The Impact of ISO 9001, ISO 14001, and OHSAS 18001 Certification on Manufacturing Industry Operational Performance

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Abstract

In the globalization era, competition pace among the industry has been becoming faster. This leads in changes on business process of many companies, including companies in Indonesia. Implementing international standards for management system becomes a critical step and decision for the companies in order to survive in the competition. This research will find the impact of requirements in the integrated management systems on the company operational performance. The object will be 30 manufacturing companies in Indonesia which have implemented the integrated management system. Literature study is conducted to show requirements shared in the integrated management system and operational performance criteria. Structural Equation Modeling will be used in order to analyze the relationship between requirements stated in three standards of ISO 9001, the ISO 14001, and OHSAS 18001 with operational performance criteria. The result of this research shall find the best strategies in implementing these systems specifically for Indonesian manufacturing industries in order to optimize the operational performances.

Keywords
Integrated Management System, Quality Management, Environmental Management, Safety Management, ISO, Operational Performance, Manufacturing Industry

1. Introduction

The changes in the competitive landscape at quicker pace and the flow of the business process is the result of globalization (Martin, 2016). The implementations of quality management system (ISO 9001), environmental management system (ISO 14001) and health and safety management (OHSAS 18001) are some strategies in which companies within different countries around the world used to stay competitive (Nunhes, Motta, & de Oliveira, 2016). The needs of installation of more than one of these standards become urgent and integration of these standards becomes a critical competitive decision of firms (Savino & Batbaatar, 2015). In addition, the management systems implemented and certified share the same philosophy (continuous improvement by the adoption of the PDCA cycle), as well as the same principles and values (Domingues, Sampaio, & Arezes, 2016).

Many companies have implemented systems of quality management, environmental and occupational risk prevention to ensure profitability and reliability of its results (Sanz-Calcedo, Gonzalez, Salgado, Cambero, & Herrera, 2015). Some literatures show that installing the integration system of ISO 9001, ISO 14001, and OHSAS 18001, also gives some benefits in cost saving and customer satisfaction (Dahlin & Isaksson, 2017). On the other hand, it is also stated that implementing these integrated management systems companies will face some difficulties such as lack of human resources and skills, in which can be solved by giving some training for employees about innovation, continuous improvement, safety and risk, and certification process, and also difficulties in models used to implement the integrated management systems (Simon & Douglas, 2013).

2. Literature Review

Competitiveness is one of an organization goal. In this era, such goal can be achieved by entering the customer image and keeping its loyalty. In order to do this, companies need to maintain their product quality, as well as their safety and environmental-based production process. Certifications are made for these criteria as soon as it is available, such as quality management systems, environmental management systems, and occupational health and safety management systems.

Quality management, described in ISO 9000, guides and provides the tool to the companies and organizations to be always with customer's requirements and constantly maintain the good product quality (Maheshwari & Mehta, 2016). With the revision in 2000 of ISO 9001, the focus on customers and continuous improvements became stronger therefore the organization has to be more oriented towards the product chain in which it operates (Jorgensen, Remmen, & Mellado, 2006). ISO has published a new version of ISO 9001 in the autumn 2015 which focuses on the identification and control of risks, therefore it requires top management to take a more active role in aligning quality policies with business need (Manders, de Vries, & Blind, 2015). This research focus is ISO 9001.

Often implemented integrally with quality management system, environmental management system is one of the most widely used standard by industries. Environmental management, described in ISO 14000 series, explain and provide the tools regarding the environmental consideration, besides offering organizations many economic benefits associated with environmental benefits (Neves, Salgado, & Beijo, 2017). Among the series, ISO 14001 is the only auditable standard of Environmental Management System (EMS) which involves regulatory compliance and ideally waste minimization, reduced environmental impact and reduced costs (Maheshwari & Mehta, 2016). By December 2014, 324,148 facilities worldwide had received ISO 14001 certification (ISO, 2015). ISO 14001 also encourages facilities to systematically manage their environmental impacts by requiring them to implement a series of internal management procedures (Arimura, Darnall, Ganguli, & Katayama, 2016).

Besides the two most often standards used by organizations, safety and risk management have been treated importantly in recent years due to improving productivity and the economic and business status besides reducing the accidents rate (O'Toole, 2002). A safety management system is an integrated mechanism that is designed to control the risks and hazards (Shirouyehzad, Rafiee, & Berjis, 2015). A good safety management system should contain rules, strategies and procedure and confirm internal consistency of the organization (Fernandez-Muniz, Montes-Peon, & Vazquez-Ordas, 2008). This standard is described in OHSAS 18001. The Occupational Health and Safety Assessment Series 18001 (OHSAS 18001), which formulated by international certifying bodies based on British Standard 8800 (BS 8800), provides a framework for organizations to put in place proper and effective management of health and safety in the workplace, and also aim at supporting and helping to control the management of risk factors and the promotion of good working conditions (Bevilacqua, Ciarapica, & De Sanctis, 2016).

Since the standards Quality Management (ISO 9001), Environmental Management (ISO 14001) and Occupational Health and Safety (OHSAS 18001), are three of the most frequently used management systems, the integration of two or three of these standards are frequently used and unification of these three standards is the future of management systems (Dahlin & Isaksson, 2017). Besides, integrated management system (IMS) is very much advantageous as compared to the individual management system, such as it can be handled by inter departmental cross functional team therefore the barriers among them are reduced, the savings in the resources and manpower is evident, and shorter external audit process makes the cost is saved (Jewalikar & Shelke, 2017). Also, the most important common features in terms of concrete approach in designing, implementing and operationalizing the models of quality-environment-occupational health and safety management is to promote the principle of continuous improvement, focusing upon problem prevention, placing the human factor within the center of the design process, implementing and operationalizing each management system (Olaru, Maier, Nicoara, & Maier, 2014).

3. Theoritical Background

Integrated management system defined in this research consists of quality management, environmental management, and occupational health and safety.

Total quality is an effective system that integrates all efforts to define, design, fabricate, and install a product or service costing the cheapest possible while providing total customer satisfaction (Noori & Radford, 1995). This quality management indicates that the purpose of quality standards is to demonstrate to customers, the supplier chain and end-users that the product or service concerned is subject to rigorous systematic evaluation and continuous improvement (Walker, 2000).

Environmental management (EM) in industrial process is a particularly important issue. It has two general objectives: prevention of incidents or accidents that might result from abnormal operating conditions, and reduction of adverse effects that result from normal operating conditions (Sanz-Calcedo, Gonzalez, Salgado, Cambero, & Herrera, 2015). Many industries has invested interest in protecting the environment because attractive and safe surroundings are part of its core product (Chan & Hsu, 2016). This way of thinking concludes that environmental management is not just about being environmentally friendly, rather, it is about good business sense and higher profits (Prajogo, Tang, & Lee, 2014).

Health and safety management is one of total quality management aspect that would imply a goal of an injury free and healthy working environment. Vasie (1998) has stated that organizations adopting this approach, therefore, need to recognize that proactive risk control, through an assured health and safety management system, is more effective than reacting to accidents and ill-health once they have occurred.

Firm's operational performance are indicators of effectiveness, efficiency, and environmental responsibility such as, cycle time, productivity, waste reduction, and regulatory compliance (Business Dictionary, 2017). Also, it is stated that operational performance is usually measured as a composite of several performance dimensions and reflects the performance of the internal operation of a company in terms of product/process quality and inventory performance (Martin, 2016).

4. Research Methodology

The first step of the research will be identifying the criteria of operational performances that affected by implementing requirements of integrated management system. Literature study will be conducted in order to specify the criteria. After all criteria are listed, the next step is to obtain primary data. Questionnaire will be spread to 30 manufacturing companies operated in Indonesia. After data has been collected, all factors that will be impacted by these standards will be analyzed by using SEM. By using SEM, the significance of these relationship and impact between the criteria and the IMS requirements will be identified and the result from integrated model will be used as main data to develop implementation strategy of integrated management system.

5. Conclusion and Recommendation

The result has shown some impact of three standard certifications on industry operational performance. With implementation of these standards, operational performances such as production volume, production efficiency, time efficiency, and waste reduction have been developed positively. The connection between these operational performance criteria and the ISO 9001, ISO 14001, and OHSAS 18001 criteria is found with SEM analysis, becoming a benefit connection that can be achieved and applied as an optimal operational strategy.

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Biography

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