

A Closer Look at West Sumatra Public Universities Performance and Their Intangible Assets

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Abstract

The objective of this study is to examine the impact of intangible assets on organizational performance. Intangible assets explained in this study are knowledge management, intellectual capital and organizational learning capability. This research was conducted at public universities located in West Sumatra. This research includes the survey research using questionnaires as the main data collections tool and a quantitative approach. Data were collected to the public universities' lecturers and analyzed to test the hypotheses of this study. Method of data analysis in this study uses a statistical model with multiple linear analyses. Intangible assets were measured by using the concept of behavior. Moreover, it was found that knowledge management and intellectual capital significantly related to organizational performance. These results supported the organizational learning capability as moderating variable which influenced the relationship between knowledge management and organizational performance. The model stresses the importance of intangible assets that support the organizational performance at public universities. The results of this study indicate that at public universities in West Sumatra, improvement of intangible assets will lead to higher levels of organizational performance. It is advised for the public universities to obtain high ranking of international rating institutions such as webometrics. The results of this study are expected to provide benefits to all stakeholders who have interest in higher educations especially in intangible assets and performance.

Keywords: Intangible assets, knowledge management, intellectual capital, organizational learning capability, organizational performance, public university

1. INTRODUCTION

Increasing competition caused many organizations began to pay more attentions to the production factors in addition to the traditional factors which have been known so far namely: land, labor, skills and capital. Production factors other than the traditional ones which gain fewer attentions are the non physical or intangible factors. In an economic system characterized by intense global competition and the rapid delivery of quality goods and services, intangible factors have increasingly become an extremely important source of organization competitiveness, because it can strengthen the organizations core competencies and provide resources necessary to innovate and compete (Seleim & Khalil, 2011). During this time any organizations has always believed and focus on how to improve productivity through maximum utilization of facilities and infrastructures to be able to improve the individual and organization performances. Every organization believes at the beginning that tangible assets directly affects performances both individual and organization. Many organizations ignore or are not sure that non-physical factor or intangible assets greatly affect the performances of both individual and organization. Successful organization tends to rely more on their knowledge of their employee rather than on physical assets such as plant and machinery (Ali & Ali, 2011).

Knowledge management has a key to gain competitive advantage for organization. Therefore, it is imperative to pay greater attention to the development and preservation of internal skills and capabilities, by virtue of which, knowledge can become the core competency of the firm (Mishra & Bhaskar, 2011). This supported the emergence of awareness that may lead to a knowledge-based environment in the future. Organizations are interested in knowledge management to boost the efficiency of their processes, to increase their productivity and quality of their services, and to achieve innovative solutions and products for their customers (Nguyen & Mohamed, 2011).

One of intangible assets which also will determine the success or failure of an organization is intellectual capital. Previous studies proved that intellectual capital was also a valuable resource and provided long-term benefits and competitive advantage to the organization. Intellectual capital is defined as the sum of intangible assets related to knowledge of a company that have been formalized, captured, and leveraged to

produce a higher-valued asset and to create competitive advantage. The most widely used definition of intellectual capital is knowledge that is of value to an organization (Al-Nsour & Al-Weshah, 2011). Therefore, intellectual capital has emerged and is highly relevant to the success and long-term profitability of organizations. To achieve sustainable operations, the creation and accumulation of intellectual capital was the key to competitiveness (Ting, 2012).

The rapid growth of service industries and the increased global competition, particularly in higher education institutions means that the need for alternative controls and performance measures has attracted much attention. However, researchers are finding it difficult to measure university performance because of the intangible nature of the products and services of the higher education industry or public sector. Managing and measuring performance have been among the key drivers of the public sector reform in recent years. Historically, performance measurement systems were developed as a means of monitoring and maintaining organizational control which ensure that an organization pursues strategies that led to the achievement of overall goals

2. LITERATURE REVIEW

This section reviews the literature to identify the relevant practices comprising organizational performance, knowledge management, intellectual capital and organizational learning capability.

1.1. Organizational performance

Assessment of organizational performance measurement related to financial and non-financial aspects. Measurement is designed to assess how well the activity achieved and focus on the three main dimensions: efficiency, quality and time (Rose et al., 2009). The combination of performance appraisal is directed to communicate the strategy and action (process) management. There are several approaches to organizational performance measurement which includes four perspectives: financial, customer, internal process and innovation, and learning perspective (Rasula, Vukši, & Stemberger, 2012). Organizational performance comprises the actual output of an organization as measured against its intended outputs (or goals and objectives) (Sisnuhadi & Nasir,

2013). After reviewing different types of measurement, Sisnuhadi and Nasir (2013) generalized the results into two specific areas: perceptual financial performance and perceptual knowledge performance. In recent years, performance management has come to the fore as organizations seek constantly to optimize their human resources in the face of growing competitive pressures (Suliman, 2000).

1.2. Knowledge management

Knowledge management capacity has been recognized as a key factor for gaining and sustaining a competitive advantage (Corsoa, Martinib, Pellegrinib, Massac, & Testac, 2006; Rezgoui, 2007). Jantunen's (2005) stated that knowledge was positioned in an organization as a strategic asset which can help the firm maintain its competitive ability in a turbulent environment. Jantunen (2005) also recognizes that knowledge-based assets and organizational learning capabilities are critical for a firm's innovation activities. Knowledge creation, transfer, and retention can be largely regarded as social processes involving communication, interaction, collaboration, and discourse among organizational members. Knowledge management, however, tends to emphasize the static stocks of knowledge held by an organization and the characteristics of that knowledge, rather than the dynamic processes through which knowledge is developed by organizations (Vera & Crossan, 2012).

1.3. Intellectual capital

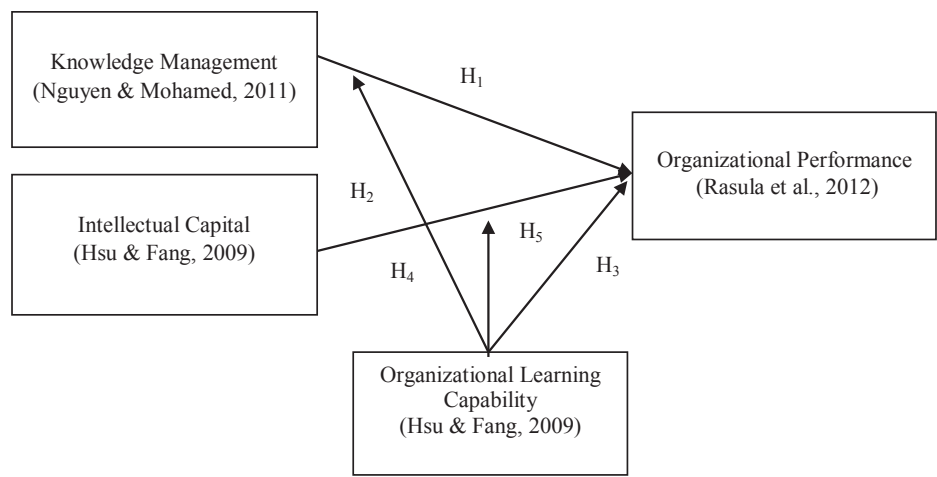
Experts suggest that the traditional comparative advantages possessed by a country, such as cost, labor, capital and raw materials that have been the pride is no longer effective for continuously maintained, considering the benefits or value added created by the superiority of the latter has been able to substituted by the global out-sourcing strategy (Keegan, 2002). Therefore, it is commonly believed and agreed that in the midst of a highly competitive market situation at the beginning of the 21st century, the application of industrial-based management of intellectual capital is of particular competencies are *conditio sin qua non* for an ambitious organization to create a sustainable competitive advantage both to be achieved through a strategy of pioneering cost, differentiation and focus (Angela, 2004).

1.4. Organizational learning capability

The general consensus in the learning organization literature is that learning at the organizational level is a prerequisite for successful organizational change and performance. Learning could enhance the intellectual capabilities of the employees; as such organizations will eventually be better off through having learned employees. Organizational learning can be regarded as a dynamic process of creation, acquisition and integration of knowledge aimed at development of resources and capabilities that contribute to better performance (Kane & Alavi, 2007). Several organizational researchers have defined learning in terms of acquiring, retaining, and transferring knowledge at the individual and group levels (Robey, Boudreau, & Rose, 2000). In general, definition of organizational learning as the dynamic process of creating new knowledge and transferring it to where it is needed and used, resulting in the creation of new knowledge for later transfer and use. Organizational learning is related to the concept of knowledge management, which is also primarily concerned with the organization’s ability to create and transfer knowledge.

3. RESEARCH DESIGN

Figure below provides the model of conceptual framework of the study based on the relationship of the variables as discussed in the previous section.



3.1. The relationship between organizational performance and other variables

The innovation and learning perspective focuses on the intangible assets of an organization mainly on the internal skills and capabilities that are required to support the value creating internal processes (Rasula et al., 2012). Application of knowledge management and intellectual capital is the means used to increase knowledge/skills of the organization's human resources, which in turn can improve the quality and competence of human resources within the organization. This activity is intended that the organization is able to realize the vision and achieve the medium-term and short-term goals.

Knowledge management, intellectual capital and organizational learning shows a mixed of intangible assets owned and considered able to increase the commitment and competence of organization's members. This in turn will have an impact on organizational performance improvement, customer satisfaction, job performance and other stakeholders in accordance with organizational goals. Perspective of human resource organizations that have the knowledge, abilities, skills and experience has contributed significantly to the performance. Similarly, the framework of learning and growth measure emphasizes on the importance of competence factors, technological infrastructure and climate to act in influencing the performance of organization members that will ultimately increase productivity. In fact, knowledge management, intellectual capital and organizational learning positively influence both task performance and the quality of interpersonal relations. The experts demonstrate how learning orientation and organizational memory are related to important organizational outcomes. Individual and organizational learning show significant and positive effects on organizational performance (Kuo, 2011).

3.2. Hypotheses development

Based on the literature review and conceptual framework of the study above, then the hypothesis can be stated as follows:

H1: Knowledge management has a significant effect on organizational performance of public universities in West Sumatra.

- H2: Intellectual capital has a significant effect on organizational performance of public universities in West Sumatra.
- H3: Organizational learning capability has a significant effect on organizational performance of public universities in West Sumatra
- H4: Organizational learning capability moderates the relationship between knowledge management and organizational performance of public universities in West Sumatra.
- H5: Organizational learning capability moderates the relationship between intellectual capital and organizational performance of public universities in West Sumatra.

3.3. Questionnaire design

This research includes the survey research using questionnaires as the main data collections tool and using a quantitative approach. A structured questionnaire is used in this study to collect data from faculty members or teaching staff at public universities in West Sumatra. Intangible assets (knowledge management, intellectual capital, organizational learning capability) and organizational performance in this study were measured with the attitude scale. Scoring of respondents using the likert scale is a scale of 5 (five) points or a scale of 1-5 to represent the respondents' opinion. This measurement uses a question or statement and in response to a question or statement is subject to choose one out of five alternative answers according to the state of the subject.

4. ANALYSIS AND RESULT

4.1. Sampling

The selected target population in this study is all lecturers who serve at public universities in West Sumatra. The latest data obtained from all public universities on the number of faculty members are 2,707 people. The respondents in this study are permanent lecturers, not under contract or probation at their respective universities. The number of samples used in the present study was 338 people (Sekaran & Bougie, 2010) with a different proportion of respondent for each university. From each university, several questionnaires based on cluster random sampling technique were distributed.

4.2. Checking for Normality

4.2.1. Test of Normality

Test for normality in this study using the value of skewness and kurtosis. In this stage, the skewness and kurtosis values of all variables are identified. The results of the skewness and kurtosis values in this study shows that all variables both independent and dependent variables had a value between -2 to +2. It means that all variables have a normal distribution.

4.2.2. Test of Multicollinearity

Testing is done by using the Variance Inflation Factor (VIF), if the VIF value more than 10, then the model contains multicollinearity problem. The results of the VIF values indicate factors in the independent variables in this study have a VIF value less than 10. The results suggest the regression model has no multicollinearity among independent variables (Sekaran, 2000).

4.2.3. Test of Heteroscedasticity Symptom

The scatterplot of all variable values in this study are observed at the spread below and above zero and it does not form a specific pattern. Thus it can be said that the heteroscedasticity does not take place in the research model. Therefore, it can be used to predict the dependent variable based on the independent variables.

4.2.4. Test of Linearity

The value of linearity significance and significance deviation from linearity in this study for each independent and dependent variables less than the level of significance ($\alpha = .05$), then the linear regression can be used to explain the influence of the variables in this study.

4.3. Reliability and validity tests

The validity of a social study results is determined by the measuring instruments used. If the measuring instrument is not valid or not reliable, then the results obtained will not describe the real situation. In view of

this, it is necessary to conduct the validity and reliability test to measure the sincerity of the respondents' answers.

4.3.1. Reliability tests

Reliability test performed in this study using cronbach's alpha formula. The closer the reliability coefficient to 1.0 is the better. Variables used in the study can be said to be reliable or powerful if cronbach's alpha is more than 0.7 (Nunnally, 1978).

4.3.1. Validity tests

A valid instrument means it can be used to measure what should be measured. Based on the results, all questions totaling 35 items are valid because each question has a correlation value (r_{count}) more than r_{table} ($r_{\text{count}} > r_{\text{table}}$) (Nunnally, 1978).

4.4. Multiple Regressions Analysis

Multiple regression analysis is used to determine the relationship between the independent variables (knowledge management and intellectual capital), moderating variable (organizational learning capability) with the dependent variable (organizational performance).

4.4.1. Analyses on Effect of Knowledge Management and Intellectual Capital to Organizational Performance at Public Universities (Hypotheses 1 to 3)

The value of β_1 is 0.356, β_2 is 0.294 and β_3 is 0.032 which indicate that the better knowledge management, intellectual capital and organizational learning capability, the higher organizational performance. Consequently, it is important to manage intangible assets like knowledge management, intellectual capital and organizational learning capability to increase organizational performance at public universities in West Sumatra. Moreover, the coefficient of determination in this analysis is 0.587 or 58.7%. It means the ability of knowledge management, intellectual capital and organizational learning capability in defining the variation on organizational performance is 58.7% and 41.3% explain by other variables where do not include in this research.

The table below shows the effects of knowledge management and intellectual capital influence to organizational performance.

Table 4.1
Multiple Regression Results on Relationship between Independent and Dependent Variables at Public Universities in West Sumatra

Variable	Coefficients		
	beta (β)	t statistics	significance
Knowledge Management (Independent Variable 1/ X_1)	0.356	6.283	0.000
Intellectual Capital (Independent Variable 2/ X_2)	0.294	3.979	0.000
Organizational Learning Capability (Moderating Variable/ M)	0.032	0.664	0.507
R^2	0.587		
F statistic	114.063		
Significance of F	0.000		

Table 4.1 shows a real or significant influence from the effect of knowledge management and intellectual capital to dependent variable with the t test and significant t (6.283, 3.979 and 0.000) can be explained that independent variables has a significant influence on the dependent variable. Table above show that F test is 114.063 with the significance is less than 0.05 ($.000 < .05$). It means the effect of knowledge management, intellectual capital and organizational learning capability simultaneously or jointly have a significant relationship with the organizational performance.

4.4.2. Analyses Effect of Organizational Learning Capability as Moderating Variable on Relationship between Knowledge Management and Intellectual Capital to Organizational Performance at Public Universities (Hypothesis 4 and 5)

This research objective is to explain the impact of organizational learning capability as moderating variable on relationship between intangible assets and organizational performance.

Table 4.2
Multiple Regression Results on Moderator Effects of
Organizational Learning Capability to Relationship between Indepen-
dent and Dependent Variables at Public Universities in West Sumatra

Variable	Before Moderating Effect			After Moderating Effect		
	beta (β)	t statistics	Significance	beta (β)	t statistics	significance
Knowledge Management (Independent Variable 1/ X_1)	0.350	6.360	0.000	0.363	6.733	0.000
Intellectual Capital (Independent Variable 2/ X_2)	0.303	4.922	0.000	0.265	3.985	0.000
Organizational Learning Capability (Moderating Variable/ M)	-	-	-	-	-	-
X_1M				0.730	19.252	0.000
X_2M				-	-	-
R^2	0.602			0.603		
Adjusted R^2	0.598			0.599		
F statistic	162.139			163.022		
Significance of F	0.000			0.000		

The result indicates that organizational learning capability as moderating variable between knowledge management and organizational performance at the 5 percent significance level ($p < .05$). However, the relationship between knowledge management and organizational performance in this study is moderator of organizational learning capability which is indicated by relatively small significantly in t test is less than 0.05 (.000). This is indicated by the significance of X_1M showed values below 0.05 (significant). It can be interpreted that if organizational learning capability is strengthen the relationship between knowledge management and organizational performance at public universities in West Sumatra.

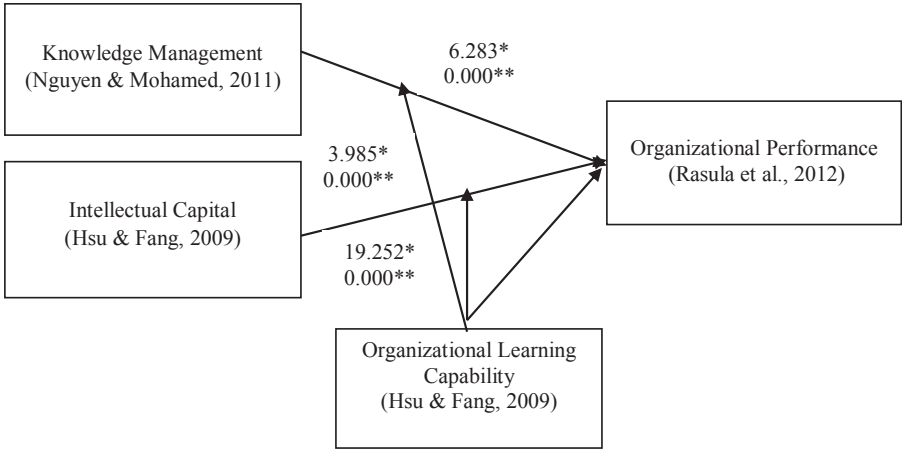
Organizational learning capability not moderates the relationship between intellectual capital and organizational performance. This is indicated by the not significant value X_2M and exclude from model with stepwise regression. This may imply that if organizational learning capability has not strengthened the relationship between intellectual capital and organizational performance at public universities in West Sumatra.

5. DISCUSSION

The main objective of present study is to analyze the influence of knowledge management, intellectual capital and organizational learning capability on organizational performance at public universities in West Sumatra. To achieve the purpose in this study, the multiple regression analysis with stepwise regression is used. The results in previous parts show that knowledge management and intellectual capital variables have a significant relationship with dependent variable. The finding indicates a positive relationship and this result supports hypothesis H_1 and H_2 by demonstrating a positive relationship between knowledge management, intellectual capital and organizational performance. Empirical results support this hypothesis that there are significant influences between knowledge management, intellectual capital and organizational performance.

This research objective is to explain the impact of organizational learning capability as moderating variable on relationship between intangible assets and organizational performance. The results show that moderating variable (organizational learning capability) has significant influences in relationship between knowledge management (independent variable) and organizational performance (dependent variable) at public universities. The result indicates a significant effect and this result supports hypothesis H_4 by demonstrating a moderating effect from organizational learning capability to relationship between knowledge management to organizational performance. It can be interpreted that if organizational learning capability is strengthen the relationship between knowledge management and organizational performance at public universities in West Sumatra.

Organizational learning capability does not moderate the relationship between intellectual capital and organizational performance. This is indicated by the insignificant value of X_2M and exclude from model with stepwise regression. This may imply that if organizational learning capability has not strengthened the relationship between intellectual capital and organizational performance at public universities in West Sumatra. The relationship in this study is illustrated in figure below.



* = t statistik
** = significance of t ($\alpha = .05$)

6. CONCLUSION AND RECOMMENDATION

The purpose of this study is to investigate the relationship between independent and dependent variables thus moderating effects of organizational learning capability on the relationships between knowledge management, intellectual capital and organizational performance at public universities in West Sumatra. To date, only few of empirical studies have been done to investigate the relationships and outcomes of these constructs. This study, therefore, is unique in that it has helped to fill this gap in an effort to improve our understanding about the role of knowledge management, intellectual capital and organizational performance in the Indonesia environment.

In conclusion, the impact of knowledge, intellectual capital and learning as intangible assets on performance are important to improve organizational performance. Intangible assets like knowledge management and intellectual capital become a source of competitive

advantage for organization if matches with the business strategy. When an organization intangible assets strategy matches its business strategy, the impact of intangible assets is positive. If this match is not achieved, intangible assets may have no impact or even have a negative impact on performance.

The results of this study indicate that at public universities in West Sumatra, improve of knowledge management and intellectual capital will lead to higher levels of organizational performance. The presence of organizational learning induces higher levels of organizational performance. The moderating analysis affirms that in West Sumatra public universities, organizational learning capability does moderate the relationship between knowledge management and organizational performance.

The data were collected in West Sumatra in which the characteristics of the universities surveyed may be different from those in other areas or regions. Hence, the present results should not be assumed to represent the general case. However, it may provide a fundamental reference for the universities located in other areas or regions whose environments are similar to those in West Sumatra.

Future studies can be conducted to examine other type of respondents such as students or non academic employees in universities. The present research only took lecturers as respondents who in fact might have different characteristics with student and employee. Nevertheless, samples with different characteristics may provide different findings.

This study uses organizational learning capability as a moderating variable, future study may try to examine other moderating variables in the relationship between knowledge management, intellectual capital and organizational performance, increasing our understanding on how intangible assets affects to organizational performance. Researcher has proposed the co-alignment between a firm's learning/knowledge strategy as a moderator of the impact of learning and knowledge/intellectual capital on performance.

More studies can be conducted to investigate the impact of knowledge management, intellectual capital and organizational learning capability on performance. Specifically, more indicators or characteristics of the knowledge management need to be learnt in order to enhance

the organizational performance which could lead to better competitive advantage. This study proposes the present model as an instrument to facilitate other researchers on various intangible assets phenomenon. Future research can use this article to validate the model. Academics could use it to better understand intangible assets and to build models that would further expand the domain.

The methods in this study provide a framework to make good use of intangible assets at universities. Future research designs should build and test models that explore different patterns of paths between intangible assets and performance. Researcher proposed framework is shown to be a feasible and effective assessment model for university performance evaluation, and it can be applied to other institutions as well. Such a model can then be related to measures of organizational performance and the specific resources most strongly associated with superior performance can be identified.

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