create a good work climate, top management can provide added value to employees such as learning to build up capabilities[27]. Besides this, Ekman has said that top management should motivate employees, and provide opportunities, measurements, and rewards to make knowledge management effective. Moreover, top management should be willing to share their knowledge to avoid implementation failures. Top management is required to continually seek new ideas and knowledge.

H4: Top management support has a positive effect on the implementation of knowledge management.

Human Resource

Management theory claims that human resources play an important role in the successful implementation of knowledge management. This is because individual positions in an organization are the heart of the knowledge creation and sharing process, so managing individuals is considered to be extremely important[7,28]. According to Currie and Kerrin[29]; Cabrera and Cabrera[30]; Chen and Huang[31], providing training and rewards from human resources can foster their motivation and enthusiasm for creating and sharing knowledge in the organization[32].

Training has an impact on the implementation of knowledge management if it is conducted properly and periodically. Firstly, training must be related to knowledge management, including the importance of sharing knowledge, and the importance of knowledge management to the organization. Employees should be trained to write, edit, and create formats for standardizing knowledge before they can input into the knowledge repository[33]. Secondly, training must be carried out on issues related to organizational change to support the transformation process in a company and its people[34]. Salleh and Goh[34] argue that the responsibility of human resource departments in terms of training should aim to create changes in thinking patterns needed for the implementation of knowledge management.

H5: Human resources have a positive effect on the implementation of knowledge management.

The model of CSF for knowledge management implementation is constructed in Figure 1 below:
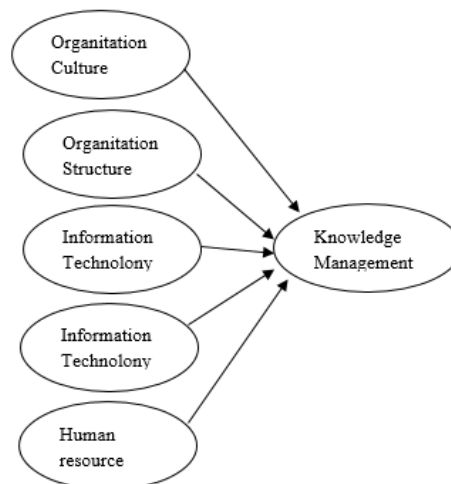

Fig.1. Research Model

3. RESEARCH METHOD

This study used a quantitative approach for the collection of numerical data that was then analyzed using AMOS, so that the relationship between the variables studied was known. Data collection was carried out by spreading the questionnaire offline to PT. XYZ. The questionnaire was constructed by CSF in Table 1. The questionnaire consisted of 6 variables and 43 statements and used a Likert Scale from 1 to 5 as an answer to each statement. The samples used were saturated samples because bureaucracy limited the distribution of questionnaires through the head of the bureau or division.

4. RESULTS AND DISCUSSIONS

One hundred and twenty questionnaires were collected and then analyzed using an SEM method, namely model specification, model identification, model estimation, and match test. A reliability test was used to measure the stability and consistency of questionnaire results[35]. The result of this test showed that the research model meets the

measurement reliability test, as each construct has Cronbach's Alpha (CA) value > 0.7.

Table.2. CA Calculation Results.

Construct	CA's Value	Description
OC	0.844318251	Fulfield
OS	0.806466175	Fulfield
ITI	0.847908002	Fulfield
TMS	0.919418506	Fulfield
HR	0.764135623	Fulfield
KM	0.828856258	Fulfield

The research model was tested using a validity test, which indicates that the research questionnaire is accurate. The result shows in Table 3 that the research model used was generally a good fit.

Table.3. Validity Test Values.

GOF Parameter	Standard	Calculation	Description
CMIIN/df	≤ 2 atau ≤ 3	1.146	Good Fit
RMR	As small as possible	0.132	Good Fit
GFI	> 0.80	0.859	Good Fit
NFI	> 0.90	0.871	Marginal Fit
TLI	≥ 0.90	0.975	Good Fit
CFI	≥ 0.90	0.981	Good Fit
RMSEA	< 0.08	0.035	Good Fit

After this, we used a structural model test for the hypotheses. Results in Table 4 show that all the hypotheses are accepted because all of the probability (P) values are less than 0.05, and the critical ratio (C.R)'s values are higher than 1.64.

Table.4. Structural Model Testing

Hypothesis	Parameter	Estimate	C.R	P	Conclusion
H1	KM ← OC	0.293	2.269	0.023	Accept
H2	KM ← OS	0.342	2.699	0.007	Accept
H3	KM ← ITI	0.406	3.262	0.001	Accept
H4	KM ← TMS	0.592	4.181	***	Accept
H5	KM ← HR	0.381	2.087	0.037	Accept

To measure the closeness of the relationship between variables, the value of the estimate in standardized regression weight is given. According to Cohen, the correlation coefficient 0.1 to 0.3 is a weak correlation, 0.3 to 0.5 a moderate correlation, and > 0.5 a strong correlation. The results of the correlation calculation between two variables can be seen in Table 5.

Table.5. Closeness of the relationship between variables

Parameter	Estimate	Relationship
KM ← OC	0,202	Weak
KM ← OS	0,257	Weak
KM ← ITI	0,296	Weak
KM ← TMS	0,413	Medium
KM ← HR	0,253	Weak

H1: Organizational Culture Has a Positive Effect on Knowledge Management Implementation

Factors relating to organizational culture have a positive effect on the implementation of knowledge management, although in Table 5 the closeness of organizational culture and knowledge management is indicated as weak. The results of this test align with the research of Chong[8], Wong[9], and Albers[10] which incorporate organizational culture factors into the success factors of the knowledge management implementation in the

company. The organizational culture of PT XYZ, which is built through joint activities, has a positive impact on the successful implementation of knowledge management. These routine joint activities successfully establish strong bonds between employees, resulting in a sense of comfort and trust between members. This comfort and trust helps the process of dissemination of knowledge in the organization. In other words, the organizational culture in PT XYZ supports the knowledge sharing process such that it can handle the challenges mentioned by Dyer and McDonough[4]. Values pertaining to knowledge management are also embedded through employee-bonding activities. The values of knowledge management are essential to building employees' understanding of the importance of knowledge management[4].

H2: Organizational Structure Has A Positive Effect on Knowledge Management Implementation

Factors relating to organizational structure have a positive effect on the implementation of knowledge management, although in Table 5 the correlation is weak. Table 4 shows that organizational structure in the implementation of knowledge management has CR 2.669 which surpasses the threshold. The results of this study are supported by Hopper's, Ein-Dor and Segev[36], and Caruana[37] who all assert that organizational structure can encourage the implementation of knowledge management. The hierarchical shape of the organizational structure influences the interactions that take place among employees[4]. This resonates with the opinion of Miller[4], who states that the decentralization of organizational structures allows for more communication or interaction between individuals, encouraging the generation of new ideas and more innovative problem-solving. With the continuous flow of knowledge and ideas, the implementation of knowledge management is simplified[7, 25].

H3: Information Technology Has A Positive Effect on Knowledge Management Implementation

From Table 4, it can be seen that information technology factors have a positive effect on the implementation of knowledge management, although in Table 5 the closeness of information technology and knowledge management is weak. This aligns with the research of Hendriks, Hedelin and Allwood who state that information technology either directly or indirectly influences the ongoing process of knowledge management implementation[4]. Web portals in PT XYZ function as knowledge management systems and have considerably influenced the implementation of knowledge management. The existing Web portal facilitates employees in accessing information, conducting discussions, and sharing knowledge, subsequently impacting the implementation of knowledge management. According to Yeh[12,26], the existence of information technology in the company facilitates access to information through quick-searches and the internet, data storage, and simplified communication and collaboration among member organizations.

H4: Top Management Support Has A Positive Effect on Knowledge Management Implementation

The test results in Table 4 show that top management support has a positive effect on the implementation of knowledge management, and has a medium correlation with knowledge management in Table 5. It can be seen from the correlation coefficient value that this variable is higher than other influencing variables. This shows that the top management support factor has the strongest influence on the implementation of knowledge management in PT XYZ. Aligning with the research conducted[38], top management support is one of the most influential and important factors in determining the success of knowledge management implementation. The same finding is illustrated by research conducted by Andersen and American Productivity and Quality Control (APQC).

H5: Human Resource Has A Positive Effect on Knowledge Management Implementation

Human resource factors have a positive effect on the implementation of knowledge management, as is shown in Table 4, although the closeness of human resources and knowledge management implementation is weak in Table 5. This is evidenced by the results of the correlation coefficient value of 0.253. The results of this research are in line with Salleh and Goh's research[34], which indicates that human resource departments influence the implementation of knowledge management by giving a change of member mindset around the importance of knowledge management. In addition, the study corroborates the findings of several other studies such as Chourides[6], Lee[12] and Choi[7], Pinkie Anggia[11]., Te-Chun Lee[12], and Rowland and Syed[15]. If related to the case study of PT XYZ, human resource departments rarely provide rewards or incentives to employees who generate ideas or frequently use the knowledge management system. Human resources in PT XYZ also rarely provide training specifically intended for knowledge management, such that the influence of small human resources departments gradually bring about the successful implementation of knowledge management.

6. CONCLUSION

From the data processing results, the factors influencing the implementation of knowledge management in PT XYZ include top management support at 0.413, information technology infrastructure at 0.296, organizational

structure at 0.257, organizational culture with the value 0.202, and human resources at 0.253. The most influential factor in the implementation of knowledge management is top management support, since the estimated value generated is greater than the other variables. This is supported by literature relating to the importance of top management support.

This study focuses on the internal factors of the companies. Subsequent research could add other variables from the company's external environment, such as partner companies, company orientation to domestic competition, or competitive environment[18].

REFERENCES

[1] J. Ranjan. Critical success factors for implementing CRM using data mining, Journal of Knowledge Management Practice, (2008) 18-25.

[2] M. Karami. Determination of critical success factors for knowledge management implementation, using qualitative and quantitative tools, Iranian Journal of Management Studies, (2015) 181-201.

[3] W.-W Wu. Segmenting critical factors for successful knowledge management implementation using the fuzzy demantel method, Elsevier, (2011).

[4] I. Becerra-Fernandez. Knowledge management system and processes, M.E Sharpe, New York (2010).

[5] H. C. Joshi. An investigation of factors that influence the management of knowledge in organizations, Journal of Strategic Information System, (2000) 235-261.

[6] P. D. Chourides. Excellence in knowledge management: an empirical study to identify critical factors and performance measures, Measuring Bussiness Excellence, (2003) 29-45.

[7] L. B. Choi. Knowledge management enabler, process, and organizational performance: an integrative view and empirical examination, Journal of Management Information System, (2003) 179-228.

[8] Chong, S. Choy and C. Y. Suk. Critical factors in the successful implementation of knowledge management, Journal of Knowledge Management Practices, (2005).

[9] K. M. Wong. Critical success factors for implementing knowledge management in small and medium enterprises, Industrial Management and Data Systems, 105 (2005) 261-279.

[10] J. A. Albers. A practical approach to implementing knowledge management, Journal of Knowledge Management Practice, (2009).

[11] P. Anggia. Identifying critical success factors for knowledge management implemenetation in organization. IEEE, (2013).

[12] Yen-Ching OuYang, Jen-Yin Yeh, Te-Chun Lee. The critical success factors for knowledge management adoption- a review study, International Symposium on Knowledge Acquisition and Modeling, IEEE, (2010).

[13] B. M. Davenport. Successful knowledge management project, Sloan Management Review, (1998) 43-57.

[14] M. Martensson. A critical review of knowledge management as a management tool, Journal of Knowledge Management, 4 (2000) 204–216.

[15] S. Rowland. Knowledge management in a public organization: a study on the relationship between organization elements and the performance of knowledge transfer, Journal Knowledge Management, (2004) 95-111.

[16] M. P. Moffet. An empirical analysis of knowledge management applications, Journal of Knowledge Management, (2003) 6-26.

[17] J. Wulandari. Model implementasi knowledge management pada perusahaan energi, Jurnal Perspektif Bisnis, (2013).

[18] F. M. Reza, M. S. Kahreh, M. Hesan, and A. Khalouei. A survey of critical success factors for strategic knowledge management implementation: applications for services sector, Procedia Social and Behavioral Sciences, (2014).

[19] C. W. Holsapple. An investigation of factors that influence the management of knowledge in organizations, Journal of Strategic Information System, (2000) 235-261.

[20] Greco. Knowledge is power, Journal of Business Strategy, (1999) 18-22.

[21] V. Roman, V. An empirical study of knowledge management in government and non-profit sector: organizational culture composition and its relationship with knowledge management success and the approach for knowledge flow, Proquest, (2004).

[22] B. Nogalski. Spirit of the organization, Publishing Center of the Center Organizational Progress, (1998).

[23] H. Scarborough, J. Swann, and J. Preston. Knowledge management: a literature review, Institute of Personnel Development Report, London (1999).

[24] I. Nonaka. A dynamic theory of organizational knowledge creation, Organizational Science, (1994) 14-37.

[25] W. Zheng. Linking organizational culture, structure, strategy, and organizational effectiveness: mediating role of KM, Journal of Business Research, (2010) 763-771.

[26] Ying-Jung Yeh, Sun-Quae Lai, and Chin-Tsang Ho. Knowledge management enablers: a case study, Industrial Management & Data System, Emerald, 106 (2006) 793-810.

[27] Jasa Marga. Downloaded on 18 June 2016, http://www.jasamarga.com/id_/anak-perusahaan/pt-jalan-tol-lingkar-luar-jakarta-jlj.html (2016).

[28] H. J. Leavitt. Applying organizational change in industry: structural, technological, humanistic approaches, in handbook of organizations, Rand McNally, Chicago (1965).

[29] K. M. Currie. Human resource management and knowledge management enhancing knowledge sharing in pharmaceutical company, International Journal of Human Resource Management, (2003) 1027-1045.

[30] C. E. Cabrera. Fostering knowledge sharing through people management practices, International Journal of Human Resource Management, (2005) 720-735.

[31] C-J Chen and J-W Huang. Strategic human resource practices and innovation performance – the mediating role of knowledge management capacity, Journal of Business Research, 62 (2009) 104-14.

[32] M. Javier. Organizational factors to support knowledge management and innovation, Journal of Knowledge Management, (2011) 890-914.

[33] R. Bennett. Organisationall factos and knowledge management within large marketing departments, Journal of Knowledge Management, (1999) 212-225.

[34] S. Yahya. Managing human resource toward achieving knowledge management, Journal of Knowledge Management, (2002) 457-468.

[35] J. J. Hair, W. C. Black, B. J. Babin, and R. E. Anderson. Multivariate Data Analysis 7th, (2009).

[36] P. Ein-Dor, P. Organizational context and MIS structure: some empirical evidence, MIS Quarterly, (1982) 55-68.

[37] M. M. Caruana. The effect of centralization and formalization on entrepreneurship in export firms, Journal of small business management, (1998) 16-29.

[38] A. M. Abbaszadeh. Causal model of critical success factors for knowledge management implementation, International Conference on Education and Management Technology, (2010).