

# The Role of Knowledge Management Practices as a Moderator Variable the Influence Characteristics between Environment, Knowledge and Supplement to the Performance Characteristics of Organizational Innovation

(Study on the Large Scale of Food and Beverage Manufacturing Companies in Pasuruan Regency, Pasuruan City, Sidoarjo Regency and Surabaya City, East Java)

**Baroroh Lestari<sup>\*1</sup>; Endang Siti Astuti<sup>2</sup>; Taher Alhabshi<sup>2</sup>; M. Syafie Idrus<sup>3</sup>**

<sup>1</sup>Business Administration Department, FISIP, Lampung University, Indonesia

<sup>2</sup>Business Administration Department, FIA, Brawijaya, Indonesia

<sup>3</sup>Management Science Department, FE, Brawijaya University, Indonesia

## ABSTRACT

This study aims to examine the characteristics of the environment, additional knowledge, and organizational characteristics on knowledge management practices and innovation performance in manufacturing food and beverage sector in the city of Pasuruan Regency, Pasuruan City, Sidoarjo Regency and Surabaya City, East Java.

This study uses survey methods. Population and the sample studied was large-scale manufacturing enterprises food and beverage sector by the number of population reached 87 companies located in Pasuruan Regency, Pasuruan City, Sidoarjo Regency and Surabaya City, East Java. With a small population, the census used sampling method. Then the questionnaire used for data collection and for data analysis, software used for PLS-based SEM analysis of variance.

The results of this study are: 1) Environmental Karakteristik not significant and positive effect on Knowledge Management Practices can be accepted. 3) Knowledge of additional significant and positive impact on Knowledge Management Practices. 4) Organizational characteristics have a significant and positive impact on Knowledge Management Practices. 5) Knowledge Management Practices have a significant and positive impact on innovation performance.

The limitations of the study are: 1) studies will require data that does not merely cross section, so that developments in the application of Knowledge Management Practices and Performance Innovation of the unit of analysis can be obtained in the study. This is done to overcome the limited information obtained from the data that is cross section, so that discussions can be more in-depth research results. 2) Researchers therefore need to increase the number of respondents who represent the company in answering the questionnaire, not just 1 (one) person per company, so that data and information obtained can be more detailed. 3) Researchers need to further expand the scope of business associates, so it is not only a supplier (suppliers), but also a fellow businessman plot. Thus, further analysis can be a business partner role in the increase in PMP and KI.

**KEY WORDS:** management practice, knowledge, business.

## INTRODUCTION

Globalization certainly has an impact on manufacturing industry, both locally and internationally. Globalization also can expand markets and improve competition, huge demand from our customers manufacturing industry will improve the quality, capability and flexibility in providing services while maintaining a competitive price (Dangayach and Deshmukh, 2003; Laosirihongthong and Dangayach, 2005). The result, manufacturing companies are not only more focused on cost leadership in the country, but also has spread to locations in other parts of the world and provide more product innovations and processes. In countries with emerging industry sectors such as Indonesia, manufacturing companies are faced with a variety of changes including a dramatic change in competitiveness due to increased customer demand, reduced product life cycle, giving priority to low cost, increased technological change, and the entry of international competitors into country. Market your products / services will continue to increase internationally. The company realizes that in order to face the international market or globalization, they need to implement an international industrial strategy. This is done to adjust and ensure that the benefits expected from the implementation of the strategy can be achieved.

**\*Corresponding Author:** Baroroh Lestari, Business Administration Department, FISIP, Lampung University, Indonesia. Email: barorohlestari@gmail.com

Industrial manufacturing is one of the most important sectors in Indonesia which underpins the economy in terms of employment and Gross Domestic Product (GDP). Improved performance of companies in Indonesia can be seen from an improving economy in recent years. Indonesia's economic growth in 2008 also experienced a slight slowdown and was recorded at 6.06% (yoY). Economic growth in 2008 is lower than the growth achieved in 2007 which amounted to 6.28% (yoY).

Sectoral economy of East Java in the second quarter of 2010 (y-on-y), shows relatively good performance, with the highest growth occurred in transportation and communication sector by 9.97 percent, which caused a boost growth in the use of communication services, and provide a source of growth amounting to 0.62 percent. Sources of the highest growth generated by trade, hotels and restaurants at 2.93 percent, and have a great contribution as leverage economic growth of East Java. Sources of high growth are mainly due to trade non-food items.

Manufacturing and agricultural sectors to source high enough growth is respectively by 0.95 percent and 0.88 percent. The growth of the food industry, beverages and tobacco, and the growth of food crops, is a key driver of growth in height both sectors (BPS, 2010).

Value added (value added) generated from the processing industry sector (manufacturing industry) is the largest contribution among the nine sectors of the economy of Indonesia's economic growth, which is about a quarter of the total Gross Domestic Product (GDP) contributed by the manufacturing sector. Using the GDP statistics, the magnitude of East Java GDP at Current Market Prices in First Quarter 2010 for the manufacturing sector reached 49,630 billion to the role of the East Java economy at 27.20 percent. With the role of this sector of the processing industry ranks second after the trade, hotels and restaurants that are equal to 28.63 percent.

The practice of knowledge management in the enterprise can be said to be included in the system view practice of knowledge management and innovation and change. In line with the opinion of Subramani *et al.* (2004) as follows:

*research in KM can be viewed as being comprised of eight domains: 1) Knowledge as Firm Capability; 2) Organizational Information Processing and IT Support for KM; 3) Knowledge Communication, Transfer and Replication; 4) Situated Learning and Communities of Practice; 5) Practice of Knowledge Management; 6) Innovation and Change; 7) Philosophy of Knowledge; and 8) Organizational Learning and Learning Organizations.*

This study examines the characteristics of the environment, additional knowledge, and organizational characteristics on knowledge management practices at the company's food and beverage manufacturing sector in Pasuruan Regency, Pasuruan City, Sidoarjo Regency and Surabaya City, East Java. The reason the selection of manufacturing companies because during the manufacturing enterprise is one sector that contributes considerable to the regional and national GDP on the one hand, but was unable to compete at the international level on the other side. Moreover, innovation Mostly occur in firms (Fraderberg, 2004), so it can be said that the innovation is the manufacturing industry.

## METHODS

This study uses survey methods. Population and the sample studied was large-scale manufacturing enterprises food and beverage sector by the number of population reached 87 companies located in Pasuruan Regency, Pasuruan City, Sidoarjo Regency and Surabaya City, East Java. With a small population, the census used sampling method. Then the questionnaire used for data collection and after the trial, the questionnaires is used to have met the test of validity and reliability. As for data analysis, software is used for PLS-based SEM analysis of variance.

## RESULTS AND DISCUSSION

### 1. Evaluation Model

In accordance with the objectives and specifications of the study, then conducted the test with iterations (stages) using software SmartPLS to get a fit test results. Suitability of the model evaluation results showed that the dimensions of the variable-dimension forming the fifth significant variable is the variable under study, namely 1) the characteristics of the environment, 2) additional knowledge, 3) organizational characteristics, 4) the practice of knowledge management and 5) the performance of innovation. Other results show that environmental uncertainty (KL1) became the dominant form the variable characteristics of the environment. Uncertainty of the environment becomes a crucial factor in shaping the environmental characteristics of an enterprise, mainly deals with the manufacture and marketing of products.

Then from Table 1 can also note that additional knowledge sharing (PT1) become dominant in shaping the additional knowledge variables. Table 1 also shows that the knowledge database management system becomes the dominant factor in shaping the organizational characteristic variables. This condition indicates that information technology has a very important role, particularly to verify the company's knowledge. In addition, from Table 1 is

also known that the spread of knowledge becomes the dominant factor forming variable knowledge management practices. These results indicate that the practice of knowledge management is very supportive in the dissemination of knowledge. In addition, it is also necessary for regulating the dissemination of knowledge. Knowledge of database management systems is the main thing in the company, although its implementation has not been supported with adequate structure.

Companies in the implementation of GEP is more priority to the dissemination of knowledge, so that between one employee with another employee who helped each other in carrying out the work. Performance of product innovation is the main thing in running a business enterprise. This condition indicates that basically the company is still oriented to the quantity of products produced, rather than on quality. Thus it can be said that the companies prefer the control of consumers and market their new product introductions.

Table 1 describes the results of the evaluation criteria of suitability indices of structural models.

Table 1. Evaluation Criteria Suitability Index Models Structural

| <b>Measurement Model</b>   | <b>Result</b>      |                              |                 | <b>Critical Value</b> | <b>Evaluation Model</b> |  |  |
|--|--------------------|------------------------------|-----------------|-----------------------|-------------------------|--|--|
|  | <b>Outer Model</b> |                              |                 |                       |                         |  |  |
| <b>Convergent Validity</b>   | Variabel           | Nilai                        |                 | >0,5                  | Good                    |  |  |
|  | ratKL1             | 0.906                        |                 |                       |                         |  |  |
|  | ratKL2             | 0.762                        |                 |                       |                         |  |  |
|  | ratKL3             | 0.861                        |                 |                       |                         |  |  |
|  | ratPT1             | 0.951                        |                 |                       |                         |  |  |
|  | ratIT1             | 0.939                        |                 |                       |                         |  |  |
|  | ratIT2             | 0.946                        |                 |                       |                         |  |  |
|  | ratIT3             | 0.942                        |                 |                       |                         |  |  |
|  | ratIT4             | 0.904                        |                 |                       |                         |  |  |
|  | ratIT5             | 0.883                        |                 |                       |                         |  |  |
|  | ratIO1             | 0.812                        |                 |                       |                         |  |  |
|  | ratIO2             | 0.858                        |                 |                       |                         |  |  |
|  | ratIO3             | 0.819                        |                 |                       |                         |  |  |
|  | ratPMP1            | 0.949                        |                 |                       |                         |  |  |
|  | ratPMP2            | 0.874                        |                 |                       |                         |  |  |
|  | ratPMP3            | 0.936                        |                 |                       |                         |  |  |
|  | ratPMP4            | 0.982                        |                 |                       |                         |  |  |
|  | ratPMP5            | 0.931                        |                 |                       |                         |  |  |
|  | ratKI1             | 0.915                        |                 |                       |                         |  |  |
|  | ratKI2             | 0.806                        |                 |                       |                         |  |  |
|  | ratKI3             | 0.867                        |                 |                       |                         |  |  |
|  | ratKI4             | 0.803                        |                 |                       |                         |  |  |
|  | ratKI5             | 0.778                        |                 |                       |                         |  |  |
| <b>Discriminant Validity</b><br><i>(Average Variance Extracted/AVE) every variable greater than the value of the correlation between variables</i> | Variabel           | AVE                          | Root-square AVE | >0,5                  | Good                    |  |  |
|  | PT                 | 1.000                        | 1.000           |                       |                         |  |  |
|  | KO                 | 0.791                        | 0.889           |                       |                         |  |  |
|  | KI                 | 0.698                        | 0.835           |                       |                         |  |  |
|  | KL                 | 0.714                        | 0.845           |                       |                         |  |  |
|  | PMP                | 0.875                        | 0.935           |                       |                         |  |  |
| <b>Composite Reliability</b>   | Variabel           | <b>Composite Reliability</b> |                 | >0,7                  | Good                    |  |  |
|  | PT                 | 1.000                        |                 |                       |                         |  |  |
|  | KO                 | 0.968                        |                 |                       |                         |  |  |
|  | KI                 | 0.920                        |                 |                       |                         |  |  |
|  | KL                 | 0.882                        |                 |                       |                         |  |  |
|  | PMP                | 0.972                        |                 |                       |                         |  |  |
| <b>Inner Model</b>   |                    |                              |                 |                       |                         |  |  |
| <b>Q-Square</b>  | 0.9366             |                              | $0 < Q^2 < 1$   | Good                  | Good                    |  |  |

## 2. Hypothesis Testing Results

The results of the analysis was done to test the influence between the variables studied have been described in previous sections, taking into account the results of the analysis of PLS path diagram at a late stage, then the following will be presented drawing relationships among these variables, as can be seen in Figure 1.

Hypothesis testing is conducted by comparing the value with the value t-count, if the value is greater than TTable the relationship between kosntruk significant and can be done further analysis. In this study, the amount of data used

as many as 83, then its df is 77. Therefore, it is known that the value TTable ( $\alpha = 5\%$ ) of 1.665. In accordance with Figure 1 and Table 2, the structural equation as follows:

$$\text{PMP} = 0.032 * \text{KL} + 0.187 * \text{PT} + 0.764 * \text{KO} + e$$

$$\text{KI} = 0.704 * \text{PMP} + e$$

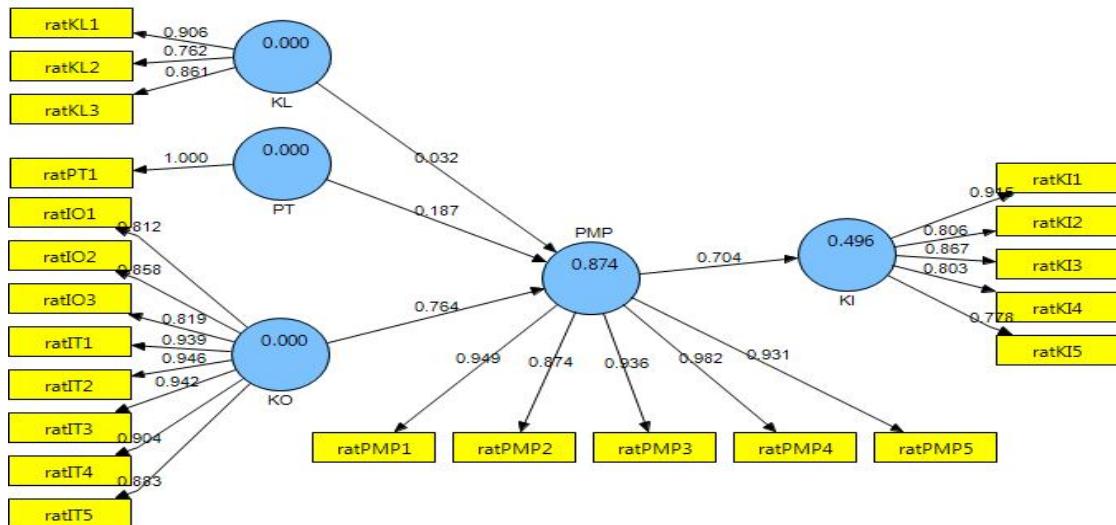


Figure 1. Diagram of Hypothesis Testing Results

Table 2. Hypothesis Testing Results

| H | Influence |   |     | Path Koef. | t count | Information    |
|---|-----------|---|-----|------------|---------|----------------|
| 1 | KL        | → | PMP | 0.032      | 0.642   | not Signifikan |
| 2 | PT        | → | PMP | 0.187      | 2.962   | Signifikan     |
| 3 | KO        | → | PMP | 0.764      | 9.423   | Signifikan     |
| 4 | PMP       | → | KI  | 0.704      | 11.851  | Signifikan     |

Signifikan pada level 5% dengan nilai  $t_{tabel}$  pada level 5% = 1,66

Source: Research Data Processed, 2011

In accordance with the empirical results, it can be concluded there are three (3) the hypothesis of significant and proven empirically supported by data and one (1) hypothesis is not significant and the lack of support from the data. Thus it can be said that the three hypotheses is accepted and one rejected the hypothesis.

### 3. DISCUSSION

#### a. Environmental characteristics significantly influence the Know-ledge Management Practices

Based on the results of hypothesis testing as shown in Table 2 and Figure 1, it is obtained results that "did not significantly affect the environmental characteristics of Knowledge Management Practices". Influence between them is positive. The results show that environmental uncertainty, competitive pressures and business associates alacrity as constituent characteristics of the environment variable is not fully supported in Knowledge Creation, Knowledge Storage, and Freedom of Access to Knowledge, Knowledge Dissemination and Application of Knowledge as a shaper of Knowledge Management Practices variables.

The results of empirical research related to environmental uncertainty also showed that in fact, the company is still doubtful if the company can predict the supply of suppliers. Then, it can also note that the company is still doubt also, that the company can predict the quality of materials from suppliers. Competitor supplier action was also still difficult to predict by the company. Doubts Company also appears on the company's ability to compete in international markets. In addition, it can be said that company still doubt whether the company has always followed the changes in production process technology.

In addition, matters relating to environmental uncertainty based on empirical results also indicate that the company is still doubt that their business partners have the human resources that support the implementation of PMP. This condition is reflected by the number of answers hesitantly on the third indicator in the dimensions of alertness business associates. Moreover, in the same dimension, the company also doubted that business associates have the technology that supports the PMP.

The results of this study would develop a theory of uncertainty reduction proposed by Gupta and Wilemon (1990) which can help the acceptance of the need to integrate Knowledge Management Practice. In addition, it is also developed the opinion of Porter and Millar (1985) who argued that adoption is a process of changing competitive environment, because to accommodate new innovations, companies must change the operating structures, and new capabilities in performance competition. The same analysis can be used as a reason to know the impact of competitive pressures on the adoption or implementation of the PMP.

**b. Additional knowledge significant-ly influential on Knowledge Management Practices**

Based on the results of hypothesis testing as shown in Table 2 and Figure 1 obtained the result that "Additional Knowledge significant effect on Knowledge Management Practices". Influence between them is positive. The higher the Additional Knowledge will result in the higher Knowledge Management Practice within the firm. The results showed that as a constituent Additional Knowledge and Sharing Knowledge. Additional variables have been fully supportive in Knowledge Creation, Knowledge Storage, and Freedom of Access to Knowledge, Knowledge Dissemination and Application of Knowledge as a shaper of Knowledge Management Practices variables.

The results are consistent with research conducted by Yulong Li (2007) which states that additional knowledge has a direct and positive impact on Knowledge Management Practices. In addition, the study's findings are also consistent with the opinion of Buckley and Carter (1999) which describes the relationship of knowledge and how organizations recognize the power and usefulness of knowledge of their business associates. In addition, empirical results indicate that the company really understands the knowledge possessed by business associates. Then also note that enterprises and business associates is easy in the knowledge exchange. Likewise with the knowledge possessed by the business associates is still considered highly valuable by the company.

**c. Organizational characteristics have a significant effect on Know-ledge Management Practices**

Based on the results of hypothesis testing as shown in Table 2 and Figure 1 that the "Characteristics of Organizational significant effect on Knowledge Management Practices". Influence between them is positive. The higher the organizational characteristics, the higher will result in the company's Knowledge Management Practices. The results showed that the Communications Support System, Knowledge Database Management System, enterprise information portals, collaborative systems, Decision Support System, Top Management Support, Collaboration and Participation Cultural Organization Management Organizational Characteristics as a constituent variables have been fully supportive in Knowledge Creation, Knowledge Storage, Freedom Accessing Knowledge, Knowledge Dissemination and Application of Knowledge as a shaper of Knowledge Management Practices variables. Dimensions are owned by the Organizational Characteristics can be grouped into two major groups, namely the organizational infrastructure and technology infrastructure.

These findings certainly reinforce the opinion that revealed that organizational factors have long been essential to the success of Knowledge Management Practices (Rolandi, 1986; Myktytyn et al., 1994; Meso and Smith, 2000). Furthermore, the results of this study is also in accordance with the opinion of Davenport and Prusak (1998) which revealed that both identifies eight key factors for success of project knowledge, these four things, known as the cultural knowledge, a change in motivational practices, how to transfer knowledge and management support Organizational characteristics associated with the senior.

Cormican and óSullivan (2003) revealed that the communication format with the level of which may differ in the ability of the media can be used to share knowledge either explicitly or implicitly. Components of technology infrastructure such as the Communications Support System videoconferencing, electronic whiteboards and email expand the reach and scope of the system users in the sharing of knowledge, because it significantly easier to collaborate with other activities (Muhammed, 2006). These findings differ from findings of a study revealed that there is no formatting knowledge and infrastructure that supports the exchange of knowledge.

These results are also consistent with research conducted by Yulong Li (2007) which states that the organization's infrastructure has a direct and positive impact on Knowledge Management Practices. This study also supports the results of research conducted by Fen Lin (2007) which states that the support of top management have a positive and significant impact on Knowledge Management Practices. In addition, empirical findings are also relevant to research conducted by Yulong Li (2007) which states that the technology infrastructure has a direct and positive impact on Knowledge Management Practices.

**d. Knowledge Management practi-ces significantly influence the innovation performance**

Based on the results of hypothesis testing as shown in Table 2 and Figure 1 , it is expressed that "Knowledge management practices significantly influence the performance of Innovation". Influence between them is positive. The higher the Knowledge Management Practice will lead to higher innovation performance within the company. Therefore it can be said that the aspect of Knowledge Creation, Knowledge Storage, and Freedom of Access to Knowledge, Knowledge Dissemination and Application of Knowledge in general can be used directly to improve

the performance of Product Innovation, Market Innovation Performance, Performance Process Innovation, Innovation Performance Behavior and Performance of Strategic Innovation.

This finding is consistent with research conducted by Chang and Lee (2008) which shows that there is a significant relationship between knowledge and innovation. In addition, the results of this study are also consistent with the results of research Lundvall and Nielsen (2007) which shows that companies that already have knowledge and have the characteristics of learning organizations become more innovative than other firms. In addition, also according to the research Leiponen (2006) which states that knowledge management is significant and positive impact on innovation. Likewise with the research conducted by Gloet and Terzioski (2004) which states that there is a positive and significant influence between Knowledge Management Practices and Performance Innovation in accordance with the results of this study.

Various studies have been conducted to test the effect of PMP on Innovation Performance. Gloet and Terzioski (2004) in his research concluded that there is a significant and positive relationship between Knowledge Management Practices and Performance Innovation, and therefore the organization seeks to integrate the approach to knowledge management, which helped in building organizational culture, as an attempt to give priority to the maximization of performance Innovations in competitive advantage.

## CONCLUSION AND SUGGESTIONS

1. The result of inferential analysis by means of partial least squares analysis (PLS), indicating that there are 3 (three) hypothesis is accepted. As for the three hypotheses and theories which it supports are as follows:
  - a. Additional knowledge and a positive significant effect on the PMP. These results support the theory proposed by Hart (2004); Roper and Crone (2003); Koufteros *et al.* (2002); Buckley and Carter (1999) which states that pengatahan Additional significant and positive effect on the PMP.
  - b. Organizational characteristics have a significant and positive impact on the PMP. This finding supports the theory advanced by Cormican and óSullivan (2003); Lado and Zhang (1998); Meso and Smith (2000); Davenport and Prusak (1998) which states that organizational characteristics have a significant and positive impact on the PMP.
  - c. PMP have a significant and positive impact on innovation performance. These results support the theory proposed by Chesbrough (2003); von Hippel (1988); Cohen and Levinthal (1990) which states PMP have a significant and positive impact on innovation performance.
  - d. There is one (1) hypothesis is not significant and developing the existing theory. Environmental characteristics that hypothesis is not significant and negative effect on the PMP. These findings to develop the theory advanced by Smith (2001); Gupta and Wilemon (1990) which states that the environmental characteristics have a significant and positive impact on the PMP.
2. This explanation suggests that the four results of these studies is that the findings provide additional contributions and develop the theory associated with this research.

In addition, it can also put forward suggestions for further research, namely:

1. Advanced research requires data that does not merely cross section, so that developments in the application of Knowledge Management Practices and Performance Innovation of the unit of analysis can be obtained in the study. This is done to overcome the limited information obtained from the data that is cross section, so that discussions can be more in-depth research results.
2. Researchers therefore need to increase the number of respondents who represent the company in answering the questionnaire, not just 1 (one) person per company, so that data and information obtained can be more detailed.
3. Researchers need to further expand the scope of business associates, so it is not only a supplier (suppliers), but also a fellow businessman plot. Thus, further analysis can be a business partner role in the increase in PMP and KI.

While suggestions for Manufacturing Sector Management Food and Beverage in East Java are as follows:

1. Companies should pay attention to the commitment and participation of employees in the use of IT and文明ize the use of IT.
2. Knowledge in the enterprise storage is still low, so need to use appropriate technology and adequate for the development of process knowledge in enterprise storage.
3. Unlike the competitors, manufacturing companies need to consider the management of technology as a functional strategy.
4. Required good cooperation between employees and management in an effort to develop the company's innovation.

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