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## Exploration of Driving Factors and Benefits of ISO 9001 and ISO 14001 Certification in Five Manufacturing Companies in Indonesia

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### ABSTRACT

*The implementation of ISO 9001 and ISO 14001 in the manufacturing industry aims to enhance product quality, operational efficiency, and environmental compliance. This study explores the driving factors and benefits of ISO certification through interviews with five manufacturing companies in Indonesia. Using a qualitative case study approach, we conducted in-depth interviews with managers responsible for quality and environmental management systems, supplemented by document analysis. The research methodology incorporated thematic analysis to identify key patterns in certification motivations, implementation processes, and outcomes. The findings indicate that certification adoption is driven by customer requirements, government regulations, and demands from international partners. Additionally, ISO certification is utilized to standardize production processes and improve quality and environmental management systems. However, companies face challenges related to employee engagement, changes in ISO standards, and the complexity of external audits. Despite these challenges, the benefits of certification outweigh the difficulties, particularly in improving efficiency, regulatory compliance, and business competitiveness. This study suggests that companies should enhance employee involvement, optimize audit systems, and conduct continuous evaluations to maximize the effectiveness of ISO certification.*

### KEYWORDS

ISO 9001, ISO 14001, quality management, environmental management



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### INTRODUCTION

In recent decades, the issue of sustainability in business has become a major concern at the global level. Manufacturing companies are increasingly encouraged not only to focus on profitability but also to consider product quality, operational efficiency, and environmental and social impacts in the production process (Bag et al., 2018; Cerqueira-Streit et al., 2021; Marculetiu et al., 2023; Rajeev et al., 2017; Zimon et al., 2019). International standards such as ISO 9001 and ISO 14001 play an important role in helping manufacturing companies improve the quality and sustainability of their operations. ISO 9001 focuses on a quality management system (QMS) that aims to ensure consistency in product quality and customer satisfaction, while ISO 14001 aims to manage the environmental impact of a company's production processes and operations (Fokina et al., 2022; Kokoreva, 2022; Mårtensson et al., 2023; Silva et al., 2021; Siva et al., 2016).

Based on Institutional Theory, manufacturing companies are encouraged to obtain certification not only due to internal initiatives but also due to institutional pressure from regulators, customers, and competitors. ISO certification is often a requirement in the supply

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chain of the manufacturing industry, where customers or business partners expect their suppliers to have verified quality and environmental standards (Castka & Balzarova, 2018). In the manufacturing sector, ISO 9001 is often the main requirement to ensure standardization and improvement of production processes, whereas ISO 14001 is an important component demonstrating a company's commitment to sustainability and environmental impact management.

Apart from being a form of compliance with external pressures, ISO certification can also serve as a strategic resource supporting the competitiveness of manufacturing companies. According to the Resource-Based View (RBV) (Barney, 1991), a company's long-term competitive advantage depends on unique and difficult-to-replicate internal resources. In the context of manufacturing, ISO 9001 and ISO 14001 certifications can be considered dynamic capabilities that help companies improve operational efficiency, reduce waste, enhance brand reputation, and open new market opportunities (Castka & Balzarova, 2018). Manufacturing companies that integrate these certifications into their production management systems are better able to adapt to changing industry regulations, meet global standards, and improve competitiveness within the supply chain.

However, in developing countries such as Indonesia, implementing ISO 9001 and ISO 14001 in the manufacturing sector still faces various challenges. Some companies struggle to maintain certification due to high implementation costs, lack of understanding of long-term benefits, and barriers to adapting the standards to existing production systems. Therefore, a deeper understanding of the driving factors and benefits of ISO 9001 and ISO 14001 implementation in the context of manufacturing companies in Indonesia is increasingly important.

Several studies have discussed the application and impact of ISO 9001 and ISO 14001 certification in various countries and industries. A key reference is Castka & Balzarova (2018), which examined interventions companies undertake during ISO certification and the factors driving those interventions. The study categorizes interventions into incremental and breakthrough interventions, with key drivers including institutional pressure, internal company motivation, and the complexity of production processes in the manufacturing industry.

Although the Castka & Balzarova (2018) study provides broad insights into intervention strategies during certification, it has not specifically addressed the driving factors of certification and their long-term benefits in the context of manufacturing companies in developing countries, particularly Indonesia. Furthermore, previous research has highlighted numerous interventions during the certification process but has not extensively explored how manufacturing companies leverage these certifications to improve production efficiency, operational sustainability, and global competitiveness.

This study aims to identify the driving factors and benefits of implementing ISO 9001 and ISO 14001 certification in five manufacturing companies in Indonesia and analyze the challenges faced in implementation. The main focus is understanding how institutional pressures (regulatory, market demands) and resource-based strategies (RBVs) affect certification decisions while evaluating their impact on operational efficiency and business competitiveness.

This study contributes to filling the research gap by exploring the driving factors and benefits of implementing ISO 9001 and ISO 14001 certification in the context of manufacturing companies in Indonesia through interview-based qualitative methods. By understanding the firsthand experiences of manufacturing companies in implementing these certifications, this study provides specific insights into their primary motivations for obtaining ISO 9001 and ISO 14001 certifications and the benefits experienced post-certification, especially in improving production efficiency, competitiveness, and business sustainability, as well as the obstacles encountered in implementation and certification maintenance strategies.

Thus, this research not only contributes to theoretical development regarding quality management and environmental practices in the manufacturing industry in developing countries but also offers practical recommendations for manufacturing companies in Indonesia seeking to utilize ISO certification as a strategy to enhance competitiveness, production efficiency, and long-term sustainability.

## **RESEARCH METHOD**

This research used a qualitative approach with a case study method to understand the implementation of ISO 9001 and ISO 14001 certification in manufacturing companies in Indonesia. The double case study was selected to analyze the similarities and differences in the implementation of certification in different organizations. In-depth interviews with managers who played a role in the certification process were the main instrument of data collection, supported by the analysis of company documents to increase the validity of the findings. Using a conceptual framework that referred to Institutional Theory and Resource-Based View (RBV), this study examined the driving factors, implementation process, and benefits of certification for operational efficiency and company sustainability.

The sample of the study included five manufacturing companies that had obtained and maintained ISO certification. Sample selection was carried out purposively based on certain criteria, such as recertification experience and involvement in quality and environmental management systems. Data collection procedures included semi-structured interviews, document analysis, and data triangulation to ensure the accuracy and depth of information. The results of the research were expected to provide academic and practical contributions regarding the success factors and challenges in the implementation of ISO certification in developing countries, as well as to serve as a reference for other companies that wanted to adopt this standard.

## **RESULTS AND DISCUSSION**

### **Data Analysis**

Data obtained from in-depth interviews and company documents will be analyzed using thematic analysis methods. This method was chosen because it allows researchers to systematically identify, analyze, and report patterns or themes that emerge from the data, which is well suited to understand the experiences and views of participants in the context of the implementation of ISO 9001 and ISO 14001.

#### **1. Familiarization Stage**

In the early stages, researchers read and review interview transcripts and company documents to understand the overall content of the data. This process involves repeated

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readings and recording of initial ideas that emerge, so that researchers can identify a general picture of potential themes in the collected data (Creswell & Poth, 2018).

### 2. Data Coding

After familiarization, the coding process is carried out to mark data segments relevant to the research, such as motivations, challenges, and benefits of implementing ISO certification. These codes are brief representations of the main ideas that emerge in the data and will be used as a basis for developing more in-depth themes (Saldana, 2016). Each segment is coded based on the meaning that emerges from the participant's responses and the document, and these codes are then grouped to make theme development easier.

### 3. Identify the main theme

The codes generated from the coding stage are then further analyzed to identify key themes that reflect common patterns in the data. This theme is arranged based on the frequency of its occurrence and its relevance to the research objectives. For example, themes that may emerge include "corporate motivation for certification," "implementation challenges," and "the long-term benefits of certification".

### 4. Theme Review and Refinement

Once the main themes were identified, the researchers reviewed those themes to ensure consistency with the collected data. Similar or interrelated themes are combined, while less relevant themes are removed or improved to provide a more precise representation of the data. This process also helps ensure that the resulting themes are an authentic representation of the data and support the research narrative (Creswell & Poth, 2018).

### 5. Interpretation and Presentation of Findings

After the final theme is prepared, the researcher interprets each theme to explore the deep meaning of the findings and answer the research questions. Each theme will be outlined descriptively, accompanied by direct quotes from interviews and data from company documents as supporting evidence. The findings of this analysis will be presented systematically in the results of the study to provide a thorough understanding of the application of ISO certification in the companies studied (Saldana, 2016).

## Data Validity and Reliability

The validity and reliability of the data is an important aspect of qualitative research to ensure that the findings reflect an accurate and consistent reality. In this study, various strategies were applied to improve the credibility and integrity of the collected data, as well as to minimize the potential for bias during the analysis process. These strategies include data triangulation, member checking, and peer debriefing, which are designed to confirm data accuracy, validate interpretations, and ensure objectivity in research findings (Creswell & Poth, 2018; Yin, 2018). Here's a detailed explanation of each point:

### 1. Data Triangulation

Data triangulation was carried out to increase the validity and reliability of research results by comparing data obtained from various sources, namely in-depth interviews and company documents. The use of this triangulation ensures that research findings do not rely solely on one type of data but are supported by a variety of complementary

perspectives (Patton, 2015). In addition, triangulation helps identify the conformity between what respondents say and the empirical data found in the document, thus providing a more thorough and accurate view of the application of ISO 9001 and ISO 14001 (Yin, 2018).

## 2. Member Checking

The member *checking* strategy or checking by participants is carried out by asking participants to review a summary or interpretation of their data. This process allows participants to provide clarifications, corrections, or additions to information, so that the results of the study accurately reflect their views. *Member checking* is one way to increase the credibility of data and reduce the possibility of misinterpretation by researchers.

## 3. Peer Debriefing

Peer debriefing involves discussions with fellow researchers or other experts outside the study to review findings and interpretations. Through this discussion, the researcher received useful input to improve the objectivity and validity of data interpretation. Peer debriefing helps researchers identify biases or weaknesses in the analysis and reinforce the arguments and conclusions of the research (Creswell & Poth, 2018).

## Research Ethics

This research is conducted by adhering to strict ethical standards to protect the rights of participants and ensure the integrity of the research process. In a qualitative approach, research ethics is very important because it involves direct interaction with participants and often requires the collection of sensitive or confidential information. Therefore, this study is designed to minimize potential risks to participants and ensure that the entire data collection process is carried out with transparency, honesty, and respect for privacy (Creswell & Poth, 2018). To support these principles, this study applies five main aspects, namely informed consent, confidentiality and anonymity, the right of participants to opt out, transparency in data collection, and ethical use of data. Here's a further explanation of each aspect of research ethics:

### 1. Informed Consent

Prior to conducting the interview, participants will receive written and oral explanations regarding the objectives of the research, interview procedures, and potential benefits and risks of their participation. Informed consent or consent of participants will be obtained in writing after they are given the opportunity to ask questions. With this consent, participants know their right to participate voluntarily or withdraw at any time during the study without any consequences (Hammersley & Traianou, 2015).

### 2. Confidentiality and Anonymity

Researchers are committed to maintaining the confidentiality and anonymity of participants. Any data collected from interviews and company documents will be stored securely and used only for the purposes of this research. The names of the participants will be masked in the research report to protect their identity. This procedure is important to ensure that the information provided by participants remains confidential and will not be disclosed to outside parties without permission (Creswell & Poth, 2018).

### 3. Participant's Right to Withdraw

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Participants are given the right to withdraw from the study at any time without the need to provide any reason and without any consequences. This freedom is important to maintain a sense of comfort and security for participants during the data collection process, as well as to ensure that they do not feel pressured or obliged to participate.

#### 4. Transparency and Honesty in Data Collection

The researcher will interact with the participants honestly and transparently during data collection. Researchers will also avoid influencing or manipulating participants' responses, so that the data collected remains authentic and representative of the participants' original views. Honesty in interaction helps build trusting relationships and maintain the integrity of the research process (Hammersley & Traianou, 2015).

#### 5. Ethical Use of Data

The data collected will only be used for the purposes of this research and will not be misused for commercial purposes or interests outside the academic context. Any publication or dissemination of research results will consider the interests of the participants and ensure that the data is used in accordance with the consent they have given. This principle is important for maintaining integrity and ethical responsibility in research.

This section presents the results of the analysis of the research that has been conducted, which includes an exploration of the driving factors and benefits of ISO 9001 and ISO 14001 certification in the manufacturing industry in Indonesia. Through a qualitative interview-based approach, this study explores the first-hand experiences of five manufacturing companies that have obtained and maintained ISO 9001 and ISO 14001 certifications. The analysis in this chapter focuses on the patterns of findings that emerge from the data that have been collected, as well as how the results of this study contribute to further understanding of the application of ISO certification in the context of the manufacturing business.

In line with Institutional Theory and Resource-Based View (RBV) (Barney, 1991), the results of this study reveal how external pressures, such as regulations, customer requirements, and industry competition, are the main factors that drive companies to implement ISO certification. In addition, the study also highlights how companies are leveraging this certification as a strategic resource to improve their operational efficiency, competitiveness, and business sustainability.

This chapter is divided into several main sections. The first part discusses the driving factors that encourage companies to adopt ISO 9001 and ISO 14001 certifications, both from regulative, normative, and strategic aspects. The second part explores the benefits that companies feel after obtaining certification, including improved product quality, production process efficiency, and impact on reputation and market access. The third section reviews the challenges faced by companies in maintaining this certification, as well as the strategies they use to overcome these obstacles.

### **Thematic Analysis of Interview Results**

This chapter presents the results of an analysis of interviews conducted with five manufacturing companies that have obtained ISO 9001 and ISO 14001 certifications. The interview data was analyzed using a thematic approach, where the findings were categorized

into three main themes: (1) Driving Factors for the Implementation of ISO Certification, (2) Benefits Perceived by Companies After Certification, and (3) Challenges in Certification Implementation and Maintenance.

The results of the interviews show that external and internal factors are the main drivers in the implementation of ISO certification in manufacturing companies. Externally, the company faces pressure from customers and international partners, which requires the possession of ISO certification as a standard in the supplier selection process and project tenders. In addition, government regulations are also a major driver, where compliance with quality and environmental standards is mandatory in certain industries. Internally, several companies have adopted this certification as part of their strategy to increase competitiveness and operational efficiency to improve production quality and minimize environmental impact.

In addition to the driving factors, the company also reports various benefits after obtaining ISO certification. One of the main benefits felt is the increase in operational efficiency, where ISO standards help companies standardize production processes, reduce error rates, and ensure compliance with quality management systems and environmental management systems. In addition, this certification provides a competitive advantage in project tenders and business relationships with international customers, as the possession of ISO certification increases the credibility and trust of business partners. In the environmental aspect, the company has also experienced improvements in waste management and environmental impact monitoring, which helps them meet industry regulations and improve their sustainable image.

However, while the benefits of ISO certification are significant, companies also face various challenges in their implementation and maintenance. One of the main challenges is the complexity of the audit and documentation process, where companies must prepare various compliance documents as well as ensure that all business units comply with the established ISO standards. In addition, the lack of employee involvement and awareness is an obstacle in ensuring the sustainability of certification. Some companies report that not all employees understand the importance of ISO certification, so ongoing training and incentive systems are needed to increase their participation in the implementation of the standard.

By considering these driving factors, benefits, and challenges, the findings of this study can be attributed to Institutional Theory and Resource-Based View (RBV). Institutional Theory explains how external pressures such as regulations and customer demands are a major factor in the adoption of ISO certification. Meanwhile, RBV shows that this certification can be considered a strategic resource that improves the competitiveness of the company, especially in terms of production efficiency and compliance with international standards.

This chapter will further elaborate on the findings based on the main themes identified in the thematic analysis. Each theme will be discussed with the support of interview data and associated with relevant theories.

### **Data Analysis Model**

This study uses a thematic analysis method to process interview data. The analysis was carried out in four main stages based on a thematic approach developed by Braun & Clarke (2006). This stage helps in identifying patterns in the data and grouping the information into themes that are relevant to the research objectives.

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- a. Initial Stage. At this stage, the researcher read the entire interview transcript thoroughly more than once to gain a preliminary understanding of the data. In addition, the researcher recorded initial observations and reflections on the interviews that had been conducted in separate notes, as well as conducted a preliminary analysis of the available text.
- b. Second Stage. At this stage, the researcher went back to the interview transcript to turn the initial notes into the initial themes that emerged. The main task in this stage is to formulate phrases that are specific enough to remain relevant to the interview text, but also abstract enough to provide conceptual understanding.
- c. Third Stage. The researcher then reviewed the emerging themes and grouped them based on conceptual similarities. At this stage, researchers look for patterns in the data and form structures that can help in highlighting interconnected ideas as well as differentiating key categories in the research.
- d. Final Stage. In the final stage, the main theme table is compiled. This table shows the structure of the main themes and sub-themes found from the interview results. Illustrative excerpts from interviews are presented alongside each theme, by including line numbers from the original transcript to ensure that the context of the data remains clearly traceable.

### **First Stage**

Once all the interview data has been collected and transcribed, the initial stage of the analysis is carried out. At this stage, the researcher reads the entire interview transcript more than three times to gain a deep understanding of the context of the interview. The researcher also recorded initial observations and reflections from the interviews, which will later become the basis for further analysis processes.

In addition to reading the transcript thoroughly, researchers also began to identify keywords, frequently occurring phrases, and repetitive initial concepts in the interview data. These observations are recorded in the form of exploratory notes, which serve as a guide in the coding process at a later stage.

### **Second Stage**

At this stage, the researcher transformed the interview transcripts into initial themes that emerged from the data. This process is done by formulating short phrases that are specific enough to remain rooted in the data, but also abstract enough to offer a broader conceptual understanding.

During this process, researchers move back and forth between the original transcript and notes from the Early Stage to identify recurring patterns. Each emerging theme is evaluated based on the similarity of concepts and their relevance to the research objectives.

### **Third Stage**

The Third Stage allows researchers to review the initial themes that have been identified in the previous stage and group them based on conceptual similarities. The patterns that emerge

from existing themes begin to form at this stage, so that the structure of the analysis can be clearer.

At this stage, the researcher still needs to iterate between the original transcript, exploratory comments, and the initial list of themes from the previous stage to ensure that the categories formed truly reflect the interview data.

### **Final Stage**

In the final stage, a table of main themes with categorized themes and sub-themes is arranged to display the main findings from the interview results. The purpose of this stage is to provide a clearer analysis structure and make it easier to understand the data that has been collected.

To ensure that the context of the citation remains well understood, each theme that arises is accompanied by an illustrative citation from the interview transcript, as well as the transcript line number for verifiability.

Although at this stage the theme structure has been formed, the researcher still validates by rereading the transcripts and exploratory notes from the early stages to ensure that the categorized data remains relevant and accurate.

### **Emerging Theme Analysis**

This section presents the main themes that emerge from the interviews based on the results of thematic analysis conducted in the previous stages. These themes are explored to better understand the driving factors, benefits, and challenges in the implementation of ISO 9001 and ISO 14001 certification in the manufacturing industry in Indonesia.

Each theme that emerges will be supported by excerpts from interview transcripts and associated with the theories used in this research.

#### **1. Driving Factors for the Implementation of ISO Certification**

The results of the interviews show that the implementation of ISO 9001 and ISO 14001 certifications in the manufacturing industry in Indonesia is driven by pressure from customers and international partners, government regulations, and global competition. This is in line with the findings of Castka & Balzarova (2018), which identified that external pressure from regulators and customers is the main factor driving companies to implement ISO 9001 and ISO 14001. In their study, companies adopted ISO to meet international market requirements and increase competitiveness in the global market, a phenomenon that was also reflected in the results of interviews with PT. Bukaka Teknik Utama Tbk: "Many international partners and customers require ISO certification in the tender process. If we don't have it, it's difficult to win big projects." In addition, Castka & Balzarova (2018) found that companies are more likely to adopt ISO 9001 and ISO 14001 as part of their business strategy rather than just a regulatory compliance tool. This can also be seen in the results of interviews with PT. Indonesia Epson Industry: "Environmental regulations are getting stricter, and companies need to ensure that they comply with the standards set so as not to be sanctioned." Thus, this study reinforces Castka & Balzarova's (2018) argument that the implementation of ISO certification is not only influenced by external pressures, but also becomes part of the company's strategy in achieving operational efficiency and competitiveness.

## **2. Benefits Felt After ISO Certification**

The results of the interviews indicated that manufacturing companies in Indonesia benefit from ISO 9001 and ISO 14001 certification, including improved operational efficiency, competitive advantage, and environmental compliance. Castka & Balzarova (2018) outline that the benefits of ISO certification can be divided into direct benefits and strategic benefits. The immediate benefits include increased efficiency and regulatory compliance, while the strategic benefits include improved corporate reputation and competitiveness in international markets. In an interview, PT. Indonesia Epson Industry states that ISO helps improve production efficiency: "With ISO 9001, we can standardize our production processes and reduce operational errors." This is in line with the findings of Castka & Balzarova (2018), which shows that companies that have ISO 9001 are more likely to have a more structured and effective quality management system. Furthermore, Castka & Balzarova's (2018) research also highlights that companies often use ISO certification as a tool to build trust with customers and international business partners. This finding was also found in an interview with PT. Bukaka Teknik Utama Tbk: "ISO helped us win contracts from multinational companies that require compliance with international standards." Thus, the results of the interviews support the findings of Castka & Balzarova (2018), that ISO certification has a broader impact on business strategy and is not just a regulatory compliance tool.

## **3. Challenges in Certification Implementation and Maintenance**

Despite the many benefits obtained, the company also faces various challenges in implementing and maintaining ISO certification. One of the main obstacles is the complexity in auditing and documentation.

One of the respondents from PT. Indonesia Epson Industry stated: "Annual audits are quite difficult because we have to prepare a lot of documents according to the ISO standards set." In addition, the lack of employee involvement in the implementation of ISO standards is also a challenge faced by some companies. "Not all employees understand the importance of ISO certification, so we have to conduct regular training." (PT. Bukaka Teknik Utama Tbk) Another challenge that often arises is the cost of implementing and updating the ISO management system. As one participant stated: "We experienced considerable cost constraints in the implementation of ISO, especially in employee training and system updates." This shows that while ISO certification provides long-term benefits, companies need to invest in systems and human resources to ensure optimal implementation.

## **4. Relevance to Theory**

The findings of this study can be explained through Institutional Theory and Resource-Based View (RBV).

### **1. Institutional Theory**

- The company implements ISO certification due to external pressures, such as government regulations, customer demands, and global market competition.

- This pressure reflects regulatory pressure, where ISO standards become a tool to achieve industry compliance.
2. Resource-Based View (RBV)
- ISO certification can be a strategic resource that improves a company's operational efficiency and competitiveness.
  - Good implementation allows companies to create a competitive advantage through higher quality standards and environmental compliance.

## CONCLUSION

This study concludes that regarding the implementation of ISO 9001 and ISO 14001 in the Indonesian manufacturing industry, and provides suggestions for companies, academics, and stakeholders to improve the effectiveness of certification implementation. Based on interviews with five companies, including PT. Bukaka Teknik Utama Tbk and PT. Indonesia Epsilon Industry, this study identifies key driving factors, such as customer demands, government regulations, and international partner standards, as well as benefits in the form of improved operational efficiency, regulatory compliance, and competitiveness. However, challenges such as high implementation costs, internal resistance, and audit complexity are still constraints. The results of this study support institutional theory and Resource-Based View (RBV) in explaining the motivation of companies in implementing ISO as a strategic tool to increase competitive advantage. To increase the effectiveness of the implementation of certification, companies are advised to increase employee involvement, optimize internal audits, conduct periodic benefit evaluations, and collaborate with external parties. This research is expected to be a reference for companies looking to adopt ISO in their operational strategies, while further research with a broader scope and quantitative approach can be conducted to measure the impact of certification more comprehensively.

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