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Provocation Through ISO 9001 Certification: What is the Most Significant to Output Quality, Quality Awareness or Procedure Documentation?

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ABSTRAK

Tujuan penelitian ini adalah mengidentifikasi perubahan paling signifikan yang terjadi pada karyawan dan organisasi ketika perusahaan telah memperoleh sertifikasi ISO 9001, sekaligus mengkaji bagaimana pengaruh perubahan tersebut terhadap kualitas output. Penelitian ini menggunakan kombinasi teknik analisis The Most Significant Change (MSC) dan Structural Equation Model (SEM). Penelitian dilakukan di sebuah perusahaan percetakan di Jakarta, Indonesia, dan dilakukan pada rentang bulan Januari hingga Maret 2023. Teknik analisis MSC melibatkan 3 informan dan 100 responden terlibat dalam kegiatan survei terkait pengisian kuesioner yang disebarkan peneliti. Hasil MSC (perubahan paling signifikan) yang teramati yaitu setelah perusahaan (BOS) mendapat sertifikasi ISO 9001 adalah kesadaran mutu dan dokumentasi prosedur. Kedua variable tersebut menunjukkan pengaruh positif dan signifikan terhadap kualitas output. Dokumentasi prosedur menunjukkan pengaruh yang lebih besar dibandingkan kesadaran kualitas terhadap kualitas output. Namun, Praktek Manajemen Kualitas sebagai variabel moderator terbukti mampu meningkatkan pengaruh kesadaran mutu terhadap kualitas output. Penelitian lebih lanjut dapat dilakukan dengan memperluas cakupan penelitian ini, yaitu dengan mensurvei responden dari organisasi yang berbeda sehingga dapat meningkatkan aspek generalisasinya.

Kata Kunci:
Dokumentasi Prosedur; Kesadaran Mutu; Kualitas Output; Praktek Manajemen Kualitas; Sertifikasi ISO 9001

ABSTRACT

This research aimed to identify the most significant changes that occur to employees and organizations when the company has obtained ISO 9001 certification and examine how these changes affect output quality. This study used a mixed method, combining The Most Significant Change (MSC) and Structural Equation Model (SEM) analysis techniques. This research was conducted in a printing company in Jakarta, Indonesia. This was carried out from January to March 2023. The MSC analysis technique involved 3 informants, and 100 data respondents involved in a survey related to filling out the questionnaire. After the company (BOS) received ISO 9001 certification, the MSC results were quality awareness and procedure documentation. Both showed a positive and significant effect on output quality. Documentation of procedures showed a greater influence than quality awareness. However, Quality Management Practices as a moderator variable were proven to be able to increase the effect of quality awareness on output quality. Further research can broaden this scope by surveying respondents of different organizations so that generalization is increased.

Keywords:
ISO 9001 Certification; Procedure Documentation; Quality Awareness; Quality Management Practices; Output Quality

INTRODUCTION

Output quality becomes a priority target for every company as competitiveness between firms rapidly increases, customers' demands are constantly changing, and drive to be more competitive. Georgiev and Georgiev (2017) stated that quality is important as a company's sales point to show their competitiveness. Additionally, the quality may be utilized to boost production and gain a competitive edge. Quality that is already certified is a competitive strategic tool for gaining higher company value in the market (Othman et al., 2020). Therefore, many companies participate in the quality movement since the competition among them has already increased (Chatzoglou and Chatzoudes, 2015). A quality system is crucial for organizations because of the rising competitiveness. The fact that the typical manufacturing business in Indonesia demonstrates that product quality is still regarded as low makes this issue a significant one in Indonesia.

Armstrong et al. (2014) stated that product quality is the ability of a product to carry out its functions, including durability, reliability, accuracy, ease of operation repair and other valuable attributes. With regard to output quality, in general the results of the work produced by each employee must be guaranteed for reliability and accuracy. The concept of the output quality must also represent conformity between aesthetics, ethics, and norms (Mappamiring and Putra, 2021). Understanding what people anticipate is necessary to provide a product of the desired quality. Quality is not only aimed at fulfilling what has been promised or being better than competitors, but being the only reference for consumers should be the goal of achieving quality itself (Agyekum et al., 2015).

Output quality needs to be standardized and validated since quality is difficult to define and quantify. The main aim of the ISO 9000 series is acceptance of quality certification and since now, the expectations have been achieved and gain the best possible result. ISO 9000 standard is a minimum requirement for companies to ensure their consistency of products, service and processes that are proven by the certification obtained (Bravi et al., 2019). Organization needs to focus and ensure that quality products or services are delivered. The management control tool is required, and ISO 9000 can be used as well as a driver of innovation within the organization. ISO 9000 is also applicable for companies to detect a mistake, build a seamless operation and guarantee consistency of their quality product or service (Djofack and Camacho, 2017).

Unlike ISO 9000 which provides general guidance and basic principles for quality management, ISO 9001 covers specific requirements regarding quality management systems and certifies organizations that meet those requirements. In the last few decades, ISO 9001 has considered as the most important quality assurance program (Djofack and Camacho, 2017). An international standard for quality management called ISO 9001 strives to help businesses and organizations create and execute quality, as well as make sure that their goods and services constantly satisfy consumer needs and are continually improved. It can be used by any organization, large or small, regardless of its field of activity

and is based on a number of quality management principles, a strong focus on customers, engagement of people, leadership, process approach, and improvement (ISO, 2017). The trend of increasing the use of ISO 9001 in the world is a clear parameter regarding its success (ISO, 2016).

The benefits of ISO 9000 implementation has been widely recognized in recent years as a means to build better organizational performance compared to companies not certified ISO 9001 (Valmohammadi and Kalantari, 2015), minimize the number of damaged products so it can reduce cost (Setiyanto and Risdiana, 2017), continuous and profit improvement, marketing benefits, enhance quality, efficiency, and other operational performance of an organization (Muhajjir and Gunawan, 2018; Martin, 2017), and also increase market shares (Charles, 2015). Kakouris and Sfakianaki (2018) showed that the certified companies gain a number of both internal and ex ternal benefits, including quality awareness, increased productivity, increased personnel participation and efficiency, improved image, and penetration into new markets.

In the process of implementing ISO 9000, after ISO 9001 certification has been obtained, several previous studies have revealed factors that can support the effective adoption of ISO 9000, on the other hand many factors also become barriers. Internal or external motives for implementing ISO 9000 can be an enabler factor or a barrier factor in the implementation of ISO 9000. The main internally driven motives for implementing ISO 9000 include improvement of customer service, reduction in costs, improvement of production efficiency, quality improvement, improvement of procedures, and increase of quality awareness (Tarı´et al.,2013; Prates et al., 2014). Whereas, the main externally driven motives for implementing ISO 9000 are customers' demand, increase of market share, to be considered in tenders, and as a marketing tool in general (Tarı´et al.,2013; Psomas et al., 2013; Santos et al., 2014; Psomas and Kafetzoupoulos, 2014; Psomas and Antony, 2014; Chatzoglou et al., 2015).

Previous studies showed that internal motivation to implement ISO 9000 is a significant parameter influencing successful implementation of ISO 9000 (Fonseca and Domingues, 2018; Rosa et al., 2017; Caridade et al., 2017). On the other hand, if the motives behind implementing ISO are external (e.g. access to new markets, customer satisfaction, and improvement market share), the improvements obtained are mainly of an external nature (Tarı´et al., 2013). The strong relationship between motives that lead to implementation and the benefits that derive from it, is widely supported (Chatzoglou et al. 2015). Thus, the success of ISO implementation is entirely dependent on the reasons why the certification was adopted in the first place, and they conclude that the right reasons will return improved performance and benefits.

Muhajjir and Gunawan (2018) stated that although there are many benefits to be gained by having an organization certified through ISO 9001, there are obstacles that must be overcome for successful implementation, especially those related to time demands, costs, excessive documentation, resources, and effort. Indeed, for a company to become certified and comply with ISO 9001 standards,

a high investment of time, effort and organizational resources is required (Kafetzopoulos et al., 2015), the bureaucratic management of standard, high implementation and maintenance costs (Rebelo et al., 2015), and also lack of resources, or specific technical resources and capabilities, changes in corporate culture (Zgadavova et al., 2017). The time and costs associated with implementing ISO are primarily an issue for small companies, especially when compared to the expected turnaround. In contrast, adopting ISO for large companies is more encouraged because of internal considerations such as cost reduction, production efficiency, and process improvement. Those are reasons why the scholarly literature remains skeptical on ISO implementation (Kakouris and Sfakianaki, 2018).

Kakouris and Sfakianaki (2018) stated that several of the companies studied showed a direct relationship between ISO certification and reduced errors and defects. Chatzoglou and Chatzoudes (2015) also stated that although some of the benefits of ISO certification may not be fully proven, the facts show that companies that have been ISO certified show a reduction in errors which in turn will have an impact on reducing production costs, reducing customer complaints, and ultimately increasing sales. Although most of the studies on ISO adoption show facts related to procedural efficiency, reduced error rates, and operational efficiency, some experts also find a weak correlation between certification and defect reduction, especially if ISO 9000 was approached inappropriately (Goetsch and Davis, 2015). Debates are also often encountered when attention seems to be focused on detecting and correcting defects rather than prevention, thus making ISO 9000 and quality management practices such as TQM (Total Quality Management) appear to be contradictory. This view is understandable because when ISO 9000 is approached inappropriately, the risk is that certification may only become a tool, and does not enhance the quality philosophy. However, ISO 9000 and TQM actually complement each other, and ISO 9000 became an important part of the initial journey of TQM (Kakouris and Sfakianaki, 2018).

In implementing ISO 9000, every organization must consider the various risks that may arise, the benefits that can be obtained and even the weaknesses. The impact that occurs with the implementation of ISO 9000 can vary greatly from one organization to another, even from one country to another. Variations that occur depend on several aspects of the organization, for example related to the level of quality awareness, commitment to implementing quality management practices and infrastructure readiness. Other aspects in this regard include managerial knowledge, company support for achieving the desired quality level, external quality requirements, product complexity, competition in the industry, company size, capital intensity, level of diversification, implementation time, and maturity of quality management tools (Murmura and Bravi, 2017). Numerous studies on the effect of ISO 9001 on business performance have been undertaken, however the findings varied widely due to the diverse nature of the factors taken into account (Martin, 2017). While some of these researches found that ISO 9001 improved firm performance, others (Kumar et al., 2018) claimed that there was no obvious influence.

The above organizational aspects greatly contribute to the varying impact of implementing ISO 9000 in an organization. However, the most influential factor in the implementation of ISO 9000 is the extent to which this certification is considered important by senior management or top management. If the certification is perceived negatively then top management will not implement the standard, but conversely if the standard is perceived positively then top management will provide full support for ISO 9000 certification (Abdullah et al., 2012). This is evidenced by the fact that top management acts as a driving force for the implementation of a quality management system by providing the necessary resources and the key to continuous improvement through value creation, goals and systems to meet customer expectations and improve organizational performance.

Quality management practices require the commitment and leadership of the senior management team led by the chief executive. The company failed to effect quality improvement because the chief executive did not support the quality improvement process. The implications of quality management practices required incremental improvement in all management lines (e.q. HRM, marketing, operations, and distribution management) (Isnaini et al., 2021).

The Deming fourteen principles of quality management practices, namely: (1) setting consistent goals; (2) the ability of a leader to bring about change; (3) build quality in products; (4) build long term relationships based on performance; (5) not rewarding business based on performance; (6) improving products, quality, and services on an ongoing basis; (7) start training; (8) emphasize fundamental aspects of leadership; (9) eliminate fear; (10) breaking down the boundaries between departments; (11) stop criticizing workers at length; (12) support, assist, and improve for the organization; (13) breaking down barriers to feeling proud of each other's work; and (14) establish a robust educational program and self-improvement (Foster et al., 2017). The basic principles of quality improvement included (1) quality development means building awareness to improve quality continuously and adequately; (2) build awareness about quality improvement, it is necessary to establish clear and enforceable organizational goals; and (3) in addition to the leadership aspect, the role of all elements of the organization plays an essential role in realizing the goal of continuous quality improvement (Isnaini et al., 2021).

Based on the explanation above, this research is aimed at digging deeper into how the processes occur within the company so that the implementation of the ISO 9001 certification that has been obtained can provide benefits for the company to improve its performance. Previous studies stated that how does the internal process occur to ensure that companies that have received ISO 9001 certification really benefit, has become a field of discussion with serious disagreements and contentious conclusions (Chatzoglou et al., 2015).

Furthermore, this study chose output quality as a parameter of improvement that can be obtained by companies through ISO 9001 certification. This is because an increase in output quality can

of course reduce rejects so that this can contribute to reducing cost inefficiencies that occur in the company. Therefore, the purposes of this research are (1) to identify the most significant changes that occur to employees and organizations when the company has obtained ISO 9001 certification; (2) examine how the effect of these changes on the output quality; (3) find out what changes have the greatest influence on output quality; (4) examine whether the implementation of quality management practices has a moderating role so as to strengthen the relationship that occurs between these changes and output quality; and (5) formulate an output quality improvement model.

Related with the research purposes mentioned above, then the conceptual framework model and several hypotheses developed in this study. The conceptual framework model can be seen in **Figure 1.**

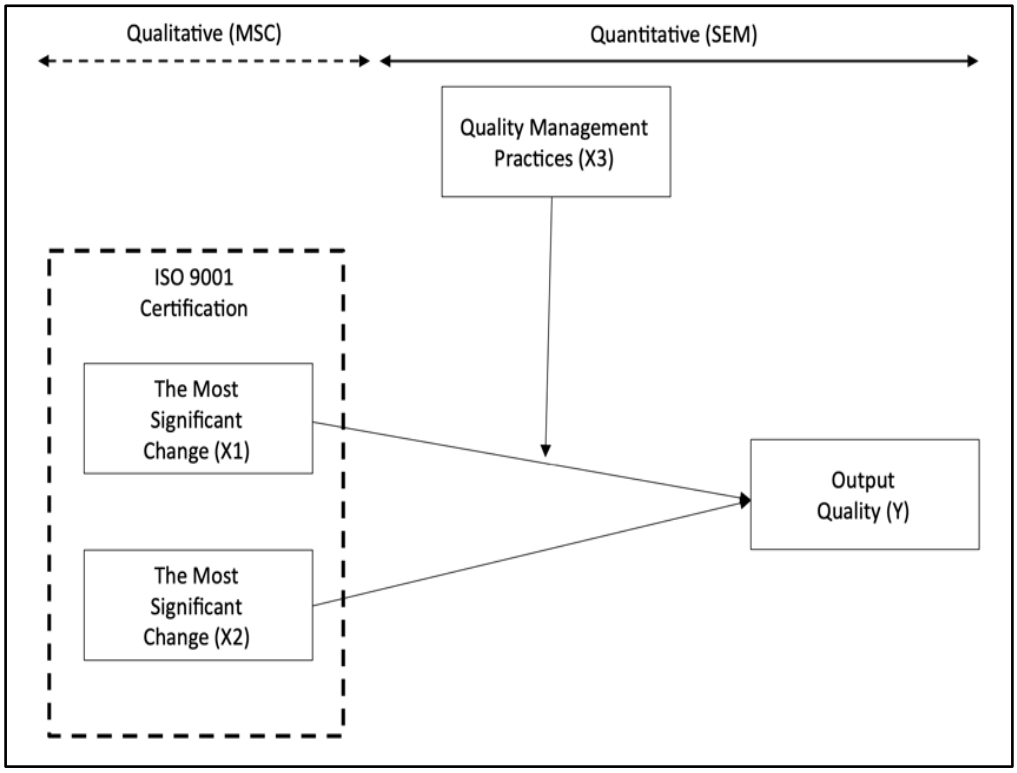

Figure 1. The Proposed Framework
Sources: Author's Data Processing Results (2022)

The tested hypotheses are:

H1: The most significant change (X1) has a positive influence on output quality (Y).

H2: The most significant change (X2) has a positive influence on output quality (Y).

H3: Quality management practices (QMP or X3) moderates the relationship between the most significant change (X1 or X2) and output quality (OQ or Y).

This study can be valuable to any organization interested in the implementation of ISO 9001 certification, especially for organizations that have profiles and characteristics that match the organizations that are the object of this research. The findings in this study are expected to enrich previous studies, especially regarding how the process occurs in a company that has received ISO 9001

certification so that it can actually achieve the expected output targets. Thus, the results of this study are expected to be a reference for decision makers from organizations that have been ISO 9001 certified, especially in implementing ISO 9000 effectively and efficiently, namely through an output quality improvement model, resulting from this research.

RESEARCH METHOD

This study used a mixed method, a combination of qualitative and quantitative research. The qualitative study in this study used The Most Significant Change (MSC) and Structural Equation Model (SEM) analysis techniques. The use of a mixed method in this study is one of the novelties proposed in this study. The independent variables tested in this study were obtained after the researchers conducted the first stage of research using the MSC analysis technique, whereas in previous studies the independent variables were generally obtained after conducting a literature review. The MSC analysis technique allows researchers to identify the most significant changes that occur or are felt by the unit of analysis, which will then be designated as independent variables after being strengthened by the results of the existing literature review.

The MSC is a method for monitoring a program or policy and is commonly utilized in the socio-economics sector for assessing or evaluating results and impacts of a program (Davies and dart, 2005; Limato et al., 2018). The MSC systematically collects pieces of evidence of real changes which are often neglected or ignored in general monitoring techniques. While the SEM analysis technique was carried out to confirm the causal relationship between all the latent variables in this study as well as to build an output quality improvement model.

This research was conducted in a printing company that has been established for 9 years in Jakarta, Indonesia. This company is a family business (hereafter abbreviated as BOS), but professionally managed. The vision of BOS is to become a leading printing company in Indonesia and internationally, which has the latest and most up-to-date production technology capabilities, so that it can meet consumer needs and satisfaction in terms of both quality and service aspects. BOS believes that printing, especially packaging printing, is part of the primary needs, especially in marketing and industrial production activities in general. Therefore, BOS serves the market in two categories, namely the B2B market and retail.

The unit of analysis of this study is at the individual level. This study intends to look further at how changes occur in employees both in behavior, ways of working, and the support needed, especially after the company has obtained ISO 9001 certification. These changes are then tested to see how much influence they have on the quality of the output produced.

The research period was carried out from January to March 2023. The process of collecting data starting from interviews, Focus Group Discussions (FGD), and distributing questionnaires was carried

out within 2 months (January - February 2023), including processing and analysis of MSC data. While the processing and analysis of questionnaire data will be carried out in March 2023.

In order to better understand the experiences and changes that the employees experienced after the establishment of ISO 9001 certification, the current research's initial stage featured a qualitative study. At this stage, we used the MSC method. Because the MSC uses in-depth interviews to examine employee experiences and present the results as stories, it is able to recognize major changes with a high accuracy. At this stage, the researcher conducted in-depth interviews with three informants, all three of whom had experience in being involved in the ISO 9000 team and escorting BOS to obtaining ISO 9001 certification. The three informants in the BOS ISO 9000 team served as management representatives, as Management Representative (MR), and as Head of Internal Auditor.

The MSC's processes, as advised by Davies and Dart (2005), are summarized into seven stages:

1. Performing an initial orientation by identifying objects of the study: the researcher obtained an approval from the BOS and defined stakeholders who would provide information regarding the significant changes.
2. Defining the domain of change or change areas.
3. Collecting stories of significant changes from the selected informants: the interview was conducted once for each informant for 30 – 60 min. For this study, the researcher gathered three stories from three informants who were the target of this study. The selected informants met the criteria for having worked in the company, held a managerial position, and had authority as a decision maker.
4. Verifying the stories: the verification process was applied to each of the informant's stories by re-checking the story with the results of the interview recording.
5. Selecting the most significant story using a Focus Group Discussion technique: the FGD was conducted with five participants who were different from the informants. The results of this FGD agreed on the most significant changes that have occurred to employees after the company obtained ISO 9001 certification and implemented it.
6. Providing feedback from the FGD to the previous informants, particularly regarding the selected story and the reasons for the selection of that story.
7. Composing the operational concept: The researcher transformed the selected story into variables, developed indicators for each variable for the quantitative study.

The second stage of the current study was a quantitative study using survey to all BOS permanent employees (100 employees). Temporary employees are not the target of respondents because ownership or engagement with the company is relatively low compared to permanent employees. At this stage, we applied the SEM technique. This study conducted the survey after all variables were converted into quantifiable indicators based on prior research, this study performed the survey. The

SEM analysis technique used the AMOS tool to statistically analyze the data collected from the survey. Statistical analysis through SEM is carried out to test a statistical model which is usually in the form of a causal relationship. The SEM analysis technique is an analytical technique that combines correlation analysis, regression analysis, and factor analysis (Hair et al., 2019). In this SEM analysis, testing of the measurement model fit was carried out, testing of the overall model fit, and also testing of the structural model fit, all of which were to test the hypotheses and to develop models as a result of this study.

Hair et al. (2019) stated that testing of the measurement model fit is carried out for each construct, namely the relationship between a latent variable and the indicators that compose it. Testing at this stage was carried out by calculating the validity and reliability of each construct. Testing of the overall model fit was carried out to measure the Goodness of Fit (GOF), the level of fit between the data and the model. Several measures of Goodness of Fit Indices (GOFI) have been developed by researchers, which later GOFI can be used together or a combination of them to be able to explain the strength of a model. While testing of the structural model fit included examining the significance of the estimated coefficients from several hypotheses developed in this study.

Furthermore, in this study, to operationalize the output quality variable, researchers used six indicators, while to operationalize the quality management practices variable, researchers used seven indicators. These indicators were developed from previous studies. These indicators are represented in the questionnaires distributed in the survey activities. The researcher used six statements related to the output quality variable and seven statements related to the quality management practices variable in this questionnaire. Respondents were asked to provide an assessment of each of the existing statements. Researcher used a 5-pt Likert scale, ranging from 1=”Strongly Disagree” to 5=”Strongly Agree”.s

RESULTS AND DISCUSSION

Results of MSC Technique

Three stories were summarized from interviewing the informants and were then compiled by the researcher. Each story was given a title. The stories are as follows:

1. A story about K, one of the directors at BOS, entitled “ISO 9001 or Die”.
2. A story about L, a commercial manager, one of the senior managers at BOS, entitled “Growing with Procedures”.
3. A story about M, a production manager, one of the young managers at BOS, entitled “Quality Awareness is a Must for Us”.

The MSC approach is distinctive in that it treats each tale as a depiction of the informant's actual experiences with a distinct meaning. The MSC approach included carrying out the FGD as one stage in order to determine the MSCs experienced by the study's population. Based on the stories and the FGD, two themes emerged from this stage: quality awareness and documented procedures. These two variables, namely quality awareness and documented procedures, were defined as variables resulting

from this MSC process by the participants, as changes identified when a company has obtained ISO 9001 certification. These two variables became independent variables that were tested for their influence on the output quality variable which is the dependent variable, in testing using SEM analysis techniques. These two variables have been extensively discussed in previous studies. Nevertheless, comparing the effect of these two variables on output quality was expected to be an additional contribution to the existing literature.

One of the changes observed in employees after the company obtained the ISO 9001 certificate was an increase in quality awareness, as explained by M. Changes in work habits look different. Employees had a concern in everything they did. This change of quality awareness is one of his concerns:

> They come to understand that the results of the products they produce will greatly affect the existence of the company in the eyes of customers and competitors. Support for speed and accuracy in meeting all material and non-material needs that exist in production activities will greatly help to determine the results of production. “Write what you do and do what you write” (M).

The attitude of someone who voluntarily complies with all rules and is aware of their duties and obligations is known as awareness. Awareness to be more disciplined in carrying out quality management can be seen in employees, as stated by L.

> ISO 9001 certification had an impact on the behavior of employees who became more disciplined in carrying out systems and procedures in the company. Moreover, this was stated in the company's quality policy which employees then always apply in all functional lines to carry out production processes and operational management (L).

Awareness includes several things: (1) awareness of feelings, thoughts, and surroundings; (2) complete activity and involvement of the senses; (3) individual and group ideas and feelings (Chitcharoen et al., 2013). A story about K revealed that employees' self-confidence and concern for their work was increasing.

> The self-confidence of these employees was the basis for the company to improve its quality even higher so that the company's sales increased. In addition to self-confidence, employees' sense of concern for quality production results was increasing (K).

The process of internalizing new information into values that may be lived by every day is called awareness. As a result, quality awareness is a style of thinking that incorporates every component of the quality system (Brauner et al., 2016). In order to achieve organizational efficiency and features of sound and ideal communication, the dynamic interaction between individuals within the internal and external scope of the organization becomes the center of emphasis on the notion of quality awareness.

Khatoon et al. (2020) stated that quality awareness includes good communication, trust in the system, and encouraging contributions from all parties.

Other changes from implementing The ISO 9001 certification observed were improved procedure documentation, as explained by L.

> ISO 9001 encouraged the preparation of documentation of all work procedures so as to facilitate tracking if there were deviations. When an error occurred that causes a production defect, the procedure would always be followed up and corrected (L).

Improved documentation and increased effectiveness of the quality system were the key advantages seen from applying the certificate. According to Billy et al. (2012), the eight quality management principles that form the foundation of the ISO 9000 documentation are: customer focus, leadership, employee involvement, process approach, system approach to management, continual improvement, factual approach to decision making, and mutually beneficial supplier relationship. The adoption of the standard was seen as a contribution to the improvement of quality management, as explained by L.

> Companies needed a system that could monitor management and production processes so that a standardized system that was recognized by the international community can be carried out. The company hoped to be able to compete in an increasingly fierce business competition climate by referring to international standards (L).

This was evident from the fact that, as organizations improved documentation of products and processes, new potential for quality improvement might become apparent. The goal of quality management systems is to standardize processes and responsibilities in a globalized context (del Castillo-Peces et al., 2017). ISO 9001 provides guidelines for organizations to establish their quality systems by focusing on procedures, control, and documentation. All respondents firmly agreed that the documentation of processes procedures in accordance with ISO 9001 had significantly enhanced the quality of the product, since standard operating procedures ensured a more consistent product with less fluctuation, according to Kakouris and Sfakianaki (2018).

Furthermore, Kakouris and Sfakianaki (2018) also stated that improved process documentation could reduce variation in production processes, promoted greater output per input, and ultimately contributed to cost reduction. A story about M revealed that the company had very big hopes after the ISO 9001 certification was successfully achieved.

> Then from the internal side, employees will understand how important an integrated system is from the beginning to the end of a production process. Employees will also understand how important data will be as a reference for their work results, so that there will be a competitive

situation in increasing output and much better quality. In addition, there will also be corrective actions based on existing data (M).

Related with the findings of the MSC technique above, to operationalize the quality awareness variable, researchers used eight indicators, while to operationalize the procedure documentation variable, researchers used five indicators. These indicators were developed from previous studies and interview findings on the MSC process. The researcher used eight statements related to the quality awareness variable and five statements related to the procedure documentation variable in this questionnaire. Respondents were asked to provide an assessment of each of the existing statements. Researchers used a 5-pt Likert scale, ranging from 1=”Strongly Disagree” to 5=”Strongly Agree”.

Results of SEM Technique

SEM combines regression analysis and component analysis to look at how variables relate to one another in a research model. The validity of the measurement model and the validity of the structural model are the two (two) primary components of the testing of the SEM model. AMOS 22 software was utilized in this study to conduct SEM testing.

Measurement Model

A latent variable (construct) and many manifest variables (indicators) that enable the strengthening of these hidden variables make up the measurement model, which is a component of the SEM modeling. This test aims to determine how well these indicators capture the current latent variables. Confirmatory Factor Analysis (CFA) is a method for evaluating the reliability of a measurement modality. Each model to be measured has good model accuracy when each indicator of the construct has a low error value (e) and a high-value component loading factor (λ).

The results of the CFA analysis on the quality awareness (QA) variable showed that the value of the loading factor (λ) for each indicator (8 indicators) is greater than 0.5, which is in the range 0.598 - 0.774. This means that each indicator was declared valid in forming quality awareness (QA) constructs. The Construct Reliability (CR) value must be above 0.7 and the Variance Extracted (VE) value must be above 0.5 (Hair et al., 2019), which has also been fulfilled from the results of this analysis. The CR value of the eight indicators was 0.991 and the VE value was 0.932. Thus, it could be concluded that the quality awareness (QA) construct had good validity and reliability.

The results of the CFA analysis on the procedure documentation (PD) variable showed that the value of the loading factor (λ) for each indicator (5 indicators) are in the range 0.587 - 0.866. This means that each indicator was declared valid in forming procedure documentation (PD) construct. The CR value of the five indicators was 0.993 and the VE value was 0.968. Thus, it could be concluded that the procedure documentation (PD) construct had good validity and reliability.

The results of the CFA analysis on the quality management practices (QMP) variable showed that the value of the loading factor (λ) for each indicator (7 indicators) are in the range 0.592 - 0.913. This means that each indicator was declared valid in forming quality management practices (QMP) construct. The CR value of the seven indicators was 0.997 and the VE value was 0.978. Thus, it could be concluded that the quality management practices (QMP) construct had good validity and reliability.

The results of the CFA analysis on the output quality (OQ) variable showed that the value of the loading factor (λ) for each indicator (6 indicators) are in the range 0.665 - 0.817. This means that each indicator was declared valid in forming output quality (OQ) construct. The CR value of the six indicators was 0.996 and the VE value was 0.978. Thus, it could be concluded that the output quality (OQ) construct had good validity and reliability. The full results of the loading factor value, CR value, and VE value from each construct above could be seen in **Appendix A**.

Based on the overall model fit test, it appeared that the research model had a good Goodness of Fit Index (GOFI) between the data and the model. Of the 9 GOFIs measured, 6 GOFIs showed good fit results (CMIN/DF = 2.427; GFI = 0.93; TLI = 0.92; AGFI = 0.94; CFI = 0.93, and NFI = 0.90). Hair et al. (2019) stated that the assessment of model suitability was assessed based on how much the GOFI measure could be met by the research model's fit measure. The more GOFI measures that could be met by the model, it could be said that the research model was getting better.

Structural Model Fit

The research model met the good goodness-of-fit parameters, so that it could be continued for path analysis using SEM. The first test was the direct relationship between Quality Awareness (QA) and Output Quality (OQ). SEM results showed a significant positive relationship (C.R. > 1.96, P<0.05). These results support H1. The next test was the direct relationship between Procedure Documentation (PD) and Output Quality (OQ), where a higher level of procedure documentation would impact higher output quality. The results of this test were significant (C.R. > 1.96, P<0.05), so they supported H2. The third stage was to test the effect of Quality Management Practices (QMP) on the relationship between Quality Awareness (QA) and Output Quality (OQ), where the results are also significant and support H3. At this stage, the role of QMP as a moderator was evident, namely in strengthening the relationship between QA and OQ. The overall results are in **Table 1** and Mapped in **Figure 1**

Table 1. Results of Structural Equation Modeling

Path (from-to)	Standardized Parameter Estimates	Critical Ratio (C.R.)	Probability (P)	Conclusion
1. Quality Awareness – Output Quality	0.192	2.129	0.033	H1 supported
2. Procedure Documentation – Output Quality	0.363	2.725	0.006	H2 supported
3. Quality Awareness x Quality Management Practices – Output Quality	0.393	3.311	0.000	H3 supported

CMIN/DF = 2.427; GFI = 0.93; TLI = 0.92; AGFI = 0.94; CFI = 0.93, and NFI = 0.90
C.R. > 1.96, P<0.05

Sources: Author's Data Processing Results (2023)

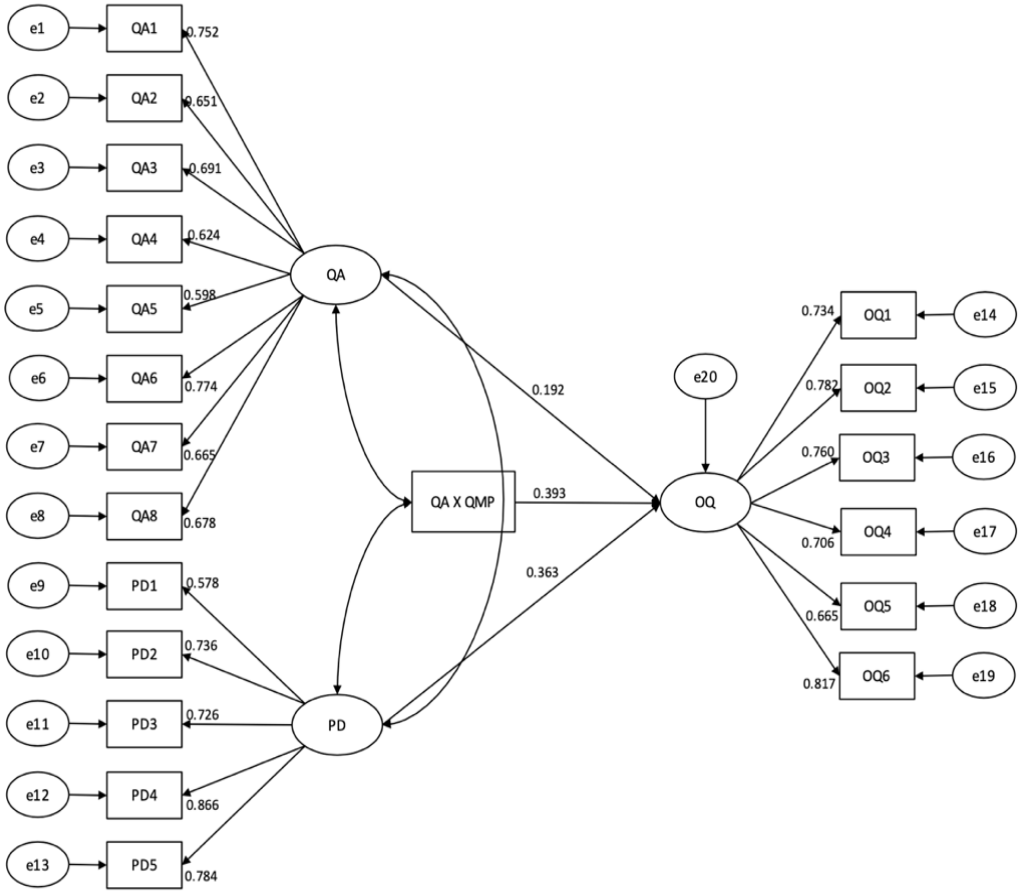

Figure 1. Results of Structural Equation Modeling
Sources: Author's Data Processing Results (2023)

The results of research on H1 showed that there was a positive and significant effect of Quality Awareness on Output Quality (OQ) by 19.2% (C.R. = 2.129, P = 0.033). The results of this study were in line with what was stated by Isnaini et al. (2021), that quality awareness plays an essential role for companies to improve the quality of output. A company's ability to compete worldwide depends greatly on its commitment to quality awareness. If every employee helps with quality improvement, a business may reach perfect quality (quality excellence). However, attempts to improve quality won't be useful if staff members don't understand the importance of it. This demonstrates that increasing quality awareness is a key strategy for raising a company's output quality.

Quality awareness among BOS employees was generally reflected in a number of behaviors including having a great responsibility towards their work (QA1), the desire to produce quality output (QA2, QA5), as well as the awareness that the results of their work will affect the quality of the work of other units (QA3). Quality awareness was also reflected through a proactive attitude in conveying quality problems encountered at work (QA4). The attitude of employees in using electricity sparingly (QA6) had the largest loading factor (0.774) in explaining the quality awareness variable compared to the other seven indicators. This could be interpreted that the employee had understood the concept of quality through the efficient implementation of the company's operational processes so that the

company can produce products at the right price as one of the quality output indicators. Awareness of the quality of BOS employees was also demonstrated by their concern for health (QA7) and the environment (QA8) aspects. This is of course a very good initial capital for the company towards obtaining ISO 14000 certification.

The results of research on H2 showed that there was a positive and significant effect of Procedure Documentation on Output Quality (OQ) by 36.3% (C.R. = 2.725, P = 0.006). All respondents firmly agreed that the documentation of processes in accordance with ISO 9001 had significantly enhanced the quality of the product, since standard operating procedures ensured a more consistent product with less fluctuation, according to Kakouris and Sfakianaki (2018). As explained above, that implementation of the standard was perceived to assist in the development of quality management, which leads to an increase in output quality. Previous study also showed that the most important benefits occurring from implementing the standard were improved documentation, improved efficiency of the quality system, and clearer work instruction, procedures, and job responsibilities (Hernawan et al., 2015).

The indicator that the company had documents that could be used to track the work history of employees (PD4) had the largest loading factor value (0.866) in explaining the procedural documentation variable compared to the other four indicators. This was because one of the advantages of ISO 9001 certification was traceability, and this goal had become one of the strongest triggers in adopting ISO 9001 certification. Documentation of procedures at BOS included policies regarding quality output (PD1), complete SOP documents for all jobs within the company (PD2), clear work instructions (PD3), as well as records related to the work implementation process (PD5).

Procedure documentation (PD) had a greater influence (36.3%) on output quality (OQ), compared to quality awareness (QA), which is equal to 19.2%. This was understandable because BOS as a medium-scale, newly established company with low production complexity did not require human resources with higher education. BOS requires skilled workers in terms of production and follows the processes and procedures set by BOS management. So that the documentation of procedures in the form of Standard Operating Procedures or Work Instructions was the most important instrument in ensuring the quality of the output of its products. At least this was what generally stands out at BOS compared to quality awareness because the top management level at PT BOS only consists of 3 managers and one Director. So that the position under the manager was sufficient to carry out the procedures decided by management, while the management itself had to still have more quality awareness (QA) than other employees. The results of this study could enrich the results of previous studies because the size of the company, the age of the company, the characteristics of the industry and the employee profile as in this BOS, it turns out that the documentation of procedures has a greater effect on output quality than quality awareness. Companies of varying sizes have been motivated in different ways to get certification and receive different kinds of rewards (Murmura and Bravi, 2017).

The results of this study, which showed the greater effect of procedure documentation on output quality compared to quality awareness, is one of the other novelties shown by this study. This is because most of the previous studies were limited to comparing internal versus external aspects from the organizational side, while this study tried to compare internal versus external aspects from the employee side as a unit of analysis, related to how the processes occur within the company so that the implementation of the ISO 9001 certification that has been obtained can provide benefits for the company to improve its performance.

The results of research on H3 showed that there was a positive and significant effect of Quality Management Practices (QMP) on the relationship between Quality Awareness (QA) and Output Quality (OQ) by 39.3% (C.R. = 3.311, P = 0.000). The QMP variable was proven to play a moderating role in the relationship between QA and OQ. In H1 we saw that the effect of QA on OQ was 19.2%, then in H3 the effect of QA on OQ could increase to 39.3% with the role of the QMP variable which moderates the relationship between both. These results were consistent with studies on TQM which represent quality management practices used as variables in this study. Isnaini et al. (2021) demonstrated the positive and significant effect of TQM on quality output. ITQM implementation that is optimum and utilized in an integrated manner inside the organization will promote an improvement in output quality. The results of another study conducted by Isnaini et al. (2021) also showed that positive implementation of quality awareness would encourage a more positive organizational culture related to TQM implementation and quality output. Involving people in the implementation process and giving them the tool they need to engage effectively is a key component of sustaining quality awareness while TQM is being implemented. As a strategic problem that supports corporate objectives, managers must be aware of the different options for incorporating employees in quality awareness efforts.

In continuous improvement and quality improvement activities, awareness refers to a condition of comprehension, knowledge, and vigilance. An individual's capacity to exert behavioral influence over events occurring around him is referred to as consciousness. An attitude of care is awareness. A person's attitude is their still-closed reaction or response to a stimuli or item. The soul's knowledge of anything being reacted to at a certain time is directly tied to attention. Attitudes and engagement must be instilled properly in every internal member of the organization through the implementation of QMP (Isnaini et al., 2021).

Indicators that the company encouraged BOS employees to make continuous improvements (QMP2) had the largest loading factor value (0.913) in explaining the quality management practices variable compared to the other six indicators. Within the scope of this QMP, one could see the efforts made by BOS management in building a culture of quality, including by providing various facilities that support employees in carrying out their work (QMP1), encouraging employee independence (QMP3), providing various training activities (QMP4), as well as having quality controls (QMP5). BOS management practices in managing quality had also led to environmental awareness, namely in efforts

to recycle all production waste (QMP6) and use environmentally friendly materials. These efforts were of course the initial capital for BOS to aim for ISO 14000 certification which was a requirement for survival in the packaging printing industry.

After testing the three hypotheses in this study, with the results as described above, this research could produce a model of increasing quality output which was achieved through increasing quality awareness of all employees and improving procedure documentation for all activities in the company, with management support through the implementation of quality management practices. The output quality improvement model produced in this study can be another novelty produced by this research, to enrich the development of existing knowledge. The research model produced in this study can be used as a reference in preparing quality output development strategies, especially for companies that have characteristics and demands similar to BOS.

CONCLUSION AND RECOMMENDATION

The results of the research conducted identified two significant changes that occurred after the company (BOS) received ISO 9001 certification. The most significant changes were quality awareness and procedure documentation. Employee awareness of quality is increasing with two indicators that contribute greatly to explaining the quality awareness variable, namely full responsibility for their work and awareness to use resources (electricity) sparingly. Documentation of procedures within the scope of BOS has also become increasingly improved and complete. The main indicator that contributes the most to this procedural documentation variable is the traceability aspect, namely the existence of documents that can be used to track employee work history.

At the hypothesis testing stage, the three hypotheses tested in this study were acceptable. Quality awareness had a positive and significant effect on output quality. Procedure documentation had a positive and significant effect on output quality. Quality management practices had proven to be able to act as a moderator variable in the relationship between quality awareness and output quality. Quality management practices had a positive and significant effect on the relationship between quality awareness and output quality. This was in line with previous research which stated the positive and significant effect of TQM on quality output. Implementing TQM that was both optimal and applied in an integrated manner in the organization would encourage a positive increase in output quality.

Procedure documentation (PD) had a greater influence on output quality (OQ), compared to quality awareness (QA). This was understandable because BOS as a medium-scale, newly established company with low production complexity did not require human resources with higher education. BOS required skilled workers in terms of production and follows the processes and procedures set by BOS management. So that the documentation of procedures in the form of Standard Operating Procedures or Work Instructions was the most important instrument in ensuring the quality of the output of its products.

This research produced a model of improving output quality through increasing employee awareness of quality as well as improving and perfecting procedural documentation in all company operational activities. Employee quality awareness could increase its effect on increasing output quality by implementing QMP appropriately and consistently. In the implementation of this QMP, of course, the commitment of top leaders and all levels of management was very important.

Some of the novelties generated in this study are as follows:

1. This research used a mixed methodology in this study, where the independent variables were collected after the first stage of research was completed utilizing the MSC analysis approach. This stage was different from previous studies, where the independent variables were generally determined by the researcher after conducting a literature study.
2. The results of this study, which showed the greater effect of procedure documentation on output quality compared to quality awareness, is one of the other novelties shown by this study. This is because most of the previous studies were limited to comparing internal versus external aspects from the organizational side, while this study tried to compare internal versus external aspects from the employee side as a unit of analysis, related to how the processes occur within the company so that the implementation of the ISO 9001 certification that has been obtained can provide benefits for the company to improve its performance.
3. The output quality improvement model produced in this study can be another novelty produced by this research. This research could produce a model of increasing quality output which was achieved through increasing quality awareness of all employees and improving procedure documentation for all activities in the company, with management support through the implementation of quality management practices.

Some research limitations can be anticipated and become a concern so that this can be a consideration regarding the scope of further research. This study only takes place in one organization. Even though the qualitative study conducted at the initial stage was in-depth, the results are limited to the condition of the BOS organization. Further research can broaden this scope by surveying respondents of different organizations so that generalization is increased. Further research can also be carried out by adding the parameter of the period of time the company obtained ISO 9001 certification, so that the changes that occur may be different between companies that have just received certification versus those that have been certified ISO 9001 for a long time.

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APPENDIX A.

Table. Measurement Model Fit

Construct	Indicator	λ	λ^2	e	VE	CR
Quality Awareness (QM)	QM 1	0.752	0.566	0.034	0.932	0.991
	QM 2	0.651	0.424	0.028		
	QM 3	0.691	0.477	0.047		
	QM 4	0.624	0.389	0.033		
	QM 5	0.598	0.358	0.040		
	QM 6	0.774	0.599	0.027		
	QM 7	0.665	0.442	0.036		
	QM 8	0.678	0.460	0.028		

Construct	Indicator	λ	λ^2	e	VE	CR
Procedure Documentation (PD)	PD 1	0.587	0.345	0.020	0.968	0.993
	PD 2	0.736	0.542	0.016		
	PD 3	0.726	0.527	0.023		
	PD 4	0.866	0.750	0.016		
	PD 5	0.784	0.615	0.018		

Construct	Indicator	λ	λ^2	e	VE	CR
Quality Management Practices (QMP)	QMP 1	0.904	0.817	0.010	0.978	0.997
	QMP 2	0.913	0.834	0.008		
	QMP 3	0.592	0.350	0.031		
	QMP 4	0.682	0.465	0.017		
	QMP 5	0.825	0.681	0.008		
	QMP 6	0.893	0.797	0.007		
	QMP 7	0.632	0.399	0.017		

Construct	Indicator	λ	λ^2	e	VE	CR
Output Quality (OQ)	OQ 1	0.734	0.539	0.013	0.978	0.996
	OQ 2	0.782	0.612	0.012		
	OQ 3	0.760	0.578	0.014		
	OQ 4	0.706	0.498	0.017		
	OQ 5	0.665	0.442	0.009		
	OQ 6	0.817	0.667	0.009		

Table. Overall Model Fit

Goodness of index	***Cut Off Value***	**Estimate**	**Summary**
Chi-Square /(df=165)	< 195,973	400.528	Poor Fit
Probability	≤ 0,05	0.000	Poor Fit
CMIN/DF	> 2,00	2.427	Good Fit
GFI	> 0,90	0,93	Good Fit
TLI	≥ 0,95	0,92	Good Fit
RMSEA	≤ 0,08	0,120	Poor Fit
AGFI	> 0,90	0.94	Good Fit
CFI	> 0,90	0.93	Good Fit
NFI	> 0,90	0,90	Good Fit

Sources: Author's Data Processing Results (2023)