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BENEFITS DERIVED BY MSMEs THROUGH IMPLEMENTATION OF TQM-WITH SPECIAL REFERENCE TO KHANDESH

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Abstract

In the present era of globalization, small and medium scale manufacturing enterprises in India are facing intense competition. This paper presents a case study conducted for Micro, Small & Medium Enterprises (MSMEs) situated in Jalgaon (KHANDESH, North Maharashtra Region). The study is conducted through a survey applying the Total Quality Management (TQM) concept to 110 respondent firms in the same category of MSMEs and by building an analytical model. Key factors like overall performance, customer satisfaction, employee satisfaction, better quality and market share were dealt and are presented in this paper.

Keywords - MSMEs, TQM, Productivity.

1. INTRODUCTION

Small scale sector contributes to approximately 40% of the GDP of Maharashtra State. It accounts for almost 40% of our industrial output, about 6% of national GDP, 35 % of national exports while employing approximately 30 million people [1]. The small scale sector in India is very diverse, manufacturing over 8000 products, from conventional handicrafts to high-end technical instruments. There is an evident belief that a small scale sector is an important tool in employment generation, value creation and poverty alleviation. Maharashtra is an industrial backbone of our country. It contributes to around 21% of our country's industrial output. The average share of the state's contribution is highest (14.3 percent), amongst all other states in All-India nominal GDP. Nominal Gross State Domestic Product (GSDP) is expected to increase by Rs. 2, 45,791 crores during 2019-20 as compared to 2018-19. Per capita, state income during 2019-20 is expected to be at Rs 2, 07,727 [2]. Maharashtra is divided into 36 districts, which are further divided into - five regions viz., Vidharbha, Marathwada, Northern Maharashtra (Khandesh), Western Maharashtra and Konkan. Out of these, Khandesh lags in industrial development, as compared to Western Maharashtra. Some of the causes could be lack of industrial culture, lack of quality awareness, lack of knowledge of industrial management, lack of risk-taking attitude, etc. So the said region is selected for study as a target area. The aim of this study is to improve the productivity of industries in the region of Northern Maharashtra (Khandesh). TQM- tools are important tools that will be applied in this study. Majority of successful manufacturing companies have embraced Total Quality Management (TQM) strategies and realized its invaluable contribution. [3] [4] [5] [6] [7]

2. LITERATURE REVIEW

Ten essentials for successful business i.e. customer-centered organization, customer-centered leadership, customer-centered strategy, management of people, training and developing people, management of resources, process control, and improvement, customer satisfaction, employee satisfaction and community satisfaction are presented [8]. A research paper [9] that deals with the help of a survey of ISO & non- ISO manufacturing firms of Karnataka & Maharashtra concluded that Small & Medium Enterprises (SMEs) act as a vital component of a growing economy. They contribute significantly for the development of the economy by creating employment for both urban and rural workforce and by providing much-needed flexibility and innovation in the economy as a whole. If TQM policies and practices are applied positively in manufacturing SMEs, they will contribute significantly to the performance in terms of quality and customer satisfaction. The existing status of TQM practices in 112 SMEs (manufacturing firms) of China and its impact on their performance is investigated [10]. It was found that the manufacturing processes of these small firms were not an obstacle to the implementation of TQM, but it was the size of a firm, which posed a threat to its implementation. Research showed that the majority of the firms were new to TQM practices and that it was initiated by their top management. A positive influence of TQM was observed on performance as waste, inventory, and costs were reduced and an increase in sales was observed. In the same manner, the performance of SMEs was observed in Malaysia by [11] and in India by [12]. A process model was proposed, that employed the Analytic Hierarchy Process (AHP) methodology to acquire and analyze industry practitioners' opinions among the stages and related sub-criteria that would determine the success of TQM implementation. The empirical data was collated and practitioners' opinions were analyzed to determine the percent weightings of performance criteria, sub-criteria and benefits of TQM implementation in SMEs is proposed in [13]. The workstation for deburring process tasks should be designed so that any woman worker can adjust to her comfort to work and improve efficiency. The ergonomically designed workstation is a solution to productivity problems in the workplace that has been concluded in [14]. [15] Various benefits are derived as a result of ensuing TQM principles by the firms. The greatest benefit is the reduction in the number of products/ service defects, errors or failures; and with this, customer satisfaction has shown improvement. The other benefits in

the descending order are 'reduction in the complaints from customers', 'emerging a new culture which emphasizes quality', 'improvement in the employee satisfaction', 'better relations with suppliers and hence better quality of incoming materials', 'reduction in employee turnover', and 'increased participation of employees in the quality improvement teams'. In comparison with the other benefits, it was observed that there is no significant improvement in the financial results of the firms. The explanation about the effect of quality management implementation on the organizational performance of SMEs in the field of food and beverages is in [16]. Some SMEs have implemented TQM and they are enjoying the benefits of TQM. There exists a positive relationship between manufacturing functions and operational priorities, as four out of the six dimensions measured such as Process control and implementation, Management of resources, Management of People and Partnership with the supplier are positively related, while the two other dimensions, i.e. Training and development and Teamwork are not positively related. Findings also support the strong impact of operational priorities with growth in productivity as a measure of performance [17] [18]. The paper [19] deals with the study calls on entrepreneurs and managers of manufacturing SMEs regarding the awareness of the importance of quality management practices, i.e. SMEs must know -what TQM really means for them before they start on the TQM journey. The success of any TQM initiative depends largely on the leadership style of the entrepreneur / senior managers, who should primarily focus upon creating an organizational culture that is favorable to support TQM implementation. Secondly, critical analysis of the factors that are capable to stop or delay the process of TQM adoption has provided important insights into the detailed implementation issues. The critical quality factors [20] for effective TQM implementation were identified and explained as to how these critical quality factors are implemented by the Palestinian organizations. The study suggested that successful implementation of TQM should be a gradual approach with the progression and selection of appropriate top management actions [21]. In the paper [22], TQM practices, corporate culture and performance in UAE manufacturing firms is investigated. They concluded that customer focus, commitment of management and continuous improvement are the most critical factors that were significantly correlated with all performance measures. In relation to the culture part, their study recommended that managers should make more efforts to enhance the cultural dimension of people-oriented as this dimension strongly correlated with most TQM practices [22]. The paper [23] deals with contributions of literatures by examining the impact of 24 identified CSFs (Critical Success Factors) of TQM, in Qatari S&M-sized enterprises on operational and organizational performance. Their study highlights the importance of CSFs for TQM implementation and their impact on performance for both, the researchers and decision-makers who are concerned with such issues [23]. The paper [24] contributes to the growing body of literature concerning TQM implementation and its impact on OP (Organizational Performance) and attempts to satisfy the clear need for an empirical study that investigates accepted TQM elements as well as their impacts on OP by employing suitable statistical methods.

2.1 Need And Scope

Problem Statement: There are near about 1200 production units located in MIDC area of Jalgaon. 30,000 people are being employed by various industries in Jalgaon. At present, there is too much competition between industries regarding price, quality. There are various problems in industries such as lack of skilled workers, improper material inventory system, improper utilization of material, lack of training facilities, improper layout, deficiencies of safety equipment. Nowadays, the most important goal for almost all the manufacturing companies is to solve the above problems and increase productivity. Our research scope is the detailed studies of functions involved in industries and to identify the processes and problems involved in these processes. The aim of the research is proposed to increase the productivity of the industry using TQM.

2.2 Objectives Of The Study

1. Analysis of impacts of TQM.

2. Creating awareness about the elements of TQM through the questionnaire containing the contents related to the benefits of TQM.

3. Motivating the companies to follow TQM principles in the future.

2.3 Hypothesis

1) TQM improves overall working environment for employees.

2) TQM improves product quality and productivity.

3) TQM helps in increasing customer satisfaction.

4) TQM improves the relationship with the suppliers and the quality of incoming material.

The above mentioned hypotheses are analyzed using statistical methods for finding the benefits of TQM and establishing the ranking of key elements.

3. RESEARCH METHODOLOGY

Total Quality Management (TQM) tools have been used for a recent study on TQM criteria and related sub-criteria in industries of the Jalgaon region of Maharashtra. The aim of the study was assessment of impact of implementation TQM. The research work started from the ground level because we had to understand the performance of MSME companies in the Jalgaon district of Maharashtra. A survey of 110 Micro, Small and Medium Scale companies of manufacturing sector in Jalgaon MIDC was carried out. The overall survey was conducted with a sample of 110 respondent firms in the required category of MSMEs. However 20 MSMEs were following TQM principles (Table-1 & 2). The tool used for the survey was a questionnaire with closed-ended questions. One section of the questionnaire was dedicated to TQM related questions. Responses were collected personally through oral interaction and personal meetings with the respondents, explaining to them the objective of present research work, its importance

and to clarify any doubt/queries, such as to facilitate complete and clear-cut responses. The respondents were given a list of probable benefits derived by them as a result of implementing TQM. They were expected to respond with their response, according to the extent to which they have derived benefits of TQM in their organization. The responses received from the survey were analyzed using SPSS software and the result of data analysis is as follows:

Table-1: Category of Business

Sr No.	Category of Business	Frequency	Percent	Valid Percent	Cumulative Percent
1	Medium (Above Rs. 5 Crore & upto Rs. 10 Crore)	2	10	10	10
2	Small (Above Rs. 25 Lakh & upto Rs. 5 Crore)	10	50	50	60
3	Micro (Up to Rs. 25 Lakh)	8	40	40	100
	Total	20	100	100	

From the above table it is clear that, majority of the entrepreneurs had small business (25 lakh -5 crores) i.e. 50%, followed by Micro business (up to 25 lakhs). On the other hand, 10% of the people are involved in Medium type business (more than 5 crore).

Table-2: Type of Industry

Sr. No.	Type of Industry	Frequency	Percent	Valid Percent	Cumulative Percent
1	MATS	15	75	75	75
2	PIPE	2	10	10	85
3	CHEMICAL	2	10	10	95
4	DAL MILL	1	5	5	100.0
	Total	20	100.0	100.0	

Table - 3: Demographics of the sample

Sr. No	Characteristics	Classification	No.
1	Respondent Position	Owner	40
		Manager	32
		Other	38
2	Firm Employees	Less than 10	80
		11-50	20
		More than 50	10
3	Respondent Years of Experience	0-5	82
		5-10	18
		More than 10	10

4. RESULTS & DISCUSSION

Based upon the analysis of questionnaire, following points are derived:

(A-Strongly agree B- Agree C-Neutral D- Disagree E-Strongly disagree)

4.1 Customer satisfaction has shown improvement

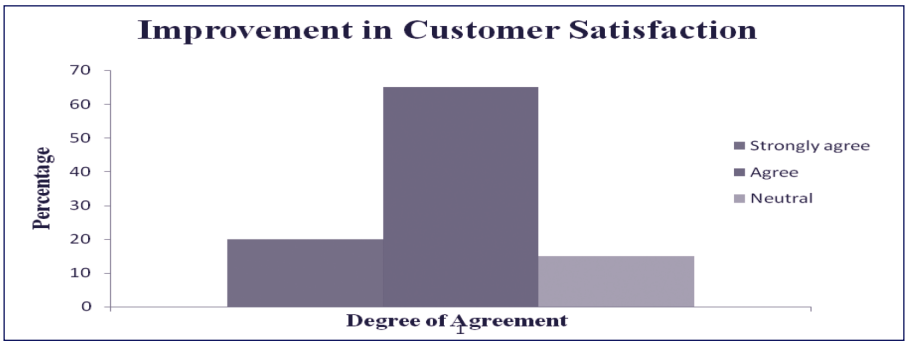

Fig.1 Improvement in Customer Satisfaction

It was presumed that practicing TQM principles will gain customer satisfaction for various reasons. From the above figure (No. 1), this fact is manifested. 20% of the respondents have strongly agreed, 65% of them agreed and remaining 15% were neutral. This hypothesis is rejected as the value of the mean is 4.05 which is very far away from the assumed value of $\mu = 3$. However, as the mean is very high, it definitely indicates that practicing TQM has a positive impact on improvement on customer satisfaction. With a very low value of standard deviation (0.60), it can be said that there is no variation in terms of the feedback given in favour of this statement.

4.2 Increased productivity

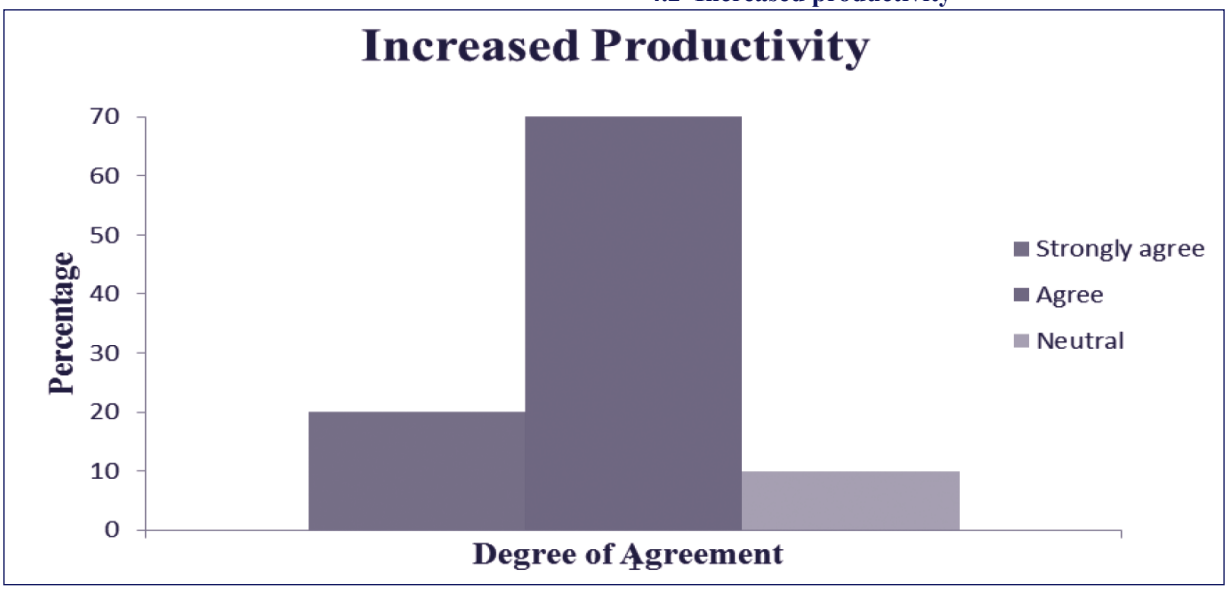

Fig. 2:- Increased Productivity

Of all the agreed respondents regarding the remarkable changes, 20% strongly agreed while 10% were neutral and remaining 70% agreed to the fact that practicing TQM principles leads to increased productivity.

4.3 The number of customer complaints has decreased

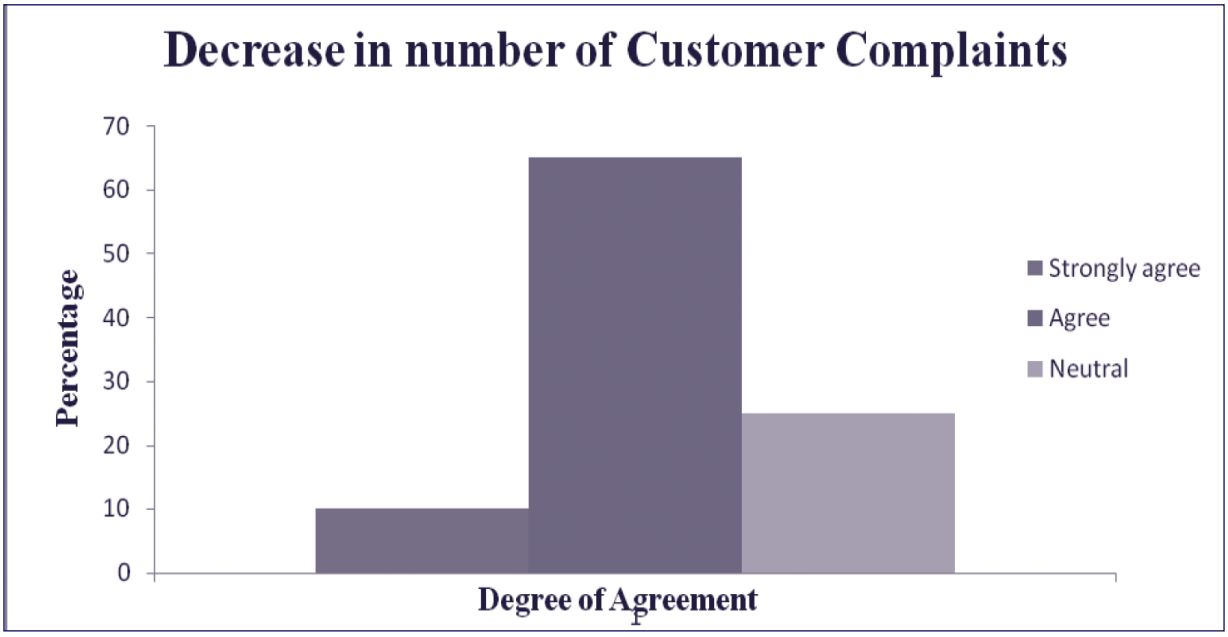

Fig. 3:- Decrease in number of Customer Complaints

It can be comprehended from above figure (No. 3) that 65% of the respondents agreed that there was a drop in the number of customer complaints to a great extent. 10% strongly agreed while 25% were neutral. This clearly shows that majority of the respondents agreed to the advantage of reduction in customer complaints due to the implementation of TQM policies.

4.4 – Increased market share

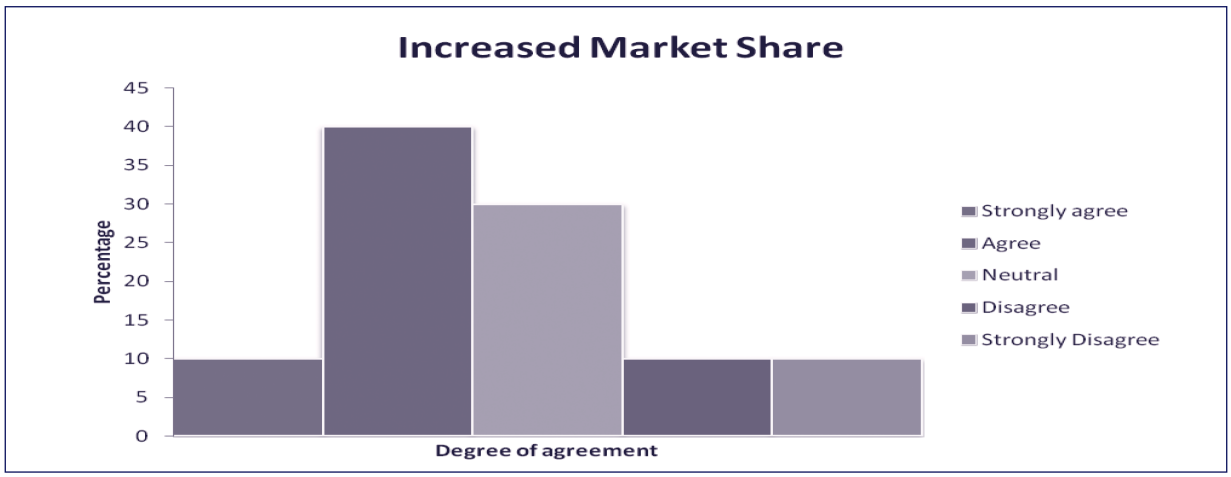

Fig. 4:- Increased Market Share

It can be understood from the above figure (No. 4) that nearly 40% of the respondents felt that market share has improved. 30% of the respondents were neutral while 10% disagreed. The rest of them saw no reforms in the financial returns. It seems that these firms failed to realize the increase in market share due to TQM implementation.

4.5- Improved quality level

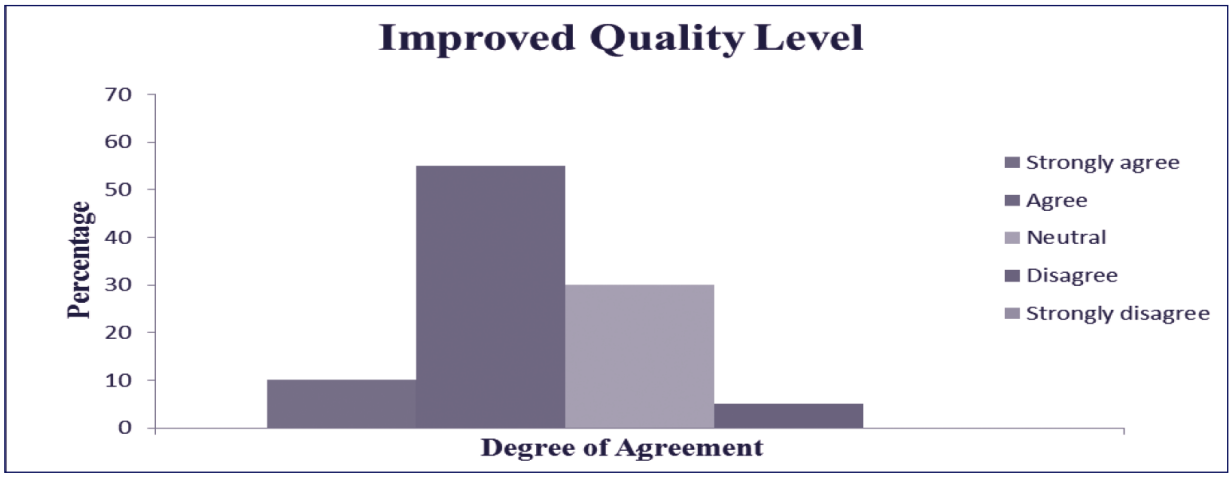

Fig. 5:- Improved Quality Level

It can be observed from above figure (No. 5) that 55% of respondents agreed while 10% of the respondents strongly agreed to the improvement in quality level. 30% of respondents remained neutral in their responses, while 5% still disagreed.

4.6- Employee satisfaction has increased

Fig. 6:- Increase in Employee Satisfaction

Majority of the respondents agreed that after implementing TQM, employee satisfaction has increased to a greater extent. 50 % of them agreed while 40% were neutral whereas 10% of them strongly agreed. (Fig. No. 6)

4.7- Partnership with suppliers has improved quality of incoming materials

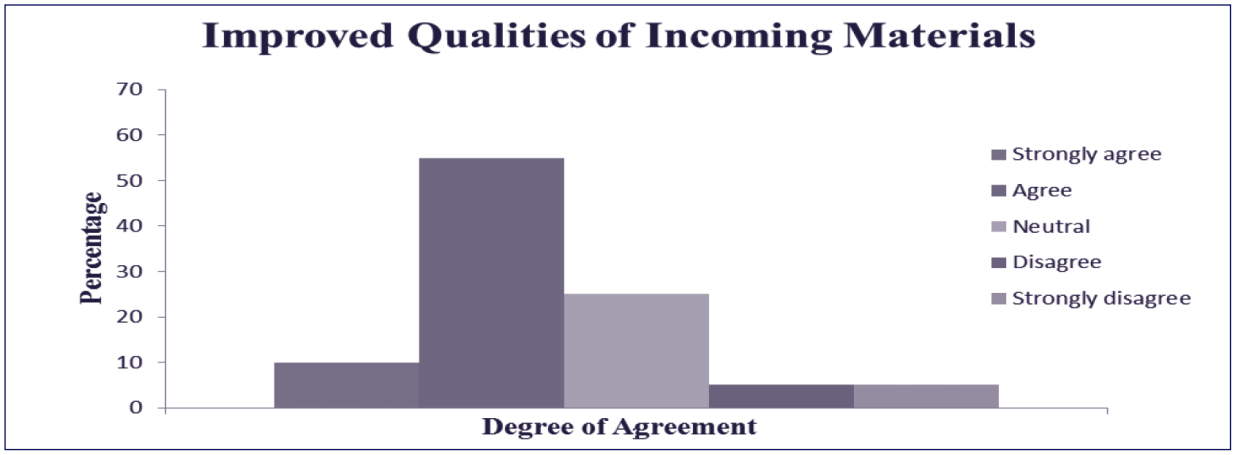

Fig. 7:- Improved Qualities of Incoming Materials

As a result of TQM implementation, it is observed that 55% of the respondents agreed with improvement in the quality of incoming material to a high extent due to partnerships with suppliers, while 10% strongly agreed, which can be seen from the figure No. 7 above. However, 25% of the respondents were neutral.

Table -4: Ranking of TQM benefits (Descriptive Statistics)

Sr. No.	Descriptions	N	Minimum	Maximum	Mean	Std. Deviation
1	Increased Productivity	20	3.00	5.00	4.1000	.55251
2	Customer Satisfaction has Shown Improvement	20	3.00	5.00	4.0500	.60481
3	The Number of Customer Complaints has decreased	20	3.00	5.00	3.8500	.58714
4	Employee Satisfaction has increased	20	3.00	5.00	3.7000	.65695
5	Improved Quality Level	20	2.00	5.00	3.7000	.73270
6	Partnership with Suppliers has Improved Quality of Incoming Materials	20	1.00	5.00	3.6000	.94032
7	Increased Market Share	20	1.00	5.00	3.3000	1.12858
8	Valid N (list wise)	20				

Table -5: One-Sample Statistics

Sr. No.	Descriptions	N	Mean	Std. Deviation	Std. Error Mean
1	Increased Productivity	20	4.1000	.55251	.12354
2	Customer Satisfaction has Shown Improvement	20	4.0500	.60481	.13524
3	The Number of Customer Complaints has decreased	20	3.8500	.58714	.13129
4	Employee Satisfaction has increased	20	3.7000	.65695	.14690
5	Improved Quality Level	20	3.7000	.73270	.16384
6	Partnership with Suppliers has Improved Quality of Incoming Materials	20	3.6000	.94032	.21026
7	Increased Market Share	20	3.3000	1.12858	.25236

Table -6: One-Sample Test

Sr. No	Descriptions	Test Value = 0					
		t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
						Lower	Upper
1	Increased Productivity	33.187	19	.000	4.10000	3.8414	4.3586
2	Customer Satisfaction has Shown Improvement	29.947	19	.000	4.05000	3.7669	4.3331
3	The Number of Customer Complaints has decreased	29.325	19	.000	3.85000	3.5752	4.1248
4	Employee Satisfaction has increased	25.188	19	.000	3.70000	3.3925	4.0075
5	Improved Quality Level	22.584	19	.000	3.70000	3.3571	4.0429
6	Partnership with Suppliers has Improved Quality of Incoming Materials	17.121	19	.000	3.60000	3.1599	4.0401
7	Increased Market Share	13.077	19	.000	3.30000	2.7718	3.8282

Table -7: One-Sample Test

Sr. No.	Descriptions	Test Value = 3				95% Confidence Interval of the Difference	
		T	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
1	Increased Productivity	8.904	19	.000	1.10000	.8414	1.3586
2	Customer Satisfaction has Shown Improvement	7.764	19	.000	1.05000	.7669	1.3331
3	The Number of Customer Complaints has decreased	6.474	19	.000	.85000	.5752	1.1248
4	Employee Satisfaction has increased	4.765	19	.000	.70000	.3925	1.0075
5	Improved Quality Level	4.273	19	.000	.70000	.3571	1.0429
6	Partnership with Suppliers has Improved Quality of Incoming Materials	2.854	19	.010	.60000	.1599	1.0401
7	Increased Market Share	1.189	19	.249	.30000	-.2282	.8282

5. HYPOTHESIS TESTING

: - Following is the hypothesis to be tested:

1) TQM improves overall working environment for employees.

2) TQM improves product quality and productivity.

3) TQM helps in increasing customer satisfaction.

4) TQM improves the relationship with the suppliers and the quality of incoming material.

For testing hypothesis a value of μ=3 is taken into consideration as the test value. The respondents were asked to give their feedback about various benefits TQM has brought for their firms on a scale of 1 to 5. Where 1 indicates very low (strongly disagree) and 5 indicates very high improvement (strongly agree).The value refers to moderate improvement (neutral) and hence it was decided to keep 3 as the test value.

1) TQM improves overall working environment for employees: - The statement can be tested with the help of Statement No. 6 is: 'Employee satisfaction has increased'. The calculated value of mean for statement no. 6 is 3.7. As this value is higher than the assumed value of μ = 3, the null hypothesis is rejected, and it can be inferred that there is positive feedback about this statement in general.

2) TQM improves product quality and productivity: - Statement no. 2 is related to this hypothesis, which states that 'Increased Productivity'. This hypothesis is strengthened as the value

of mean is very high (4.10) as compared to the assumed mean of $\mu = 3$. At the same time with such a high value of mean we may say that TQM helps in improving the quality of products to a very great extent. The standard deviation is very low (0.55), which indicates that most of the respondents have the same experience in this regard.

3) TQM helps in increasing customer satisfaction. The statement can be tested with the help of two statements. Statement No. 1 and 3. Statement No. 1 is: 'Customer satisfaction has shown improvement' and Statement No. 3 is: 'The number of customer complaints has decreased'. The calculated value of mean for statement no. 1 is 4.05 and for no. 3 are 3.85. As these values are higher than the assumed value of $\mu = 3$, the null hypothesis is rejected, and it can be inferred that there is positive feedback about this statement in general.

4) TQM improves the relationship with the suppliers and the quality of incoming material. Statement no. 7 is related to this hypothesis, which states that 'Partnership with suppliers has improved the quality of incoming materials'. This hypothesis is also strengthened with a mean value of 3.6 against the assumed value of $\mu = 3$.

6. RESEARCH CONCLUSIONS

After doing all the survey and analysis in JALGAON district of MAHARASHTRA, the following conclusions are postulated: MSMEs can gain a lot of benefits if they follow TQM principles. Table No. 4 shows the consolidated ranking of benefits derived by the firms. Productivity is one of the key factors to assess the overall performance of any industry and with this obviously the, customer satisfaction has shown improvement. This is clearly seen from the next benefit in the order that the number of customer complaints have reduced. Well, this is only possible if the company has developed a culture that emphasizes quality. To add, employee satisfaction has gone up and TQM has also helped in improving relationships with the suppliers, which in turn has helped in improving the quality of incoming materials. It has also helped in the increased market share of the firms.

Based on our study, the message for other organizations is that TQM's highest purpose and its real contribution to the business is providing a framework that helps the company understand and obtain these resources as part of combined business management. Companies can benefit owing to the TQM philosophy, so long as they nurture the intangible resources crucial to survival and prosperity.

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