The Effect of Partnership and Innovation Management on Business Performance of A Limestone Mining Company in East Java

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ABSTRACT

Limestone Mining Company is an industrial mineral company with an enormous potential. By early 2013, the limestone reserve in Indonesia was estimated at more than 600 billion tons spread almost throughout the territory of Indonesia. Although the volume of limestone mining in 2012 was lower than that in 2011, the volume continued to increase in the next year. However, there are indications of less than optimal business performance for the limestone mining industry in East Java. We hypothesize that this condition is potentially caused by an improper execution of innovation management and partnerships. Therefore, this study is aimed to investigate the effect of partnership and innovation management to business performance of limestone mining company in East Java. The study was conducted on a sample of 25 respondents. Data were processed using statistical analysis tools PLS. The results showed that partnership and innovation management have a significant impact on business performance.

Keywords: partnership; innovation management; business performance

I.   INTRODUCTION

A.   Research Background

The demand for limestone and its derivatives both inside and outside the industrial sector continues to grow. In addition, the potential of limestone mining industry opens up new opportunities for the growth and rise of new producers.

Limestone can be used for various purposes, namely: building blocks, building materials, road stabilizers, agriculture (calcification), ceramic materials, glass industry, industrial silica brick, cement industry, the manufacture of carbide, smelting and refining of steel, bleacher in the industry paper, pulp, and rubber, manufacture of soda ash, water puryfying, precipitation non-ferrous metal ores, and the sugar industry.

Despite this growing demand, the capacity of limestone mining volumes decreased in 2012 compared to 2011. The volume increased again in 2013 and 2014, but the increase was not significant. If we measure the performance of the business through growth (Vanderstraeten and Matthyssens, 2010), this condition indicated a less optimal business performance of limestone mining industry.

One of the potential causes for this lacklustre performance of the limestone mining industry is the lack of innovation and innovation management. Currently, limestone mining firms in Indonesia are known for low levels of innovation management in their processing systems, modern technological equipment and customer service systems. As in the words of Tidd and Bessant (2009, p.3) "Innovation is driven by the ability to see connections, to spot opportunities and to take advantage of them", this lack of innovation may be partially driven by a less than optimal execution of partnerships with relevant partners. Cravens (2013) described the partnership as an effort to cooperate with stakeholders, where strategic alliances are used by many companies that compete worldwide. Partnerships may include the vertical relationships with suppliers and customers, as well as horizontal relationships consisting of lateral and internal partnerships. Meanwhile, employers in the limestone mining industry in East Java still have limitations in partnerships with their customers and suppliers associated to the production process, as well with lateral actors such as government agencies, banks, and others.

Based on the above reasoning, this study aims to investigate the impact of partnership and innovationmanagement to business performance of limestone mining company in East Java.

B.   Literature Review

As this study is concerned with the impact of partnership and innovation management to business performance, it is important to review prior work regarding our key variables in the business literature.

Various measures have been used as proxies to business performance in different studies. Bonca and Tajnikar (2010) measure business performance based on performance indicator standard in ratio (such as ROA and ROE), or indicators in absolute value (such as cost and revenue). Conversely, Matic (2012) developed a model of business performance measurement covering financial and non financial performance.

Prior literature on innovation and innovation management has documented a body

of work supporting the positive impact of innovation management to firm performance. Hilman and Kaliappen (2014) found that innovation affects performance. Then, Diaz-Fernandez, Bornay-Barrachina, and Lopez-Cabrales (2015) show a positive and strong linkage between innovation and performance. Vlasceanu (2013, p. 780) suggests that innovation management responds to challenges of a dynamic environment through the ability of managers in selecting a creative workforce, encouraging creative behavior and fostering a climate that supports innovation and creativity. Tidd and Bessant (2009) suggest 4 dimensions (4P) of innovation management includesproduct innovation, process innovation, position innovation, and paradigm innovation.

In addition, the relationship between partnerships with different actors in the value chain towards performance is also well documented.The aims of partnership as argued by Wheelen et al. (2015) is to create a competitive advantage in an industry by cooperate with other companies. Cravens (2013) classified partnership as including vertical relationships withsuppliers and customers, and horizontal relationships with lateral and internal parties. Qrunfleh and Tarafdar (2013) found an impact of strategics supplier and supply chain responsiveness oncompany performance. Meanwhile, Ogbadu and Usman (2012) have shown a direct effect of customer relationship management on profitability.

Based on these prior body of work, this study expects to find a positive impact of both innovation management and partnerships towards performance.

C. Research Objective

Based on the above explanation, this study aims to examine the effect of partnership and innovation management on business performance oflimestone mining industry in East Java.

II.   METHODOLOGY

This study uses a quantitative approach, which is a design of study through empirical study to collect, analyze, and display data in numeric form and try to perform an accurate measurement of something. According to Cooper and Schindler (2006, p. 229), "Quantitative research is explaining phenomena by collecting numerical analysed using the data that are mathematically based methods".

The unit of analysis in this study is the companies belonging to the limestone mining industry in East Java. This study uses a cross section data set,meaning that the information or data is collected empirically at one particular time (Sekaran, 2010). The population is a combination of all the elements that have a series of similar characteristics (Malhotra, 2010, p. 371).

Questionnaires were sent to the directors of 30 limestone mining companies in East Java. These 30 companies comprise the whole population of licensed limestone mining companies in East Java. While non-licensed limestone mining companies coexist with the licensed companies, the mechanism driving their performance may differ systematically from licensed companies, thus they are excluded from the sample. From the 30 questionnaires, we have a response rate of 82%, resulting in 25 usable questionnaire data. This response rate is higher than average considering the director level of the respondent.

Consistent with prior literature, performance is measured using market share and

profitability. Similarly, innovation management is measured as process and product innovation management (Tidd and Bessant, 2009), while partnership is measured by supplier, customer, lateral, and internal partnerships (Cravens, 2013).

III.   RESULT AND DISCUSSION

A.   Goodness of Fit

This section will discuss the result of hypothesis testing by using Partial Least Square (PLS). The analysis of structural model(inner model) shows the relationship between latent variables. The inner model is evaluated by using the value of R^2 on endogenous constructs and prediction relevance (Q^2), also known as Stone-Geisser's, which is used to know the capability of prediction with blindfolding procedure. If the result has value more than 0.02, it means small; > 0.15 medium, and > 0.35 large.

Table 1
Test of outer and inner models

Variable	R^2	Cronbachs Alpha	Composite Reliability	Q^2
Business Performance	0.742	0.526	0.754	0.538
Partnership		0.845	0.881	0.449
Innovation Management		0.744	0.824	0.398

Source: Smart PLS 2.0

Referring to Chin (1998), the threshold values for R^2 of 0.67, 0.33 and 0.19 indicates strong, medium and weak explanatory power respectively. Similarly, the values for Q^2 of 0.02, 0.15 and 0.35 indicate minor, medium and large prediction relevance respectively. The above table show the value of R^2 of Business Performanceas an endogenous variable in a criteria above strong (> 0.6), and the value of Q^2 in a large criteria, so it can be concluded that the research model is supported by the empirical condition or the model has a good fit.

1.   Measurement model (outer model)

Analysis of the measurement model (outer model) shows indicators-dimensions as with each latent variable. It is used as validity and reliability test to measure latent variables and indicators in measuring dimension that areconstruct. The Cronbachs Alpha value is used as the indicator of reliability. A Cronbachs Alpha larger than 0.70 (Nunnaly, 1994) shows that the dimensions and indicators as reliable in measuring variables. Table 2 shows the result of the measurement model for each dimension on indicators. As shown, the composite reliability and Cronbachs Alpha of most variables are larger than or close to 0.70, showing that variables in the model estimated fulfil the criteria of discriminant validity. From these results, it can be concluded that variables fulfil the reliability criteria.

Table 2
Loading factor of latent variable-dimension-indicator

Variable-Dimension	Indicator-Dimension	λ	t-value
Partnership -> Internal		0.917	37.830*
	X11 <- Internal	0.718	7.257*
	X12 <- Internal	0.770	20.820*
Partnership -> Supplier		0.920	65.467*
	X21 <- Supplier	0.869	26.128*
	X22 <- Supplier	0.733	13.250*
	X23 <- Supplier	0.811	16.197*
Partnership -> Customer		0.642	7.818*
	X31 <- Customer	0.633	6.310*
	X32 <- Customer	0.949	49.083*
Partnership -> Lateral		0.900	34.512*
	X41 <- Lateral	0.852	24.100*
	X42 <- Lateral	0.568	5.981*
	X43 <- Lateral	0.738	12.405*
Innovation Management -> Product		0.842	33.304*
	X51 <- Product	0.835	21.852*
	X52 <- Product	0.802	23.129*
Innovation Management-> Process		0.928	48.374*
	X62 <- Process	0.622	6.148*
	X63 <- Process	0.536	6.609*
	X64 <- Process	0.795	9.795*
Business Performance			
	Y1 <- Business Performance	0.696	4.760*
	Y2 <- Business Performance	0.673	7.627*
	Y3 <- Business Performance	0.762	17.754*

*valid for α=0.05

The result of the measurement model of dimensions by its indicators also shows that the indicators are valid with the value of t<2.07 (t table at α = 0.05). The result of the measurement model of latent variables on their dimensions shows to what extent the validity of dimensions in measuring latent variables. Figure 1 shows the complete path diagram.

2.   Structural model

Based on the research framework, the following structural model is :

$$Y= 0.295X1+ 0.617X2 + \zeta_1$$

where Y= Business Performance; X1= Partnership; X2 = Innovation Management; and ζ_i =Residual.

Figure 1
Complete path diagram of the research model
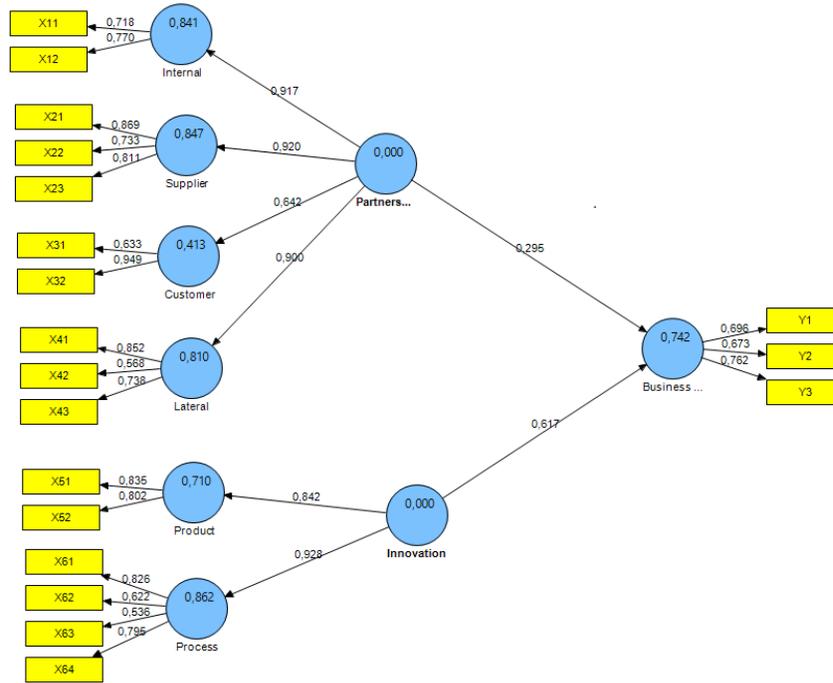
B.   Hypothesis Testing Result

The effect of Partnership and Innovation Management on Business Performance is presented in Tables 3 and 4, respectively, which shows the result of simultaneous and partial testing of the hypothesis, respectively.

1.   Simultaneous hypothesis testing

Table 3
Simultaneous testing of the hypothesis

Hypothesis	R^2	F	Conclusion
Partnershipand Innovation Management→Business Performance	0.743	32.223*	Hypothesis accepted

*significant at α=0.05 (F table =3.44)

Based on the table, it is known that within the degree of confidence of 95% (α=0.05), there is a simultaneous positive effect of Partnershipand Innovation Management to Business Performance, which explains 74.3% of the variance, whilethe rest of the variance of 25.7% is affected by other factors not examined in this study.

2.   Partial hypothesis testing

Table 4
Partial testing of the hypothesis

Hypothesis	γ	t	R2	Conclusion
Partnership→ Business Performance	0.295	2.377*	0.225	Hypothesis accepted
Innovation Management→ Business Performance	0.617	5.853*	0.518	Hypothesis accepted

*significant at α=0.05 (t table =2.03)

Table 4 shows that Partnershipand Innovation Management partially and significantly affect Business Performance, in which Innovation Management has a greater influence (51.8%) when compared to partnership (22.5%).

C.   Research Finding

The finding shows that partnership and innovation management have significant impact on business performance of limestone mining industry in East Java. Specifically, innovation managementenhances the business performance of limestone mining industry in East Java. Process innovation management has a greater role in improving the performance of business when compared to product innovation management.

Figure 2
Research finding
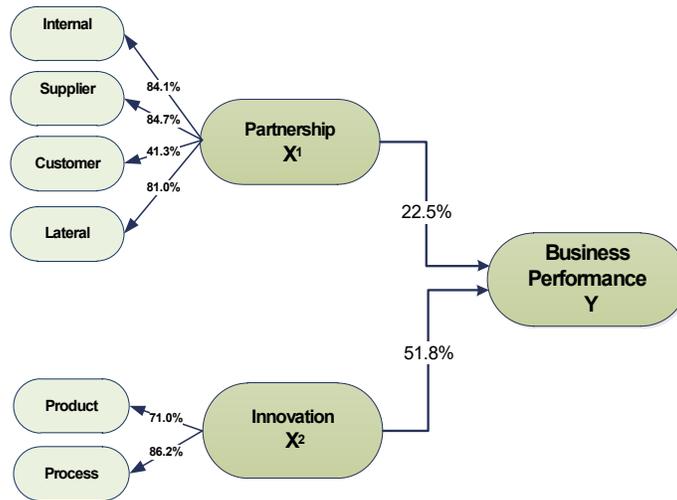
In spite of its role is comparatively smaller, the development of innovation management should also be supported by the development of partnership in enhancing business performance. The finding shows that supplier partnership is more dominant in affecting performance when compared to internal, lateral and customer partnerships.

IV.   CONCLUSIONS AND RECOMMENDATION

In this study, we empirically demonstrate that partnerships and innovation management have a positive effect on the business performance of limestone mining industry in East Java. Specifically, innovation management has a greater effect than partnership in enhancing business performance.

The finding of the study can potentially be implemented by the limestone mining industry in East Java in enhancing business performance, specifically by making improvements in its innovation management and partnership capabilities. It is hoped that the findings can contribute in developing a framework in conducting a related study about business performance of limestone mining industry.

Having said that this study has several limitations that may serve as avenues for future study. Firstly, the study only comprises a single industry in a single location. Further, this study has a limitation in the number of respondents, only 25. It is hopeful that the next study can examine the influence of partnership and innovation management on business performance of the limestone mining industry by taking larger samples from all over Indonesia and can replicate this study on multiple contexts to gain a larger sample size and test for generalizability of my theory.

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