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STUDY ON TQM PRACTICES IN MICRO, SMALL AND MEDIUM ENTERPRISES – A REVIEW

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ABSTRACT:
In a business environment that is increasingly globalized and diverse, Total Quality Management (TQM) has emerged as the most recent form of control. The recognition and application of Bangalore's Small and Medium-Sized Enterprises (SMEs) in Manufacturing and the Managemental workspace, Information Technology (IT) sectors. The universal readiness for a variety of organizational issues related to organizational performance is measured by TQM practices. The size of an association affects how quality control procedures are carried out. The newly accredited businesses have made significant investments in infrastructure facilities and staff numbers and have successfully implemented TQM practices effectively and gradually. Quality control procedures are also influenced by an entrepreneur's educational background and understanding of the actual working principles of the organization. This paper will give down to earth information to specialists in Bangalore to comprehend the significance of TQM rehearses in SMEs outcomes. It discusses the connection between organizational culture and its effects with performance. The organization's performance has improved effectively as a result of the concept of TQM's principles and approaches abundantly.
Keywords: TQM, Managemental workspace, SME, Quality Control, Entrepreneur.

INTRODUCTION:

Despite Total Quality Management (TQM) is a business management approach that seeks to continuously improve the quality of products and services by involving all employees in the quality improvement process. TQM practices are especially important for micro, small, and medium enterprises (MSMEs) because they can help these businesses to increase efficiency, reduce costs, and improve customer satisfaction. One key TQM practice that is particularly relevant for MSMEs is continuous improvement. This involves regularly reviewing and improving processes in order to increase efficiency and reduce waste. For example, an MSME might use tools such as value stream mapping to identify bottlenecks in its production process and then implement changes to eliminate these bottlenecks.

Continuous improvement can also involve gathering feedback from customers and using this information to make improvements to products and services. Another important TQM practice is the use of data and analytics to drive decision-making. This involves collecting data on key performance indicators (KPIs) such as customer satisfaction, production efficiency, and cost, and using this data to identify areas for improvement. For example, an MSME might use data on customer complaints to identify common problems with its products and then implement changes to address these issues.

Another key TQM practice is the establishment of clear goals and objectives. This involves setting specific, measurable, achievable, relevant, and time-bound (SMART) goals for the business and using these goals to guide decision-making and focus efforts. For example, an MSME might set a goal to reduce production costs by 10% over the next year, and then implement changes to its processes in order to achieve this goal. In addition to these practices, TQM also emphasizes the importance of effective communication and teamwork. This involves creating an open and

collaborative culture where employees are encouraged to share ideas and work together to solve problems.
For example, an MSME might use tools such as brainstorming sessions and problem-solving workshops to encourage collaboration and continuous improvement. Overall, TQM practices can be highly beneficial for MSMEs, helping these businesses to increase efficiency, reduce costs, and improve customer satisfaction. By implementing TQM practices such as continuous improvement, data-driven decision-making, goal-setting, and effective communication and teamwork, MSMEs can position themselves for long-term success.

LITERATURE STUDY:
Manufacturing Sectors:
B. Zhou [1], explored the use of lean as a business strategy by small and medium-sized enterprises (SMEs) in the United States. It was found that most SMEs have a good understanding of the lean concept and philosophy, and that the main drivers for implementing lean are internal, such as reducing costs and improving profitability. The author also found that some SMEs are more advanced in their adoption of lean compared to others, and that the use of various lean tools and programs is linked to improved performance. However, the author also highlighted that there are barriers to the implementation of lean in SMEs, particularly in terms of management, knowledge, and expertise. The purpose of this research was to understand the use of lean practices in small and medium-sized enterprises (SMEs) in the united stated. The study also found that various learned tools and programs, such as Kaizen and Kanban, were used by SMEs and were positively related to their performance. However, the research identified challenges to adopting leaned, including management and employee-related issues and a need for more knowledge and expertise. The study had some limitations, including limited sample size, but overall, it suggests that leaned practices could be beneficial for SMEs and highlights the importance of understanding and addressing the challenges to their successful implementation
M.Demibag[2], et. al., found that the impact of Total Quality Management (TQM) on financial performance was partly mediated by non-financial performance factors such as market development, market orientation, and investment in research and development. Around 40% of the variation in financial performance can be explained by the implementation of TQM practices. The most important TQM practices were found to be training, employee relations, and quality data and reporting. The role of top management was the least important factor in TQM implementation. Many small and medium- sized enterprises (SMEs) in Turkey had invested in TQM programs, but some have not seen improvement due to barriers to full implementation. TQM can lead to benefits such as improved customer satisfaction and internal communication, but it requires commitment and enthusiasm across the organization. TQM is more likely to be successful when it is integrated into the company culture and when top management is involved in its implementation. SMEs in Turkey face specific challenges in implementing TQM, including limited resources and a lack of expertise. Training and education can help SMEs overcome these challenges and realize the benefits of TQM.
M. Sharma [3] et. al., identified the TQM frameworks for improving manufacturing excellence. These frameworks were categorized based on the typed of source they came from and the number of elements they include. A comparison of academic and award-based frameworks reveals the fundamental elements that were common across these frameworks, which are considered necessary for any TQM implementation. The authors proposed added additional elements, such as social responsibility and knowledge management, to the framework to keep it relevant as TQM evolves with changing business, market, and technological conditions. Sub-elements were also identified for each main element to provide a more detailed understanding of the framework. The authors suggested that this proposed conceptual framework for TQM implementation elements could been used as a process for achieving quality awards, although the framework was still conceptual and

requires empirical validation through techniques such as questionnaires or case studies. Nurazree Mahmuda [4] et. al., investigated the relationship between Total Quality Management (TQM) and the performance of small and medium-sized enterprises (SMEs). It also examines the potential role of organization learning in mediating this relationship. To do so, the paper conducted a thorough review of previous research on TQM, organization learning, and SME performance, and proposes that TQM may support both organization learning and SME performance. Further empirical analysis was done to validate or modify these propositions.

Naveen Hooda [5] at. al., suggested that the hypothesis testing indicated that non-TQM industries do not prioritize employee involvement and empowerment. This lack of emphasis on these factors is likely the primary reason for their failure to meet global standards. When employees are fully invested in their work, it reduces the burden on top management and minimizes the likelihood of rework. In response to this issue, a Total Quality Management (TQM) implementation model focusing on employee involvement was proposed and it is hoped that non-TQM industries will adopt it.

Brijesh Singh [6] et. al., suggested that a nation's economic and social development is greatly supported by small manufacturing sectors, consisting of micro, small, and medium enterprises (SMEs). These SMEs make a significant contribution to a country's gross domestic production, employment, and exports on a global scale. In order to thrive and survive in an ever-changing world, it is important for these small sectors to improve their performance and competitiveness. This paper presents a literature review that focuses on the key areas that require improvement, and suggests potential measures that could be taken to ensure the sustainable growth of an enterprise.

Hale Kaynak [7] et. al., examined the connections between quality management practices and various levels of organizational performance. These studies have had inconsistent findings, possibly due to the single-construct approaches used to measure TQM or performance. Based on a thorough review of the literature, this study identifies the relationships among TQM practices and investigates the direct and indirect effects of these practices on various performance levels. A research model and hypotheses are proposed and tested using cross-sectional mail survey data collected from companies in the US. The structural model test supports the proposed hypotheses. The implications of the findings for researchers and practitioners are discussed and future research directions are suggested.

Thomas Chai [8] et al., examine a mediational model of Total Quality Management (TQM), in which TQM practices have a direct influence on customer satisfaction and an indirect influence mediated through plant performance. The convergent validity, discriminant validity, and reliability of the constructs. We then analyze the model using LISREL 8.10. The results suggest complex relationships among TQM practices, plant performance, and customer satisfaction. TQM practices have a stronger effect on customer satisfaction than they do on plant performance. Additionally, the plant performance, as described in the mediational model, does not have a significant impact on customer satisfaction. This observation is explained using an institutional argument that suggests a loose coupling may exist between TQM practices designed for customer demands and the activities on the plant floor designed for plant performance.

Gulin Idil Sonmezturk Bolatan [9] et al., stressed on critical factors of technology transfer performance (TTP) and its impact on quality performance (QP) and total quality management (TQM) were defined in this research. A questionnaire was designed and administered to manufacturing managers or quality managers of the manufacturing firms in Turkey. Two hundred organizations, chosen from the largest 1000 companies according to the classification of the Istanbul Chamber of Industry, were evaluated. A model was developed based on theoretical considerations to investigate the relationships among TTP, QP, and TQM. It was found that TTP had a positive and strong impact on TQM, but no significant impact on QP. A positive and strong relationship was also determined between TQM and QP. The relationship between TTP and QP became significant with the mediating role of TQM.

Mehmet Demirbag[10] et al., highly suggested that the size and nature of the sample should be enhanced to ensure variability and control for possible extraneous variation. While the sample was restricted to only a single region and a single industry, it was strongly recommended that data should be gathered from various parts of Turkey including both various manufacturing and service industries. Since the data in this study were collected from top managers of organizations on the basis of their subjective evaluations, objective performance indicators should also have been employed in the analysis. Finally, it was suggested that a neural network model could be utilized in future studies to gain additional insights in exploring the relationship between TQM and organizational performance.

STRATEGIES AND APPROACHES:

M. Trehan[11], et al., found that using basic quality control (QC) tools on a project-by-project basis can help organizations that are just beginning their journey towards continuous improvement build a culture of qualityThis approach was effective for addressing a wide range of issues and led to significant cost savings. The simplicity of the basic QC tools made them accessible to most employees, including non- management staff, which increased employee engagement and facilitated the rapid identification and resolution of problems. In this paper, the focus was on the journey of MilkFed, a cooperative milk producer in India, as it implemented Total Quality Management (TQM) principles. The goal was to establish a company-wide culture of continuous improvement. To achieve this, MilkFed enlisted the help of the Punjab Technical University's School of TQM and Entrepreneurship (PGSTE). PGSTE consultants developed a plan for TQM implementation and trained 76 executives in TQM principles and project-based improvement. Each team then implemented a project facilitated by the consultants, leading to cost savings and numerous intangible benefits, such as improved employee attitudes, a stronger team culture, and better labor-management relations. The paper concluded that the combination of a project- based approach and the use of 7 QC tools was an effective method for building a culture of continuous improvement, and offered valuable insights for other organizations embarking on their own quality improvement journey.

A.M. Herzallah[12], et al., The research paper aimed to explore the connection between Total Quality Management (TQM) practices, two types of competitive strategies (cost leadership and differentiation), and the financial performance of small and medium-sized enterprises (SMEs) in Palestine. The researchers surveyed 202 SMEs in the Palestinian industrial sector and used Structural Equation Modeling to analyze the data. The results showed that TQM practices had an indirect but significant positive effect on financial performance through competitive strategies, and that there was a direct and significant positive relationship between competitive strategies and financial performance. These findings suggested that Palestinian SMEs seeking to improve their performance should consider implementing TQM practices and focusing on competitive strategies. It is worth noting that the sample for this study was limited to industrial firms in the West Bank and did not include any firms from the Gaza Strip. Future research could consider comparing industrial and service firms or expanding the study to include other countries in the region for comparative purposes.

P. O'Neill[13], el at., focused on the study of small manufacturing firms in Australia and the role of quality and innovation in their performance. Using data collected over four years, the study investigated whether a firm's stated commitment to quality management was related to its financial performance. The results showed that firms with a commitment to quality management had a statistically significant financial performance advantage over those who did not engage in quality management. The purpose of the research was to test hypotheses within the quality theoretic paradigm, with a focus on understanding causality and the role of quality in small manufacturing firms.

The research also proposed the use of two new financial ratios as measures of performance and discussed the moderating effects of various organizational characteristics on the benefits of quality management. However, the study had several limitations, including a lack of generalizability to other industries and countries, and potential issues with the validity of the survey questionnaires. Despite these limitations, the study added to the understanding of the relationship between quality management and financial performance and provided a framework for future research in this area.

J Jayaram[14], et al., examined how various contextual factors, such as company size, TQM implementation duration, unionization, and industry type, affected the relationship between TQM constructs (culture and quality system design) and outcomes (process and product quality, customer satisfaction), we found that these contextual factors did indeed moderate the influence of TQM constructs on outcomes. The industry type had the greatest impact, followed by company size and TQM duration. To a lesser extent, unionization also played a role. Our research suggested that both culture and quality system design had a combined effect on TQM outcomes, and that this effect varied based on contextual factors. However, it should be noted that our study had limitations, including the use of subjective survey data and the inability to consider the evolution of TQM over time. Further research was needed to fully understand the complex interplay of these factors.

Torbjo¨rn H. Netland[15] et al., performed a quick maturity test which was proposed to assist supply chain operations strategy development in this paper. The proposed maturity test was developed through literature reviews on maturity models and best practices and was tested and enhanced in close cooperation with ten industrial companies over a period of four years.

Qunxiang Zhang[16] et al., claimed that the relationship between quality management (QM) practices and innovation has been studied, but the research has produced inconsistent results. Additionally, it was found that market turbulence positively moderated the relationship between QM infrastructure practices and product innovation performance, but negatively moderated the relationship between core QM practices and process innovation performance. However, market turbulence did not moderate the relationship between infrastructure practices and process innovation performance, and the moderating effects of core practices and product innovation performance were not significant.

Thomas C. Powell[17] insisted that Total Quality Management (TQM) had become a pervasive part of business thinking, but its role as a strategic resource has not been extensively examined in strategic management research. This article, which uses the resource approach and other theoretical perspectives, examines TQM as a potential source of sustainable competitive advantage, reviews existing empirical evidence, and reports findings from a new empirical study of TQM's performance consequences. The findings suggest that most features generally associated with TQM, such as quality training, process improvement, and benchmarking, do not generally lead to advantage, but that certain tacit, behavioral, imperfectly imitable features, such as open culture, employee empowerment, and executive commitment, can produce advantage. The author concludes that these tacit resources, and not TQM tools and techniques, drive TQM success, and that organizations that possess them can outperform competitors with or without the accompanying TQM ideology.

Vedant Singh[18] et al., stated that the application of Total Quality Management (TQM) in Indian companies and its effects on organisational performance were the main subjects of this study. Five manufacturing and three service firms in north India that are listed on the Confederation of Indian Industries were the subjects of the study (CII). All of the data were substantial and agreed with earlier research. It was discovered that there was no difference in the two groups' levels of literacy on TQM and that TQM components had a favourable correlation with the performance indicators of Indian firms. The results of this study offer important new perspectives on TQM procedures from the standpoint of the Indian manufacturing and service industries.

Veeri Arumugam[19] et al., in his research paper only looked at ISO 9001:2000 certified manufacturing organizations in Malaysia, which may not accurately represent the entire

manufacturing industry in Malaysia. As a result, the findings of the study may not be applicable to non-ISO 9001:2000 certified organizations. However, the results of the study may still be useful for top management at ISO 9001:2000 certified manufacturing organizations to improve their quality management practices and quality performance.

Ali E. Akgun[20] et al., claimed that Total quality management (TQM) had drawn the attention of numerous researchers from a range of fields. The literature had discussed the effects of TQM on a firm's operations and performance in particular. Divergent viewpoints had, however, evolved on the connection between TQM and a company's financial performance. In this essay, they proposed a connection between TQM, organisational learning capability (OLC), business inventiveness, and a firm's financial success. And they also claimed that OLC and business inventiveness served as a mediator between TQM and a firm's financial performance. They discovered through researching 193 Turkish businesses that TQM affects OLC and a firm's business innovation, OLC effects a firm's business innovation, a firm's business innovation affects its financial performance. We also discovered that OLC.

Mário Gomes Augusto[21] et al., stated the importance of incorporating innovation projects within the total quality management (TQM) philosophy is emphasised. A superior organisational performance can be achieved and maintained with the help of such integration. Factor and regression analysis approaches were used to evaluate the impact of innovation on organisational performance for small and big organisations in the Portuguese TQM business context using a sample of 229 manufacturing organisations. The findings of this study show the importance of organisational scale, as well as new product and process innovations, for organisational effectiveness. The effectiveness of the organisation was not found to be significantly impacted by organisational innovation. Specific ownership, which is connected to process and product innovation, may be to blame for these outcomes. Considering the findings of this investigation.

Kevin Baird[22] et al., condutced an empirical analysis of the relationship between the organisational culture profile (OCP) dimensions and the extent of the four core TQM practices (product/service design, supplier quality management, process management, and quality data and reporting) as measured by Kaynak. The study also investigates the relationship between operational performance (quality and inventory management) and Kaynak's four basic TQM techniques, both directly and indirectly.

Brah S A[23] et al., encrypted that the Technology and total quality management (TQM) were quickly taking center stage in business strategies for many of the world's top firms. Companies were adopting TQM and utilizing technology more frequently to be competitive in both domestic and international markets. This study investigated the connection between technology, logistics company performance, and quality management techniques. Insights from organizational variables and their impact on operational, quality, technological, and overall business performance were sought in this study. TQM and technology, according to our research, were crucial to enhancing an organization's performance. Additionally, the data demonstrated that high technology enterprises and high technology TQM firms outperformed their low technology counterparts significantly.

Zahra Fallah Ebrahimi[24] et al., looked at the impact of small and medium-sized enterprises (SMEs) on the economy of Iran, where 90% of businesses are SMEs. The study used the Structural Equation Modelling (SEM) method to analyze data from 410 Iranian manufacturing SMEs. The results showed a significant connection between information analysis and leadership, and also found that factors such as human resources focus, employee involvement, process management, and supplier management had role stressors. However, there was no significant link found between supplier management and role stressors and customer focus.

Feng, J[25] et al., looked at how well companies in Australia and Singapore were using a management approach called total quality management (TQM) and how it affected their performance in terms of quality and innovation. The researchers surveyed middle and senior managers in both

countries and found that TQM had different effects on performance depending on how it was used. Factors such as leadership and people management were more related to innovation, while customer focus and process management were more related to quality. The study also found that the best practices for TQM were similar in both Australia and Singapore. However, the small sample size, especially from Singapore, means that these findings may not be representative of all companies in these countries.

Carmen Jaca[26] et al., focused on the implementation of total quality management (TQM) in service businesses and aimed to identify the dimensions of performance outcomes and the underlying latent factors of the TQM practices used. The researchers conducted a survey in 72 Spanish service businesses and used exploratory factor analysis to identify latent factors. The study found that certain practices, such as top-level quality practices, process management, employee quality management, customer focus, and employee knowledge and education, were important TQM factors. The performance outcomes were found to be financial performance, customer satisfaction, product/service quality performance, and operational performance. The study also identified specific TQM factors and categorized the performance outcomes of TQM in service businesses, adding to the existing literature on TQM in the services sector.

IMPLEMENTATIONS:

S. Yosuf[27], et al., proposed framework for TQM implementation in small and medium-sized enterprises (SMEs) outlined in this paper consisted of three main components: the "quality toolbox," "general methodology," and the "central coordinating body." The framework suggested that the adoption of TQM in SMEs should be a gradual process, involving the selective use of "quality tools and initiatives" as needed to promote continuous improvement within the organization. The proposed methodology involved a series of activities designed to help organizations make selected quality initiatives a permanent part of their operations. The framework was designed to be flexible and adaptable, with the adoption of a particular quality initiative being based on the specific needs and priorities of the company. The paper concluded by discussing the proposed future direction of this research. In summary, large companies had been leading the way in implementing Total Quality Management (TQM) principles, but it was important that small and medium-sized enterprises (SMEs) also adopt TQM in order to support and maintain the progress made by larger companies. This paper presented a proposed framework for TQM adoption in SMEs, specifically in the automotive manufacturing industry, but with the potential for applicability to other sectors as well. It was hoped that this research would highlight the importance of TQM in the SME sector, which plays a significant role in the UK economy.

R. Singh[28], et al., studied the challenges faced by small and medium-sized enterprises (SMEs) in India and China following globalization, and explored the role of government policies and strategy development in enhancing their competitiveness. The research was based on a questionnaire survey, which received 241 valid responses, 80% of which were from SMEs. Statistical analysis of the data collected included a reliability test, t-test, and correlation analysis. The results showed that both Indian and Chinese SMEs faced similar challenges, but the rate of growth varied between the two countries. Indian SMEs prioritized supplier development, total productive maintenance, and organizational culture, while Chinese SMEs focused more on relationship management and cost reduction. Human resource development and quality improvement were also important for competitiveness. The findings of this study suggested that SMEs should focus on developing their human resources and improving product quality to retain human capital and increase demand for their products. This paper had the potential to help SMEs in shaping their competitive strategies and inform policy formulation by governments.

J.P.Majumdar[29] et al., widely recognized approach to improving organizational performance in the manufacturing industry. Adopting TQM has become a critical part of business culture and a key

factor in the survival of manufacturing companies. While many large manufacturing industries in India have adopted TQM, small and medium-sized enterprises (SMEs) in the manufacturing sector have been slow to embrace it, despite being a vital part of the Indian economy. To address this issue, the authors of this study conducted a review of the literature and interviewed managers and quality teams at several Indian manufacturing SMEs to identify the challenges and difficulties these companies faced in implementing TQM. They then ranked these difficulties according to importance and provided guidelines for overcoming them. These guidelines were intended to help manufacturing SMEs in India and other developing countries successfully implement TQM, improve their organizational performance, and navigate the business challenges they faced. While many Indian manufacturing companies had implemented quality assurance systems through ISO 9001 certification, adopting TQM could help them further enhance their performance. By addressing their identified weaknesses and effectively leveraging their inherent strengths, more Indian manufacturing SMEs could successfully implement TQM.

M H Xiong[30] et. al., proposed a decision support system (DSS) approach to help small and medium- sized businesses (SMEs) evaluate incoming orders in terms of their profitability and identify the best orders to accept. The DSS approach included a framework with four fundamental components: general processing procedure, customer inquiry, determination of a feasible delivery date using an available-to- promise (ATP)-based heuristic approach, and an optimization model to evaluate and select a subset of concurrently processed inquiries to be fulfilled. The proposed DSS approach was demonstrated using an example to show how SMEs could effectively respond to customer inquiries. The implementation of the DSS approach was also discussed.

Denis Legace[31] et al., looked at how small manufacturing businesses can maintain dependable, continuously improved manufacturing processes in order to ensure long-term viability. Governments have supported the adoption of high quality manufacturing methods to help these businesses overcome this obstacle. However, these programs may not be effective if they do not consider the competitiveness orientations of the businesses they aim to help. The study surveyed 229 small and medium-sized manufacturing enterprises (SMEs) that received assistance from such a program and found four distinct positioning profiles: potential practices, emergent practices, priority practices, and realized practices. It also provided a method for connecting manufacturing improvement programs and practices to SMEs' desire for competitive positioning. The findings of this study should be useful to corporate decision- makers and business assistance programs.

Patarapong Intarakumnerd[32] et al., proposed that there were three types of policies that were implemented in order to encourage technological innovation and development in small and medium-sized businesses. These policies included supply-side policies, which aimed to lower costs in order to increase incentives for firms to invest in innovation, demand-side policies, which were public actions taken to encourage innovation or accelerate its spread, and systemic policies, which aimed to strengthen interactive learning between actors in innovation systems. Different policy instruments, such as tax incentives, grants, low-interest loans, and direct subsidies, were used to implement these policies and had both benefits and drawbacks. The experiences of four economies in East Asia showed that different policy instruments were necessary for businesses with varying levels of technological and innovative capability, and that successful economies had higher levels of adaptability, policy coordination, and learning. It was important for the government to support these programs for a sufficient amount of time in order to be effective, and policymakers needed to have a good understanding of innovation systems and how they change. In order for policies for innovation financing to be successful, corresponding policy initiatives were also necessary. The choices and effectiveness of these policies were also influenced by institutional factors.

STANDARDS AND BENCHMARKS:

M.Pearson[33], on his research work enumerated that ISO 9001 was an international standard that outlined the requirements for a quality management system (QMS). It was designed to help organizations improve their efficiency and effectiveness by establishing a set of standards for quality management and providing a framework for continuous improvement. The updated version of ISO 9001, ISO 9001:2015, was released in 2015 and included several key changes from the previous version, ISO 9001:2008. Some of the key changes included a greater emphasis on risk-based thinking, a stronger focus on leadership, and a greater emphasis on the role of top management in the QMS. Adopting ISO 9001:2015 brought many benefits to small and micro businesses. These benefits included: Improved efficiency and effectiveness: By establishing a QMS and following the guidelines outlined in ISO 9001:2015, businesses could improve their processes and systems, leading to increased efficiency and effectiveness. Enhanced customer satisfaction: A QMS helped businesses understand their customers' needs and expectations, and worked to meet and exceed those expectations. This could lead to increased customer satisfaction and loyalty. Increased competitiveness: By demonstrating a commitment to quality, businesses could differentiate themselves from their competitors and become more competitive in their market. Greater credibility: ISO 9001:2015 certification was internationally recognized and could help businesses gain credibility with customers, suppliers, and other stakeholders. Overall, adopting ISO 9001:2015 could help small and micro businesses improve their operations, increase customer satisfaction, and become more competitive in their market.

P. Denton[34], et al., highlighted the Business process reengineering (BPR) as a business management strategy that involves the radical redesign of business processes with the goal of improving efficiency, effectiveness, and competitiveness. It was often used as a way to address the challenges of a rapidly changing business environment, such as increased competition, globalization, and technological advancements. The process of BPR typically began with the identification of key business strategies and the identification of current business processes that were not aligned with these strategies. Once these processes had been identified, they were reengineered with the goal of improving efficiency, effectiveness, and competitiveness. This may have involved streamlining processes, automating tasks, or reorganizing the way work was structured. In summary, BPR could be a valuable tool for improving the efficiency, effectiveness, and competitiveness of small and medium-sized enterprises, but it was important to carefully consider the unique characteristics and challenges of these types of organizations in order to successfully implement BPR and achieve the desired outcomes.

P. Achanga[35], et al., discussed the challenges and critical success factors involved in implementing lean manufacturing in small and medium-sized enterprises (SMEs). According to the study, a lack of funding and leadership could be a major barrier to implementing productivity improvement strategies such as lean manufacturing in SMEs. The paper also highlighted the importance of management style and the role it played in outcomes such as lead-time, number of employees, and return on investment (ROI). The study found that independently-managed SMEs tended to have a higher ROI than owner-managed SMEs, but the difference in lead-time between the two types of SMEs was not significant. However, the study also noted that there was still some scepticism among SMEs about the benefits of lean manufacturing and that this could be a challenge to obtaining useful information and data for further investigation. It was also noted that the results of the study should be treated with caution due to the limited number of SMEs involved in the investigation. Future work should involve a wider range of SMEs in order to obtain a more comprehensive understanding of the relationship between management style and outcomes in the implementation of lean manufacturing in SME's.

Harsimran Singh Sodhi[36] et al., suggested that Lean Six Sigma (LSS) practices were successfully implemented in small and medium-sized manufacturing enterprises (SMEs) thanks to the key factors identified in this study. The study used a literature review, visits to small and medium-sized enterprises (SMEs) in northern India, and interviews with relevant participants in the implementation

of the LSS. Through workshops and case studies, the results were analyzed and verified. Leadership, management, finance, organizational culture, expertise, and skills were all found to be critical to the success of implementing LSS in SMEs. In addition, regression analyses were carried out in order to evaluate the significance of these essential success factors in terms of reducing waste and improving quality.

Dharmendra Tyagi[37] et. al., focused on critical success factors (CSFs) for implementing Six-Sigma in Indian manufacturing small and medium enterprises (SMEs), this research paper evaluated and presented the results of an online survey that was conducted in various SMEs. The survey identified the most important critical success factors for implementing SixSigma in SMEs of the manufacturing sector in India. The results of the present study were based on factor analysis and descriptive statistics, and the survey questionnaire used in the paper was appropriate for Indian manufacturing SMEs. The results were examined using factor analysis, which revealed the various CSFs' effects on Indian manufacturing SMEs.

Pius Achanga[38] et al., aimed to identify the key factors that contributed to the successful implementation of lean manufacturing in small and medium-sized manufacturing enterprises (SMEs). The study used a literature review and visits to ten SMEs in the UK, as well as interviews with relevant stakeholders, workshops, case studies, and Delphi methods to analyze the data. The key factors identified as crucial for the successful implementation of lean manufacturing in SMEs included leadership, management, finance, organizational culture, and skills and expertise. However, the study also noted that many SMEs were skeptical about the benefits of lean manufacturing and may have been reluctant to provide data for further research. The findings of this research provided valuable guidance and indicators for SMEs looking to implement lean manufacturing.

Wu C[39] et al., investigated the relationship between the Six Sigma approach to business improvement and the creation of new knowledge. It proposed using a Six Sigma program to identify opportunities for knowledge creation within an integrated Six Sigma implementation process. The study looked at two companies - a manufacturer of glass substrates and a manufacturer of Thin Film Transistor-Liquid Crystal Displays - using qualitative inquiry and thematic analysis to understand how the socialization, externalization, combination, and internalization (SECI) modes and four types of space for knowledge creation facilitated the creation of new knowledge in a Six Sigma program. The study offered insights into the integration of quality management and knowledge management research and suggested that Six Sigma can play a role in the creation of new knowledge. However, the study's methodology was limited and the case studies provided were just examples and may not have been applicable to all businesses.

Ravichandran J[40] et al., figured out that the Six Sigma approach involved measuring the performance of an organization's processes in terms of defects per million units produced. An organization's sigma level, or the milestone it reached, was used to determine whether it was performing at a "world-class," "industry average," or "non-competitive" level. However, there was a question as to whether an organization could be considered a "six sigma organization" if not all of its critical processes were at the six sigma level. To address this issue, a "weight-based sigma level" was proposed which took into account the importance of different processes and assigned weights to them based on their relative importance. This approach was described in detail and tested using various weights and sigma levels.

CONCLUSION

In Based on the extensive body of research encompassing various aspects of Total Quality Management (TQM) and its implementation in Small and Medium-sized Enterprises (SMEs), several key conclusions can be drawn:

- TQM's Positive Impact on SMEs: The studies consistently demonstrate that TQM practices positively influence organizational performance, competitive strategies, financial outcomes,

customer satisfaction, and overall business excellence in SMEs. TQM has been proven to be a valuable approach for enhancing various aspects of SME operations.

- Emergence of Lean Principles: The incorporation of Lean principles within TQM has gained prominence in recent years. Lean principles' emphasis on efficiency, waste reduction, and continuous improvement complements TQM, leading to enhanced operational effectiveness in SMEs.
- Contextual Relevance: The studies underscore the importance of considering the specific context of each SME, including industry, size, and cultural factors, when implementing TQM. Tailoring TQM practices to suit the unique characteristics of SMEs contributes to successful outcomes.
- Digitalization and TQM: In the digital age, TQM implementation is increasingly intertwined with emerging technologies. Integrating TQM with technology facilitates data-driven decision-making, process optimization, and innovation, enabling SMEs to stay competitive in the rapidly evolving business landscape.
- SMEs' Readiness for TQM: Some SMEs may exhibit reluctance in adopting TQM, primarily due to resource constraints, resistance to change, or lack of awareness regarding its benefits. Identifying critical success factors and addressing barriers can encourage greater TQM adoption among SMEs.SMEs in Global Markets: As SMEs become more globally connected through supply chains and markets, TQM plays a vital role in ensuring quality consistency, supply chain integration, and customer satisfaction across borders.
- TQM and Innovation: TQM's positive influence on innovation capabilities in SMEs is evident, as it fosters a culture of continuous improvement, encourages learning, and drives creativity within organizations.
- Continuous Research and Learning: The extensive research on TQM and its implementation in SMEs points to the need for ongoing research and learning. Continuously exploring new approaches, best practices, and future applications will further enhance the efficacy of TQM in SMEs.

In conclusion, the collective evidence from the studies emphasizes the significant role of TQM in enhancing SME performance and competitiveness. Embracing TQM principles, integrating emerging technologies, and adapting to the dynamic business environment will empower SMEs to thrive and achieve sustainable success. For the continued advancement of TQM in SMEs, further research and efforts to overcome implementation challenges are essential.

FUTURE SCOPE:

The future scope of Total Quality Management (TQM) in Small and Medium-sized Enterprises (SMEs) based on these referenced journals are emphasized in a cumulated pattern. The future of TQM in SMEs lies in its integration with emerging technologies like AI, IoT, and blockchain, to enhance quality management processes. Moreover, the digital age presents opportunities and challenges for TQM implementation, with data-driven decision-making becoming crucial for continuous improvement. TQM can also contribute to sustainability goals in SMEs, fostering responsible business practices. Extending TQM research to service-based SMEs and exploring its role in global supply chains can lead to significant improvements in service quality and collaboration. Additionally, investigating the relationship between TQM and innovation, employee involvement, and change management will provide valuable insights into fostering a culture of continuous improvement. Developing comprehensive performance measurement frameworks and conducting industry-specific studies will facilitate effective TQM implementation tailored to different contexts. Lastly, comparing TQM practices across countries and regions will shed light on cultural and regulatory factors that influence TQM effectiveness. These future research directions will contribute to advancing TQM practices and their impact on SMEs.

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