

Quality Management System Implementation in Certified Children's Toy Industries: The Level of Application, Motives, and Constraints

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ABSTRACT

This study was designed to measure at which level the quality management system (QMS) had been implemented in the children's toy industries with SNI-certified products (SNI=Indonesian National Standard) in Yogyakarta, Indonesia. SNI certificates are granted only if a company has applied QSM based on ISO 9001. The analysis also observed the company's motives and constraints in QMS realization using the case study of four SNI-certified children's toy companies from the existing 21 toy enterprises in the area. The results showed that the level of internal QSM implementation in small-scale toy industries was poor but fairly good among the medium-scale companies. The medium-scale industries can apply QMS better than the small-scale ones because they have established a department responsible for actualizing the quality system. These industries employed QMS due to various motivations, including to improve product quality, operational time, and QMS and to reduce the number of product defects. Nevertheless, they also had to overcome one particular constraint, that is, the costs of QMS implementation add to the financial responsibility of the companies.

Keywords: *QMS, toy industries, application, motives, constraint*

1. INTRODUCTION

The implementation of a quality management system (QMS) based on ISO 9001 has a significant influence on certified companies. Previous studies have proven that by applying QMS, a certified company can successfully improve its quality system, customer satisfaction, and company image [1] and that motivation to receive certificates positively correlates with the effectiveness of ISO 9001 implementation [2]. In Indonesia, children's toy industries are obligated to apply product standards through the Indonesian National Standard (SNI) certification. This SNI certification is a guarantee of quality and requirements for the final products. To receive product certification, the owner of the company needs to have implemented QMS (BSN, 2009). For instance, the standards for QMS in toy industries are according to ISO 9001. Several studies have shown that QMS is a useful tool to ensure the quality and competitiveness of the company [3], improve management and work efficiency [4], and operational performance [5]; [2]. The adoption of ISO 9001 for QMS can improve the production process in the company [6]. Companies that

have successfully applied ISO 9001-based QMS are known to achieve improvements in product quality, operational performance, and business [7]; [8], as well as quality management [9]. QMS can also show that quality can be created, controlled, and improved through standard procedures [10].

The company's motives to receive certification by applying ISO 9001-based QMS are caused by internal and external reasons [11]. Internal reasons are the willingness to improve processes or procedures, while external reasons are related to pressures, demands, and incentives [12];[13]. Applying standard processes through QMS encourages companies to reduce human errors during the work [14]. For companies, being certified means effective management and control over day-to-day activities [15], as well as wider access to market [16] or, in other words, an opportunity to build and open new markets for their standard-compliant products. The application of QMS in the company is not without obstacles. Internalizing ISO 9001-based QMS requires transformation and transfer of knowledge, which are not easy. QMS can be transformed internally through two practices: (1) education on standards for the employees and (2) improvement of production processes conforming to the documented standards [17]. For some companies, the limitations and capabilities of human resources and financial conditions can create a significant obstacle to the application of a standard [18], meaning that these companies require more time to implement it effectively.

Training for any staff involved in the standardization process is inevitable as it is a form of human resource management. It is essential because this process focuses on not only technical matters but most importantly strategy [16]. Issues of technical gaps, government regulations, awareness and access to information, and financial access also constrain companies from adopting sustainable standards properly [18].

Previous research has identified many motives for and conditions during the internal implementation of QMS in a company, and some of the findings are surprising. The quality of internal QMS implementation in certified companies is insignificant, and the QMS elements are applied minimally [19];[15]. In response to this, the effectiveness of QMS implementation among certified companies needs to be measured by the management parties to achieve necessary enhancement [20]. This study was intended to identify the application of QMS in SNI-certified children's toy industries as a prerequisite for receiving the certification of SNI product and then to explain the motives for and constraints in QMS implementation.

2. METHODOLOGY

This research is a case study of SNI-certified children's toy industries. It employed a quantitative research approach to obtain information on QMS implementation within the enterprises (internally). A search through the toy companies in the Special Region of Yogyakarta resulted in 21 industries with various types of toy products. Only four of them had SNI-certified products.

The questionnaire instrument was developed and tested in a pilot study, then carefully revised and improved to obtain a validated questionnaire instrument. It contains questions formulated based on information, literature reviews, and previous research. This questionnaire is divided into three parts, namely (1) a checklist to measure the application of clauses in ISO 9001-QMS in the company, (2) a

questionnaire on the company's motives to apply QMS, and (3) a questionnaire on the constraints in QMS implementation.

The questionnaire was distributed to the four children's toy industries that had SNI certified products and had applied the ISO 9001-based QMS as a condition for obtaining the SNI certification for their final products. Among the four companies, three of them represented small-scale industries, and one was classified as medium-scale. This industrial classification was based on the Regulation of the Indonesian Minister of Industry No. 64/M-IND-PER/7/2016. The questionnaire was given to personnel who had a role in implementing QMS internally, namely company owners, production departments, and quality control departments. Afterward, the data obtained from this questionnaire survey was processed statistically in SPSS v.18.

The assessment criteria for QMS application were based on the availability of QMS procedures in the company, the availability of quality documents, and their use in the company. For this study, the last criterion is differentiated into not implemented, minimally implemented, not fully implemented, and fully implemented.

3. RESULTS AND DISCUSSION

There are four children's toy industries that have SNI-certified products in the Special Region of Yogyakarta. Each has a different classification according to the number of workers, investment values, the length of time the company has held the product certificate, and the source of costs for certifying their products. Three of the four companies had certified their products during the government's facilitation program and one industry had proceeded its product certification at the company's expense (see Table 1).

Table 1 The characteristics of selected children's toy industries with SNI-certified products

SMEs	Types of Products	Workers	Investment Values	Length of Holding Product Certificates	Sources
A	Educational teaching aids	15	< 1 billion	4 years	Facilitation
B	Educational teaching aids	10	< 1 billion	4 years	Facilitation
C	Educational teaching aids	12	< 1 billion	4 years	Facilitation
D	Educational teaching aids	27	1 – 15 billion	6 years	Independent funding

3.1. Quality Management System Implementation in Children's Toy Industries

Table 2 shows the level of QMS implementation in the four toy enterprises analysed in this study. These results were

obtained from the questionnaires given to company owners, heads of the production department, and heads of the quality control department. They were asked to provide information and answers reflecting the state of the company during the implementation of "the clause procedures of ISO 9001-based QMS", "the availability of quality documents", and "conditions during implementation".

Table 2 The level of QMS implementation in children's toy industries

SMEs	Clauses	Percentage of application	Categories
A	Clause 4: Quality Management System	37.78%	Bad
	Clause 5: Management Responsibility	40.00%	Medium
	Clause 6: Resource Management	40.00%	Medium
	Clause 7: Product Realization	38.18%	Bad
	Clause 8: Measurement, Analysis, and Improvement	32.00%	Bad
B	Clause 4: Quality Management System	35.56%	Bad
	Clause 5: Management Responsibility	37.78%	Bad
	Clause 6: Resource Management	40.00%	Medium
	Clause 7: Product Realization	36.36%	Bad
	Clause 8: Measurement, Analysis, and Improvement	30.00%	Bad
C	Clause 4: Quality Management System	37.77%	Bad
	Clause 5: Management Responsibility	33.33%	Bad
	Clause 6: Resource Management	36.00%	Bad
	Clause 7: Product Realization	34.55%	Bad
	Clause 8: Measurement, Analysis, and Improvement	32.00%	Bad
D	Clause 4: Quality Management System	89.62%	Very good
	Clause 5: Management Responsibility	97.77%	Very good
	Clause 6: Resource Management	92.00%	Very good
	Clause 7: Product Realization	95.76%	Very good
	Clause 8: Measurement, Analysis, and Improvement	92.66%	Very good

The assessment results of the QMS implementation were categorized into a rating scale, namely "Very bad = level of implementation < 20%", "Bad = 20% ≤ level of implementation < 40%", "Medium = 40% ≤ level of

implementation ≤ 60%", "Good = 60% ≤ level of implementation ≤ 80%", "Very good = 80% ≤ level of implementation ≤ 100%".

Table 3 The internal motives of small-scale industries to implement QMS

Company's motives	Means	Modes	Std. Deviations
Increased product/service quality	4.33	4	0.577
More efficient operational time	4.33	4	0.577
Improvement in the quality management system	4.33	4	0.577
A decrease in the number of incompatible products/defects	4.33	4	0.577
Improvement in internal process and procedure	4.00	4	0.000
Company's decision /commitment	4.00	4	0.000
A rise in profits	4.00	4	0.000
Reduced operational costs	3.67	4	0.577

Table 4 The internal motives of medium-scale industries to implement QMS

Company's motives	Means	Modes	Std. Deviations
Company's decision/commitment	5.00	5	0.000
A decrease in the number of incompatible products/defects	5.00	5	0.000
Improvement in quality management system	5.00	5	0.000
Increased product/service quality	5.00	5	0.000
Improvement in internal process and procedure	4.67	5	0.577
More efficient operational time	4.67	5	0.577
A rise in profits	4.00	4	0.000
Reduced operational costs	4.00	4	0.000

Tables 3 and 4 show similarities between the internal motivations of the small and medium-scale toy industries to apply QMS. The similar motives were to improve product quality, efficient operational time, and quality management

system and to reduce the number of defects. However, the primary internal motivation of medium-scale toy enterprises to implement QMS was the company's decision or commitment.

Table 5 The external motives of small-scale industries to implement QMS

Company's motives	Means	Modes	Std. Deviations
Government's facilitation	4.33	4	0.577
A response to government's requirements	4.33	4	0.577
An effort to maintain and increase product competitiveness	4.00	4	0.000
Company image enhancement	4.00	4	0.000
Fulfilment of requirements in business transactions	3.67	4	0.577
Request or pressure from customers	3.33	3	0.577
Market regulation pressures	3.33	3	0.000
A promotion strategy	3.00	3	0.000

Table 6 The external motives of medium-scale industries to implement QMS

Company's motives	Means	Modes	Std. Deviations
An effort to increase competitiveness	5.00	5	0.000
Company image enhancement	5.00	5	0.000
A response to government's requirements	3.67	2	1.528
Fulfilment of requirements in business transactions	3.33	4	1.155
A promotion strategy	3.33	4	1.155
Market regulation pressures	3.33	4	1.155
Government's facilitation	2.67	1	1.528
Request or pressure from customers	2.00	1	1.000

Based on the respondents' answers, the external motives of small-scale toy industries to adopt QMS included the government's facilitation and the necessity to respond to the requirements that the government had set as the standards

for children's toys (see Table 5). Meanwhile, for the medium-scale industries, the external motives were the potential for increasing competitiveness and company image (see Table 6).

Table 7 The constraints in QMS implementation in small-scale children's toy industries

Constraints in QMS implementation	Means	Std. Deviations	Ranks
Costs of implementation and certification	4.7500	0.43301	1
Financial access	3.9167	0.14434	2
Company's awareness and access to information	3.8333	0.38188	3
Applicable regulations	3.7633	0.51316	4
Technical gaps	3.6667	0.57735	5

Table 8 The constraints in QMS implementation in medium-scale children's toy industries

Constraints in QMS implementation	Means	Std. Deviations	Ranks
Costs of implementation and certification	3.9167	0.57735	1
Technical gaps	3.8900	0.19053	2
Financial access	3.2500	0.43301	3
Company's awareness and access to information	2.5833	0.28868	4
Applicable regulations	2.5567	0.76788	5

The questionnaire survey found that the four industries faced similar obstacles in operating QMS, namely costs of implementation and certification. For the small-scale toy enterprises, the major constraint was the costs of implementation. Problems in financial access were deemed crucial in applying an effective QMS (see Tables 7 and 8).

3.2. QMS Implementation in Children's Toy Industries with SNI-certified Products

The Indonesian National Standard (SNI) Certification is a standard that nationally applies in Indonesia. Products that meet SNI requirements are granted with product certification. The quality management system (QMS) has

been implemented internally in the four companies observed in this study as a condition to obtain product certification. Based on the assessment results, the application of QMS in three (3) children's toy industries with SNI-certified product fall into the category "bad" even though an effective QMS implementation is known to increase operational benefits and production process [8];[19];[6]. SNI-certified small-scale toy industries appear to have poor to moderately good QMS implementation ("Bad = 20% ≤ level of implementation < 40%" and "Medium = 40% ≤ level of implementation ≤ 60%"). This finding confirms that passing SNI certification does not necessarily correlate with the proper implementation of QMS in a company, which is in line with [19]. Although the company owners have a sufficient understanding of QMS and the

benefits of its application, the limited number and educational level of the staff pose a significant challenge for the company's leaders in channelling the importance of standards to their employees. QMS has not been fully implemented in the company, meaning that no QMS documents are available.

On the contrary, the internal realization of QMS in the medium-scale children's toy industry is categorically very good because this company feels how QMS has successfully improved the product quality and company image to date. This company has appointed a management representative in charge of implementing the quality standards. It is consistent with [11], which explains that company size controls the perceived benefits of QMS implementation. The medium-scale toy industry can apply QMS well because its board of leaders is committed to using management system procedures and activity documentation for performance evaluation and communicate them to the employees. Previous research claims that an apparent attitude and commitment of leaders in the company can make QMS implementation run effectively [2].

This study has found the major reason behind poor internal QMS implementation in certified toy industries. These companies do not have units or people who handle standardization, and consequently, the standard practices and documented procedure implementation cannot be carried out both strategically and effectively. It is consistent with Blind (2016), who states that the existence of a standardization unit within a company promotes strategic actions to execute the regulations of said standardization. Documents and records of quality are not available, which marks the partial implementation of QMS in children's toy industries. In QMS, documentation is fundamental because the produced files are a work reference, evidence of application, and material for evaluation and planning of future activities; all of which enable continuous improvement. This argument is consistent with Cai (2017) who claims that documentation is a vital step in the process of QMS internalization. For better compliance with the standards, the companies need continuous improvement and involve all parties to gradually complete the basic principles of the existing standard [13].

3.3. The Motives of SNI-certified Children's Toy Industries to Implement QMS

This study has found that the motives of the four SNI-certified toy industries to apply QMS internally are similar, namely to improve product quality, efficient operational time, and quality management system itself and to reduce the number of product defects. These results correspond with [3];[12];[10];[21], all of which affirm that the primary internal reasons why certified companies implement QMS are that it can improve the internal process and procedure and increase product quality. As for the medium-scale toy industry, the major internal motive is this company's commitment. Interviews with respondents have revealed that the company's commitment to applying QMS is apparent from the management system review, which has been carried out to ensure regular compliance with the standards. These results are consistent with [22], which

suggests that companies must correct all ineffective actions in preserving the certification they own. Strong commitment from top management produces positive impacts as it ensures the regular audits, revision, and improvement of QMS for the company's effectiveness [21]. The effectiveness of implementing and maintaining QMS is driven by a strong corporate culture [15].

The small-scale toy industries are motivated to use QMS because of two external motives, which are the government's facilitation for product certification and willingness to respond to the government's regulatory requirements. These are believed to be the underlying factors of the less effective QMS application, which is a determinant for the companies to receive a product certification. The companies observed in this study have yet to appoint staff to be responsible for proper QMS practices. QMS implementation is unfortunately carried out merely by the company's owners. This finding is in line with [3] that confirms approaches in QMS practices and the absence of staff's participation as the major problems within the company. In this situation, staff empowerment and effective communication from the company leaders are required for an effective QMS [15]. The goals, objectives, and functions of QMS in a company need to be determined and communicated by the company's leaders to build the required policies on product quality [23].

The external motives of the medium-scale toy industry stem from the necessity to maintain and increase product competitiveness and company image. Respondents are aware that product competitiveness depends on the quality of the products and will build the company's image indirectly. This image is thought to improve because the company has the proper quality system [24];[4]. High competitiveness is guaranteed through QMS implementation [3] because QMS directs the operation and includes all necessary processes to run the industry [25].

3.4. Constraints in QMS implementation in SNI-certified children's toy industries

Costs of implementation and certification are found to be a general obstacle that both small and medium-scale enterprises have to face. The application of standards within the company incurs additional financial expenses, confirming the previous finding, that is, certification complicates the company with its procedure and cost [12]. Business actors in small-scale toy industries present costs of an audit, complete documentation for certification requirements, and laboratory testing for products as a particular financial burden in implementing standards because they will permanently turn into the company's fixed costs. However, at the same time, product sales are not as significant as the money spent on this implementation. This finding supports [18] who suggests that costs of implementation and certification are the major obstacles in implementing standards in small-scale enterprises. Government policies are necessary for assisting business actors in toy industries in financing the costs of QMS implementation and certification. According to Blind (2016), encouragement for practical QMS application is required, for example, by establishing an appropriate

support scheme for companies to participate in standardization as a public policy.

4. CONCLUSION

Previous studies have not thoroughly analysed the application of quality management systems in children's toy industries with SNI-certified products, particularly in small-scale enterprises. The findings in this research are in line with Prajogo (2015), which explains that holding certification does not necessarily show the quality of QMS application in the company. On the contrary, the medium-scale toy industry can implement QMS effectively because it has a standardization unit or department. Also, it believes that implementing QMS as a strategic step proves its commitment to improving the company's competitiveness and image. These results are consistent with Blind (2016), which confirms that companies with a standardization unit can act strategically in standardization.

The motives of certified toy industries to practice QMS are generally to improve product quality, efficient operational time, and quality management systems and to reduce the number of product defects. However, these enterprises face major obstacles in implementing QMS internally, including the costs for completing relevant documentation and quality system audit fees as a part of certification requirements. This finding is in line with Sommer (2007), which claims that companies perceive costs for adopting a standard as a constraint.

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