

Effect Of Integrated Management System Of ISO 9001:2015 And Iso 22000:2018 Implementation To Packaging Industries Quality Performance In Banten

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ABSTRACT:The purpose of this study was to determine the effect of the implementation of the integrated management system to Quality Performance. This research was conducted in several packaging industrial in the province of Banten, The respondents were 144 employees from 12 companies of packaging industry which have implemented the Integration Management System for at least five years. The background of the study is due to the lack of research on the ISO 9001: 2015 and ISO 22000: 2018. The data was collected by distributing questionnaires and analysis of data using the Structural Equation Model (SEM) using a Linear Structural Model (LISREL) version 8.70. The results showed that the application of Integration Management System ISO 9001: 2015 and ISO 22000: 2018 a significant influence to quality performance such as increased customer satisfaction index, customer complaint reduction, reduction of defects, decrease product returns and reduced cost of quality.

Keywords: ISO 9001:2015, ISO 22000:2018, Quality Performance

INTRODUCTION

In the industrial era 4.0, The level of business competition is getting more robust, and a lot of manufacturing companies in the world, in particular, are conducting activities to improve the competitiveness and performance of his company. To improve competitiveness and to survive to get pairs market then several companies have implemented a Management System Integration (Georgiev & Georgiev, 2015). Which consists of the Quality Management System ISO 9001: 2015 and Food Safety Management System ISO 22000: 2018 recently published by the International Standardization Organization. Many people who have studied the Quality Management System ISO 9001 is Wilcock and Boys (2017) conducted a study and concluded that ISO 9001 provides benefits in supply chain management, improve planning, transmission efficiency-enhancing customer relationships and their suppliers, as a tool to monitor process performance internally, improve customer satisfaction, market share and inventory turnover and reduce waiting time, rework, waste and reducing customer complaints. Ismyrlis and Moschidis (2015) conducted a study and concluded that the benefits of the application of ISO 9001 increased as profits, costs, and market share. Nabavi, Azizi and Faezipour (2014) state that the implementation of ISO 9001 had a significant impact on customer satisfaction, competitive, and has been able to improve customer satisfaction index. Feng, Terziovski and Samson (2008) stated there are four benefits of ISO 9001 is to improve the quality of products or services, the increase in the market and improved financial performance and the application of ISO 9001 has a positive effect with the business and operational performance. Fotopoulos and Psomas (2010) found that the implementation of ISO 9001 affects the company's performance for their internal procedures, customer, market share and the natural and social environment.

Several studies of Food Safety Management System ISO 22000 is Kafetzopoulos, Gotzamani and Psomas (2013) research results show a positive and significant relationship between the use of ISO 9001 and ISO 22000 and the company's competitive performance. Vlachos (2014), the benefits of ISO 22000 implementation is adherence to quality assurance standards, modernization of processing facilities, the application of the law, credibility, experience and reputation, better performance in terms of the cost of the supply chain, a food quality consumer. Many researchers have also done research satisfaction of Management Systems integration as Ferreira Rebelo, Santos and Silva (2014) application management system integration, namely the elimination of conflicts between the individual systems with the optimization of resources, creation of added value to the business by eliminating some types of waste, integrated management of sustainability component in the global market, increased partnerships with suppliers of goods and services, reducing the number of internal and external audits. Zutshi and Sohal (2005) revealed several implementations of the integrated system, such as cost savings, resource utilization better and improved communication throughout the organization. Khanna, Laroia and Sharma (2010) the perceived benefits of application integration management system is a reduction in the duplication of policies, procedures and work instructions, cost reduction, higher transparency and time savings. Zeng (2011) the benefits of implementing an integrated management system includes a decrease of documents, reduction of management costs, reduced internal management complexity, simplified certification process and facilitate continuous improvement.

Based on several studies on ISO 9001 and ISO 22000 above stated many benefits of its application in different companies. The object of research above is the old version management system such as ISO 9001: 2008 and ISO 22000: 2005, while for the new version of ISO 9001: 2015 and ISO 22000: 2018 has not been done the research. Many companies in the province of Banten particularly companies food packaging that have implemented Management System Integration of the new version that is ISO 9001: 2015 and ISO 22000: 2018 and Management Systems Integration and has never done research on this matter it is not known the benefits of the implementation of the management system. The purpose of this study was to determine the effect of the application of the quality management system Integration company performance.

LITERATURE REVIEW AND HYPOTHESIS

ISO 9001: 2015

Mangula (2013) also has the same view of his study, which concluded that the organization is ISO 9001: 2015 showed a considerable increase in performance in terms of quality and quantity of products. From the results showed findings that support orientation suppliers, mediated by the satisfaction of stakeholders, is an essential tool for lasting success brought by ISO 9001-certified organization awareness and understanding of Supply Chain Management relevance to the comfort of their stakeholders and achieving lasting business.

The clauses in ISO 9001: 2018 as follows scope, references, terms and definitions, general quality management system requirements, leadership, support, planning, operation, performance evaluation, improvement (ISO.org, 2019). Standard of ISO 9001:2015 brings improvements compared to the standard ISO 9001:2008 previously. These enhancements include more significant involvement of leadership, language and terminology that is simplified, structured organizational risks and opportunities, user-friendly documentation, and supply chain

management is defined more effectively (ISO, 2015). Standard ISO 9001: 2015 is more oriented towards the risk compared to the previous edition. It is responsible for top management to risk management (Rybski, Jochem, and Homma, 2017). Similarly, Sari, Wibisono et al.(2017) noted that the ISO 9001:2015 has a risk-based approach. Therefore, organizations can formulate an implementation strategy such that a negative impact on the ISO 9001: 2015 may be minimized.

Quality Management Principles and Risk Based Thinking

Measurement of the Effectiveness of ISO 9001 Implementation According to ISO 9000: 2018 effectiveness is the expected result achieved. Therefore, the effectiveness of implementing ISO is defined as the expected goals of ISO 9001 achieved (Psomas et al, 2013). In ISO 9001, measurement activities are mentioned in clause 8.2 which is monitoring and measurement (Iso.org, 2019). The clause requires the organization to take measurements, namely the measurement of customer satisfaction, measurement of overall process performance, process and measurement of products produced (ISO.org.2019) Therefore, the indicators for measuring the effectiveness of applying ISO 9001 must consider the measurement components. Research on measuring the effectiveness of the application of ISO 9001 is still very limited (Psomas et al, 2013), however, some researchers have suggested indicators of measuring the effectiveness of ISO 9001 implementation quality management principles, as drivers of quality management systems, and components proposed by the standards to be measured (Iso.org, 2019). Therefore, it is very important to develop instruments for measuring the effectiveness of the application of other ISO 9001 in food manufacturing companies. Some methods for developing measurement instruments from the effectiveness of applying ISO 9001 in packaging manufacturing companies are literature studies.

Standard of ISO 22000: 2018

According to ISO.org (2018) The new standard ISO 22000: 2018 offers dynamic control of food safety hazards which incorporates the main elements of the generally recognized following: interactive communication, system management, prerequisite programs (PRP), and the principles of Analysis point danger and Critical Control Points (HACCP). ISO 22000: 2018 new standard and replaces ISO 22000:2005. The aim of implementing a food safety management system (FSMS) to plan, implement, operate, maintain and update the FSMS that provide products and services that are safe, according to their intended use, demonstrate compliance to the food safety requirements in accordance with laws and regulations, evaluate and assess the needs of the food safety of customers who agreed and to demonstrate conformity with them, communicate food safety issues effectively to interested parties in the food chain, ensuring that organizations comply with its stated food safety policy, demonstrate compliance with relevant interest,

All requirements of this document are generic and are intended to apply to all organizations in the food chain, regardless of size and complexity. The organizations involved directly or indirectly, including feed manufacturers, manufacturers of pet food, harvesting crops and wild animals, farmers, manufacturers of ingredients, food manufacturers, retailers, and organizations that provide food services, catering services, cleaning and sanitation services, transportation, storage and distribution services, suppliers of equipment, cleaning and disinfecting, packaging materials and other food contact materials (ISO.org, 2019). Food safety is related to food safety hazards when consumed by consumers Food safety hazards can occur at any stage of the food chain. Therefore, adequate control throughout the food chain is very important. Food safety

is ensured through the joint efforts of all parties in the food chain. ISO 22000: 2018 establishes a standard that combines the following key elements interactive, communication, system management, prerequisite program, principles of hazard analysis and critical control points (HACCP). General principles for ISO management system standards. The management principles are, customer focus, leadership, involvement of people, process approach, enhancement, evidence based decision making, relationship management (ISO.org, 2019).

Integrated Management System (IMS)

IMS is a combination of ISO 9001 (quality), ISO 50001 (energy) and ISO 14001 (environment), health and safety of the organization (ISO 45001), food safety (ISO 22000), education (ISO 21001) and information technology (ISO 27001) and other management system standards. The implementation of an integrated management system (IMS) for better quality management has become a preference for many companies. Many benefits of implementing IMS are improving quality to energy efficiency, environmental performance of IMS can benefit organizations through increased efficiency and effectiveness, and reducing costs while minimizing disruptions caused by several external audits. It also shows a commitment to improve performance, employee and customer satisfaction, and continuous improvement. With an integrated management system, the management system works together, with each function aligned behind one goal: improve the performance of the entire organization. IMS will positively impact the components and results of specific management systems such as quality improvement, safety, risk and productivity (ISO.org, 2019).

Many Reasons for integration of management system in organization such as the quality, the Occupational Health and Safety, food safety together with environmental management. Reduce duplication of activities and reduce cost, eliminate conflict responsibilities and relationships, eliminate waste, harmonise and optimise practices, improve communication, facilitate training and development, integrating the management systems facilitates the focus on the most important aspects in a company, separate systems tend to put focus on each area instead of the common area (Calcedo et al., 2015), the benefit of implement integrated management system are improve performance and have positive impacts such as improving quality, safety, risk and productivity, and able to align standards to find components of the same or single management system. such as policies, goals, processes or resources. accountability, by integrating several management systems at once and setting cohesive goals, processes and resources, with system alignment there is an increase in accountability.

Performance Measurement

In a company, performance measurement is a tool, method, activity and system used to evaluate company performance. The company's target is to satisfy their customers with efficiency and effectiveness rather than their competitors. Measurement of business performance is used in both performance perspectives: efficiency and effectiveness. The effectiveness period based on customer requirements are met, efficiency is an economic measure of company resources used to provide a certain level of customer satisfaction (Alla, 2013). Performance measurement is defined as the process of measuring efficiency and effectiveness. Performance measurement can be defined as a metric used to measure efficiency and effectiveness A performance measurement system is defined as to measure the efficiency and effectiveness of actions, The performance measures in the invoice can be defined as follows: product suitability, features, reliability, quality perception, serviceability,

technical durability, manufacturing time, production costs, service costs, value added, selling price, new product introduction, delivery, volume and resources

RESEARCH METHOD

Data analysis and processing of data on this research using the Structural Equation Model (SEM) using a Linear Structural Model (LISREL) version 8.70. William and Gavin (2004) using LISREL to test the relationship between the latent variables and indicators - indicators. Lisrel software is already widely used to process and analyze the data in some studies include Cavusoglu N. (2012), OleBoe (2015), Ebrahimi (2016) and Acharry (2015)

Construct validity and reliability of the indicators in this study conducted by Confirmatory Factor Analysis (CFA). Testing the validity and reliability of the instrument was performed using confirmatory factor analysis to obtain valid and reliable data. Second-order confirmatory factor analysis (2nd Order CFA) is a measurement model consists of two levels. The first level of analysis performed on the latent constructs all aspects of the indicators and the analysis is done of latent constructs to construct its aspects. Through the CFA not only be done testing the validity of a construct (Construct Validity) but also reliability testing constructs (Construct Reliability). The construct has good reliability is if the value of Construct Reliability (CR) ≥ 0.70 and variance extracted values ≥ 0.50 .

Data This study is based on questionnaires distributed in 24 companies that have implemented ISO 9001: 2015 and ISO 22000: 2018 and each company is given a survey as many as six employees who have a minimum service life of 3 years duty and irresponsibility associated with the implementation of management systems integration so that the number of respondents was 144. Based on the previous studies and the purpose of writing this study, it created a research model as follows Figure 1.

Based on the above research model made the following hypotheses:

1. There is a significant and positive relationship between the implementation of the Quality Management System ISO 9001: 2015 (X1) to the Quality Performance (Y).
2. There is a significant and positive relationship between the implementation of the Food Safety Management System ISO 22000: 2018 (X2) on Quality Performance. (Y)

Based on the hypothesis of the indicator - an indicator of the variables used in this study are indicators of Dependent Variables ISO 9001: 2015 (X1), namely leadership, documentation, internal audit, management review and Quality Risk Assessment (ISO.org, 2015), Indicators of Dependent Variables ISO 22000: 2018 (X2), namely leadership, Hazard Analysis Critical Control Points (HAACCP), prerequisite programs, internal audit, management review and Food Safety Risk Assessment (ISO.org, 2018)., Independent indicators that increase customer satisfaction index, customer complaint reduction, reduction of defects, decrease product returns and reduced cost of quality (McDonald.2003)

RESULTS AND DISCUSSION

The first step is to create a syntax program on Lisell software after that the program is run to get the loading factor of each indicator and variable and to determine the t value of each variable. Data

analysis is done by Structural Equation Model (SEM) using a Linear Structural Model (LISREL) version 8.70 of Joreskog and Sorbom (2008), and the results are in the following figure 2:

Based on figure 2 and figure 3 is concluded that no error variance negative value, and the value of the indicator above the loading factor of 0.5 (> 0.5) and for value loading factor < 0.5 will be issued. The entire value of t which to test the significance of the value of the loading factor of greater than 1.96 (> 1.96). It is that all valid and significant indicator. Then the results of the output lisrell of each indicator and loading factor are summarized in the table for analysis of validity and reliability ummary of the results of the analysis can be seen in the following table:

Based on the above test results showed that the value of the loading factor is obtained entirely above 0.5 (> 0.5), and all the t value obtained is more significant than 1.96 (> 1.96). A summary of the results of the above analyses can be seen in Table 3.

These results can be concluded that both aspects are composed of styles ISO 9001: 2015 (X1) and ISO 22000: 2018 can be summed valid and significant. Results of validity are also reinforced by the value of Chi-Square (χ^2) that generates a value of 2306.77. The next step to calculate the value Construct Reliability (CR) and Variance Value entrance (VR), Construct reliability is a measure of the internal consistency of indicators that show the formation of a variable degree in the variable formed. Extracted variance is a measure of how much of the variance of the indicators were removed by the variable created. Two approaches can be made to assess the reliability of the measurement model is test construct reliability and variance extracted for each latent variables (Hair et al. 2010).

the next step is to summarize the value of construct reliability and variance extracted from the loading factor value of each variable in the following table

Based on the calculation formula CR construct reliability was obtained results and indicators VE for ISO 9001 (X1) of 0.80 (CR) ≥ 0.70 and 0:53 (VE) ≥ 0.50 . and concluded that the variable ISO 9001: 2015 has good reliability and value constructs have good reliability. Indicators ISO 22000: 2018 (X2) of 0.79 (CR) ≥ 0.70 and 0:54 (VE) ≥ 0.50 . and concluded that the variable ISO 22000: 2018 has good reliability and value constructs have good reliability. Quality Performance Indicators (Y) of 0.78 (CR) ≥ 0.70 and 0:54 (VE) ≥ 0.50 . and concluded that the Quality Performance has good reliability and value constructs have good reliability. Therefore, based on the results of the analysis of the reliability calculation can be concluded that the reliability of the whole is a good indicator and conclude that the research meets the requirements of all phases of testing. The next step is to carry out the Analysis of Goodness of Fit (GOF), GOF data obtained from the results of the software execution

Analysis Goodness Of Fit (GOF)

Test the suitability of the model in the overall model fit about the analysis of statistical GOF value generated by the program lisrel, for the relevance of the model (model fit) are good enough and for its model fit the criteria as shown in Table 5.

Based on the results of the analysis above can be seen that all fit indices stated that the model fit. These results indicate that the variable is declared valid and reliable so that it can be concluded that the overall model is still a good match. Model equation (Structural Equations) linear from 8.70 LISREL software obtained as follows figure 4:

Based on the results from all the above analysis, it can be seen that the application of ISO 9001: 2015 (X1) is a positive and significant effect on Quality Performance with t value equal to 0:55. and Implementation of ISO 22000: 2018 is also a positive and significant effect on Quality Performance with t value obtained for 5:12 > 1.96 with a coefficient unstandardized at 0:54. The goodness of fit models is produced pretty good with chi-square value of 2306.77. For the virtue of fit criteria, the

other also already qualified as needed. Rated R Square of 0.90 means the application of ISO 9001: 2015 and ISO 22000: 2018 affect the Quality Performance by 90% while other factors influence 10%.

CONCLUSION

Based on the analysis of the results of research that has been done can be concluded that the implementation of the Quality Management System ISO 9001: 2015 has a positive and significant impact on Product Quality and Implementation of ISO 22000: 2018 also had a positive and significant impact on the Product Quality. The application of the quality management system can run an integrated, system management Integration of ISO 9001: 2015 and ISO 22000: 2018 a significant influence on product quality performance such as increased customer satisfaction index, decrease customer complaint, reduction of defects, decreased returns product and reduce the cost of quality for further research will examine the effects of the application management system in order to add other variables such as the ISO 14001 Environmental management system and Safety management system ISO 45001. The research object not only to the food packaging industry but could also be extended to all types of industries and regions not only in Banten province but could also be extended to other provinces.

LIMITATION

This study has several limitations, the sample not representative of the target population, the number of samples that are not much due to limited time and cost, the object of this study is only in the packaging industry companies even though more other companies have implemented ISO 9001:2015 and ISO 22000:2018. The relationship between variables analyzed only on quality performance and there are more performance that have not been studied such as marketing performance and financial performance. Software used for data analysis is Lisrel and a lot of people not yet familiar with this software. Data analysis in this study uses the Structural Equation Model (SEM) and the results will be more valid if also use Key Performance Indicator trend of quality performance. The research study was only limited to company in the Banten province and the result of questionnaire may not be the same when applied to other provinces.

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TABLE, PICTURE, AND GRAPHIC

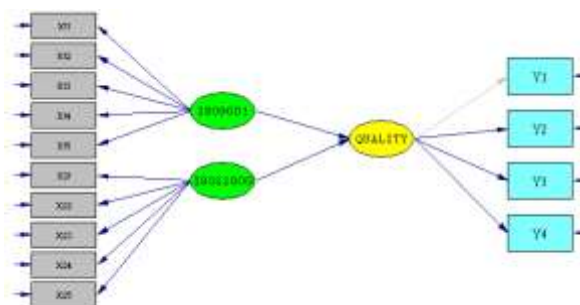


Figure 1 Model Research

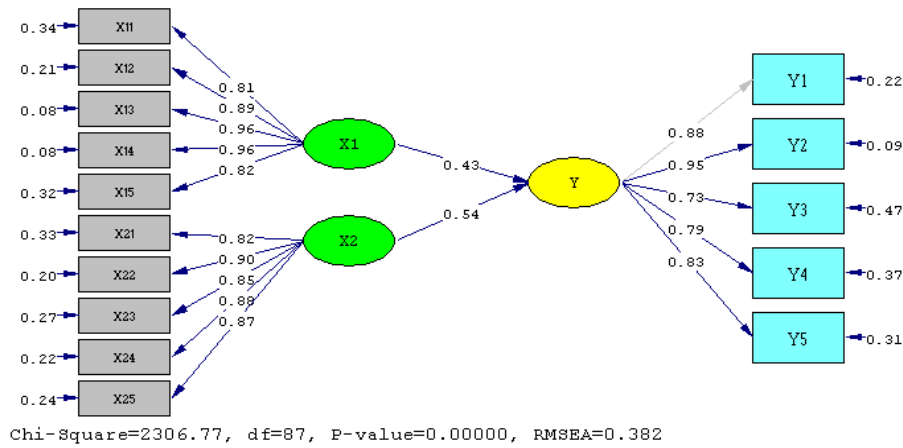


Figure 2 Loading factor Value Indicator

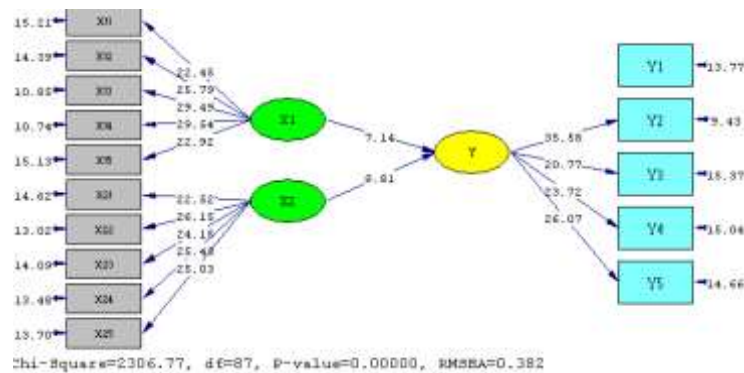


Figure 3. t-Value Indicator

Structural Equations

$$Y = 0.43 \cdot X1 + 0.54 \cdot X2, \text{ Errorvar.} = 0.10, R^2 = 0.90$$

(0.10)
(0.11)
(0.022)

4.15
5.12
4.85

Figure 4 Structural Equations

Table 1 Profile of Respondents According Swipe

Job Title	Man	Woman	Total
Top Management	15	5	20
ISO Coordinator	24	15	39
Manager	23	12	35
Supervisor	34	16	50
Total	96	48	144

Table 2 Results of 2nd Order Analysis Indicators CFA Construct Validity

Variable	Indicator	Loading Factor	T-Value	Remark
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ISO 9001:2015 (X1)	X11	0.81	15.21	Valid & Significant
	X12	0.89	14.39	Valid & Significant
	X13	0.96	10.85	Valid & Significant
	X14	0.96	10.74	Valid & Significant
	X15	0.82	15.13	Valid & Significant
ISO 22000:2018 (X2)	X21	0.82	14.62	Valid & Significant
	X22	0.90	13.02	Valid & Significant
	X23	0.85	14.09	Valid & Significant
	X24	0.88	13.48	Valid & Significant
	X25	0.87	13.70	Valid & Significant
Quality Performance (Y)	Y1	0.88		
	Y2	0.95	35.58	Valid & Significant
	Y3	0.73	20.77	Valid & Significant
	Y4	0.79	23.72	Valid & Significant
	Y5	0.83	26.07	Valid & Significant

Table 3 Analysis For the 2nd Order CFA OCB Construct Validity

Variable	Variable	Loading Factor	T-Value	Remark
ISO 9001:2015 (X1)	X1	0.43	7.14	Valid & Significant
ISO 22000:2018 (X2)	X2	0.54	8.81	Valid & Significant

Table 4 Results of 2nd Order Analysis Construct Reliability.

Indicator	Loading Factor	Loading Factor2	1-Loading Factor2	CR	VE
X11	0.810	0.656	0.344	0.80	0.53
X12	0.890	0.792	0.208		
X13	0.960	0.922	0.078		
X14	0.960	0.922	0.078		
X15	0.820	0.672	0.328		
Total	4.440	3.964	1.036	0.79	0.54
X21	0.820	0.672	0.328		
X22	0.900	0.810	0.190		
X23	0.850	0.723	0.278		
X24	0.880	0.774	0.226		
X25	0.870	0.757	0.243	0.78	0.54
Total	4.320	3.736	1.264		
Y1	0.880	0.774	0.226		

Y2	0.950	0.903	0.098		
Y3	0.730	0.533	0.467		
Y4	0.790	0.624	0.376		
Y5	0.830	0.689	0.311		
Total	4.180	3.523	1.477		

Tabel 5 Goodness Of Fit

Indeks Fit	Value	Value Standard	Remark
<i>Chi-Square</i>	296.47	>0.5	Fit
<i>Root Mean Square Error of Approximation (RMSEA)</i>	0.07	<0.08	Fit
<i>Normed Fit Index (NFI)</i>	0.93	>0.90	Fit
<i>Non-Normed Fit Index (NNFI)</i>	0.93	>0.90	Fit
<i>Comparative Fit Index (CFI)</i>	0.94	>0.90	Fit
<i>Incremental Fit Index (IFI)</i>	0.99	>0.90	Fit
<i>The goodness of Fit Index (GFI)</i>	0.91	>0.90	Fit
<i>Adjusted Goodness of Fit Index (AGFI)</i>	0.92	>0.90	Fit
<i>Relative Fit Index (RFI)</i>	0.91	>0.90	Fit