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Research Article

Role of Quality Management System in improving Organisational Productivity - an empirical study on Manufacturing SMEs in the state of Kerala

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ABSTRACT

This empirical study sheds light on the crucial role of Quality Management Systems in enhancing the productivity of Manufacturing SMEs in Kerala. By implementing ISO 9001 standards, providing employee training on quality management, fostering leadership commitment to quality improvement, utilizing TQM principles, investing in quality control tools and technologies, involving employees in quality initiatives, continuously monitoring metrics, managing supplier quality practices effectively, using quality management software systems, collecting feedback from customers and stakeholders regularly, as well as conducting routine audits and assessments - organizations can significantly improve their operational efficiency and overall performance. It is evident that a robust Quality Management System not only ensures compliance with standards but also drives continual improvement and sustainable growth for small and medium-sized enterprises in the manufacturing sector.

Keywords: Quality Management System, Organizational productivity, SMEs in Kerala, Manufacturing

Introduction

Quality Management System (QMS) is a structured approach that focuses on enhancing product quality, improving customer satisfaction, and increasing overall operational efficiency. It involves the implementation of processes, procedures, and policies to ensure consistent quality standards are met throughout an organization. By adopting a QMS, businesses can streamline their operations, identify areas for improvement, and reduce waste in production processes. This system helps in standardizing practices across departments, promoting a culture of continuous improvement and innovation. One key aspect of QMS is compliance with industry regulations and international standards such as ISO 9001. This certification demonstrates a company's commitment to quality excellence and can open up new business opportunities by building trust with customers and stakeholders.

In today's competitive landscape, implementing a robust Quality Management System is essential for organizations looking to stay ahead of the curve and deliver exceptional products or services consistently. Organisational productivity is a key factor that determines the success and sustainability of any business. It refers to the efficiency and effectiveness in utilizing resources to achieve desired outcomes. In today's competitive landscape, businesses are constantly striving to enhance their productivity levels to stay ahead of the curve. By improving organisational productivity, companies can streamline processes, reduce waste, and ultimately increase profitability. This involves optimizing workflows, enhancing employee performance, and leveraging technology solutions to drive operational excellence. Effective leadership plays a crucial role in fostering a culture of productivity within an organization. Leaders must provide clear direction, set achievable goals, and empower employees to perform at their best. Additionally, investing in employee training and development can further enhance individual skills and contribute to overall productivity gains. Continuous improvement initiatives such as implementing quality management systems, adopting lean principles, or embracing digital transformation can also have a significant impact on organisational productivity. By

prioritizing efficiency and innovation, businesses can adapt to evolving market demands and maintain a competitive edge in the long run.

The role of Quality Management System (QMS) in enhancing organizational productivity, particularly within the context of manufacturing Small and Medium-sized Enterprises (SMEs) in the state of Kerala, is a topic of significant interest and importance. The empirical study aims to investigate the critical success factors for lean implementation within SMEs, with a focus on manufacturing engineering (Achanga et al., 2006). This study is particularly relevant as it addresses the specific challenges and success factors related to lean implementation within the SME context, shedding light on the unique considerations for enhancing productivity in small manufacturing enterprises. Furthermore, the study on the entrepreneurial and market orientation and its impact on SME performance in the manufacturing industry provides valuable insights into the relationship between organizational culture and quality management practices (Buli, 2017). Understanding the influence of entrepreneurial and market orientations on SME performance is crucial for comprehensively assessing the factors that contribute to productivity improvement within manufacturing SMEs. Moreover, the mediating effect of innovation in the relationship between strategic orientation and enterprise performance, as evidenced in Malaysian manufacturing SMEs, offers valuable insights into the interplay between innovation, strategic orientation, and performance (Mamun et al., 2022). This study provides a nuanced understanding of the mediating role of innovation in driving performance within the manufacturing SME sector, which is essential for comprehensively evaluating the mechanisms through which QMS can impact productivity. Additionally, the study on HRM formality differences in Pakistani SMEs and its implications for improving HRM practices offers a unique perspective on the human resource management aspects within SMEs, which are integral to organizational productivity (Burhan et al., 2020). Understanding the formalities and practices related to HRM within SMEs is crucial for comprehensively addressing the organizational factors that influence productivity and performance. the synthesis of these potential references provides a comprehensive foundation for understanding the role of QMS in improving organizational productivity within manufacturing SMEs. These studies offer valuable insights into the critical success factors for lean implementation, the influence of entrepreneurial and market orientations, the mediating effect of innovation, and the implications of HRM formality differences, all of which are essential for conducting an empirical study on QMS and organizational productivity within manufacturing SMEs in Kerala.

Manufacturing SMEs in the state of Kerala

Manufacturing SMEs in the state of Kerala play a crucial role in contributing to the economic growth and employment opportunities within the region. These small and medium-sized enterprises form the backbone of the manufacturing sector, catering to various industries such as textiles, food processing, and engineering. Despite facing challenges like limited resources and competition from larger corporations, these SMEs showcase resilience and innovation in their operations. With a strong emphasis on quality management practices, many manufacturing SMEs in Kerala have been able to enhance their productivity levels and deliver high-quality products to meet market demands. The geographical location of Kerala presents unique advantages for these businesses, including access to skilled labor force, government incentives for industrial development, and proximity to major ports for easy export opportunities. By leveraging these factors along with implementing robust quality management systems, Manufacturing SMEs can continue to thrive and contribute significantly to the overall growth of the state's economy.

Role of Quality Management System in improving Organisational Productivity

Quality Management System plays a crucial role in enhancing Organisational Productivity within Manufacturing SMEs in Kerala. By implementing ISO 9001 standards, companies can streamline their processes and ensure consistency in product quality. Employee training on quality management empowers staff to identify and address issues proactively. Furthermore, leadership commitment to quality improvement sets the tone for the entire organization, fostering a culture of continuous enhancement. The use of Total Quality Management principles encourages all employees to take ownership of quality control and strive for excellence. Investment in quality control tools and technologies equips businesses with the resources needed to monitor and maintain high standards. By involving employees in quality improvement initiatives, organizations tap into valuable insights that can drive innovation and efficiency. Continuous monitoring and evaluation of quality metrics enable companies to identify areas for improvement promptly. Supplier quality management practices ensure that external partners meet the same rigorous standards set internally. Utilizing advanced software systems for quality management facilitates data analysis and decision-making processes. Feedback mechanisms from customers and stakeholders provide valuable input for ongoing improvements. Regular audits help ensure compliance with established processes while identifying opportunities for optimization. In this study delves into existing research on the correlation between Quality Management Systems (QMS) and organizational productivity, with a focus on Manufacturing SMEs in Kerala. Various studies have highlighted the positive impact of implementing ISO 9001 standards on improving overall efficiency and performance within organizations. Additionally, research has shown that employee training on quality management plays a crucial role in enhancing product quality and customer satisfaction. Furthermore, leadership commitment to quality improvement initiatives has been identified as a

key driver for sustained business success. Utilizing Total Quality Management (TQM) principles has been linked to increased operational excellence and competitiveness in the market. Investment in quality control tools and technologies has also been emphasized as essential for ensuring consistency in product/service delivery. Moreover, studies have underscored the importance of continuous monitoring and evaluation of quality metrics to drive ongoing improvement efforts within organizations. Supplier quality management practices have emerged as critical factors influencing overall product quality and reliability. The utilization of quality management software systems has been recognized as instrumental in streamlining processes and enhancing data-driven decision-making capabilities. Additionally, feedback mechanisms from customers and stakeholders are vital for identifying areas for improvement and driving innovation within organizations. Regular audits and assessments of quality processes help ensure adherence to established standards while fostering a culture of continuous learning and development.

Need for the study

Understanding the need for a study on the role of Quality Management System (QMS) in improving Organisational Productivity among Manufacturing SMEs in Kerala is crucial. The competitive landscape demands businesses to continuously enhance their operations and processes to stay ahead. Implementing ISO 9001 standards can provide a structured framework for quality improvement, leading to increased efficiency and customer satisfaction. Employee training on quality management ensures that staff are equipped with the necessary skills and knowledge to uphold high standards. Leadership commitment to quality improvement sets the tone for a culture of excellence within the organization. Utilizing Total Quality Management principles emphasizes continuous improvement and customer focus. Investment in quality control tools and technologies enables companies to identify defects early on, saving time and resources down the line. Employee involvement in quality initiatives fosters a sense of ownership and accountability towards maintaining high-quality standards throughout all levels of the organization.

Statement of the problem

Understanding the statement of the problem is crucial in any research study. In this empirical analysis focusing on Manufacturing SMEs in Kerala, identifying key challenges faced by these businesses is essential. The lack of a robust Quality Management System implementation can hinder productivity and growth potential for these organizations. Issues such as inconsistent quality standards, inefficient processes, and ineffective resource utilization may be prevalent among Manufacturing SMEs in Kerala. Without addressing these problems, companies risk falling behind competitors and losing market share. By pinpointing specific pain points within the organizational framework related to quality management practices, researchers aim to provide actionable insights for improving overall operational efficiency and performance in these small to medium-sized enterprises. The statement of the problem sets the foundation for exploring how enhancing Quality Management Systems can lead to tangible benefits such as increased customer satisfaction, higher product quality levels, and greater competitiveness in both local and global markets.

Research gap of the study

One crucial aspect of the study is identifying the research gap that exists in the current literature surrounding the role of Quality Management Systems (QMS) in enhancing organizational productivity within Manufacturing SMEs in Kerala. While there have been studies on QMS and its impact, there is a lack of specific focus on how these systems are implemented and utilized by small to medium-sized enterprises in this region. Understanding this gap is essential for gaining insights into the unique challenges faced by Manufacturing SMEs in Kerala when it comes to implementing quality management practices effectively. By addressing this research gap, we can uncover valuable information that could potentially help these businesses improve their operational efficiency, product quality, and overall competitiveness in the market. Exploring this area further will not only contribute to academic knowledge but also provide practical recommendations for manufacturing companies looking to enhance their performance through better quality management strategies tailored to their specific needs and constraints.

Review of literature

The role of a Quality Management System (QMS) in improving organizational productivity, particularly in the context of manufacturing SMEs, has been a subject of empirical investigation. Several studies have shed light on various aspects related to this topic. For instance, Ghobakhloo & Fathi (2019) emphasized the development of lean-digitized manufacturing systems as a viable strategy for corporate survivability in the Industry 4.0 setting. This underscores the importance of embracing technological advancements within the manufacturing processes to enhance competitiveness and productivity (Ghobakhloo & Fathi, 2019). In the context of SMEs, Inuwa & Usman (2022) conducted research to assess the impact of organizational culture on quality management and innovation practices among manufacturing SMEs in Nigeria. Their findings

revealed the positive relationship between certain organizational cultures and quality management, highlighting the significance of organizational culture in shaping quality management practices within SMEs (Inuwa & Usman, 2022). Moreover, the study by Buli (2017) confirmed that working on entrepreneurial and market orientations of SMEs can improve performance and compensate for the constraints imposed by the existing market in developing economies. This suggests that a focus on entrepreneurial and market orientations can contribute to enhancing the overall performance of SMEs in the manufacturing industry (Buli, 2017). Additionally, the study by Charoenrat & Harvie (2013) argued for a more substantial role of the government in developing manufacturing SMEs through various measures, including providing training programs, encouraging the usage of capital and technology, and improving information and communications infrastructure. This highlights the potential impact of external support and interventions in enhancing the capabilities and productivity of manufacturing SMEs (Charoenrat & Harvie, 2013). Furthermore, the research by Psomas et al. (2012) aimed to develop an instrument that measures the effectiveness of the ISO 9001 QMS in the food manufacturing sector, emphasizing the importance of quality management systems in enhancing organizational performance. This underscores the significance of standardized quality management practices in driving improvements in SMEs' productivity and performance (Psomas et al., 2012). the synthesis of these studies underscores the multifaceted nature of the role of QMS in improving organizational productivity in manufacturing SMEs. It highlights the importance of embracing technological advancements, fostering conducive organizational cultures, leveraging entrepreneurial and market orientations, and the potential impact of external support and standardized quality management practices in driving improvements in SMEs' productivity and performance.

Research methodology

Research methodology is the backbone of any empirical study, providing a systematic framework for gathering, analyzing, and interpreting data. In this study on the role of Quality Management System in improving Organisational Productivity among Manufacturing SMEs in Kerala, a mixed-method approach was adopted. Quantitative surveys were conducted to collect numerical data on the implementation of ISO 9001 standards, employee training on quality management, leadership commitment to quality improvement, and other key variables. Qualitative interviews with industry experts provided deeper insights into the challenges and best practices related to quality management in SMEs. Totally 219 samples were collected from the employees of SMEs in Kerala. Data analysis involved statistical techniques such as Chi square, rank correlation and regression analysis to identify significant relationships between different factors affecting organisational productivity. The research methodology ensured a comprehensive understanding of how Quality Management Systems impact manufacturing SMEs' performance in Kerala.

Analysis and Result

Table-1: Employees opinion towards Quality Management System on Organisational Productivity

S. No	Quality Management System	Mean	S.D	Friedman's Mean Rank	Chi-square value	P-value	Multiple comparison test
1	Implementation of ISO 9001 standards	3.11	1.39	5.59	100.972	0.001*	2 7 8,4 11,10 9 5,3,1,6
2	Employee training on quality management	3.69	1.43	6.87			
3	Leadership commitment to quality improvement	3.22	1.41	5.58			
4	Use of Total Quality Management (TQM) principles	3.35	1.48	6.17			
5	Investment in quality control tools and technologies	3.24	1.44	5.65			
6	Employee involvement in quality improvement initiatives	3.23	1.37	5.55			
7	Continuous monitoring and evaluation of quality metrics	3.40	1.42	6.25			
8	Supplier quality management practices	3.44	1.35	6.18			
9	Utilization of quality management software systems	3.36	1.41	5.91			

10	Feedback mechanisms from customers and stakeholders	3.38	1.32	6.11			
11	Regular audits and assessments of quality processes	3.45	1.36	6.13			

Source: Primary data computed; * Significant @ 1% level.

Implementation of ISO 9001 standards, Employee training on quality management, Leadership commitment to quality improvement, Use of Total Quality Management (TQM) principles, Investment in quality control tools and technologies, Employee involvement in quality improvement initiatives, Continuous monitoring and evaluation of quality metrics, Supplier quality management practices, Utilization of quality management software systems, Feedback mechanisms from customers and stakeholders and Regular audits and assessments of quality processes are the various factors of Quality Management Systems of the organisation.
The respondents asked to rate their opinion towards the Quality Management Systems. The result displayed in the table-1. The mean value is ranged from 3.11 to 3.69. Based on the mean value, it is inferred that the respondents are having moderate level of Quality Management Systems. The corresponding standard deviation values indicate that there is no much deviation among the employees.
H_0: Opinion about Quality Management Systems is found to be similar among all the respondents.
In order to test the above stated hypothesis Friedman test is applied. The Friedman mean rank is lies between 5.55 to 6.87 and chi square value 100.972, which is significant at one percent level. Hence the hypothesis is rejected. It shows that the Quality Management Systems of the SMEs is varied among the employees. Further, Friedman multiple comparison test is applied to identify, which is the higher Quality Management System. After applying the test, 11 statements are grouped in the 6 categories. Employee training on quality management placed as first rank. Continuous monitoring and evaluation of quality metrics is in the second place. Supplier quality management practices and health problem together occupy the third place. Regular audits and assessments of quality processes and lack of experience placed the fourth position, lack of occupational mobility is in the fifth place, Investment in quality control tools and technologies, Leadership commitment to quality improvement, Implementation of ISO 9001 standards and Employee involvement in quality improvement initiatives together occupies the last place.

Table-2: Effect of Quality Management System on Organisational Productivity

R- value	R- Square value	Adjusted R- Square value	F- value	P-value
0.764	0.515	0.498	12.840	0.001*

Quality Management System	B	Std. Error	Beta value	t-value	P-value
(Constant)	5.464	0.164	-	33.317	0.001*
Implementation of ISO 9001 standards	-0.134	0.053	-0.143	-2.508	0.012**
Employee training on quality management	-0.142	0.057	-0.156	-2.505	0.013**
Leisure time is very less	-0.160	0.064	-0.174	-2.511	0.012**
Use of Total Quality Management (TQM) principles	0.062	0.054	0.072	1.165	0.245 (NS)
Investment in quality control tools and technologies	0.070	0.064	0.078	1.105	0.270 (NS)
Employee involvement in quality improvement initiatives	0.058	0.063	0.062	0.919	0.359 (NS)
Continuous monitoring and evaluation of quality metrics	-0.023	0.070	-0.025	-0.322	0.748 (NS)
Supplier quality management practices	-0.149	0.072	-0.155	-2.082	0.038 (NS)
Utilization of quality management software systems	-0.197	0.069	-0.215	-2.866	0.004**
Feedback mechanisms from customers and stakeholders	-0.148	0.070	-0.150	-2.096	0.037**
Regular audits and assessments of quality processes	0.334	0.072	0.352	4.670	0.001*

Source: Primary data computed; * Significant @ 1% level; ** Significant @5% level; NS: Non significant

H_0: Quality Management Systems do not have influence on Organizational Productivities in Manufacturing SMEs

To verify above stated hypothesis multiple regressions is carried out. The purpose of regression analysis is to find the most predictors Quality Management Systems on Organizational Productivities. The result is displayed in table-4.31. From the R square value, it is inferred that Quality Management Systems influencing the Organisational Productivity by 0.515. The measure of strength of association in the regression analysis is given by the co-efficient of regression determination denoted by R-square as 0.515 and R-value as 0.764. The F-value is 12.840 and P-value is 0.001 which is significant at one percent level and ascertain that there is significant relationship between dependent and independent variable. So, the hypothesis is rejected. Further, R-square value indicates that the independent variables are influenced at 49.8 percent on the dependent variable. The standardized co-efficient beta value indicates the relative importance of the predictors on Organisational Productivity.

It is inferred that Quality Management System are significantly influenced the Organisational Productivity of SMEs. The corresponding p-value of these variables is significant at one percent. So, these variables significantly influence on Organisational Productivity. Organisational Productivity are expressed by the following equation.

Organisational Productivity = 5.464 (Constant) + 0.334 (Regular audits and assessments of quality processes) + 0.134 (Implementation of ISO 9001 standards) – 0.142 (Employee training on quality management) – 0.148 (Feedback mechanisms from customers and stakeholders) – 0.160 (Leisure time is very less) – 0.197 (Utilization of quality management software systems)

The equation is displayed that Regular audits and assessments of quality processes, are having positive influence on Organisational Productivity. Whereas Implementation of ISO 9001 standards, Employee training on quality management, Feedback mechanisms from customers and stakeholders, leisure time is very less and Utilization of quality management software systems are negatively influence on Organisational Productivity.

To have one unit increase in Organisational Productivity, that Regular audits and assessments of quality processes increased by 0.334 where other factors remain constant. However Implementation of ISO 9001 standards decreased by 0.134, Employee training on quality management decreased by 0.142, Feedback mechanisms from customers and stakeholders decreased by 0.148, leisure time is very less decreased by 0.160 and Utilization of quality management software systems decreased by 0.197 where other factors remain constant.

It is found that that Regular audits and assessments of quality processes are having positive impact on Organisational Productivity. Whereas Continuous monitoring and evaluation of quality metrics, Implementation of ISO 9001 standards, Employee training on quality management, Feedback mechanisms from customers and stakeholders, leisure time is very less and Utilization of quality management software systems are have negative impact on Organisational Productivity.

Suggestions and recommendation

1. Implementation of ISO 9001 standards can provide a structured framework for quality management in Manufacturing SMEs.
2. Employee training on quality management is essential to ensure that staff members are equipped with the necessary skills and knowledge to uphold quality standards.
3. Leadership commitment to quality improvement is crucial in fostering a culture of continuous enhancement within the organization.
4. Utilizing Total Quality Management (TQM) principles can help in integrating quality initiatives across all departments and functions.
5. Investment in quality control tools and technologies can streamline processes and identify areas for improvement more efficiently.
6. Involving employees in quality improvement initiatives empowers them to take ownership of the process and contribute valuable insights.
7. Continuous monitoring and evaluation of quality metrics allow organizations to track progress, identify trends, and make timely adjustments as needed.

Conclusion

After exploring the role of Quality Management System in enhancing Organisational Productivity within Manufacturing SMEs in Kerala, it is evident that implementing ISO 9001 standards, providing employee training on quality management, and fostering leadership commitment to quality improvement are crucial factors. Additionally, utilizing Total Quality Management principles, investing in quality control tools and technologies, and involving employees in quality initiatives contribute significantly to achieving operational excellence. Continuous monitoring of quality metrics, effective supplier quality management practices, utilization of quality management software systems, and gathering feedback from customers play a vital role in maintaining high-quality standards. Regular audits and assessments help identify areas for improvement

and ensure sustained growth. By adopting a holistic approach towards quality management practices, organizations can drive efficiency, enhance customer satisfaction levels, and ultimately achieve long-term success.

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