

THE INFLUENCE OF IMPLEMENTING QUALITY MANAGEMENT TOWARDS PURCHASING PERFORMANCE AND COMPETITIVE ADVANTAGE MAKING

Meirani Harsasi

Universitas Terbuka, Tangerang-Indonesia.
(rani@mail.ut.ac.id)

Fahmy Radhi

Universitas Gadjah Mada, Yogyakarta-Indonesia
(fahmy_radhi@yahoo.com)

ABSTRACT

This study examined the effect of quality management practices on purchasing performance and competitive advantage. The data were collected through questionnaires consisting of 152 manufacturing companies in West Java, by using purposive sampling method. The hypotheses were tested by using Structural Equation Modeling (SEM.)

The results indicate that quality management practices in purchasing had significant influence on purchasing performance, while quality performance had also significant influence on competitive advantage. Another finding was that quality management practices in purchasing had significant influence on the quality performance mediated by purchasing performance.

Keywords: *quality management practices in purchasing, purchasing performance, quality performance, competitive advantage*

INTRODUCTION

Competitive advantage is a key to success for companies to win the competition. One of the ways to create competitive advantage is by applying supply chain management (Hemsworth, *et. al.*, 2005). Supply chain management is a holistic approach system in managing the total information flow, materials, and services from the raw supplier to the factory and warehouse, transformation process from certain number of inputs to result in outputs until marketing the outputs to consumers (Chase, *et al.*, 2006).

Gaither & Frazier (2002) state that there are four important activities in supply chain

management, i.e. purchasing, logistics, warehousing, and expedition. As one of the important part of supply chain management, purchasing must be efficiently managed. One of the reasons for this conduct is that the amount of investment for the raw materials purchasing is great. Gaither & Frazier (2002) state that around 60% of the selling results of manufacture companies is used to pay the purchase of raw materials. The results of selling manufacture companies are used to purchase raw materials. The significant role of raw material purchasing encourages some researchers to conduct their researches in concern with raw materials purchasing.

The research of Ahire *et al.*, (1996) shows that quality management strategy is positively influential on the quality of the company's product. A research conducted by *Terziovski & Samson* (1999) brings similar result that the practice of purchasing quality has positive and significant influence on business and operation performances. This result is in line with that of Douglas & Judge, Jr. (2001) in that it concludes that there is a relation between the implementation of total quality management (TQM) and the performance of organization moderated by organization structure.

However, some researches on the purchasing role in concerned with the company performance show contradictory outcomes. Some researches show that there is a relation between purchasing and the company performance (Carter & Narasimhan, 1996a; Das & Narasimhan 2000). Sánchez-Rodríguez & Hemsworth (2005) conclude that the implementation of quality management practices in purchasing is influential towards purchasing and company performances mediated by purchasing performance. Somehow, some other researches show that purchasing does not have influence towards company performance when measured by using market share (Russel & Taylor, 2000; Narasimhan, *et al.*, 2001).

The important role of purchasing towards the performance of company and the existence of some contradictory results of certain researches have encouraged the writer to conduct a further research to test the influence of applying quality management on the purchasing performance and competitive advantage.

Problem Formulation

Based on the previously mentioned background, the problem is formulated as follows: is the implementation of quality management influential towards purchasing performance and competitive advantage of the company?

Research Objectives

The objectives of this research are to:

1. analyze the influence of applying quality management in purchasing towards purchasing performance,
2. analyze the influence of purchasing performance towards quality performance,
3. analyze the influence of applying quality management in purchasing towards purchasing performance mediated by purchasing performance,
4. analyze the influence of quality performance towards competitive advantage of the company.

Theoretical Framework and Hypothesis Development

1. The Influence Of Applying Quality Management In Purchasing Towards Purchasing Performance

Carter & Narasimhan (1996b) state that the focus of purchasing will transfer through functional borders to manage the relationship with other functional units related to other parties within supply chain management. Furthermore, Carter & Narasimhan assert that due to the increasing strategic function of purchasing, thus purchasing plays important roles in strategic management for the activities linked to cost.

The research of Sánchez-Rodríguez & Hemsworth (2005) concludes that the implementation of quality management in purchasing has positive influence towards purchasing performance. The result of that research shows that the company applying quality management in purchasing will improve the purchasing performance. The variables of purchasing quality management that are influential towards the improvement of purchasing performance are, for instances, the conformity of the purchased materials, a

better accuration of the suppliers in their delivery, and the fulfilment of material need.

H1: The implementation of quality management has positive influence towards purchasing performance.

2. The Influence of Purchasing Performance towards Quality Performance

According to Van Weele (2002) the improvement of purchasing performance will result in added values for purchasing department, and it subsequently give added values to the company. Those added values cover up a better decision making, better communication, better motivation, and realistic planning. The purchasing performance within this research is measured based on the quality of the purchased materials, punctual delivery, actual material cost compared to target cost, and the achievement level of stocks goal (Sánchez-Rodríguez & Hemsworth, 2005).

Purchasing performance relating to materials quality is influential towards product quality. Some researces assume that 50% of the problems of manufactures' product quality is caused by some impairment of the purchased materials (Crosby, 1984). This result in purchasing decision that greatly affects the quality of the end product and business performance as a whole. The execution of quality management in purchasing is expected to improve the purchasing performance that is shown through the more increasing materials quality and delivery punctuality. Materials quality and delivery punctuality is influential towards quality performance that is shown through the more increasing quality of the end product (Dow, *et al.*, 1999).

H2: Purchasing performance has positive influence towards quality performance.

3. The influence of Quality Management in purchasing towards Quality Performance.

The implementation of quality management in a company is basically aimed to improve the quality of production process and the quality of manufacture company product. Fynes & Voss (2001) state that during the last few years many practitioners and academicians identify that quality is the source of competitive advantage. The relationship between quality practices and superior quality results is a basic element of the whole concept of quality management (Dow, Samson, & Ford, 1999).

Ahire & Drayfus (2000) state that product quality passing through internal reliability test must be connected to the customers' experience in consuming the product. Performance and product reliability must also relate to external quality that becomes the customers satisfaction indicators such as complaint and assurance. This research uses quality performance once applied by Maiga & Jacobs (2005). This measurement consists of: (1) scrap, (2) rework, (3) defect, (4) product reliability.

Carter & Narasimhan (1994) test the implementation of quality management in purchasing by observing a wider implementation of quality management in purchasing, including the necessity to manage people in purchasing based on the quality, the need to improve the coordination between purchasing and other functional divisions, the commitment of the management towards quality and benchmarking in purchasing. The implementation of quality management in organization is expected to improve the whole process in organization so that the organization performance will increase.

The research of Sánchez-Rodríguez & Hemsworth (2005) shows a result that the implementation of quality management in purchasing is positively influential towards business performance mediated by purchasing

performance. According to Menurut Dow, Samson, & Ford (1999), the relationship between quality practices and superior quality results is a basic element of the concept of quality management. Therefore, the implementation of quality management in purchasing is expected to influence the product quality. The implementation of quality management in purchasing will influence purchasing performance and purchasing performance will influence organization performance that can be measured through the quality factor.

H3: The implementation of quality management in purchasing is positively influential towards quality performance mediated by purchasing performance.

4. The Influence of Quality Performance towards Competitive Advantage

There can be a competitive advantage when there is a balance between company's distinctive competency and critical factors to succeed in competition. A competitive advantage can be achieved when a company applies a low cost strategy that makes it possible to offer a lower price of the product compared to those of its competitors. A competitive advantage can also be created through producing better qualified products than those of the competitors. Besides, a company may apply product differentiation strategy as its advantage in competition. The application of product differentiation strategy is directed to create perception among customers concerning the distinctive competency of a certain product (Porter, 1985).

In their research, Flynn, *et al.*, (1995) used some standards of competitive advantage for instances: manufacturing cost per unit, flexibility of changing the product volume, delivery speed, stocks turn-over, and cycle time. The research of Flynn, Schroeder, & Sakakibara (1995), brings a result that quality performance is positively influential towards

competitive advantage. In global competition, the reduction of product life cycles, technology transfer time, and consumers' demand flux boost industries to compete. A success in competition is proven through the ability of the company to obtain competitive advantage. A company is supposed to be able to develop competitive strategy based on the market demands. Quality improvement, for many companies, is a strategic key to achieve distinctive performance. A distinctive performance will not be achieved when a company fails in creating a harmony between its competitive strategy and market demands (Beal & Lockamy, 1999).

H4: Quality performance is positively influential towards competitive advantage.

Based on the formulated hypothesis above, the research model can be illustrated as follows Figure 1.

RESEARCH METHODOLOGY

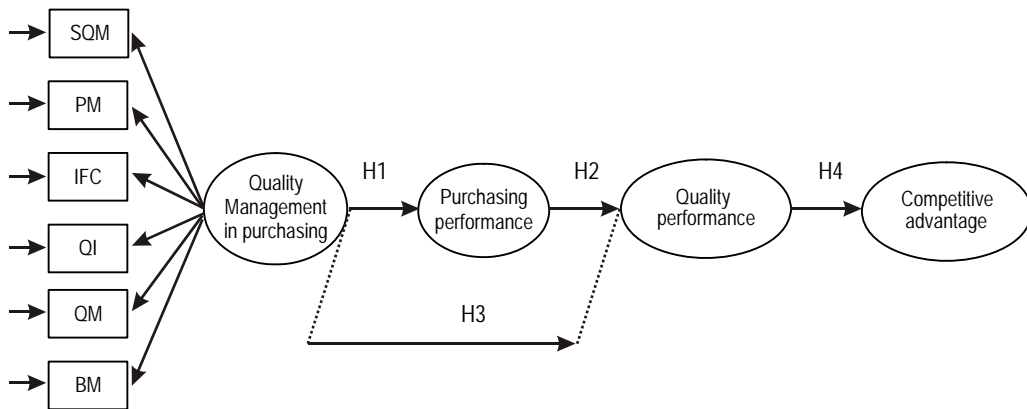
1. Population and Samples

The population of this research is all manufacturing companies running in West Java Province. The area is chosen due to the data from Capital Investment Coordination Agency (BKPM) stating that almost 60% of manufacturing industries is located in West Java.

The samples are big companies in which they are measured in accordance with the amount of the work force based on Manufacture Industry Directory issued by Statistic Agency of West Java Province in 2006. These samples are selected by using purposive sampling method.

2. Method of Collecting Data

The method used for collecting data is doing a survey by sending questionnaires to respondents already fixedly selected and by directly visiting companies. The respondents



Note:

SQM – Supplier Quality Management
 PM – Personnel Management
 IFC – Inter-Function Coordination

QI – Quality Information
 QM – Quality Management
 BM - Benchmarking

Figure 1. Research Model

Adapted from Sánchez-Rodríguez & Hemsworth (2005);
 Flynn, Schroeder, & Sakakibara (1995)

consist of general managers and purchasing managers. There are 527 sets of questionnaires sent via mails to respondents. Each set consists of a questionnaire for General Manager and another one for Purchasing Manager. There are 153 sets of questionnaires directly delivered to respondents.

Of the 527 sets of questionnaires sent via mails, the response rate is 15,94%. The ones directly delivered have response rate of 44,4%. According to Neuman (2000) a mail survey having response rate of 10% up to 50% is considered valid.

3. Method of Analysis

To test those four hypotheses, there are four variables used: quality management in purchasing (QMP), purchasing performance (PP), quality performance (QP), and competitive advantage (CA).

QMP is a variable consisting of some dimensions i.e. supplier quality management (SQM), personnel management (PM), inter-functions coordination (IFC), quality infor-

mation (QI), commitment management (CM), and benchmarking (BM). The questions are broken down into 29 items for QMP, 6 items for PP, 4 items for QP, and 5 items for CA. Each item is measured by using five-point Likert scales starting from score 1 for most disagree up to score 5 for most agree.

Before making hypotheses testing, some tests are conducted in prior:

a. Non-Response Bias Test

Non-response bias with t-test is carried out to find out whether there is a difference in the answers between the respondents of mail survey and those directly visited. The result shows that the significant value of each variable is bigger than 0.05. ($\text{sig} > 0.05$), thus, in the following data processing all those questionnaires of both mail and visitation are combined.

b. Validity Test

This test uses confirmatory factor analysis. The result shows that all items have

factor loading bigger than 0.40 and are significant within significance level of 5%. The rule of thumb, the accepted score of factor loading of $\geq \pm 0.4$, can firmly measure construct (Hair *et al.*, 2006). Factor analysis on the question items are performed two times. The first step is by involving all of the items to be analyzed. As the outcome of this step, 8 items of questions are dropped out. The second step is performed without involving the 8 dumped items. The result shows that all items are valid.

c. Reliability Test

Reliability testing for each construct is carried out using Cronbach Alpha coefficient value and item-to-total correlation useful for convalescing measurement and eliminating items whose presence lessens Cronbach Alpha. The result of Reliability test is displayed in the following Table 1.

4. Hypothesis Testing Assumption Using SEM Approach

Some assumptions must be fulfilled before performing structural model testing by using SEM approach:

a. Sample Size Assumption

The size of the samples in this research covers 152 data, fulfilling the required

condition for samples size. Hair *et al.* (2006) states that the number of samples to meet in accordance with SEM model is minimally 100 or 5 times of the estimated parameters.

b. Normality Assumption

The test result shows that the value of critical ratio for skewness and curtosis demonstrate that there are more values smaller than ± 2.33 ($CR \leq \pm 2.33$). This means normal value. The value of C.R both skewness and curtosis adequately fulfils the normality assumption data on the level $\alpha = 0.01$, thus the data are normally distributed.

c. Outliers Assumption

The number of variables used in this research is 19 variables. When the value of mahalanobis distance squared is bigger than $\chi^2(19, 0.001) = 43.820$, this value is outliers multivariate. Based on the criteria of the value of mahalanobis distance squared, there are 2 outliers i.e. observation number 83 and 75. However, those 2 outliers are not considered extreme values differentiating from other observations. Hence, they are not dropped out considering that the release will even decrease the value of goodness-of fit. Therefore, there are still 152 samples used.

Table 1. Result of Reliability Test

| No. | Variables | Cronbach Alpha | Note |
|-----|------------------------------------|----------------|----------|
| 1 | Supplier Quality Management (SQP) | 0.9071 | Reliable |
| 2 | Personnel Management (PM) | 0.8808 | Reliable |
| 3 | Inter-Functions Coordination (IFC) | 0.7552 | Reliable |
| 4 | Quality Information (QI) | 0.8536 | Reliable |
| 5 | Commitment Management (CM) | 0.8036 | Reliable |
| 6 | Benchmarking (BM) | 0.7506 | Reliable |
| 7 | Purchasing Performance (PP) | 0.7836 | Reliable |
| 8 | Quality Performance (QP) | 0.8720 | Reliable |
| 9 | Competitive Advantage (KK) | 0.8616 | Reliable |

Source: Processed Primary Data

d. Goodness-of Fit Assumption

Evaluation of goodness-of fit value shows that there is congruity on the value of RMSEA and CMIN/DF. On the other hand, the values of GFI, AGFI, NFI, TLI, and CFI show marginal congruity.

Next, hypothesis testing is conducted by examining whether coefficient path (regression weight estimate) connecting the hypothesized construct is significant on the significance level of 0.05 and critical ratio value $\geq \pm 1.654$ (one tailed). Table 2 demonstrates that all inter-constructs relationship is significant resulting in the support to the fourth hypothesis.

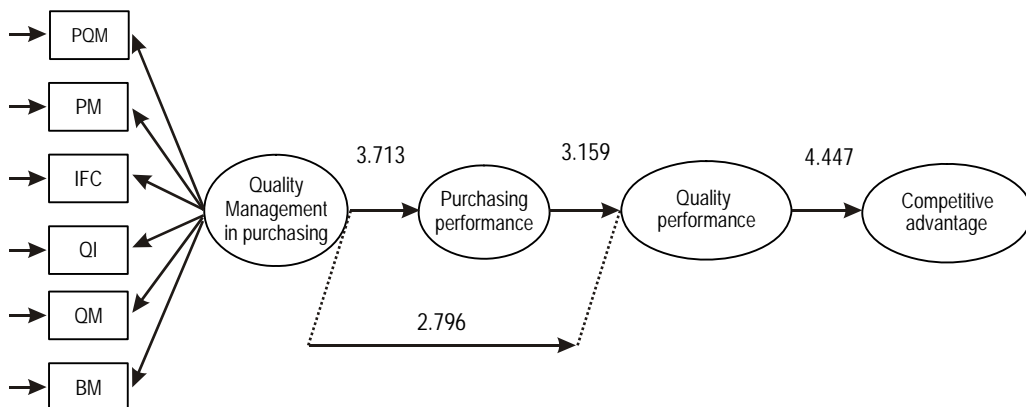
Seen from that structural model testing, it can be inferred that inter-constructs influence is significant. The strongest influence is the one of quality performance towards competitive advantage having the biggest C.R. value of 4.447. The weakest influence is the one of quality management in purchasing towards quality performance having C.R. of 2.796. The congruity value of structural model is then accepted.

ANALYSIS

1. The influence of implementing quality management in purchasing towards purchasing performance.

The result of hypothesis testing in table 2 shows that the implementation of quality management is positively influential with coefficient C.R=3.713 and significant on $\alpha=0.05$ (one tailed). Thus, hypothesis H1 saying that the implementation of quality management in purchasing is positively influential towards purchasing performance is proven.

This finding is consistent with the research conducted by Sánchez-Rodríguez & Hemsworth (2005) showing the result that quality management practices to the function of purchasing is positively influential towards purchasing performance and at the same time is in accordance with the result of the research conducted by Sánchez-Rodríguez & Martínez-Lorente (2004). This good purchasing performance is shown by the more improving materials quality, punctual materials delivery, efficient materials cost, and a good stocks performance.



Source: Author's own classification.

Figure 2. Evaluation Result of Causality Relationship

Table 2. Structural Regression Weight Model

| | Unstandardized Estimate | C.R | Standardized Estimate |
|--|-------------------------|---------|-----------------------|
| Purchasing Quality Management → purchasing Performance | 1.437 | 3.713 * | 0.736 |
| Purchasing Quality Management → Quality Performance | 0.936 | 2.796 * | 0.614 |
| Purchasing Performance → Quality Performance | 0.421 | 3.159 * | 0.538 |
| Quality Performance → Competitive Advantage | 0.730 | 4.447 * | 0.490 |
| <i>Chi Square</i> (χ^2) = 243.608 | | | |
| <i>GFI</i> = 0.863 | | | |
| <i>RMSEA</i> = 0.065 | | | |
| <i>AGFI</i> = 0.824 | | | |
| <i>TLI</i> = 0.857 | | | |
| <i>NFI</i> = 0.741 | | | |
| <i>CFI</i> = 0.876 | | | |
| <i>CMIN/DF</i> = 1.646 | | | |

Source: Primary Data Processed

2. The influence of purchasing performance towards quality performance

The causality relationship in Table 2 demonstrates that the relationship has positive coefficient (C.R. = 3.159) and significant on $\alpha=0,05$ (one tailed) and at the time agrees with the findings of Sánchez-Rodríguez & Hemsworth (2005). The success of purchasing is in line with materials quality and is also in line with product quality because materials are the sources production process having direct impact to product quality. Some writers estimate that 50% of quality problem in manufacture is caused by the purchased materials' defects (Crosby, 1984). This brings a consequence on a great influence of the decision on purchasing towards the end product quality and business performance as a whole.

This finding corresponds to the result of the research performed by Das & Narasimhan (2000). They observed purchasing competency and company performance. The result of the research shows that purchasing competency is positively influential towards manufacture performance. This also agrees with the

findings of Carr & Pearson (2002) having a result that purchasing/supplier involvement is positively connected with purchasing strategy and that purchasing strategy is positively connected with company's financial performance.

Dow, Samson, & Ford (1999) declared that the relationship between quality management practices and superior quality result is a basic element of the concept of quality management. The implementation of quality management in purchasing is expected to improve purchasing performance by having a better materials quality and a more punctual delivery. Appropriate material quality and punctual delivery will influence the quality performance in the form of the increasing product quality and the whole production process.

3. The influence of the implementation of quality management in purchasing towards quality performance mediated by purchasing performance

The causality relationship in Table 2 demonstrates that direct relationship between

the construct of quality management in purchasing and quality performance has positive coefficient (C.R.=2.796) and significant on $\alpha=0.05$ (one tailed). There is also a significant relationship between quality management in purchasing and purchasing performance, and between purchasing performance and quality performance. It means that not only does influence through mediation variable exist but there is also direct influence in which it brings a consequence that hypothesis 3 then is not completely proven.

The finding demonstrating the presence of the influence of the implementation of quality management in purchasing towards performance mediated by purchasing performance consistently correspond to the research result of Sánchez-Rodríguez & Hemsworth (2005). The implementation of quality management in purchasing can increase the purchasing performance and this is measured from the quality of the purchased materials, punctual delivery, actual material cost compared to target cost, and the achievement level of stocks goal. This improving purchasing performance will subsequently influence the quality performance.

The influence of the implementation of quality management in purchasing towards quality performance directly shows a result that consistently agrees with the result of the research conducted by Ferdows & Demeyer (1990); Prajogo & Sohal (2003), and Ferdows & Demeyer (1990) found a direct influence of the implementation of quality management towards quality performance. The commitment of the company to achieve quality will result in the improvement of delivery performance and the cost decrease in the long run. Quality management does not only help enhance product quality but also lessen scrap, rework, and accumulation of stocks because of stable production process. This, in turn, will shrink production cost and working time. Therefore, time reduction will increase delivery performance so that the implemen-

tation of quality management will also help increase flexibility.

4. The influence of quality performance towards competitive advantage.

The causality relationship in Table 2 shows that the relationship has positive coefficient (C.R.=4.447) and significant on $\alpha=0.05$ (one tailed). Consequently, H4 stating that quality performance is positively influential towards competitive advantage is true.

This is consistently along the line with the research of Flynn, Schroeder, & Sakakibara (1995) which found positive influence of quality performance towards competitive advantage. This means that product quality improvement is a major pillar for the achievement of competitive advantage. Quality improvement, for many companies, is a strategic key to achieve distinctive performance (Fynes & Voss, 2001). Moreover, Fynes & Voss (2001) declared that even though quality is often considered as the source of competitive advantage, many companies fail in implementing quality management.

CONCLUSION AND DISCUSSION

1. Conclusion

The result of this research shows that there is a positive influence of the implementation of quality management in purchasing towards purchasing performance. Furthermore, it is proven that purchasing performance has an influence towards quality performance. Besides, this research demonstrates the presence of influence of the implementation of quality management in purchasing either directly or mediated by purchasing performance. The analysis shows that there is an influence of quality performance on competitive advantage.

The implementation of quality management in purchasing has proven that it has an influence on purchasing performance. This furthermore shows that an improvement of the implementation of quality management in purchasing will increase purchasing performance. Companies implementing quality management in purchasing will have good purchasing performance.

Purchasing performance has proven that it has an influence on quality performance. The improvement of purchasing performance can be shown through the getting better materials quality and punctual delivery. Appropriate material quality and punctual delivery will influence the quality performance in the form of the increasing product quality and the whole production process.

The implementation of quality management in purchasing has proven that it has an influence on quality performance either directly or mediated by purchasing performance. The company's commitment to achieve quality will result in delivery performance, cost decrease in the long run, flexibility increase, and better work force empowerment that will subsequently improve the product quality.

It is proven that quality performance is influential towards competitive advantage. This shows that product quality improvement is the main pillar for achieving competitive advantage. Quality improvement, for many companies, is a strategic key to achieving distinctive performance.

2. Managerial Implication

This research has put forward a result demonstrating that there is an influence of the implementation of quality management in purchasing on purchasing performance. The implementation of quality management in purchasing is expected to improve the process in purchasing in that it will also consequently improve the purchasing performance. The

implementation of quality management in purchasing has proven that it is influential towards quality performance. The function of purchasing that is well managed through the implementation of quality management will elevate the quality performance. In accordance with it, companies are supposed to make some strategies to increase their performances through a continuous effort in implementing quality management thoroughly.

3. Research Implication

This research is expected to give implication to the next researches. Next researches may apply some other performance measurements, for instance by adding marketing performance concerning market share growth to see the influence of qm on the whole business performance. Besides, this research merely tests the influence of the implementation of quality management in purchasing without observing how long the company has established this quality management. It is suggested here that the next research may include time variable such as the length of time a company implementing quality management.

This research got the samples from only manufacture companies in West Java and merely specified on certain industry. The next research is expected to obtain samples from other areas or even wider areas so that it can really depict industries in Indonesia.

REFERENCES

- Ahire, S., Golhar, D. and Waller, M., 1996. 'Development and Validation of TQM Implementation Constructs', *Decision Sciences*, Vol. 27, 23-56.
- Ahire, S., and Dreyfus, P., 2000. 'The Impact of Design Management and Process Management in Quality: an Empirical Investigation', *Journal of Operations Management*, Vol. 18, 549-575.

- Badan Pusat Statistik, 2003. *Statistik Industri Perusahaan Manufaktur Skala Menengah dan Besar* [Industrial Statistic of Medium-Large Scale Manufacture Company], Jakarta: Indonesia.
- Beal, R.M., and Lockamy III., A., 1999. 'Quality Differentiation for Competitive Advantage: a Contingency Approach'. *European Journal of Innovation Management*, Vol. 2 (2), 71-81.
- Carr, A.S. and Pearson, J.N., 2002. 'The Impact of Purchasing and Supplier Involvement on Strategic Purchasing and Its Impact on Firm's Performance'. *International Journal of Operations and Production Management*, Vol. 22 (9), 1032-1053.
- Carter, J. and Narasimhan, R., 1994. "The Role of Purchasing and Materials Management in Total Quality Management and Customer Satisfaction". *International Journal of Purchasing and Materials Management*, Vol. 3 (8), 2-18.
- Carter, J. and Narasimhan, R., 1996a. 'Is Purchasing Really Strategic?'. *International Journal of Purchasing and Materials Management*, Vol 32 (1), 20-26.
- Carter, J. and Narasimhan, R., 1996b. 'Purchasing and Supply Chain Management: Future Directions and Trends'. *International Journal of Purchasing and Materials Management*, Vol. 32 (4), 2-12.
- Chase, R. B., Jacobs, F.R. and Aquilano, N.J., 2006. *Operations Management for Competitive Advantage with Global Cases, 11th edition*, McGraw-Hill/Irwin, New York.
- Crosby, P.B., 1984. *Quality Without Tears*. McGraw-Hill, New York.
- Das, A. and Narasimhan, R., 2000. 'Purchasing Competence and Its Relationship With Manufacturing Performance'. *Journal of Supply Chain Management*, Vol. 36 (2), 17-27.
- Douglas, T.J. and Judge, Jr., W.Q., 2001. 'Total Quality Management Implementation and Competitive Advantage: the Role of Structural Control and Exploration'. *Academy of Management Journal*, February, 158-169.
- Dow, D., Samson, D., and Ford, S., 1999. 'Exploding the Myth: Do All Quality Management Practices Contribute to Superior Quality Performance?'. *Production and Operations Management*, Vol. 8 (1), 1-27.
- Ferdows, K., Demeyer, A., 1990. 'Lasting Improvements in Manufacturing Performance: In Search of a New Theory'. *Journal of Operations Management*, Vol. 9 (2), 168-183.
- Flynn, B.B., Schroeder, R.G. and Sakakibara, S., 1995. 'The Impact of Quality Management Practices on Performance and Competitive Advantage'. *Decision Science*, Vol.26 (5), 659-691.
- Fynes, B. and Voss, C., 2001. 'A Path Analytic Model of Quality Practices, Quality Performance, and Business Performance'. *Production and Operation Management*, Vol. 10 (4), 494-513.
- Gaither, N. and Frazier, G., 2002. *Operations Management 9th edition*, South-Western, Ohio.
- Hair, Jr., J.F., Black, W.C., Babin, B.J., Andersen, R.E. and Tatham, R.L., 2006. *Data Analysis Multivariate 6th edition*, Pearson Education, Inc., New Jersey.
- Heizer, J. and Render, B., 2005. *Operations Management*, Pearson Education, Inc., New Jersey.
- Hemsworth, D., Sanchez-Rodriguez, C. and Bidgood, B., 2005. 'Determining the Impact of Quality Management Practices and Purchasing-Related Information Systems on Purchasing Performance'. *Journal of Enterprise Information Management*, Vol. 18 (2), 169-192.
- Kumalaningrum, M.P., 2000. 'Analisis Hubungan TQM, Kinerja Perusahaan dan Keunggulan Kompetitif Perusahaan' [Relation Analysis Between TQM, Company Performance, and Company

- Competitive Advantage], A Thesis for Program Pascasarjana Magister Sains, Program Studi Manajemen, Universitas Gadjah Mada. Unpublished.
- Maiga, A.S., and Jacobs, F.A., 2005. 'Antecedents and Consequences of Quality Performance'. *Behavioral Research in Accounting*, Vol. 17, 111-131.
- Narasimhan, R., Jayaram, J., and Carter, J.R., 2001. 'An Empirical Examination of the Underlying Dimensions of Purchasing Competence'. *Production and Operations Management*, Vol. 10 (1), 1-15.
- Neuman, W.L., 2000. *Social Research Methods: Qualitative and Quantitative Approaches*. 4th edition. Pearson Education Company.
- Porter, M.E., 1985. *Competitive Advantage: Creating and Sustaining Superior Performance*, The Free Press.
- Powell, T., 1995. "Total Quality Management as Competitive Advantage: a Teview and empirical study", *Strategic Management Journal*, Vol. 16, 15-37.
- Prajogo, D.I., and Sohal, A.S., 2003. "The Relationship Between TQM Practices, Quality Performance, and Innovation Performance", *International Journal of Quality & Reliability Management*, Vol. 20 (8), 901-918.
- Russel, R.S. and Taylor, III., B.N., 2000. *Operations Management 3rd edition*, Prentice Hall.
- Sánchez-Rodríguez, C. and Hemsworth, D., 2005. "A Structural Analysis of the Impact of Quality management Practices in Purchasing on Purchasing and Business Performance", *Total Quality Management*, Vol. 16 (2), 215-230.
- Sánchez-Rodríguez, C. and Martínez-Lorente, A.R., 2004. "Quality Management Practices in the Purchasing Function", *International Journal of Operations and Production Management*, Vol. 24 (7), 666-687.
- Terziovski**, M., and Samson, D., 1999. "The Link Between Total Quality Management Practice and Organisational Performance", *The International Journal of Quality Management Practice and Organisational Performance*. Vol. 16 (3).
- Van Weele, A., 2002. *Purchasing and Supply Chain Management: Analysis, Planning and Practice*, Thompson Learning.
- Official Site of Capital Investment Coordination Agency. Available at: http://regionalinvestment.com/index.php?option=com_content&task=section&id=9&Itemid=10