

Does ISO 9001 reinforce company performance? Evidence from Indonesian Industries

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ABSTRACT

The purpose of this study is to analyze the impact of implementing ISO 9001: 2015 on the performance of manufacturing companies in Indonesia. Data collection is accomplished by online questionnaire via google form and data processing is performed using partial least square with the Lisrell program. Respondents of this research include 210 top management of Indonesian industries implemented ISO 9001:2015 and they are selected by the snowball sampling method, where each respondent helps distribute questionnaires to other respondents. The results of this study show that the organization had significant effect on employee performance, leadership had significant effect on employee performance and planning had significant effect on employee performance. In addition, support had significant effect on employee performance, operation had significant effect on employee performance, performance evaluation had significant effect on employee performance and finally, improvements had significant effect on Employee Performance.

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1. Introduction

Nowadays, to be able to compete globally, especially in the face of free trade, international standards are important to apply (Jenab et al., 2018). The more the number of international standards adopted, the more each country is ready in facing free trade (Udriyah et al., 2019; Ngo et al., 2020). In this article, the authors explain three popular international standards; namely the ISO 9001, ISO 14001, and ISO 22000 standards (Escanciano & Santos-Vijande, 2014) and compare the total acquisition of each ASEAN country in 2013 for them. ISO 9001: 2015 is an international standard of quality management system. This standard aims to help organizations demonstrate to customers that they offer products with consistent quality. ISO 9001: 2015 is one of the most widely applied standards in organizations throughout the world (Fonseca, 2015). From the data announced by ISO, the number of organizations that have been ISO 9001 certified reaches more than 1.1 million (Lazarte, 2015) more specifically, in the ASEAN region, the number of organizations that have been ISO 9001 certified is 42,655. The highest number of ISO 9001 certificates was 12,002 as of 2015 which belongs to Malaysia followed by Thailand with 8,901 certificates and Indonesia with 7,890 ISO certifications. ISO 9001 is an international standard that sets the requirements for a Quality Management System (Afthanorhan et al., 2019). ISO 9001 was first published in 1986 by ISO (International Organization for Standardization), an international body consisting of national standards consisting of more than 160 countries. Since it was first published, ISO 9001 has experienced 2 minor changes (1994, 2008) and 2 major changes (2000, 2015). The latest version of ISO 9001 is ISO 9001 2015. ISO 9001 contains more requirements that must be met by companies, where the way to meet these requirements is submitted to each company depends on the type and complexity of each industry. For example: ISO 9001 requires companies to have quality policies and objectives. The company can set its own Quality Policy and Targets in

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accordance with the company's character. ISO 9001 requires companies to have good resources, human resources and infrastructure. The form of evaluation of human resources or how to ensure that workers are competent (such as proof of driver's license as proof that the driver already has the competence to drive a vehicle properly and correctly) is determined by the company. Likewise, the way to determine good infrastructure, including maintenance of infrastructure, is determined by the company. ISO 9001 requires companies to have standards as a reference for work, to avoid mistakes. The standard form of reference can be set by the company according to the unique character of each company. So, ISO 9001 does not standardize the way and does not limit the creativity of the company. ISO 9001 only provides guidelines for the characteristics of a good Quality Management System, in the form of requirements that must be met by a company to be recognized as a company that has met the criteria requirements set by ISO 9001. Conceptually what is demanded by ISO 9001 is very good and also constitutes characteristics of all superior companies, even though the company is not ISO 9001 certified. Companies must establish customers for the company and define quality from a customer perspective, the company must understand internal and external issues as input to build a Quality Management System, the company must understand the wishes and demands of stakeholders as input for building a quality management system, the company must identify risks and opportunities that can affect operations and achieve company goals. Finally, the firm needs to take necessary action to reduce negative effects and seize opportunities. The company also has to establish Quality Policy and Targets and the Quality Policy has to be a guideline in developing the system and the company's business operations.

The company has a work program to achieve quality objectives and must understand customer desires and ensure agreements with customers can be fulfilled, the company must have a system to manage the work so that the company can send products or services on time as promised with the customer (Xuan & Trung, 2020). The company must have a system to ensure products or services can meet customer requirements and product-related regulations, the Company must provide and ensure that employees who work have the appropriate competence (Human Resources). The company must provide appropriate infrastructure, and maintain the condition of the infrastructure in good condition (Machinery / Infrastructure). The company must establish a method of purchasing to get good material, and exercise control over the material to ensure that the material to be used is good quality material. The company must establish a good work environment, as needed to produce good products and services (Environment). The company must establish a good working method, as a reference in working to avoid mistakes (Method). The company must have a control system to ensure the product or service meets customer requirements and regulations related to the product before it is submitted to the customer (Nguyen & Tran, 2019). They need to measure the product or service is appropriate, for example calibrated when there is a non-conformity with the product or service, the company has a control system for products or services that are not appropriate The company must have a corrective action system to control cause problems with the system and make improvements to the root cause of the problem, so that the problem would not happen in future. The company must check whether the system has been implemented consistently through an audit program (Nguyen & Le, 2019) and the company must know the level of customer satisfaction with the company's products or services (Imran et al., 2019). The company must conduct periodic reviews. Review on the achievement of performance (quality objectives) and effectiveness of the company's quality management system. Companies must have a system to improve operational performance (improvement), the company must control the standards, so that only the latest standards are used for work, the company must control records, so that records are easy sought, not lost, and can be accessed at any time for analysis or search purposes when problems occur.

In implementing ISO 9001: 2015, sometimes not all processes in an organization or company run well and smoothly. There are some common mistakes that make ISO 9001 difficult to run. Here are some of the most common mistakes made by organizations when managing ISO 9001 systems: There is no commitment from top management to ISO 9001 systems. If top management is indifferent in terms of quality, it does not provide resources and mechanisms to plan, control and improve the process of products and services, then ISO 9001 will not be maintained. It is important for top management to make decisions that show that quality, improvement and customer satisfaction are important. Not conducting training for key personnel in ISO 9001, Lack of knowledge about ISO 9001 can be a big mistake. So, it is important for organizations to train key personnel (someone who has a decision making role) in ISO 9001, in order to understand what ISO 9001 is and what the requirements are. Not training all personnel, everyone must receive training about the quality aspects of activities and processes their daily work. Everyone must understand the importance of quality and how they can achieve it. The training must be in line with their responsibilities and the activities they carry out (Click for ISO 9001: 2015 awareness training info). Making the system too complex, if the organization works too hard to keep the system running, it is a sign that the system is too complicated and all administrative work, such as filling out forms and documenting procedures, does not add value to the organization. Ideally the system should be as simple as possible, practical, and should focus on results and improvements, not on documents. Organizations need to take their time to investigate their problems and involve the right people in the investigation process. Generally, the problems that arise are repetitive, so it is necessary to use the corrective action process correctly to reduce or eliminate the emergence of similar problems in the future. If organizations do not take the time to listen to their customers, they will not be able to achieve their goals. To build a solid ISO 9001 management system requires work and time. Efforts to implement the system in a short time will be counterproductive. Organizations need to take the time needed to plan, conduct, examine and act in implementing systems that will improve the process of products and services. In many cases, internal auditors do not have the necessary training and experience to distinguish details of small or big problems in the Quality Management System. Auditors need to focus on issues that will help organizations improve processes and systems. Every organization is different and what works for one organization may not work for another. Organizations need to concentrate

on their own context to build and develop their management systems. Handing over the responsibility of the Quality Management System to one person, ISO 9001 requires participation of the entire organization. If no one has a sense of ownership of the QMS, it is not possible to be sure that the QMS will run, properly. Everyone needs to incorporate quality into their work and activities. Guidance and training are also required, but if quality is not targeted every day & every process then the QMS will not give added value to the organization. Currently many firms are competing to improve the quality of their companies, through quality management system or better known as ISO 9001. Entering the era of global competition and Indonesia's preparation to face the ASEAN economic community (MEA) and each company is demanded to be able to compete globally. It is expected that all companies have international-standard quality standards in handling company management systems. The purpose of this study is to analyze the impact of implementing ISO 9001: 2015 on the performance of manufacturing companies in Indonesia.

2. Methods

This research is quantitative and the method used in this research is a survey method and data collection has been accomplished by distributing. The first step in developing the survey was to set the survey instrument, the independent variable is the result from qualitative phase, namely X1, X2, X3, X4, X5 and X6. Each question item is given five answer options, namely: strongly agree (SS) score 5, agree (S) score 4, disagree (KS) score 3, no agree (TS) score 2, and strongly disagree (STS) score 1. Data collection is done by online questionnaire via google form, then data processing uses partial least square with the LISRELL program. Respondents were selected by the snowball sampling method, each respondent helped distribute questionnaires to other respondents. Respondents in this research were 210 of top management of Indonesian industries implemented ISO 9001:2015. They were selected from metal industries (34 respondents consist of 19 male and female), form rubber industries (25 respondents consist of 14 male and 11 female), form chemical industries (25 respondents consist of 12 male and 13 female is 13), Form plastic industry (19 male and 16 female), form paper industries (33 respondents consist of 17 male 16 female) and form glass industries where 58 respondents replied with 26 male and 32 female (See Table 1).

Table 1
Respondent Distribution

Kind of Industries	Male	Female	Total
Metal	19	15	34
Rubber	14	11	25
Chemical	12	13	25
Plastic	19	16	35
Paper	17	16	33
Glass	26	32	58
T O T A L	107	103	210

The independent variables include (X1) Context of the Organization, (X2) Leadership, (X3) Planning, (X4) Support, (X5) Operation, (X6) Performance Evaluation and (X7) Improvement. The dependent variable is company performance (Y). So that this quantitative research model can arrange the model of research framework as follows

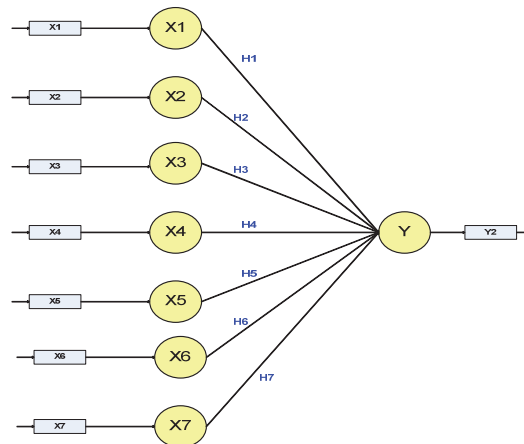


Fig. 1. Research Model

The clauses in ISO 9001:2015, Normative references, terms and definitions, organizational context, leadership, planning, endorsement, operational, performance evaluation and improvement. There are seven hypotheses in this research:

H1: (X1) Context of the Organization has significant effect on Employee Performance (Y).

H2: (X2) Leadership has significant effect on Employee Performance (Y).

- H3: (X3) Planning has significant effect on Employee Performance (Y).
- H4: (X4) Support has significant effect on Employee Performance (Y).
- H5: (X5) Operation has significant effect on Employee Performance (Y).
- H6: (X6) Performance Evaluation has significant effect on Employee Performance (Y).
- H6: (X7) Improvements significant effect on Employee Performance (Y).

3. Result

The method of data analysis was carried out with a Structural Equation Model (SEM) using the Linear Structural Model (LISREL) version 8.71 from Joreskog and Sorbom (2008). Confirmatory Factor Analysis (CFA) testing is carried out by looking at the loading factor value (> 0.5) and t count value (> 1.96). A factor load of 0.50 or more is considered to have a validity strong enough to explain latent constructs (Hair et al., 2012, 2013, 2014) who explains that the weakest loading factor that can be accepted is 0.40. Hair et al. (2012, 2013, 2014) state that constructs have good reliability if the value of Construct Reliability (CR) ≥ 0.70 and the extracted variance value (VR) ≥ 0.50 . They also add that the interpretation of the reliability construct size can be said to be good if the value is more than 0.40. Data analysis was carried out using the LISREL program with the criteria for loading factor values (> 0.5) and t arithmetic values (> 1.96) whose results can be seen in the following figure:

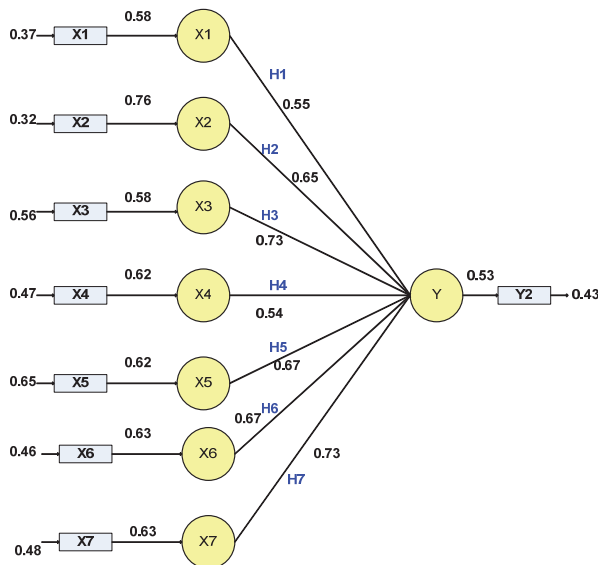


Fig. 2. Loading Factor Confirmatory Factor Analysis

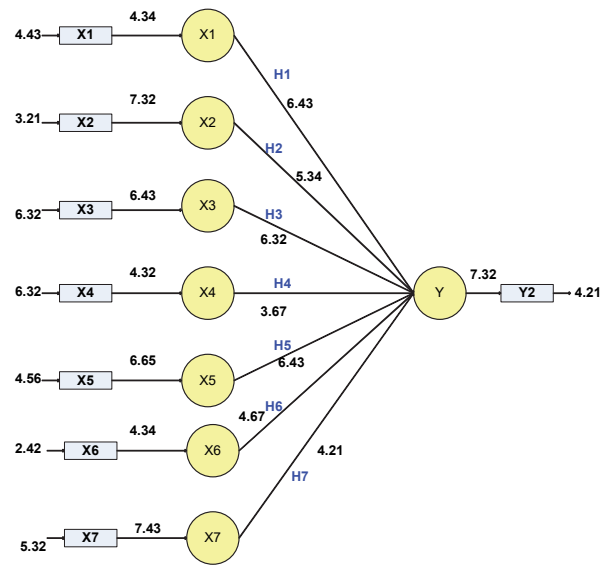


Fig. 3. t-Value Factor Confirmatory Factor Analysis

The first level of analysis is carried out from the latent construct of the aspects to the indicators. Based on the results of the analysis above, all factors loading values > 0.5 and all values of t count needed to test the significance of loading factor values greater than 1.96. This means that of the seven indicators are all valid and significant. The summary of the results of the analysis can be seen in Table 3 as follows,

Table 3
Indicators Construct Validity Analysis

No	Indicators	Loading Factor	t-Value	Remark
1	X1	0.55	6.43	Significant
2	X2	0.65	5.34	Significant
3	X3	0.73	6.32	Significant
4	X4	0.54	3.67	Significant
5	X5	0.67	6.43	Significant
6	X6	0.67	4.67	Significant
7	X7	0.73	4.21	Significant

The second level of analysis is carried out from the latent construct to its aspect construct. Based on the test results the factor loading values are all > 0.5 and all the calculated t values needed to test the significance of the factor loading values are greater than 1.96. The summary of the results of the analysis can be seen in Table 4 as follows,

Table 4
Variables Construct Validity Analysis

No	Indicators	Loading Factor	t-Value	Remark
1	X1	0.58	4.34	Significant
2	X2	0.76	7.32	Significant
3	X3	0.58	6.43	Significant
4	X4	0.62	4.32	Significant
5	X5	0.62	6.65	Significant
6	X6	0.63	4.37	Significant
7	X7	0.63	7.43	Significant

These results indicate that 11 variables are valid and significant to measure the latent variables constraints. The validity results are also supported by the value of Chi Square (χ^2) which produces Chi-Square value of 101.3 with a p-value of 0.125 ($p > 0.05$). Based on the formula of construct reliability calculation, the results of CR = 0.92 and VE = 0.65, which means that Constraints have good reliability. Hair et al. (2012) state that constructs have good reliability if the value of Construct Reliability (CR) ≥ 0.07 and the Variance Extracted value (VE) ≥ 0.40 . Furthermore, for the suitability of the model (model fit), in general it is good. As for the criteria for the model fit is as in Table 5 as follows.

Table 5
Model Fit Criteria

No	Index Fit	Value	Value Standard	Remark
1	Chi Square p	101.3	> 0.05	Fit
2	RMSEA	0.031	< 0.080	Fit
3	NFI	0.91	> 0.90	Fit
4	NNFI	0.91	> 0.90	Fit
5	CFI	0.93	> 0.90	Fit
6	IFI	0.92	> 0.90	Fit
7	GFI	0.91	> 0.90	Fit
8	AGFI	0.83	> 0.90	Not Fit

Table 6
Indicators Construct Reliability Analysis

No	Indicators	Loading Factor	Error	CR	VE
1	X1	0.58	0.37	0.92	0.65
2	X2	0.76	0.32		
3	X3	0.58	0.56		
4	X4	0.62	0.47		
5	X5	0.62	0.65		
6	X6	0.63	0.46		
7	X7	0.63	0.48		

Based on the analysis results it is known that 6 out of 7 index fit states that the model is fit. These results indicate that the (Y) dependent variable model is fit with empirical data. Based on the results of the analysis of the construct validity and the construct reliability, all aspects and items that make up the (Y) dependent are valid and reliable.

The equation model for the relationship between dependent variable publication inhibition and independent variable is obtained as follows:

$$Y = 0.55 X_1 + 0.65 X_2 + 0.73 X_3 + 0.54 X_4 + 0.67 X_5 + 0.67 X_6 + 0.73 X_7 \quad R\text{-Square } 0.95.$$

The R-Square is 0.95 which means the independent variables can describe 95 percent of the changes of the dependent variable.

4. Discussion

Based on data analysis using quantitative methods the following results are obtained:

Hypothesis 1: Context of the Organization has significant effect on Employee Performance.

The relationship between independent variables “X1 Context of the Organization of ISO 9001:2015” with Employee Performance yields loading factor value of **0.56** and t-value of **6.43** so that it can be concluded that the *Context of the Organization* has a positive and significant effect on Employee Performance. These results are the same as the results of research with a quantitative method conducted by Purwanto et al. (2019a, 21019b, 2020a, 2020b, 2020c) and Asbari et al. (2019, 2020) who found the Context of the Organization of ISO 9001 :2015 had a positive and significant effect on Employee Performance.

Hypothesis 2: Leadership has significant effect on Employee Performance.

The relationship between independent variables “Leadership of ISO 9001: 2015” with Employee Performance yields loading factor value of **0.65** and t-value of **5.34** so that it can be concluded that the *Leadership* has a positive and significant effect on *Employee Performance*. These results are the same as the results of research with a quantitative method conducted by Purwanto et al. (2019a, 21019b, 2020a, 2020b, 2020c) and Asbari et al. (2019, 2020) who found the Leadership of ISO 9001 :2015 has a positive and significant effect on Employee Performance.

Hypothesis 3: Planning has significant effect on Employee Performance.

The relationship between independent variables “Planning of ISO 9001:2015” with Employee Performance results loading factor value of **0.73** and t-value of **6.32** so that it can be concluded that the *Planning* has a positive and significant effect on Employee Performance. These results are the same as the results of research with a quantitative method conducted by Purwanto et al. (2019a, 21019b, 2020a, 2020b, 2020c) and Asbari et al. (2019, 2020) who found the *Planning* of ISO 9001 :2015 has a positive and significant effect on Employee Performance.

Hypothesis 4: Support has significant effect on Employee Performance.

The relationship between independent variables “Support of ISO 9001:2015” with Employee Performance gives loading factor value of **0.54** and t-value of **3.67** so that it can be concluded that the *Support* has a positive and significant effect on Employee Performance. These results are the same as the results of research with a quantitative method conducted by Purwanto et al. (2019a, 21019b, 2020a, 2020b, 2020c) and Asbari et al. (2019, 2020) who found the *Support* of ISO 9001 :2015 has a positive and significant effect on Employee Performance.

Hypothesis 5: Operation has significant effect on Employee Performance.

The relationship between independent variables “Operation of ISO 9001: 2015” with Employee Performance provides loading factor value of **0.67** and t-value of **6.47** so that it can be concluded that the *Operation* has a positive and significant effect on Employee Performance. These results are the same as the results of research with a quantitative method conducted by Purwanto et al. (2019a, 21019b, 2020a, 2020b, 2020c) and Asbari et al. (2019, 2020) who found the *Operation* of ISO 9001 :2015 has a positive and significant effect on Employee Performance.

Hypothesis 6: Performance Evaluation has significant effect on Employee Performance.

The relationship between independent variables “Performance Evaluation of ISO 9001: 2015” with Employee Performance gives loading factor value of **0.67** and t-value of **4.67** so that it can be concluded that the *Performance Evaluation* has a positive and significant effect on Employee Performance. These results are the same as the results of research with a quantitative method conducted by Purwanto et al. (2019a, 21019b, 2020a, 2020b, 2020c) and Asbari et al. (2019, 2020) who found the *Performance Evaluation* of ISO 9001:2015 has a positive and significant effect on Employee Performance.

Hypothesis 7: Improvements significant effect on Employee Performance.

The relationship between independent variables “Improvements of ISO 9001: 2015” with Employee Performance yields loading factor value of **0.73** and t-value of **4.21** so that it can be concluded that the *Improvements* has a positive and significant effect on Employee Performance. These results are the same as the results of research with a quantitative method conducted by Purwanto et al. (2019a, 21019b, 2020a, 2020b, 2020c) and Asbari et al. (2019, 2020) who found the *Improvements* of ISO 9001:2015 has a positive and significant effect on Employee Performance.

5. Conclusion

Based on the analysis of research data, the context of the organization has significant effect on Employee Performance, leadership has significant effect on Employee Performance and Planning has significant effect on Employee Performance. Support has significant effect on Employee Performance, Operation has significant effect on Employee Performance, Performance Evaluation has significant effect on Employee Performance and finally Improvements significant effect on Employee Performance.

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