

## **Modelling of Knowledge Management, Corporate Culture and Performance in Construction Firms**

**Rudi Waluyo<sup>1\*</sup> and Mochamad Agung Wibowo<sup>2</sup>**

<sup>1</sup>Doctor Candidate in Civil Engineering Doctoral Programme, Diponegoro University; and Lecturer of Palangkaraya University, Central Kalimantan, Indonesia.

<sup>2</sup>Civil Engineering Program, Engineering Faculty, Diponegoro University, Indonesia

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### **ABSTRACT**

Today, knowledge is the strategic key resource. Knowledge is recognized as being an important asset in organizations. Knowledge has become one of most important driving forces for business success. Despite this, many organizations are not doing enough to effectively manage this important asset for its competitive advantage. In response to this, knowledge management which is defined as a process that effectively creates, captures shares and uses organization wide knowledge to improve the organization performance. The aim of this study is to investigate and to analyse the application of knowledge management in construction firms. The objectives are to investigate the relationship between culture values, knowledge management (KM) and performance of construction firms. Results this study are corporate culture has a significant, directly and positive influence on KM process and KM process has a significant, directly and positive influence on corporate performance. But corporate culture has nonsignificant and negatively influence on corporate performance.

**KEY WORDS:** knowledge management, corporate culture, performance, construction firms.

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### **INTRODUCTION**

Rapid and constant advances in information technology have pushed the world in a new economical era. Knowledge management (KM) has been a natural evolution over the first years of the twenty first century, and hot topic in several business communities. The ability to manage knowledge becoming increasingly more crucial in today's knowledge economy. The tasks of effective and competitive management of organizations become necessary, and knowledge management, if understood and applied properly, maybe a useful tool for business transformation as well as the key of competitive advantage (Jennex, 2007). Knowledge management enables an organization to gain insight and understanding from its own experience and procedures. Culture is one of knowledge management enabler in organization. Culture helps organization to develop its knowledge and also stimulate the creation of knowledge within organization as well as the sharing and protection of it. The purpose of this research is to show the relationship between culture, KM and corporate performance in construction. This approach can help understand major culture values, KM and performance and establish some practical guidelines for each company that struggles to introduce KM.

Knowledge is collaboration between data, information with ability, intuition, experience, concept, and motivation from competence sources (Hendrik, 2003). Knowledge is information that completed with relationship mode comprehension from information with individual and group experience in organization (Widayana, 2005). Knowledge is combination of information, context and experience, looked as a core competence of organization that can captured, shared and utilized for business aspects (Rasli, 2005). Knowledge is one of foundation that used organization to do their business aspects. In this paper, definitions of knowledge is combination of data, information, concept, intuition, experience and motivation that can be managed, shared, captured, utilized by personal or firm for business aspects and improve corporate performance.

In general knowledge divided into tacit and explicit knowledge. Tacit knowledge is a human knowledge that can be a intuition, judgement, skill, experience, body language, values, belief and tulle of thumb. It's very difficult to formulated, communicated, or shared with other people. Explicit knowledge is knowledge can be expressed in words, numbers. It's can be added, transferred, distributed and gived in systematic and formal way in data, knowledge formula, product specification, manuals and universal principles (Yuliazmi, 2005; Sangkala, 2007; Tobing, 2007; Munir, 2008). Tacit knowledge can be said in abstract form and explicit knowledge in concrete form. Tacit and explicit knowledge used by organization to improve work process and corporate performance.

Knowledge management includes a broad process of creating, organising, and locating, distributing and sharing knowledge to achieve the organisations' goals (Rasli, 2005). Knowledge Management (KM) is a

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\*Corresponding Author: Rudi Waluyo, Doctor Candidate in Civil Engineering Doctoral Programme, Diponegoro University; and Lecturer of Palangkaraya University, Central Kalimantan, Indonesia. Email: [rudiwaluyoleliana@yahoo.co.id](mailto:rudiwaluyoleliana@yahoo.co.id)

term applied to techniques used for the systematic collection, transfer, security and management of information within organizations (Muggenhuber, 2006). Knowledge management is a systematic process to find, select, organizing, providing information with a specific way in order to make employees can use and improve knowledge in specific area and then able to institutionalize knowledge become organization knowledge (Ellitan dan Anatan, 2009). Knowledge management is a organization way to manage knowledge, create values and improve competitive advantage or firm performance (Zuhail, 2010). Knowledge management is a systematic way to manage organizational knowledge and can used to improve work processes and performance. In this paper definition of knowledge management is a concept or system to manage knowledge with create, share, documentation, application, disseminate, transfer, and responsiveness until firm used it to improve culture and performance.

Knowledge management have activities and we can call it knowledge management processes, i.e. knowledge creation, knowledge sharing, knowledge acquisition, knowledge documentation, knowledge application, knowledge transfer, responsiveness to knowledge, dan knowledge dissemination (Sangkala, 2007; Seleim dan Khalil, 2007; Chen, 2007; Munir, 2008; Ellitan dan Anatan, 2009).

1. Knowledge creation is a stage to input new knowledge to system, including innovation and development of knowledge (Hendrik, 2003).
2. Knowledge sharing is an activity that use to give chance to staff in organization or corporate to share knowledge, skill, idea, and experience with other staffs (Setiarso, 2005).
3. Knowledge acquisition is an activity to add knowledge in organization. One method in knowledge acquisition is to increase knowledge from external to internal organization (Sangkala, 2007).
4. Knowledge documentation are activities that to institutionalize knowledge in organizational memory form, furthermore it can be transferred and used on future (Seleim and Khalil, 2007).
5. Knowledge application refers to organization activities that use knowledge to increase processes, products, services and organizational performance (Seleim and Khalil, 2007).
6. Knowledge transfer is an activity to transfer knowledge from one person to other person (Hendrik, 2003).
7. Responsiveness to knowledge is organization activity that gives response to knowledge types accessed, i.e. responsiveness to technology and marketing knowledge (Darroch, 2003).
8. Knowledge dissemination is an activity to disseminate knowledge (Echols dan Shadily, 2000). Knowledge dissemination engage person that getting knowledge and how to distribute knowledge (Ellitan dan Anatan, 2009). Table 1 summarizes core activities in knowledge management process.

Table 1 Core Activities in Knowledge Management Process

No	Knowledge management	Core activities have done
1	Knowledge creation	Create new knowledge
2	Knowledge sharing	Share knowledge that have
3	Knowledge acquisition	Acquire or add knowledge
4	Knowledge documentation	Document, save or keep knowledge
5	Knowledge application	Apply knowledge
6	Knowledge transfer	Carried to, transfer or exchage knowledge
7	Responsiveness to knowledge	Responsive or reaction have done to knowledge
8	Knowledge dissemination	Disseminate or spread knowledge

Source: Sangkala, 2007; Seleim dan Khalil, 2007; Chen, 2007; Munir, 2008; Ellitan dan Anatan, 2009

Culture has elements like assumptions, values, norms and behavioral (Wibowo, 2000). Corporate culture is unity of people who have objective, beliefs and the same values (Suwanto dan Koeshartono, 2009). Corporate culture are values system, beliefs, assumptions or universal norms that agreed and followed by employees, and it used to behavioral standard and problem solving of organization (Sutrisno, 2010). Corporate culture is values systemic that agreed, followed and believed in organization. In this paper corporate culture are values that believed in firm to enable knowledge management processes and improve performance.

In addition, corporate culture have values i.e. collaboration, teamwork, trust, reward and recognition, dan learning and development (Choi dan Lee, 2000; Lee dan Choi, 2003; Gan dkk, 2006; Zain et. al, 2009).

1. Collaboration is a level or degree about active help and support in organization. Collaboration culture help knowledge creation with exchange of knowledge (Choi dan Lee, 2003; Tahir dkk, 2010).
2. Teamwork is a competence relationship, ability have a effective function, a part of group that show superior characteristics in many situation. Teamwork is not just playing a role but talking too (Wibowo, 2010).
3. Trust is assurance of stakeholder that has to develop and maintain, staffs do work based on honest, beneficence and reliability (Suwanto and Koeshartono, 2009).
4. Reward and recognition are acknowledgement or appreciation that gave to contribution of individual or team, and a behavioral role model of knowledge sharing. Reward gave in community, central, branch in business or corporate level, reward or prize can be money, promotion and other good gift (APQC, 2001).
5. Learning and development are a capability human upgrade process to effectively work (Munir, 2008).

Corporate performance is a level of achievement and show manajer succeed (Lestari dan Zulaikha, 2007). Performance refers to output and outcomes of processes, products, and services that evaluated and compare with objective, standard, the past result and other organization (Sadikin, 2008). Performance is a level of organization to achieve business goal. It can measure by profitability, financial, learning and growth (Ellitan dan Anatan, 2009). In this paper corporate performance is a level of achievement of organization and output and outcome of processes, products and services, caused by influence of culture and knowledge management.

Aspects in corporate performance divided in four, i.e. financial, costumer, internal business process and learning and growth (Kaplan dan Norton, 1996; Abdul dkk, 2007; Vanany, 2009).

1. Financial aspect is a activity must do by organization to measure economic benefits or financial from action done (Kaplan dan Norton, 1996). Measurement have used (Chen, 2007 and Parmenter, 2010) to measure this aspect, i.e. return on equity (ROE), return on assets (ROA), current ratio, debt to equity ratio, operating income, net income, equity dan total assets.
2. Costumer aspect is a activity must do by organization to measure market segment (Kaplan dan Norton, 1996). Measurement have used (Jashapara, 2003 and Nesan, 2004) to measure this aspect, i.e. market share, ability to get contracts, reputation, ability to get repeat business, and costumer satisfaction.
3. Internal business process aspect is a activity must do by organization to measure internal processes of business (Kaplan dan Norton, 1996). Measurement have used (Gold et.al, 2001 and Nesan, 2004) to measure this aspect, i.e. faster adaptation to corporate objective and market change, faster commerzialisasi of new innovation, effective internal process, reduce construction time, increase on time schedule and quality of services and products.
4. Learning and growth aspect is a activity must do by organization to measure corporate infrastructure that have developed to create enhancement and long growth (Kaplan dan Norton, 1996). Measurement have used (Kaplan and Norton, 1996; Jashapara, 2003 and Nesan, 2004) to measure this aspect, i.e. morale, degree of staff satisfaction, staff ability, staff productivity, ability to prepare of market and business information fastly, accuracy, and on time, high motivation to give the best performance to corporate, and ability to decision making.

### THE RESEARCH MODEL AND ITS HYPOTHESES

#### 1. Modelling

Figure 1 depicts the research model used in this study, including the research and the hypothesized relationships. The model is drawn based on the relevant culture, KM and performance literature reviewed in the previous section. The research model depicts three relationships: (1) relationship between corporate culture and KM, (2) relationship between corporate culture and corporate performance, and (3) relationship between KM and corporate performance

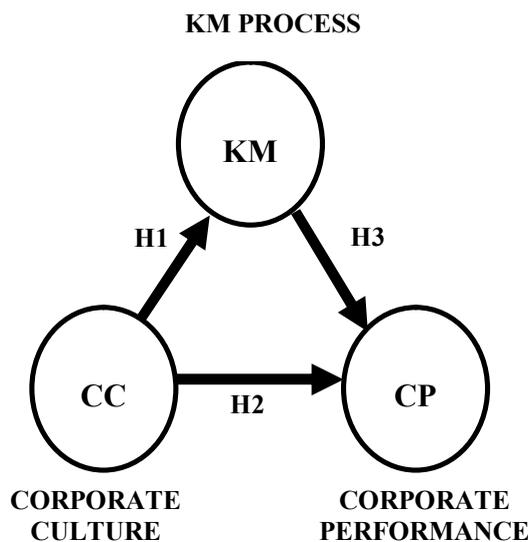


Figure 1 Model of corporate culture, performance and knowledge management

## 2. Research Hypotheses

### Corporate Culture and Knowledge Management

Conceptualization of the relationship between culture and knowledge management in firm can be found in some research in culture and knowledge management. Gan et.al. (2006) claimed that significant correlation between culture factors such as collaboration, mutual trust, leadership, kiasu-ism and rewards, and knowledge management practice. Septiyanto (2010) proposed that culture to be related to knowledge management. Tahir et.al (2010) stated that significant correlation between culture of collaboration, formalization and trust, and knowledge creation. Based on the past research it can be seen that significant relationship between culture and knowledge management. This expectation is formulated in the following hypotheses:

H1: corporate culture positively influences knowledge management (CC to KM)

### Corporate Culture and Corporate Performance

Conceptualization of the relationship between culture and performance in firm can be traced back to research about relationship culture and performance. Marcoulides dan Heck (1993) stated that a significant correlation between organizational culture of values, belief and climate, and three organizational performance measures, i.e. capital, market and financial. There is a significant correlation between culture and performance of firm (Aluko, 2003). Jauhari (2006) explored that that corporate culture influence performance in the matter of return on investment, operating income margin and asset turn over. Based on the past research, there is a significant relationship between culture and performance. This expectation is formulated in the following hypotheses:

H2: corporate culture positively influences corporate performance (CC to CP)

### Knowledge Management and Performance

Some research stated that there is a relationship between knowledge management and performance in organizations. Lee et. al. (2004) stated that significant correlation between knowledge management process of sharing, creation accumulation and utilization and financial performance of stock price, price earnings ratio and Research and Development expenditure. Seleim and Khalil (2007) stated that knowledge management process of knowledge acquisition, documentation, transfer, creation and application to be related to organizational performance. It can be summarised that knowledge management has many steps to apply it.

Based on the previous research it can be summarised that significant relationship between knowledge management and performance. This research will investigate in detail the relationship between knowledge management and organizational performance in construction firm. This expectation is formulated in the following hypotheses:

H3: knowledge management positively influences corporate performance (KM to CP)

## RESEARCH DESIGN

Research constructs are operationalized based on pretest, the related literature reviews and various theories. For the questionnaire, the multiple item method was used and each item was based on 5 point Likert scale from very low to very high. We used structural equation modelling (SEM) to test gathered data.

Unit of analysis in this study was organization. For this study, we selected 50 organizations in central Borneo and west java as a convenience sample. At our request, these organizations identified the representatives of the big firms especially apply knowledge management process. We focused on the first line, middle and top manager. The survey was performed by mail and in parallel with visiting, and interview. We collected 25 questionnaires, but three were not appropriate for our study. In sum, we collected 22 valid respondents.

Since each variable was measured by multi item constructs, factor analysis with cross loading was conducted to check unidimensionality among the items. Analysis was performed on the 18 items that measured the component of culture, on the 28 items that measured the components of KM process, and on the 16 items for performance. Item with factor loading values lower than 0.50 were abandoned for further analysis. Among them, 1 item related to KM process and 1 item related to culture had loading of less than 0.50 was dropped. There was not item with factor loading of lower than 0.50 for organizational performance.

## RESULTS AND DISCUSSION

### a. Testing the Hypotheses on the relationship between Corporate Culture, KM and Corporate Performance

Figure 4 displays the final research model in a structural equation map. The PLS results show that corporate culture explain 59, 2258 % of the variance in KM process, the endogenous variable. Other result

show that corporate culture and KM process explain 69, 9471 % of the variance in corporate performance, the endogenous variable. The explanatory power of the model is relatively reasonable for such new measures and phenomenon. This result also support the significance of the corporate culture to KM process, and corporate culture and KM process to corporate performance.

The examination of the effect of corporate culture and KM process on corporate performance (table 5) reveals that the path from corporate culture to KM process (H1) has a positive and significant beta coefficient of 0,769583 ( $t = 41,864122 > t$  table significant on 5 % = 2,074). Other path from KM process to corporate performance (H3) has positive and significant beta coefficient of 0,895478 ( $t = 11,679313 > t$  table significant on 5 % = 2,074). These results suggest corporate culture enhance KM process, and KM process enhance corporate performance. Accordingly, the results support the acceptance of H1 and H3.

The other path from corporate culture to corporate performance is not significant. There is a negative but insignificant beta coefficient of -0, 078808 ( $t = 0,719349 < t$  table significant on 5 % = 2,074). This nonsignificant path suggests that corporate culture do not directly influence corporate performance and therefore, the result do not support the acceptance of H2.

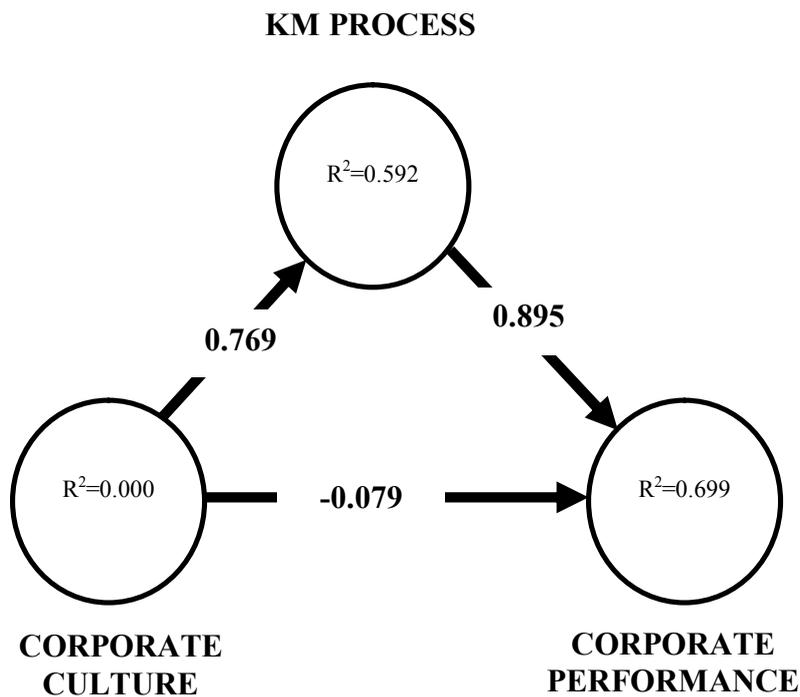


Figure 4 Model of Corporate culture, performance and knowledge management

Table 5 Analysis of hypotheses

Dependent variables	Independent variables	Hypotheses number	Predicted coefficient	path	Standardized coefficient	path
KM process	Corporate culture	H1	+		0.769583 T = 41.864122	
Corporate performance	Corporate culture	H2	+		-0.078808 T = 0.719349	
Corporate performance	KM process	H3	+		0.895478 T = 11.679313	

**b. Findings and Implications**

In the relationship between culture, KM process and corporate performance, we found that culture is a significant predictor for KM process, and KM process is a significant predictor for corporate performance. But culture is a nonsignificant predictor for corporate performance.

The findings of this study indicate that culture values influence KM process, and KM process influence corporate performance. Culture is a base to apply KM process, and KM process is tool that can manage knowledge in organization to achieve good performance in financial and non financial.

Culture was found to be negatively related to the corporate performance. The nonsignificant findings in this study need more discussion. In general, we expect that culture have a positive relationship with corporate performance. This result may reflect that culture did not directly influence corporate performance. Culture can not work alone but need a tool to manage it in order to achieve good performance.

## CONCLUSIONS

This investigation examined the relationship of the corporate culture and KM process to corporate performance. Although the findings provide limited support for the proposed research model, they indicate the value continued investigation and refinement of the model. Corporate culture has a significant, directly and positive influence on KM process and KM process has a significant, directly and positively influence on corporate performance. But corporate culture has nonsignificant and negatively influence on corporate performance.

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