DOI: https://doi.org/10.52783/tojqi.v11i3.10012

Turkish Online Journal of Qualitative Inquiry (TOJQI)
Volume 11, Issue 3, September 2020: 868-873

Quality Control and Management in Manufacturing Industries: A Critical Analysis

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Abstract

A crucial component of India's manufacturing industry is quality control and management. Manufacturers work hard to make sure their products satisfy customers' expectations and adhere to legal regulations. During the production process, items are monitored and examined as part of quality control procedures to find and fix any flaws or deviations from required specifications. This covers the utilization of instruments such as statistical process control, inspection, and testing.Implementing quality management requires setting up procedures and systems to guarantee consistent quality at all manufacturing phases, from raw materials to completed goods.In order to remove errors and optimize operations, it also includes ongoing improvement initiatives like lean manufacturing and Six Sigma.Effective quality control and management procedures result in higher-quality products, higher customer satisfaction, lower costs, and greater competitiveness on the international market. As they work to develop high-quality goods that satisfy the various needs of domestic and international clients, Indian manufacturers place a strong priority on quality control and management. Sample of 185 respondents involved in quality control and management were surveyed to analyze different Quality Control and Management in manufacturing industries where respondents choose “Yes” or “No” for all the questions. It is found that Systematic evaluation and monitoring to meet regulatory standards and consumer expectations and Quality Control and Management in manufacturing industries help with fault detection and correction, decrease variability, and enhance overall product quality.

Keywords: Quality control, Quality management, Manufacturing industry, Lean manufacturing, Six Sigma

Introduction

The manufacturing sectors in India must have "quality control and management" as a key component. In the manufacturing sector, it is crucial to have a committed leadership team, engaged employees, a customer-focused attitude, strict quality control standards, and standardized operations. To satisfy consumer expectations, abide by legal regulations, and improve their competitiveness in the international market, manufacturers in India must place a high priority on quality control and management practises.The "Total quality management (TQM)" driving forces in the service sector, including India, are identified by Bouranta et al. (2019).It was emphasized that for TQM deployment to be effective, leadership commitment, staff involvement, and customer focus were essential. This emphasizes the importance of a top-down strategy, in which management

provides the necessary assistance and resources and engages staff in the process of quality improvement.

In the context of natural products and conventional medicine, Mukherjee (2019) put a particular emphasis on the quality assurance and assessment of herbal medications. This emphasized the requirement for standardized quality control practices to guarantee the security and effectiveness of herbal medicines. Purity, potency, and stability are just a few examples of the quality characteristics that must be rigorously tested in raw materials, intermediate goods, and finished goods. It emphasized the necessity of putting strong quality control procedures in place throughout the production of herbal medicines to assure their quality.

Quality control is a critical element that cannot be ignored in India's manufacturing industry, which is essential to the growth of the nation's economy. Using microbial biopesticides for insect pest management in India: Current state and future possibilities, Kumar et al. (2019). This brought home how crucial it is to use strict quality control procedures while making biopesticides in order to assure their effectiveness and security.Biopesticides, which are made from microorganisms, are thought to be more environmentally benign than chemical pesticides for controlling insect pests in agriculture. However, the caliber of the items is mostly responsible for their efficacy. The need for extensive testing and assessment of biopesticides during the manufacturing process was emphasized in order to meet regulatory standards and consumer expectations. As part of this, several quality control processes are used to guarantee the biopesticides' purity, potency, stability, and safety. In the production of biopesticides, they emphasized the significance of regulatory compliance. India has laws in place to guarantee the high quality, safety, and effectiveness of biopesticides. These laws include the registration procedure and rules set forth by the "Central Insecticides Board and Registration Committee (CIBRC)". To get regulatory permits, manufacturers must adhere to these rules and go through stringent testing and evaluation.

Literature Review

Impact of lean practices on the operational performance of Indian small and medium-sized businesses (SMEs) by Yadav et al. 2019. This emphasized the significance of putting into practice lean practices, which put an emphasis on cutting waste and increasing efficiency, to improve operational performance. Lean manufacturing practices include a number of quality assurance methods and processes, including Six Sigma and Kaizen, to help with fault detection and correction, decrease variability, and enhance overall product quality.Lean manufacturing has been implemented in the Indian furniture business, according to Abu et al.(2019) analysis. The study outlined the purposes, constraints, difficulties, and uses of lean manufacturing in the context of the furniture sector. This emphasized the value of lean techniques in enhancing quality management and control in the manufacturing process. Lean practises were cited as having the potential to lower defects, increase process effectiveness, enhance product quality, and lower production costs, all of which have the potential to improve customer satisfaction and market competitiveness.

Talib et al. (2013) examined the connection between total quality management (TQM) procedures and quality output in Indian manufacturing enterprises. It was discovered that the application of TQM practices, such as employee involvement, customer focus, process improvement, and supplier quality management, greatly affects quality performance in the manufacturing business in India. This emphasized the significance of implementing TQM practices as a systematic method to quality

control and management, which entails continuous improvement and full staff involvement in achieving customer satisfaction and organizational excellence.Industry 4.0 and lean manufacturing techniques are integrated by Rossini et al. (2019).The use of Industry 4.0 technologies in conjunction with lean production principles, such as in the manufacturing process, as was showed by this. Automation, artificial intelligence, and data analytics are examples of cutting-edge technology that may be used to monitor and analyze production processes in real-time, resulting in higher-quality products, fewer faults, and more effective operations.

Mehta et al. (2019) used Total Quality Management (TQM) benchmarking standards to assess how well Indian engineering educational institutions performed. This emphasized the importance of TQM principles, such as customer focus, leadership, staff involvement, and continuous improvement, in the context of educational institutions. To guarantee the delivery of high-quality education and meet the expectations of stakeholders, they emphasized the necessity of effective quality control and management practices in educational institutions.Manhas et al. (2015) developed and validated crucial success variables for TQM implementation in Micro, Small, and Medium Enterprises (MSMEs) of Punjab, India.They recognised important elements, such as commitment from the leadership, staff involvement, process management, and customer focus, as being essential for the implementation of TQM in MSMEs. This brought home the significance of efficient quality control and management procedures in MSMEs in order to achieve business excellence and maintain market competitiveness. They emphasised the significance of MSMEs implementing TQM practises as a strategic plan to improve their operational effectiveness, product quality, and customer satisfaction.

Majumdar and Manohar (2016) examined the variables influencing Indian manufacturing Small and Medium Enterprises' (SMEs) resistance to TQM adoption. This revealed obstacles to TQM adoption in Indian SMEs, including a lack of knowledge, scarce resources, aversion to change, and cultural concerns.Indian herbal medication standardization has advanced, according to Choudhary and Sekhon (2011). This underlined the requirement for stringent quality control procedures to guarantee the consistency, safety, and efficacy of herbal medicines. Various quality control criteria, including identification, purity, potency, and safety, are involved in the standardization of herbal medicines. These criteria must be systematically evaluated and monitored to meet regulatory standards and consumer expectations. This brought attention to how crucial it is to use standardized methodologies and methods for managing and controlling the quality of herbal medicine.

For "Open government data (OGD) initiatives" in India, Saxena (2019) put up a total quality management (TQM) approach. This highlighted how important TQM elements, such customer focus, leadership, process approach, and continuous improvement are for maintaining the quality and dependability of OGD. Improved decision-making and accountability in the public sector can result from the application of TQM practises, which can contribute to improving data accuracy, completeness, and transparency. This demonstrated the requirement for a strong quality control system in OGD initiatives, including data validation, verification, and data governance, in order to guarantee the quality and integrity of data throughout its lifecycle.

Objective

1. To know different Quality Control and Management in manufacturing industries

Methodology

Sample of 185 respondents involved in quality control and management were surveyed to analyze different Quality Control and Management in manufacturing industries. The study is analytical in nature. A checklist question was used to analyze and interpret the data. In a checklist question respondents choose “Yes” or “No” for all the questions.

Findings

Data analysis and interpretation

Table 1 Quality Control and Management in manufacturing industries

S. No.	Quality Control and Management	Yes	% Yes	No	% No	Total
1	Quality control and management practices put an emphasis on cutting waste and increasing efficiency	152	82.2	33	17.8	185
2	Help with fault detection and correction, decrease variability, and enhance overall product quality	161	87.0	24	13.0	185
3	Quality control and management practices focus on employee involvement	133	71.9	52	28.1	185
4	Quality control and management practices includes customer focus and process improvement	127	68.6	58	31.4	185
5	Supplier quality management affects quality performance in the manufacturing business	156	84.3	29	15.7	185
6	Waste reduction and continuous improvement dramatically improve quality control and management	144	77.8	41	22.2	185
7	Strategic plan to improve operational effectiveness, product quality, and customer satisfaction	135	73.0	50	27.0	185
8	Systematic evaluation and monitoring to meet regulatory standards and consumer expectations	163	88.1	22	11.9	185

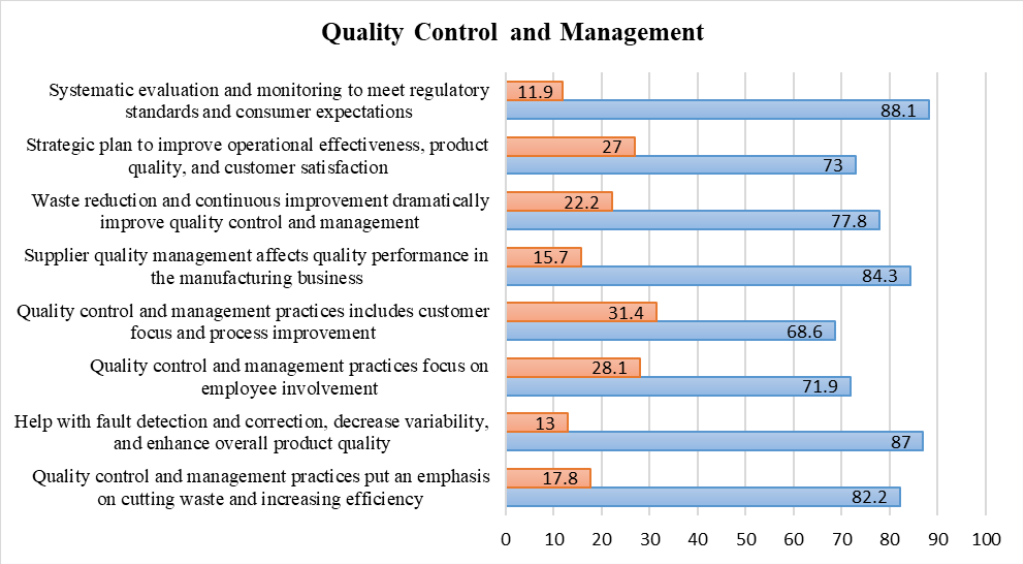

Figure 1 Quality Control and Management in manufacturing industries

Table above is showing Quality Control and Management in manufacturing industries. It was found that around 88.1% respondent accept that Systematic evaluation and monitoring to meet regulatory standards and consumer expectations followed by Quality Control and Management in manufacturing industries help with fault detection and correction, decrease variability, and enhance overall product quality (87.0%), Supplier quality management affects quality performance in the manufacturing business (84.3%), Quality control and management practices put an emphasis on cutting waste and increasing efficiency (82.2%), Waste reduction and continuous improvement dramatically improve quality control and management (77.8%), Strategic plan to improve operational effectiveness, product quality, and customer satisfaction (73.0%), Quality control and management practices focus on employee involvement (71.9%) and Quality control and management practices includes customer focus and process improvement (68.6%).

Conclusion

In conclusion, quality management and control are important facets of India's industrial sector. They are essential in ensuring that goods meet or exceed customer expectations, adhere to legal standards, and are secure for use or consumption. Customer happiness, brand reputation, and market competitiveness all improve as a result of effective quality control and management procedures.Indian manufacturers are required to implement strict quality control procedures that include all phases of production, from procuring raw materials to inspecting the finished product. This entails putting in place quality management systems, performing exhaustive inspections, testing and monitoring procedures, and putting in place remedial measures as needed. Additionally, it entails developing a culture of quality among employees and encouraging continuous improvement in all facets of production.In addition, with an increased emphasis on sustainability and environmental requirements, quality control and management now also include assuring eco-friendly production practices, waste reduction, and resource optimisation. To have the least amount of an influence on the environment, businesses must adhere to all applicable environmental standards and laws as well as adopt sustainable production techniques.Effective quality control and management can also result in cost savings by lowering rework, waste, and recalls and boosting production effectiveness. Additionally, it can assist businesses avoid high-cost legal risks, product recalls, and reputational damage brought on by subpar goods.In order to ensure that products meet or exceed customer expectations, conform with laws, and promote corporate success, quality

control and management are essential for India's manufacturing sectors. To remain competitive in the market and guarantee customer happiness, businesses must prioritise quality in all phases of manufacturing and relentlessly pursue improvement.

The study has analyzed Quality Control and Management in manufacturing industries and found that Systematic evaluation and monitoring to meet regulatory standards and consumer expectations, Quality Control and Management in manufacturing industries help with fault detection and correction, decrease variability, and enhance overall product quality, Supplier quality management affects quality performance in the manufacturing business and Quality control and management practices put an emphasis on cutting waste and increasing efficiency.

References

1. Abu, F., Gholami, H., Saman, M. Z. M., Zakuan, N., & Streimikiene, D. (2019). The implementation of lean manufacturing in the furniture industry: A review and analysis on the motives, barriers, challenges, and the applications. Journal of Cleaner Production, 234, 660-680.
2. Bouranta, N., Psomas, E., Suárez-Barraza, M. F., & Jaca, C. (2019). The key factors of total quality management in the service sector: a cross-cultural study. Benchmarking: An International Journal.
3. Choudhary, N., & Sekhon, B. S. (2011). An overview of advances in the standardization of herbal drugs. Journal of Pharmaceutical Education and Research, 2(2), 55.
4. Kumar, K. K., Sridhar, J., Murali-Baskaran, R. K., Senthil-Nathan, S., Kaushal, P., Dara, S. K., & Arthurs, S. (2019). Microbial biopesticides for insect pest management in India: Current status and future prospects. Journal of invertebrate pathology, 165, 74-81.
5. Majumdar, J. P., & Manohar, B. M. (2016). Why Indian manufacturing SMEs are still reluctant in adopting total quality management. International Journal of Productivity and Quality Management, 17(1), 16-35.
6. Manhas, V. K., Gupta, P., & Gupta, H. (2015). Developing and validating critical success factors of TQM implementation in MSMEs of Punjab in India. International Journal of Indian Culture and Business Management, 11(4), 405-421.
7. Mehta, N., Diwakar, N., & Arya, R. (2019). Evaluating comparative performance of Indian engineering educational institutes based on TQM criteria for internal benchmarking. Benchmarking: An International Journal, 26(1), 221-245.
8. Mukherjee, P. K. (2019). Quality control and evaluation of herbal drugs: Evaluating natural products and traditional medicine. Elsevier.
9. Rossini, M., Costa, F., Staudacher, A. P., & Tortorella, G. (2019). Industry 4.0 and lean production: An empirical study. IFAC-PapersOnLine, 52(13), 42-47.
10. Saxena, S. (2019). Proposing a total quality management (TQM) model for open government data (OGD) initiatives: Implications for India. foresight, 21(3), 321-331.
11. Talib, F., Rahman, Z., & Qureshi, M. N. (2013). An empirical investigation of relationship between total quality management practices and quality performance in Indian service companies. International journal of quality & reliability management, 30(3), 280-318.
12. Yadav, V., Jain, R., Mittal, M. L., Panwar, A., & Lyons, A. (2019). The impact of lean practices on the operational performance of SMEs in India. Industrial Management & Data Systems, 119(2), 317-330.