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Analysis of Knowledge Management and Total Quality Management Implementation: A Study on Indonesian Small and Medium Enterprises

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ABSTRACT

This study deals specifically with analyzing the implementation of Knowledge Management (KM) and Total Quality Management (TQM) in Small and Medium Enterprises (SMEs) in Indonesia. The purpose is to analyze the implementation of KM Elements and TQM Practices in SMEs in Indonesia and identify the challenges faced by SMEs in Indonesia in implementing TQM and KM. This article is based on information about SMEs in Indonesia that are recorded in the digital ecosystem of 27 million in December 2023. . The primary and secondary data collected were analyzed using content analysis techniques with a qualitative approach. The results show that the most applied Knowledge Management Elements (KME) are "Knowledge Application" and "Knowledge Acquisition" and the most applied Integrated Quality Management (TQMP) practices by SMEs in Indonesia are "Continuous Improvement". Keywords Total Quality Management, Knowledge Management, TQM practices, KM elements, Indonesian Small and Medium Enterprises

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INTRODUCTION

Today, many efforts have been made to integrate the ideas of KM and TQM in Indonesian SMEs. Lack of awareness of managers, lack of training, lack of use of new technologies, etc. are some of the major obstacles faced by these companies. Despite these circumstances, Indonesian SMEs have endeavored to become competitive in national and international markets by establishing quality management systems and calling on experts to manage their knowledge effectively. The purpose of this study is to improve the implementation of TQM and KM in SMEs and identify the challenges faced by SMEs in implementing TQM and KM in Indonesia.

The establishment of integrated quality management standards in improving quality systems and knowledge management is very important for SME Industry players to overcome very significant developments in responding to consumer demand, especially in the field of small and medium enterprises (SMEs). SMEs engaged in production and services find very complex competition in Indonesia in terms of implementing the best service to customers so that customers will be loyal to the products produced by SMEs. The complexity can be seen from the data of SMEs that are accumulatively recorded in the digital economy of 27 million (dpr.go.id, December 7, 2023). To overcome the challenges of SMEs engaged in production and services in providing the best service to consumers, it is necessary to train the practice of integration between knowledge management and integrated quality management which contains dimensions of values that can be applied by SMEs in the territory of Indonesia. According to the Chairman of the National Research and Innovation Agency (BRIN), Mr. Bahtiar Rifai, there are six dimensions so that it can increase, namely by being able to overcome existing challenges by improving creating conditions to answer these challenges by practicing quality knowledge management and integrated quality management

LITERATURE REVIEW

1. Previous Research

Studi by Lehyani et al. (2022) about "The present study investigated Knowledge Management (KM) and Total Quality Management (TQM) application in Tunisian Small and Medium Enterprises (SMEs). It allows identifying the most applied KM Elements and TQM Practices in different industrial sectors. This article is based on 206 responses that were collected and analyzed by SPSS software. Factor analysis and independence test were employed to recognize the study's results. The results revealed that the most applied KME are "Knowledge Application" and "Knowledge Acquisition" and the most applied TQMP is "Continuous improvement". This work is one of the first studies to deal specifically and in detail with the implementation of KM and TQM.

2. Knowledge Management (KM)

According to Al Shraah et al (2022) Management (KM) is the organization's ability to create, capture, apply, and develop organizational and human knowledge and disseminate it throughout the organization. Several researchers have discussed the theme of KM key factors. These researchers use different nominations for these factors such as knowledge dissemination (Al Shraah et al. 2022), knowledge accumulation (de Bem Machado et al. 2022), knowledge production (Rosuli et al. 2024), knowledge capture (Yohanitas et al. 2024), and

others. According to Lehyani et al. (2022), the five most frequently cited KM Elements (KME) in the scientific literature are: knowledge acquisition, knowledge application, knowledge creation, knowledge sharing/transfer and knowledge capitalization.

3. Total Quality Management (TQM)

Ali AIShehail (2022) defines TQM as an integrative corporate management philosophy that continuously improves the quality of processes, products, and services by meeting or exceeding customer expectations to improve customer satisfaction and organizational performance. Furthermore, Hassan & Jarron (2021) explain the definition of TQM is a way of managing people and business processes to ensure complete customer satisfaction at every stage.

Customer satisfaction is one of the main objectives of TQM, which directs organizational efforts towards TQM goals. In addition, TQM enhances innovative processes in an organization through continuous improvement, thus ensuring sustainable development. TQM implementation has an important relationship with company performance. Assad, M., et al. (2023) also continued about the definition of TQM which is defined as the identification and management of company management to produce desired performance changes to improve quality, productivity, customer satisfaction, and profitability, which are activities needed to achieve quality in an organization. Based on the definitions of the experts, it can be simplified that the definition of TQM is "systematic quality practices" for company management to produce desired changes in performance to promote "quality, productivity, customer satisfaction, and profitability".

Total Quality Management can be used as an expression that has a broad definition and meaning. As described by several authors, quality is associated with the fulfillment of aesthetic and operational and legal conditions. From the perception of the SME industry sector, quality management can be described as the successful achievement of results according to project specifications within the identified time and budget. Quality is the excellence or refinement of any process, product, or system and is measured against recognized standards for those items and the needs of the product's end users and other stakeholders. TQM is the result of a revolution in quality management techniques. TQM has three main keywords: total, quality, and management. Total refers to the consideration of everyone, quality refers to meeting their demands, and management implies commitment from everyone. As such, TQM is not an isolated process, but rather a team approach to meeting quality requirements.

4. Application of Knowledge Management Elements practices to SMEs

According to Durst et al. (2023) explain that the emphasis on the areas of KM implementation, KM perception and knowledge transfer has been studied extensively while research on knowledge identification, knowledge storage / storage and knowledge utilization is still underdeveloped in SMEs. This needs to be a concern for all parties between government, academics and business people in large-scale companies and SMEs in Indonesia. If SMEs can practice good business management processes supported by all parties, for example by providing training on B2B that produces win win solutions, information technology and business innovation to SMEs, it will be able to have a positive impact on the progress of the welfare of Indonesian society, especially on SMEs.

According to the survey results, most of the surveyed companies generally adopt KM and TQM principles, with a ratio of 83% and 82% respectively. This shows that managers are well aware of the importance of these two concepts that can improve their company's performance. However, nearly 75% of Indonesian SMEs, those with more than 250 employees, apply KM and TQM together. This reflects that their managers have transmitted their awareness of the benefits of KM and TQM to their employees through leadership, sensitization and training. In addition, some companies only implement one of the concepts, either KM with a percentage of 8.3% or TQM with a percentage of 7.3%. However, almost 10% of the surveyed companies

do not implement either KM or TQM in their management policies. This may be due to the limited number of employees or the lack of financial and/or non-financial resources such as organizational culture, staff behavior, managers' unawareness, and others.

5. Performance measurement of SMEs

In this context, Nassoura (2020) states that the purpose of KM is to display the best knowledge at the right time and allow individuals to choose the best performance options available. According to (Rojas-Lema et al., 2021) to determine the performance of SMEs, it is necessary to make performance measurements, in which there are 2 supporting aspects of performance measurement, namely the performance measurement system and the development of the performance measurement system.

Table 1 Performance measurement table of SMEs

Performance Measurement	Performance Measurement Systems	Development of Performance Measurement Systems
1. Creating an SMEs strategy	Considering all stakeholders	Periodically evaluate the existing performance measurement system
2. Linking operations to SMEs strategic objectives	Flexible; rapidly changeable and maintainable	Strategy development
3. Easy to understand and use.	Balanced (internal/external, financial/non financial)	Short and long term planning
4. Objectives are clear/explicitly defined	Synthesis	Sharing of information and communication about SMEs
5. Stimulate continuous improvement/correct behavior	Easy to implement, use and run	Manager commitment
6. Monitors past performance	Can be incrementally improved	Systematic target setting
7. Planning for future performance	Linked to the reward system	Division of roles and responsibilities
8. Promoted in an integrated manner	Integrated with information systems	Performances revision procedures
9. Establishment of formulas and data sources	-	Linking performance to the compensation process Procedures are clearly defined Information technology infrastructure support

6. Management practices in SMEs

According to Millers & Gaile-Sarkane (2021) SMEs have limited internal resources and knowledge, and must also reproduce external knowledge compared to large organizations that are already in the form of companies. Therefore, what needs to be done by SMEs in Indonesia according to Millers & Gaile-Sarkane (2021) is to practice management processes

that are unique and very different from those in companies starting from planning, managing, actualizing, controlling and evaluating the performance of SMEs in Indonesia.

7. Challenges of implementing TQM in Indonesian SMEs

Implementing any technique that challenges and modifies the traditional setup of the Indonesian SME industry is not easy. Despite the advantages of the TQM approach, its consideration in the Indonesian SME sector is not easy due to complexities such as lack of senior management interest, unskilled human resources, inadequate training, poor leadership support, and lack of technical labor. Although the Indonesian SME sector may be willing to embrace TQM concepts to improve their efficiency and minimize complexity, they still lag behind other industries such as manufacturing and services. The main obstacle to TQM adoption in Indonesian SMEs is the inability to properly evaluate client demands and convert this knowledge into complete facilities.

Some of the challenges associated with the working environment in the Indonesian SME industry are low-bid subcontracting, improper communication channels among different stakeholders, high start-up costs, poor organizational quality culture, traditional quality policies, unclear strategic process quality management, lack of customer satisfaction, non-continuous improvement of processes and techniques, and lack of time to ensure quality control, quality assurance, and TQM. These hinder the implementation of TQM. Similarly, the people-related challenges are lack of attitudes and behaviors towards TQM, lack of expertise, poor teamwork and workers, and lack of top management commitment, employee training, engagement, and empowerment. An anticipated research model to examine the influence of TQM practices in Indonesian SMEs projects.

The model links the eight mentioned quality factors with organizational development in developing countries. Therefore, these factors must be fulfilled to pave the way for implementing TQM in the Indonesian SME industry in developing countries. The above-mentioned key challenges cause complexity in implementing TQM in the Indonesian SME sector in developing countries. Therefore, in order to improve the overall quality performance and productivity of Indonesian SME projects, these key challenges must be addressed to reduce uncertainty and complexity throughout the life cycle of Indonesian SME projects in developing countries.

8. Systems thinking and dynamics in Indonesian SMEs

ST is based on feedback and causal relationships established between various components of the system. It includes "systematic thinking" or "holistic thinking", which relies on learning relationships and interconnections between seemingly disparate constructs. ST consists of illustrating a mental model of the problem (conceptual model), while SD consists of mathematical recreation of the problem to decipher the past and understand the future. ST, including CLD, analyzes complex problems retrieved through feedback mechanisms. The SD approach is a simulation technique for solving real-life complications, which describes the relationships between variables in complex systems. The SD method consists of three elements: the system, the computer, and the SD model as shown in the following figure:

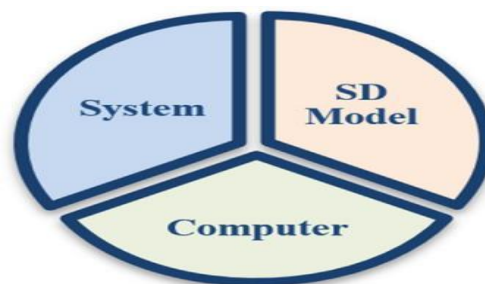


Figure1 SD Method

The Indonesian SMEs project consists of several feedback loops: positive and negative. Negative feedback loops prevent the system from achieving certain goals, while positive feedback loops help achieve those goals. In addition, different constituents of Indonesian SMEs projects have nonlinear behavior, for example, labor productivity over time. Therefore, an SD model is needed to assess the quality performance of Indonesian SME projects and TQM implementation in developing countries to cater for the non-linearity and complexity associated.

The literature reinforces the perspective that rigorous TQM organization is necessary to achieve success throughout the project life cycle. The employees in any organization should be aware that they are working for a common goal and should make contributions to implement TQM effectively.

Implementing TQM and KM demands a paradigm shift in organizational quality culture to become a leading organization in the Indonesian SME domain. Previous research also shows that the behavioral aspects of management style or human factors are mainly focused on achieving organizational goals and quality management. Several studies identified the relationship between TQM and KM. In summary, previous studies focused on selecting critical success factors for implementing TQM but have not holistically compiled their relative influence and causal relationships associated with defining TQM and KM systems thinking in Indonesian SMEs.

The current study chose a new approach in the form of SD to address the complexities associated with implementing TQM and KM in Indonesian SMEs. This study aims to holistically define the ST of TQM and KM in Indonesian SMEs by developing an SD model to reflect the behavior of the defined system over time.

METHOD

The stages of the framework in this research are formed logically and systematically with a view to achieving the research objectives. The approach used in the research is to use a qualitative approach with case studies as the main method. Primary data collection was conducted through interviews with managers and staff in the SME industry sector. On the other hand, secondary data collection is obtained from literature such as journal articles, and internal documents of the SME industry. The data analysis technique uses content analysis techniques that aim to identify themes, patterns, and conclusions from the data collected.

RESULT AND DISCUSSION

The research findings highlight the significance of Total Quality Management (TQM) in the sector of optimal human capital management in the context of corporate management. TQM principles, such as continuous improvement, customer focus, and employee engagement, can significantly improve the overall performance and efficiency of construction projects.

By incorporating TQM practices into human capital management strategies, companies can achieve higher levels of productivity, quality and customer satisfaction. Effective utilization of human capital, including skills development, training programs, and employee engagement, is important to ensure project success and maintain a competitive advantage in the industry.

In addition, the alignment of TQM principles with human capital management can result in a more unified and motivated workforce, which leads to better project outcomes and long-term business success. Companies that prioritize both TQM principles and optimal human capital management practices are better equipped to adapt to changing market conditions, reduce risk, and drive sustainable growth.

The integration of Total Quality Management principles with optimal human capital cost accounting is important to achieve excellence in the company and improve the overall

performance of the company. By fostering a culture of continuous improvement, investing in employee development, and prioritizing customer satisfaction, construction companies can establish themselves as industry leaders and drive success in a competitive market environment.

In the analysis of existing human capital cost accounting models, it was found that each model has its own advantages and disadvantages. The models include the asset ("cost", chronological) approach and the Resource Utility Model. Factors such as company complexity, available resources, and company strategic objectives influence the selection of the most appropriate model.

In addition, key factors influencing the successful implementation of the models include support from senior management, availability of accurate data, employee engagement, and a strong understanding of the value of human capital. Recommendations for optimizing the use of the models include training for staff, integration of information systems, and development of relevant performance metrics.

CONCLUSION

This journal is composed of background, problem formulation, research objectives, research benefits, conceptual framework, literature review, research methods, results and discussion and conclusions. The purpose of the research conducted is to provide an overview to academics and management of SMEs as well as the general public on how to improve the implementation of TQM and KM in SMEs and identify challenges faced by SMEs in implementing TQM and KM. Unfortunately, many Indonesian SMEs implement KM and TQM without knowing their added value or contribution in enhancing an innovative work environment. In this context, our research begins with a literature review on the concepts of KM and TQM and their influence on SMEs' performance. We then identified six TQM practices that need to be provided to Indonesian SMEs: leadership, customer focus, HRM, process management, information analysis and continuous improvement. In addition, the practice of the five KM elements that have been mentioned, namely: knowledge creation, knowledge application, knowledge acquisition, knowledge capitalization, and knowledge sharing/transfer are also very much needed by Indonesian SMEs so that SMEs can have the skills and knowledge that produce quality product innovations in increasing the productivity and profitability of Indonesian SMEs.

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