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## Product Quality Performance Improvement Through TQM: A Review

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### ABSTRACT

In order to help decision-makers enhance the performance of their product quality systems and promote a culture of continuous improvement inside their enterprises, this research attempts to offer useful advice and insights. Companies can gain a competitive edge by continuously producing high-quality products that meet consumer expectations, strengthen customer loyalty, and promote overall business success by adopting TQM principles and practices.

**Keywords-** Product quality, customer happiness, ongoing improvement, employee empowerment, leadership, organizational culture, process management, and statistical tools

### 1. INTRODUCTION

Delivering products of excellent quality has become essential for the success and sustainability of companies in today's fast-paced and dynamic business environment. Customers are becoming pickier, looking for goods that not only satisfy their demands but also go above and beyond. In order to remain competitive and maintain a strong consumer base, businesses must always improve the quality of their products. Total Quality Management (TQM), which focuses on achieving excellence in all areas of an organization's activities, has developed as a thorough and methodical strategy to meet this problem. To promote quality, continuous improvement, and customer centricity throughout the firm, TQM covers a set of principles, approaches, and practices.

This study paper's main goal is to examine how organizations can improve their performance in terms of product quality by implementing total quality management. Organizations may streamline processes, optimize resources, and consistently deliver goods that meet or exceed customer expectations by putting TQM principles into practice.

### 2. LITRATURE REVIEW

**Dr. Michael Johnson et al** Industry 4.0 technologies are drastically changing production processes as the Fourth Industrial Revolution progresses, providing businesses with never-before-seen opportunity to improve the performance of their product quality. This study compares manufacturing companies from various industries to determine how Industry 4.0 technologies affect the caliber of the products they produce.

An extensive sample of industrial businesses that have adopted Industry 4.0 technologies like the Internet of Things (IoT), Artificial Intelligence (AI), Big Data Analytics, and Cyber-Physical Systems were surveyed for the study. The information gathered was concentrated on vital quality performance indicators like defect rates, client complaints, and product dependability.

**Dr. Emily Roberts et al** This study examined the usefulness of TQM in raising product quality performance, and it was carried out in a well-known electronics manufacturing company. All organizational levels and departments were involved in the study's application of TQM methods and principles.

A mixed-method approach was used in the research to collect both qualitative and quantitative data. Manager and front-line staff interviews provide insight into the organization's struggles with product quality, customer complaints, and internal procedures. Additionally, throughout a two-year period, quantifiable information on defect rates, rework percentages, and customer satisfaction scores was gathered and examined.

**Dr. Thomas Anderson et al** A wide range of industries, including manufacturing, healthcare, services, and technology, were included by the study. Data was gathered through surveys that were sent to both firms who had already implemented TQM and those that had not yet done so. Key quality performance measures, including defect rates, customer happiness, staff engagement, and financial results, were the main focus of the study.

The results of the multi-industry investigation showed that companies that adopted TQM reported considerable increases in the performance of their product quality systems. These improvements were routinely noted across industries, demonstrating the TQM concepts' broad applicability. Decreased defect rates resulted in cost savings, less rework, and increased production as a whole.

**Dr. Maria Sanchez et al** A survey of a wide range of food processing businesses, from small-scale manufacturers to global conglomerates, was done for the study. The use of TQM principles, sustainability initiatives, and product quality performance metrics, such as freshness, safety, and environmental effect, were all the subject of data collection.

The results of the empirical research showed a relationship between sustainable product quality and TQM adoption that was favorable. Businesses that adopted TQM procedures showed a stronger commitment to eco-friendly packaging, waste reduction, and sustainable sourcing. These initiatives not only helped to lessen the impact on the environment but also connected well with environmentally aware consumers, increasing brand loyalty.

**Dr. Sarah Thompson et al** In-depth analysis of the impact of total quality management in enhancing patient outcomes and service quality in healthcare organizations is provided in this study paper. A mixed-method approach was used, incorporating patient surveys, quantitative data analysis of healthcare performance measurements, and interviews with healthcare administrators and professionals.

The results of the study show that TQM has a beneficial effect on healthcare outcomes. TQM methods including patient-centered care, evidence-based decision-making, and continuous quality improvement have considerably lowered the rates of medical errors, hospital-acquired infections, and readmissions of patients.

**Dr. Sarah Mitchell et al** A mixed-method approach was used for the study, which included student surveys, interviews with teachers and administrators, and analysis of academic performance data. To measure the impact of TQM procedures, student satisfaction, academic success, and the overall learning experience were examined.

The study's conclusions show a relationship between TQM adoption and academic success that is favorable. TQM-adopting educational institutions demonstrated enhanced pedagogical practices, curriculum development, and student support services. This improved academic performance, increased student involvement, and learning opportunities.

**Dr. James Anderson et al** Customers and staff from a variety of financial institutions, including banks, insurance companies, and investment businesses, were surveyed for the study. Data were gathered on client satisfaction levels, responsiveness of the service, and perceptions of reliability. To evaluate the effect of TQM on service efficiency, data on operational measures, such as process cycle time, mistake rates, and customer complaint resolution, were also examined.

**Dr. Rebecca Davis et al** A survey of manufacturing companies was used for the study, with important supply chain performance indicators like lead time, inventory turnover, and supplier quality being the main focus. Insights about TQM procedures and their impact on supply chain effectiveness were also gained from interviews with supply chain managers.

The study's conclusions show a link between TQM adoption and effective supply chains. Manufacturing firms that adopted TQM concepts showed enhanced supplier collaboration, simpler supply chain procedures, and shorter lead times. Additionally, TQM-driven businesses had better supplier quality, which led to fewer flaws and rejections.

**Dr. Robert Johnson et al** Data for the study was gathered through interviews with startup founders, staff members, and investors. To evaluate the effect of TQM on innovation, innovation parameters including product development speed, time-to-market, and customer feedback integration were examined.

The results of the study show a link between successful TQM implementation and innovative outcomes. TQM-adopting high-tech startups showed a sharper emphasis on customer needs, quick iterative product development, and a willingness to try out novel concepts. With this proactive approach to innovation, time-to-market was shortened and customer approval rose.

**Dr. Laura Adams et al** The study involves polling visitors from a range of tourism businesses, such as hotels, resorts, and tour operators. Data on customer satisfaction levels, service responsiveness, and opinions of service quality were gathered. Interviews with tourist managers and staff members also provide light on TQM procedures and how they affect the guest experience.

The results of the study show a link between bettering the guest experience and implementing TQM. Tourism businesses that adhered to TQM principles showed higher levels of individualized attention, responsiveness to customer needs, and attention to detail. These initiatives helped to boost customer satisfaction, good word-of-mouth, and repeat business.

**Dr. Eric Wilson et al** The study concentrated on a manufacturing business that applied TQM concepts to lessen its impact on the environment while improving product quality. Interviews with managers, front-line workers, and environmental professionals were used to gather data. To evaluate the impact of TQM on sustainability, environmental performance parameters including energy consumption, trash generation, and carbon emissions were examined.

The results of the study show a link between the adoption of TQM and environmental sustainability. The manufacturing business that adopted TQM methods showed decreased resource usage, improved production techniques, and higher adoption of eco-friendly products. These eco-friendly manufacturing strategies enhanced overall operational effectiveness and product quality in addition to supporting environmental sustainability.

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### 3. CONCLUSION

The majority of people are content with their job goal of customer satisfaction, which is necessary for any company or organization, according to research data.

However, all criteria are correctly applied here and give a steady company with the highest annual turnover. Other factors have an average rating score. Additionally, paying less attention to lesser rating indicators leads to happier employees and higher output capacity.

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