Chapter

Quality Management Practices in Indian SMEs

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Abstract

The purpose of this chapter is to provide an insight on the status of quality management practices in small and medium-sized enterprises (SMEs) of South India. A survey-based approach was adopted to understand the established quality management practices in the SMEs. A short survey instrument was designed by reviewing the literature on quality management initiatives in SMEs. Sample of 270 manufacturing SMEs across Southern India was selected through stratified random sampling technique. Projects with small teams, management commitment and involvement, communication, and culture change have high influence as success factors in implementing quality initiatives. Overall equipment effectiveness, root cause analysis, bottleneck analysis, and PDCA are often used tools and techniques by the organizations. High cost of training and limited knowledge were the reasons cited for not implementing quality initiatives. The study is an attempt to understand the quality management practices application in SMEs from a specific geographic location. The strength lies in bringing a different perspective from the present studies, whereas specific context of the study limits its generalizability. The findings of this chapter will help the industry to identify current quality management practices in SMEs to focus on improving their performance.

Keywords: quality management, SMEs, tools and techniques, survey, India

1. Introduction

Quality initiatives have long been part of organization strategy. Conventional way of quality initiatives such as ISO series, quality assurance, statistical quality control, zero defects, and total quality management has been the key initiatives for many years. The objective is to overcome challenges and survive in global competitive market [1]. The ability of business to adapt to new customer requirements in a globalized market is of vital importance for long-term success.

Literature suggests that quality management practices are critical for small and medium-sized enterprises (SMEs) to gain a competitive advantage. Intriguingly, the systematic application of quality management practices in SMEs, despite the wide-ranging effort that has been invested and the long-term benefits that may be achieved, remains mostly uncommon [2]. Some possible causes which may account for the low usage of quality initiatives in SMEs have been publicized in previous studies. According to quality management literature [3, 4], the reasons vary from difficulty in differentiating between different initiatives such as International Organization for Standardization (ISO), Total Quality Management (TQM), Six Sigma, and Lean to lack of clarity about the advantages of one initiative over other. SMEs also feel that

ISO as an initiative is sufficient enough to meet their business needs. However, most of the studies have focused on factors related to cultural, organizational, and project differences [5, 6]. A few have examined the influence of those factors pertinent to the tool itself such as worth and user friendliness. The comparative importance of these factors on the application of quality management practices has never been discussed. In addition, these studies tend to examine only the diffusion of quality management tools and techniques in industrial countries such as the US, Britain, and Japan [7], with no prior study in developing economies such as India.

According to Small and Medium Business Development Chamber of India:

> *"SMEs play a vital role in the growth of Indian economy by contributing 45% of the industrial output, 40% of exports, 42 million in employment, create one million jobs every year and produces more than 8000 quality products for the Indian and international markets."*

Further Indian industries such as Manufacturing, Precision Engineering, Food Processing, Pharmaceuticals, Textile and Garments, Retail, IT, Agro, and Service sectors are growing rapidly, there are increasing opportunities for SMEs to enhance their business activities. This phenomenon is not unique to India but has been observed worldwide [8].

Literature also suggests that SMEs should view quality improvement as a journey and not as a destination. The SMEs should learn from large organizations and continuously strive for performance excellence by implementing initiatives such as Lean and Six Sigma [7]. Irrespective of growing importance of SMEs in India, there are limited studies (such as [9, 10]) about the extent of quality initiatives implementation in SMEs. To address this issue, the chapter analyses the context of Indian SMEs and provides empirical evidences related to quality initiatives. The main aim of this chapter is to empirically investigate the current state and extent of quality initiatives implementation in Indian SMEs.

The research contributes significantly to academia and practice. First, the chapter explores through literature the current state of quality initiatives implementation in SMEs throughout the world. Second, it provides empirical evidence of quality practices in Indian SMEs. As the quality practices in Indian SMEs is still at nascent stages (except in automobile or electronic sectors, [9]), this type of study could enhance the thinking of government policy makers and top management to adopt quality initiatives for better management style and preparing SMEs for both local and global competition [1].

2. Theoretical background

The application of QM practices in SMEs has attracted significant interest among practitioners and researchers in quality and process improvement [11, 12]. Since late 1990s, Lean and Six Sigma have been the most widely accepted methodologies for operations improvement and quality management [11–14]. Recently, several practitioners have reported appreciable cost savings, profit maximization, and waste reduction [15, 16]. Lean is a collection of tools aimed at reducing cost while improving the operational speed of businesses processes by eliminating seven types of wastes. This is achieved through company-wide involvement, applying tools such as continuous flow, Kaizen, root cause analysis, value stream mapping, Just-in-Time (JIT), Total Productive Maintenance (TPM), Kanban, and bottleneck analysis [17, 18]. On the contrary, Six Sigma is centered on the application of a well-structured data-driven problem-solving methodology defined by the acronym

DMAIC, that is, Define, Measure, Analyze, Improve, and Control. The methodology has a strong focus on meeting customer needs and reducing variation in the process performance [15].

Understanding the critical success factors (CSFs) and the barriers to QM implementation is crucial for significant and sustainable benefits [8]. Among others, customer focus, particularly the voice of the customer, is the most crucial QM principle [11]. While conducting a survey of manufacturing SMEs in the UK, [4] found that, among 11 critical success factors (CSFs), the most important factors for the successful implementation of Six Sigma are management involvement and participation, linking Six Sigma to customers and linking Six Sigma to the business strategy of the organization.

Related empirical studies exist in the literature. Kumar [7] conducted a comparative study of Six Sigma implementation in the UK manufacturing SMEs and found that lack of knowledge and limited resource availability are the main reasons for not implementing quality initiatives in the companies. Recent investigations by [19] show that TQM practices have significant positive effects on competitive advantage and organizational performance. On the other hand, [20] investigated the effect of QM practices on the performance of banks in Jordan. Nulty [21] studied the impact of Lean Six Sigma tools on the profitability of SMEs in Nigeria.

Given the widespread awareness of the importance of SMEs in the world economy, it is necessary to reinvestigate the level of implementation of known quality initiatives in SMEs. These practices have been known to assist SMEs in achieving incremental process and product innovation [22, 23]. A significant number of studies have been done in the developed world, including the UK [5, 22], Australia [7, 11, 24, 25], and other industrialized nations such as USA and Japan [7, 11].

Past research tends to focus on investigating only the diffusion of quality initiatives in industrial countries. Very limited studies have paid attention on developing economies, for instance, from the African and Asian regions [21, 26]. Prajogo [26] studied the critical success factors of QM practices among SMEs in the food processing industry in Malaysia. Shafer and Moeller [27] investigated quality management and the performance of SMEs in the Indian industries. Majumdar and Manohar [2] carried a survey of quality initiatives among manufacturing SMEs in Pakistan. Nulty [21] investigated the effects of Lean Six Sigma methodologies on the profitability of SMEs in the Nigerian context. Preliminary studies on the application of quality management tools in the Namibian context have shown that most SMEs are not aware of high-level quality initiatives such as Six Sigma and Lean [28]. However, a considerable number of SMEs in the country have realized the need for responding to the voice of the customer.

Addressing this gap, this study attempts to investigate the adoption of quality management tools and the barriers behind their implementation in Indian SMEs. It is hoped that the study will provide a number of insights and strategies for effective implementation of quality initiatives for SMEs, enabling the SMEs to realize benefits from the use of the quality initiatives (basic and advanced). Further, the study may help to reveal the interesting common and contrasting characteristics between SMEs and to draw important lessons for incremental process innovation and SME performance.

3. Research methodology

3.1 Questionnaire survey

An exploratory survey of small and medium enterprises in and around Tiruchirappalli (Southern part of India) was conducted. The purpose was to

understand the extent of implementation of quality management practices in these enterprises. According to [29], this kind of exploratory survey provides preliminary evidence of association among concepts as well as exploring valid boundary of a theory. According to [30], survey research is about collecting data from a population or some samples drawn from a population with a focus "to assess the relative incidence, distribution and interrelationships of naturally occurring phenomena" [7]. The researchers in quality management area focus more on data collection through survey to validate hypotheses and research questions [7].

3.2 Structure of the questionnaire

The questionnaire had five parts. The first part of the questionnaire was intended to get some general information of the respondent organization, such as

- size and type of organization (local, multinational, or joint venture),

- whether they have quality department,

- there is a proper quality system in place,

- whether they have implemented quality initiatives.

It is also designed as a filter to segregate the data based on organizations that have or have not implemented quality initiatives.

The second part of the questionnaire attempted to identify the critical success factors that are important while implementing quality initiatives in organizations. The third part consisted of two questions. First question was directed at identifying business performance indicators that are to be improved through quality initiatives. Second question explored the tools and techniques used in implementation of quality initiatives. The fourth part was for those SMEs that have not implemented quality initiatives. There was one question in this part to explore about the reasons behind not implementing quality management practices. The last part was designed to obtain background information on respondents including their name, job title, company, mailing address, phone/fax number, and e-mail.

3.3 Questionnaire design

One of the main concerns while designing questionnaire is to have a proper response format. This helps in safeguarding against alteration in the type and wording of the question, as well as the type of analysis researcher wants to perform [31]. We used a closed-ended questionnaire format to collect quantifiable data, in order to perform statistical analysis. Further, this kind of format makes it easy to complete, facilitates faster data entry, and thus enabling better data analysis and summarizing the findings [32]. The questionnaire included questions on critical success factors, business performance indicators, and quality initiatives grounded in literature. A 5-point Likert-type scale was used to measure critical success factors and quality initiatives (Critical success factors: 1 = no influence, 5 = very high influence; Quality initiatives: 1 = never, 5 = always). Mutingi [33] suggests the use of Likert-type scale as it provides precise measure in comparison to a yes/no or true/false items and is also faster and easier to complete. The rating type scale facilitates researcher's understanding about critical issues or factors as the format allows respondents to indicate relative importance of choices [31].

3.4 Response variables

The dependent variables for this research are:

i. Critical success factors (CSFs)

The literature on quality management discusses about CSFs important for implementing quality initiatives in SMEs. These CSFs are mentioned without any rigorous proof [34, 35]. The CSFs specific to SMEs are mentioned in a few literatures, with support coming from surveys [7, 11]. In our questionnaire design, we follow these previous studies and included CSFs that are important from quality management point of view.

ii. Business performance indicators

The business performance indicators are not much explored in the literature, and there is no specific study exploring it specifically for SMEs. In our survey, we included business performance indicators from previous limited studies [7] and explored further. The survey helped us in preparing a list of business performance indicators related to SMEs, which we want to explore further.

iii. Tools and techniques

There is much literature mentioning tools and techniques used in different organizational process improvement initiatives. Literature focusing on tools and techniques specific to quality initiatives such as Six Sigma in SMEs is limited barring a few studies [31]. Through the survey, we explored the importance placed by SMEs on tools and techniques.

iv. Reasons

The literature focused on SMEs, in describing the difficulties or reasons behind limited use of quality initiatives. The studies though lack academic rigor, they are mainly theoretical in nature. The survey questionnaire included differences and reasons based on previous studies.

The independent variables are:

i. Demographic information

- Type of organization—multinational, local, and joint venture

ii. Type of SME

iii. Size of SME

- Employee size—size or range of full-time employees in the organization

iv. Whether the organization has implemented quality management practices or not

- Yes
  - How long has your company been using the quality initiative
  - Percentage of your business process that you are applying quality initiatives
  - Your skills in quality initiatives

- No
  - Reasons behind not implementing quality initiatives

3.5 Targeted population

The survey was conducted in and around Tiruchirappalli or Trichy based in South India. The city is around 320 km south of Chennai. It is famous for its temples, educational institutes, and public sector units such as Bharat Heavy Electricals Limited (BHEL) and Ordinance Factory. BHEL came into existence in 1960s and has initiated development of industrial estates. This lead to rapid growth in SMEs that increased from 36 to more than 300 in a short span of time.

In recent times, introduction of new products such as windmills, rice husk boilers, and improved government funding in power sector; turnover for SMEs has grown in rapid proportions. The total reported turnover of SMEs was around US$ 500 million, out of which medium scale enterprises contributed around US$ 375 million, while the balance is contributed by small-scale enterprises [36].

The enterprises are also the major employers, employing around 20,000 workers. Though the major buyer is BHEL that accounts for almost 70% of the total production, recent emergence of new clients such as GE, Suzlon, Caterpillar, etc. has increased the competitiveness and array of products among SMEs [36].

There are mostly fabrication enterprises, followed by machine shops, and lastly small units. These small units are engaged in the activities such as shot blasting, galvanizing, drilling, etc., while some of them are manufacturers of electrodes, grinding wheels, paints, etc. In total, there are 250 fabricators, 75 machine shops, and less than 75 small units [36].

Given our proximity to such a large cluster of SMEs, the survey was directed toward this population. This helped us sometime in visiting the organizations, in case they were nonresponsive to our surveys.

3.6 Study sample

For the purpose of this survey, the sample units to be surveyed were divided into two categories on the basis of their turnover (refer **Table 1**). They are:

A total of 16 medium-scale units and 36 out of 250 small-scale units responded to our survey. Responses from 13 units (medium- and small-scale) were incomplete and were excluded, thus leaving 52 usable questionnaires and a response rate of 19.52%.

S. No.	Description	Annual turnover (in Rs million)	Total number of units	Sample number of units
1	Medium scale units	50 or higher	20	16
2	Small scale units	5–50	250	36
Incomplete (not usable)				13
Total sample				65

Table 1.
Overview of the sample.

3.7 Survey implementation

The survey was conducted by mailing the questionnaire along with a cover letter on the institute letterhead to all the SMEs in the targeted population. The purpose of the letter is to make the enterprises familiarize with our research by clearly stating the objectives and benefits of this exercise. Following [7], we designed the survey in a manner to improve the response rate. Therefore, a follow-up letter reminding to send the responses was mailed to those who have not replied. This is done simultaneously with multiple visits to those enterprises by the researchers and research assistants that are in proximity to the institute. Follow-up letter and visits helped in increased response rate (around 30%) from small units. The respondents were offered no incentives except a summary of research findings if they have shown interest by checking the box provided in the questionnaire.

4. Findings

4.1 Preliminary analysis

4.1.1 Number of responses

The questionnaire was posted to 270 SMEs who were in the mailing list (refer **Table 2**). The mailing list was based on the information provided by the District Industries Center (DIC) of Trichy. DICs keep database of Micro, Small, and Medium Enterprises and formulate schemes for the development of the sector. A total of 52 were completed, 30 undelivered due to incorrect address, and 10 enterprises declined to participate. Based on the completed responses received, we observed that around 60% of the organizations have some form of quality initiatives, while 25% have not implemented any quality initiatives; remaining enterprises still need to be educated about different quality initiatives. As we focus on both types of enterprises which have or have not implemented quality initiatives, the usable responses for our study are 52. This is similar to the previous studies conducted elsewhere in the world (for e.g. [8]).

There are various reasons for low response rate in our study. One is no clear indication of the SMEs that have implemented quality initiatives. The second limitation is inaccuracy in the list in terms of name and position of the respondents, or targeted organizations' mailing address is not properly updated. The list also failed to highlight the enterprises that have closed down. Given the limitations and reviewing the literature on similar studies, we found the response rate for our study acceptable to make meaningful conclusions [7, 11].

Status	Number	Response rate (out of all organizations) (%)
Total sent	270	
Undelivered	30	11
Declined invitation	10	4
Returned (usable)	52	19.52

Table 2.
Overview of the sample.

Concerns about bias emerging from low response rate are frequently expressed in survey research literature. A study of the literature about survey response rate in quality management shows that the variation is from 11.5 to 25.2% (refer **Table 3**).

Thus there is a growing body of knowledge which seems to suggest that low response rate does not necessarily means that there is a high nonresponse bias (please see [37, 38]).

> *"Assembly of [survey-related] methodological studies whose designs permit estimation of nonresponse bias shows that empirically there is no simple relationship between nonresponse rates and nonresponse biases. That is, research results comport with the assertion that covariance between survey variables and response propensities are highly variable across items within a survey, survey conditions, and populations. Hence, there is little empirical support for the notion that low response rate surveys de facto produce estimates with high nonresponse bias (pg. 670)". (As observed from [36])*

Another factor which connects with low response rates is representativeness. But studies such as those in **Table 3** and also by [7] suggest that as long as the samples include different types of companies in the region, representativeness of the respondent balance the bias due to low response rate. Accordingly, this study is able to gather information from SMEs having diverse businesses and thus is representative of the population within the given region.

In summary, the current literature suggests shift in view about nonresponse bias and representativeness arising from low response rates in surveys. New research seems to suggest that the influence of low response rate on bias and representativeness is less straightforward in contrary to the assumption among researchers [36].

4.1.2 Organization profile

The types of SMEs which participated in the survey include manufacturers of boiler parts and boiler components, cement plant equipment, steel plant equipment, fuel firing equipment such as burners, valve, and valve manufacturing, camshafts manufacturing, automotive parts manufacturers, and others. Others involve furniture

Sl. No.	Authors	Management system	Country	Sample targeted	Organizations responded	Response (%)
1	Beaumont and Sohal [39]	ISO 9001	Australia	252	59	23
2	Antony [40]	Six Sigma	UK	200	28	14
3	Bhuiyan and Alam [41]	ISO 9001	Canada	138	30	22
4	Chan [42]	ISO 9001	Hong Kong	330	83	25.2
5	Kumar and Antony [43]	IMS	UK	500	64	12.8
6	Bernardo et al., [44]	IMS	Spain	1615	435	27
7	Kumar et al., [45]	IMS	UK and Australia	500 and 800	64 and 92	12.4 and 11.5

Table 3.
Questionnaire surveys and response rates (adapted from Khanna et al. [46]).

manufacturers, waste and wastewater treatment product manufacturers, and some service providers such as computer-aided design services to product development companies. It is observed that the core manufacturing companies such as boiler components, cement and steel plant equipment, and automotive components manufacturers mainly use quality initiatives, and they have turnover of more than 50 million. On the other hand, smaller enterprises such as furniture manufacturers or wastewater treatment plant component manufacturers do not use any quality initiatives.

As the present study is to explore about quality initiatives implementation in small and medium enterprises, we did not explore further behind to understand why small enterprises are not implementing quality initiatives. But we like to understand the reasons further through qualitative study of these organizations and develop a framework to spread implementation of quality initiatives implementation in Indian SMEs.

4.2 Descriptive analysis

4.2.1 Critical success factors (CSFs)

Success factors as concept was introduced by [38] and later popularized by [47]. Prajogo [47], extending ideas from [38], defines CSFs as "the limited number of areas in which results, if they are satisfactory, will ensure successful competitive performance for the organization."

The above definition proposes to "identify an ideal match between environmental conditions and business characteristics for a particular company" [48].

The CSFs (along with their average scores) identified from this study are shown in **Table 4**.

The study included 18 CSFs after going through the literature. These CSFs were identified from studies that focused on quality initiatives in SMEs in general or from studies on specific practices such as Lean and Six Sigma implemented in the enterprises. All the CSFs have been rated from medium to high influence. CSFs such as Projects with small teams and Management involvement and commitment were rated as high influence. This is understandable given SMEs have less number of employees, and this prevents forming large teams for quality initiatives. Also for any quality management practices to be initiated and implemented need continuous support from top management, which in most cases also involves the owner of the enterprise [7].

CSFs	Average score
Projects with small team	4.25
Management involvement and commitment	4.00
Communication	3.94
Cultural change	3.94
Team members with great motivation	3.89
Project management skills	3.81
Frequent feedback and measurement	3.75
Organizational infrastructure and culture	3.69
Projects with multiple independent team	3.64
Right amount of documentation	3.61

Table 4.
Critical success factors.

Our study further identified other CSFs having near high influence include communication and culture change. These are very important given the context of our study. As BHEL (Bharat Heavy Electricals Limited) is the major customer for most of the surveyed SMEs, it requires major shift in the culture of these SMEs to focus on quality initiatives and not being complacent to satisfy a single customer.

4.2.2 Business performance indicators

Literature suggests business performance indicators as customer requirements translated by organizations from Voice of Customer (VoC) [34]. Prior studies have not much focused on business performance indicators from an SME perspective. We identified 10 business performance indicators relevant to SMEs and found from the responses that all of them fall into the category of moderate to high relevance. Business performance indicators such as proximity to consumer and warranty returns are rated to have high relevance (refer **Table 5**). This can again be understood based on the context. BHEL and Ordinance Factory (both Public Sector Units (PSUs)) being major customers for most of the SMEs make the above-mentioned business performance indicators very relevant. As discussed in earlier section, the PSUs contribute toward 70% sales of the products for the SMEs in and around Tiruchirappalli.

This argument can further be strengthened as the other relevant business performance indicators highlighted by the respondents include special order lead time, on-time delivery, and price satisfaction all pointing toward the importance of PSUs as customers for these SMEs.

4.2.3 Tools and techniques

Prior studies on SMEs have focused on the application of various tools and techniques. Examples include studies carried out by [4, 8, 11]. Based on the literature, we have identified tools and techniques which are commonly used in SMEs for our study. The responses showed (refer **Table 6**) that most of these tools and techniques are used occasionally by the SMEs.

This can be attributed to availability of major customers for these SMEs, providing them steady order and thus keeping them in business. It also highlights the need for education to these SMEs about various quality initiatives along with tools and techniques that can be beneficial in improving their bottom line.

CTQs	Average score
Proximity to customer	4.49
Warranty returns	4.29
Relationship management	4.18
Correct invoice	4.12
Percentage of customer order	4.11
New product development	4.06
Price satisfaction	4.03
Brand image	3.96
On-time delivery	3.35
Special order lead time	2.92

Table 5.
Business performance indicators.

Tools	Average
Overall Equipment Effectiveness	4.00
Root Cause Analysis	4.00
Bottleneck Analysis	3.86
PDCA (Plan, Do, Check, Act)	3.79
Single Minute Exchange of Die (SMED)	3.79
Poka – Yoke (Error proofing)	3.43
Inspection	3.36
Value Stream Mapping	3.00

Table 6.
Frequency of usage of quality management practices by SMEs.
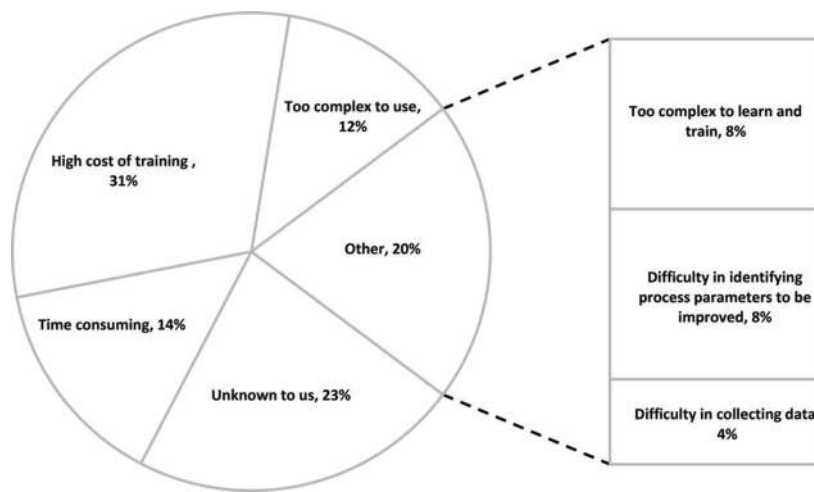
Figure 1.
Reasons for not implementing quality initiatives.

4.2.4 Reasons for not implementing quality initiatives

The reasons for not implementing or widely using quality initiatives by the respondents are presented in **Figure 1**. There are two types of respondents in our study. One set of SMEs has some quality initiatives in place, remaining are still to decide on implementing the initiatives. High cost of training emerged as one of the major reasons the SMEs are shying away from quality initiatives. Complexity in learning, time consuming efforts, difficulty in identifying process parameters, and difficulty in data collection further restrict the usage of quality initiatives by the SMEs. High percentage of respondents also mentioned about limited or no knowledge about quality initiatives. This shows the need for better education and exposure on various quality initiatives to these SMEs by academic and practitioner community.

5. Discussion

In this study, we focused on understanding the extent of quality initiatives implementation in Indian SMEs. First objective of the study was to observe the critical success factors (CSFs), which are important for the SMEs. The results show projects with small team as one of the important factors. This factor identified in

our study is different from existing studies (e.g., [1, 7, 11]). Other factors such as management commitment, communication, and cultural change relate to the "softer side" (or "human side") of the quality initiatives implementation [11, 25, 49].

Business performance indicators are important criteria that help the firm to win customer loyalty [7]. The objective here is to understand the importance given to customers by the SMEs in order to gain customer loyalty. Proximity to customer, warranty returns, and relationship management featured highly influential for the units to gain customer loyalty.

Third objective of our study was to identify tools and techniques usage by the SMEs while implementing different quality initiatives. The literature talks about TQM, Six Sigma, and Lean implementation in Australian and UK SMEs [1, 11]. We found most of the SMEs were ISO 9001:2015 [38] certified based on the ISO 9000 [50] principles. These SMEs uses techniques such as overall equipment effectiveness, root cause analysis, and PDCA cycle. High adoption of ISO 9001 by SMEs is in consensus with the literature [51, 52]. High adoption of ISO 9000 by SMEs is in consensus with the literature [51, 52]. Further findings of low adoption of Six Sigma and Lean are also in agreement with literature [11].

Finally, we wanted also to identify the reasons behind SMEs not adopting quality initiatives. High cost of training and unknown to us emerged as major barriers to quality initiatives implementation. SMEs not knowing about quality initiatives are an area which calls for attention. This shows there is limited knowledge about different initiatives irrespective of wide spread success associated with different quality initiatives. This calls for systematic education and training required in these organizations to spread the implementation of quality initiatives. Literature suggests lack of resources and lack of top management commitment as impeding factors in introducing quality initiatives in SMEs [4, 11, 16].

The study showed the importance of team and management commitment as important success factors. Therefore, managers of Indian SMEs need to play an important role in promoting quality initiatives. As most of the SMEs are near to the customer in this study, the managers need to focus on warranty returns and building long-term relationship with the customer. Further, there is a need for managers to understand the importance of education and training of employees in different quality tools and techniques, problem-solving skills, data analysis, and statistical techniques [1]. According to [53], managers need to understand and satisfy the individual employee needs and also improve the quality of life for employees. This will help in successful adoption of quality initiatives. Also, government policy makers can coordinate with senior management in SMEs and focus on developing training programs to enhance employee skill and thus prepare the organizations to adopt quality initiatives such as TQM, Lean, and Six Sigma, which will enable them to compete locally and globally.

Methodological fit is a well-developed field in management research. Edmondson and McManus [54] in their paper have discussed extensively about methodological fit at different phases of study based on the existence of relevant theory. According to their research, they suggest at exploratory stage:

> "The research questions are more open-ended than those used to further knowledge in mature areas of the literature. In studies where theory is nascent or immature, researchers do not know what issues may emerge from the data and so avoid hypothesizing specific relationships between variables" (p. 1162).

Further, [32] suggests to use exploratory surveys as basis for developing concepts and methods for future descriptive and explanatory surveys. In short, as suggested by [55], the whole purpose of an exploratory survey is to elicit a wide variety of responses from individuals with varying viewpoints in a loosely structured manner as the basis for design of a more careful survey.

Finally, we like to state that limited sample size has restricted rigorous statistical analysis as well as generalizability. But this can be overcome by using multiple stage study as followed by [56] or progressing through different stages of theory as explained by [54]. Our study response rate is acceptable based on prior similar studies such as by [56] and [2], where the response rate was between 23 and 25%. As discussed by [57], low response rate is acceptable as long as the sample is representative of the population. In our study scenario, we feel the representativeness of our sample and thus we are able to identify the required variables of our study through exploration.

6. Conclusions

The purpose of our study was to explore and understand the extent of quality initiatives usage in SMEs. The study was carried out in Tiruchirappalli, which has a cluster of SMEs catering to the two big PSUs in the region. The findings lead to insights related to quality initiatives in these SMEs. We were able to see the effect of nearness of major customers in the area, as evidenced from the high relevance of business performance indicators such as proximity to customers, relationship management, percentage of customer orders, etc.

Tools and techniques usage by SMEs vary from seldom to occasionally, and it is a cause for concern. The reason can be inferred back to known customers for these SMEs. Further probing into the reasons of not applying quality initiatives reveals high cost of training and no knowledge of tools and techniques as main deterrent for the SMEs. This needs to be further explored through in-depth case studies with some of these SMEs.

Finally, the study is an attempt to understand and evaluate the quality management practices in SMEs from a specific geographic location. This lead to some differences in the preferences from existing studies which is both a strength and limitation of this chapter. The strength lies in bringing a different perspective from the present studies. The study is relevant for the SMEs because they have very limited focus. The findings from this study will help them in looking beyond and extending the customer base. By avoiding the problems highlighted in our study, the SMEs can learn to educate themselves in quality management practices.

As mentioned earlier, sample distribution may be regarded as a limitation of the study, because all respondents were from a single geographic location, limiting the generalizability of the findings to SMEs of a specific region (Southern India). Low response rate is another limitation, which we plan to overcome by conducting multilevel multiple exploratory case studies with SMEs identified from the survey response. The case study research (with cross-case analyses) will help us understanding different quality management practices across SMEs [30]. We also plan to conduct a national level survey of SMEs. Future research can also focus on a global survey and understand the cultural effect on successful implementation of quality initiatives in SMEs.

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