

The Impact Of Iso 9001 : 2008 Quality Management System On Manufacturing Performance At Len Industri (Ltd.) Company

Faritsa Annajla¹, Khairani Ratnasari Siregar²

¹(Faculty of Economics and Business, Telkom University, Indonesia)

²(Faculty of Economics and Business, Telkom University, Indonesia)

Abstract: *Global electronics industry experienced growth from 2013-2015, businesses are forced to achieve competitive advantage to win the market. Len Industri (Ltd.) Company implement ISO 9001: 2008 certified quality management system since 2009. However, the achievement of Len Industri (Ltd.) Company's performance have not been up to reach the CBP targets and needs an improvement. The purpose of this study is to determine the impact of ISO 9001 : 2008 Quality Management Systems, consist of customer focus, leadership, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making, mutually beneficial supplier relationships simultaneously and partially on manufacturing performance at Len Industri (Ltd.) Company. This study is a quantitative methods using questionnaires of 192 employees. Path analysis techniques is used for data analysis. Findings are customer focus, leadership, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making, mutually beneficial supplier relationships and the manufacturing performance are quite well implemented based on respondents and there is a significant impact between of ISO 9001 : 2008 Quality Management Systems on Manufacturing Performance simultaneously. Partially found that leadership, system approach to management and continual improvement have a significant effect on manufacturing performance.*

Keywords: *ISO 9001 : 2008, Manufacturing Performance, Path Analysis, Quality Management Systems*

I. Introduction

Growth in global electronics industry has increased gradually since 2013-2015 rose from 3% - 5% - 6%, businesses are forced to achieve the competitive advantage to meet the needs and win the market [1]. Efforts made by the companies are doing the continuous improvement that is consistent and constantly, linked to the quality and management to increase market share [2]. Success companies have realized that the increase in the business sector are guided by a system that is implemented consistently and efficiently to produce a good performance called the quality management system [3]. A total of 1,609,204 companies around the world have a valid ISO certification to prove their commitment in improving their quality management system. In Indonesia, there are 7585 companies standardized with ISO 9001 quality management system [4] and each year are likely to increase.

Len Industri (Ltd.) Company is a state-owned company and has the biggest role in electronics industry in Indonesia also committed to implement the continuous improvement efforts (as the vision realization of the company) to implement a quality management system certified ISO 9001: 2008 since 2009 [5]. The performance of Len Industri (Ltd.) Company has increased and reached its peak in 2012 (Rp 2,334,637 million), but in the year of 2013 (Rp 2,058,074 million) decreased quite dramatically. In the year of 2014 an improvement attempt was made by implementing the ICE-442 culture to improve company's performance (manufacturing performance) based on the principles of the Quality Management System ISO 9001: 2008. In 2014 (Rp 2,100,774 million), Len Industri (Ltd.) Company has managed to increase its profit slightly higher compared to 2013. However, the achievement of Len Industri (Ltd.) Company in 2014 still has not reached the company's target and CBP targets [6]. Therefore they need an improvement.

The decrease in performance of Len Industri (Ltd.) Company allegedly influenced by the Quality Management System 9001:2008 that is not implemented effectively by the company. Several previous studies including Refaie et al (2012) [7] and Jain and Ahuja (2012) [8] found that the implementation of the ISO 9001: 2008 Quality Management System has a significant effect on manufacturing performance. But, according to Chua, et al (2012) [9], some things to avoid after getting ISO certification are failure to establish a monitoring program to implement procedures and rigorous system, and carry out a review of management can occur in Len Industri (Ltd.) Company. The previous study by Sumaedi and Yarmen (2014) [64] suggested to examine more about the implementation of the ISO 9001: 2008 Quality Management System based on eight basic principles (customer focus, leadership, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making, mutually beneficial supplier relationships) [13] which can be used as sub variables of ISO 9001: 2008 Quality Management System so that it can be observed

simultaneously or partially of which have the significant effect on the manufacturing performance. Afterwards, the research will obtain suggestions for Len Industri (Ltd.) Company for the continuous improvement efforts to be more optimal.

II. Literature Review

The research framework is developed from the grand theory of operations management which there is "managing quality" from 10 Decision Area [11] which has a sub topic about the ISO 9001: 2008 quality management system.

Research use the Quality Management System ISO 9001: 2008 as an independent variable refers to Dick et al (2008), Bell and Omachonu (2011), To et al (2011) in Jain and Ahuja (2012) [8] stated that there is a strong relationship between ISO 9001 quality management system to the performance development of organization which applies a quality management system based on ISO 9001 and it will affect the company's performance improvements. Refaie, et al (2012) [7] which also states that a company which conducts continuous improvement (based on ISO 9001 principles) systematically can achieve competitive advantages and excel in global competition.

ISO 9001: 2008 Quality Management System based on the eight principles of quality management that is focused on the customer, leadership, involvement of people, process approach, system approach to management, continual improvement, factual approach to decision making and mutually beneficial supplier relationships [13, 10]. ISO 9001: 2008 Quality Management System has a strong relationship on Manufacturing Performance. Manufacturing performance is measured by some indicators: business related benefits, technological benefits, operational benefits, production benefits, supplier related benefits, employee related benefits, related customer benefits.

The research framework shows in Figure 1 below:

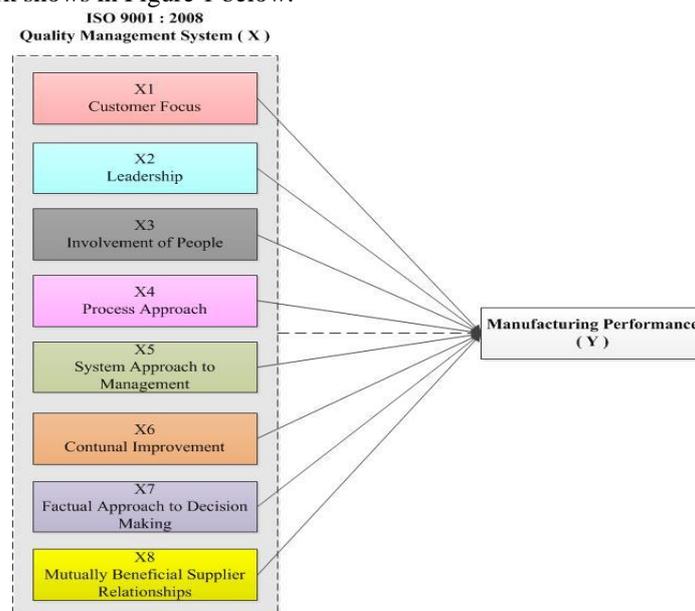


Figure 1 Research Framework

The previous study that assesses the ISO 9001 quality management system at some companies already been done by several researchers which measured the performance of ISO 9001 certified and not certified companies in the manufacturing industry, found that companies which ISO 9001 certified excel in aspects of quality, customer satisfaction, operational, market and financial performance, performance dimensions which reflects the ISO 9001 related to quality of production, operational, financial and markets [12]. Jain and Ahuja (2012) [8] also examines the connectedness of ISO 9001 to the manufacturing performance more specifically realize the company's objectives on growth sustainability.

III. Methodology

The research's method is quantitative method [13]. Sample size is obtained from Slovin's [14] with an error tolerance of 5% and 192 samples of 370 employees. Path analysis technique is used in the study to determine the impact of ISO 9001: 2008 quality management system to the manufacturing performance with SPSS 23.0 as the tools.

IV. Results

4.1 Respondent's Data

Based on respondent's, the ISO 9001: 2008 Quality Management System implementation at Len Industri (Ltd.) Company classified in GOOD category, it can be seen from the average percentage of the total score on the sub variable of 'Customer Focus' (75.85%), 'Leadership' (71.91%), 'Involvement of People' (73.96%), 'Process Approach' (70.67%), 'System Approach to Management' (75.59%), 'Continual Improvement' (76.61%), 'Factual Approach to Decision Making' (73.52%), 'Mutually Beneficial Supplier Relationships' (76.61%). All values are in the range of GOOD category percentages between 62.50% - 81.25%.

Based on respondent's, the Manufacturing Performance of Len Industri (Ltd.) Company also classified in GOOD category that can be seen from the average percentage of a total score (73.60%) between 62.50% - 81.25%.

4.2 Hypotheses Test

a) Simultaneous Test

Simultaneously, hypotheses are expressed in the following forms:

H₀: $\rho_{yx} = 0$, there is no simultaneous effect between variables of ISO 9001: 2008 Quality Management System on the Manufacturing performance.

H_a: $\rho_{yx} \neq 0$, there is a simultaneous effect between variables of ISO 9001: 2008 Quality Management System on the Manufacturing performance.

Simultaneous hypothesis testing is done through F test based on Table 1. The following results are $\text{sig } f = 0,000 <\alpha = 0.05 \text{ and } F\text{-count} > F\text{-table} (1.99)$, then reject H₀.

Table 1 F test

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.534	8	7.067	43.948	.000 ^b
	Residual	29.426	183	.161		
	Total	85.961	191			
a. Dependent Variable: Y						
b. Predictors: (Constant), X8, X1, X4, X7, X5, X3, X2, X6						

R-square test results in Table 2 below shows ISO 9001: 2008 Quality Management System has 65.8% total impact on the Manufacturing Performance. R value (0.811) explain the magnitude of the correlation between variables of Customer Focus, Leadership, Involvement of People, Process Approach, System Approach to Management, Continual Improvement, Factual Approach to Decision Making, Mutually Beneficial Suppliers Relationships on the Manufacturing Performance simultaneously.

Table 2 R square test

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.811 ^a	.658	.643	.40100
a. Predictors: (Constant), X8, X1, X4, X7, X5, X3, X2, X6				
b. Dependent Variable: Y				

b) Partial Test

Tests carried out using t-test with the following conditions:

a. If the statistics $t\text{-table} \geq t\text{-count}$ or significant value \geq standard error 0.05, then H₀ is accepted

b. If the statistics $t\text{-count} > t\text{-table}$ or significant value $<$ standard error 0.05, then H₀ is rejected

Partially hypotheses are expressed in the following forms:

H₀: there is no partial effect

H_a: there is a partial effect

To determine the value of t-table using $n = 192$ with a significance level of 5% (0.05) and degrees of freedom $df = 192 - 8 - 1 = 183$, found t-table value is 1.97. T test results can be seen in Table 3 below shows that X2, X5, X6 has a partial significant impact on the Manufacturing Performance.

Table 3 t test

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	-.438	.229		-1.918	.057
	X1	.023	.063	.021	.367	.714

	X2	.353	.084	.318	4.212	.000
	X3	.018	.080	.014	.230	.818
	X4	.006	.075	.005	.074	.941
	X5	.297	.081	.231	3.686	.000
	X6	.281	.077	.280	3.640	.000
	X7	.063	.075	.048	.844	.400
	X8	.092	.067	.082	1.385	.168
a. Dependent Variable: Y						

4.3 Direct and Indirect Impact Analysis

Direct and indirect impact between variables in the study can be seen by Figure 2 below:

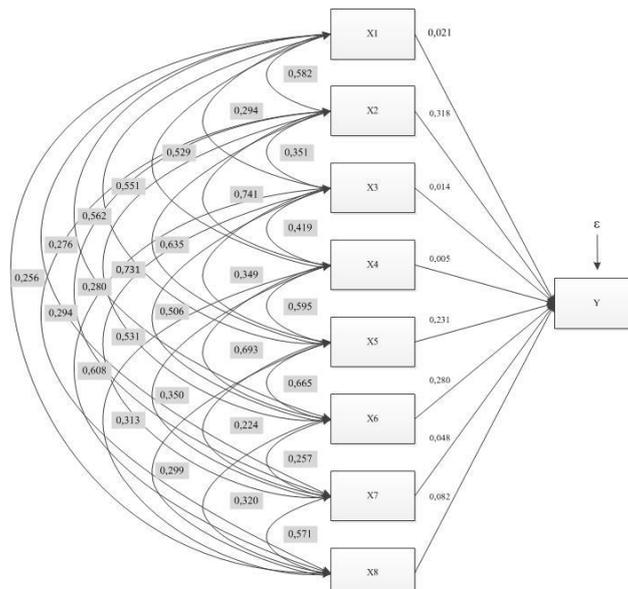


Figure 2 Path Diagram

Below are the calculation of the direct impact, indirect impact and the total impact summarized in Table 4 shows the X2 has the greatest total impact.

Table 4 Direct Impact, Indirect Impact and Total Impact

Variable	Direct Impact	Indirect Impact								Total Impact
		X1	X2	X3	X4	X5	X6	X7	X8	
X1	0,0441%	-	0,3887%	0,0086%	0,0056%	0,2673%	0,3305%	0,0278%	0,0441%	1,1166%
X2	10,1124%	0,3887%	-	0,1563%	0,1178%	4,6646%	6,5088%	0,4274%	1,8983%	24,2743%
X3	0,0196%	0,0086%	0,1563%	-	0,0029%	0,1129%	0,1984%	0,0357%	0,0698%	0,6041%
X4	0,0025%	0,0056%	0,1178%	0,0029%	-	0,0687%	0,0970%	0,0084%	0,0128%	0,3158%
X5	5,3361%	0,2673%	4,6646%	0,1129%	0,0687%	-	4,3012%	0,2484%	0,5664%	15,5655%
X6	7,8400%	0,3305%	6,5088%	0,1984%	0,0970%	4,3012%	-	0,3441%	0,7347%	20,3547%
X7	0,2304%	0,0278%	0,4274%	0,0357%	0,0084%	0,2484%	0,4785%	-	0,2247%	1,6813%
X8	0,6724%	0,0441%	0,7666%	0,0698%	0,0128%	0,5664%	0,7347%	0,2247%	-	3,0916%
Pengaruh Total R square										65,8%

V. Discussion and Conclusion

Based on the hypotheses test results, it can be concluded that:

a) Simultaneous impact

The impact of ISO 9001: 2008 Quality Management System on the Manufacturing Performance at Len Industri (Ltd.) Company has a significant impact simultaneously based on the value of R square (65.8%) while the remaining (34.2%) is influenced by other factors that not examined in the study.

b) Partial impact

Known that the ‘leadership’, ‘Systems Approach to Management’, ‘Continual Improvement’ have a significant impact on the Manufacturing Performance at Len Industri (Ltd.) Company (obtained from the value of t-count > t-table and sig <0.05) while the other variables (‘Customer Focus’, ‘Involvement of

People', 'Process Approach', 'Factual Approach in Decision Making', 'Mutually Beneficial Supplier Relationships) do not have a significant impact because the value of t-count <t-table and sig > 0.05.

Advices that can be given based on the research results to improve the company's ISO 9001 : 2008 quality management system :

a) Needs to be fixed

- 1) Customer Focus can be improved. The research recommends that the company conduct an analysis of what would be required by the customers, it is better if the company make an observations first.
- 2) Involvement of People can be improved. The research recommends that management to be more open to suggestions given by the employees in finding a solution for any problems in the project. It can be implemented by sharing to obtain more accurate information before making decision.
- 3) Process Approach gained the lowest score based on respondent's. It is recommended that Len Industri (Ltd.) Company to attempt a repair to the deeper aspects of coordination among units of the company, for example in dealing with the project, they could provide a progress report regularly not only at the group meeting to avoid misunderstandings; SOPs should be clearly defined on each unit of work at the company and must be understood by the employees in the unit concerned so that the work process can run according to the standards set by the company; make a routine documentation as evidence during the process of internal and external audits, thus simplifying the process of tracing in an error event for the standard conformance and applicable for evaluation process; controlling the process flow regularly in each units of the company done by manager.
- 4) Factual Approach in Making Decision can be improved. For example, company provide the data required readily (accessible and available) to employees as an information that is used before making a decision, it is related to the process of work documentation (document reports) on the process approach, when the process of work documentation has done well then it will not be difficult to find the information that will be used for decision making.
- 5) Mutually Beneficial Supplier Relationships can be improved. For example, by cooperating with suppliers for long-term project that is beneficial for both, company and suppliers, first, it can also started by collaborating with suppliers in quality improvement efforts to provide better output for the customers.

b) Should be maintained and improved

- 1) Leadership can be enhanced by Top Management in giving feedback that is comparable to the performance of each employee more frequently so the employees feel more motivated.
- 2) Systems Approach to Management can be improved by conducting a quality monitoring program in every units of the company which carried out routinely before the audit process.
Records management aspect in the company has been applied well and suppose to be neatly maintained.
- 3) Continual Improvement can be improved by applying the plan-do-control-act (PDCA) cycle.
Realization of the evaluation results aspect of quality monitoring program has been applied well and suppose to be neatly maintained.

References

- [1] Statista, *Estimated growth rates for the global electronics industry from 2013 to 2015, by region*. Quoted September 26, 2015, from Statista: *Estimated Growth Rates for the Global Electronics Industry from 2013 to 2015, by region*.
- [2] Semuel, Hatane., dan Zulkarnain, Joni. Pengaruh Sistem Manajemen Mutu Iso Terhadap Kinerja Karyawan Melalui Budaya Kualitas Perusahaan. *Journal of Management and Entrepreneurship*, 13(2), 2011.
- [3] Sutoyo. Analisis Pengaruh Penerapan Sistem Manajemen Mutu ISO 9001:2000 terhadap Kinerja Karyawan. *Variasi*, ISSN: 2085- 2 (6),2011.
- [4] ISO Central. *Quality Management Principle*, (Geneve, ISO Central, 2012)
- [5] PT Len Industri (Persero), *Annual report Len 2014*, (Bandung, PT Len Industri (Persero), 2014).
- [6] PT Len Industri (Persero), *Sustainability report PT Len Industri (Persero) 2014*. Bandung: PT Len Industri (Persero).
- [7] Refaie, Abbas., Ghnaimat, Ola., Li, Ming Hsien. Effect of ISO 9001 Certification and KAAE on Performance of Jordanian. *Jordan Journal of Mechanical and Industrial Engineering*. Volume 6. 2012. Page 45-55.
- [8] Jain, Sanjiv Kumar dan Ahuja, Singh. An Evaluation of ISO 9000 initiatives in India Industry for Enhanced Manufacturing Performance. *International Journal of Productivity and Performance*. Volume 61. 2012. Page 778-804.
- [9] Chua, Clare Chow, Goh Mark dan Wan, Tan Boon. Does ISO 9000 Certification Improve Business Performance. *International Journal of Quality and Reliability Management*. Volume 20.2012. Page 936-953.
- [10] Sumaedi, Sik dan Yarmen, Medi. The Effectiveness of ISO 9001 Implementation in Food Manufacturing Companies : A Proposed Measurement Instrument. *Procedia Food Science* 3. 2015. Page 436-444.
- [11] Heizer, Jay dan Render, Barry, *Operations management* (10th edition.), (New Jersey, U.S.A: Pearson, 2011).
- [12] Kafetzopoulos, D., Gotzamani, dan K., Psomas, E. *Quality Systems and Competitive Performance of food companies. Benchmarking*. Volume 20(4), 2013. 463-483.
- [13] Cooper, D.R. and Schindler, P. S., *Business research methods 11 edition*, (New York, McGraw Hill, 2011).
- [14] Prasetyo, Bambang., and Jannah, Lina Miftahul. *Metode penelitian kuantitatif teori dan aplikasi*. (Jakarta, PT Raja Grafindo Persada, 2007).