9.1 Introduction

This chapter provides a brief summary, major findings, conclusion and relevant policy implications of the study. The chapter also suggests the area for further research.

9.2. Summary

Small and medium enterprises are the engine of economic growth. They play a vital role in the economy by providing employment and ensuring equitable distribution of economic wealth. These firms are the major sources of technological innovation and introduction of new products in the market. These are labour intensive in nature and utilise latent resources available in the domestic economy. TQM practices are essential for SMEs in order to face competition in the era of globalisation. Hence, the adoption of TQM becomes very important for the attainment of sustainable development.

An attempt has been made in the study to examine the TQM practices in SMEs in Tamil Nadu. The importance perceived and the extent of the implementation of TQM practices in the globalised economy have been analysed, taking a set of predictor variables.

More specifically, the objectives of the study are: (i) to study the perceived importance of the various components of total quality management in small and medium enterprises, (ii) to examine the extent of implementation of the various components of total quality management in small and medium enterprises, (iii) to analyse the gap between the implementation and perceived
importance of the components of total quality management in the small and medium enterprises, (iv) to explore the characteristics of small and medium enterprises implementing total quality management practices; and (v) to study the soft TQM factors and hard factors of TQM determining organisational performance.

The study used both primary and secondary data for analysis. The researcher selected 208 SME respondents who are CII members in Tamil Nadu, based on stratified systematic random sampling method. The sample of 115 medium size enterprises and 93 small size enterprises constituted the basis for primary data. Primary data were collected using a pre-tested interview schedule. The researcher collected the data from the respondents personally during the months of January-April 2009 using a well structured interview schedule. Secondary data were extracted from various issues and reports of the Directorate of Industries and Commerce. Secondary data had been collected over a period of 18 years from 1991-2008. Objective-wise analysis was made in the study, ‘t’-test, paired ‘t’ test, discriminant analysis and multiple regression analysis were applied to analyse the primary data.

9.3 Major Findings

The study brings out the fact that 66 per cent of the selected SMEs are certified. This is an indication that the SMEs consider ISO certification as essential to compete in globalised economy. Nearly 29 per cent of SMEs are quality awarded firms. Around 30 per cent of the respondents are trained in TQM programmes. This is because the low or middle level executives of
production department are sent for the training. Nearly 59 per cent of the Total respondents learnt TQM from affiliated foreign partners. Certification is taken as a way to ensure their customers by producing a quality product. Less number of firms have received quality award due to low initiative among small and medium enterprises in getting quality awards. The perception on benefits shows that respondents expect reasonable benefit through total quality management implementation. This also indicates that total quality management benefits are more relevant and significant for SMEs.

9.3.1 TQM Practices in Private and Public Sector SMEs

The study brings out the fact that the mean scores of the importance of TQM components vary from 4.54 to 4.67 indicating that the private and public firms attribute high importance to TQM components, ‘t’ test results show that there was no difference between the mean scores of importance attached to all the TQM components as realised by private and public SMEs. However, the implementation of TQM components by these two groups of firms was at moderate level. Further, the ‘t’ test analysis shows no significant difference in the implementation of TQM components in these two groups of firms. The discriminant analysis also indicates that type of ownership was not a discriminating feature of SMEs implementing TQM at higher level. The study also found that the influence of soft factors on organisational performance of private SMEs increases when these firms implement soft factors of TQM at a higher level. Both soft and hard factors have insignificant impact on organisational performance of public SMEs.
The ‘t’ test results indicated that there was no difference between mean scores of the importance of TQM components perceived by these two groups of small firms. The 't' test further reveals that there was no significant difference in the implementation level of most of the TQM components. There was significant difference in the implementation level of the TQM components top management commitment and organisational culture by these two groups of small firms. The discriminant analysis also indicates that type of ownership was not a discriminating feature of small firms implementing TQM at higher levels. It was also found that soft factors exert significant and positive influence on the organisational performance of small firms. Hard factors of TQM exert significant impact on the organisational performance of public small firms.

The ‘t’ test indicates that no difference was found between mean scores of the importance of TQM components perceived by these two groups of medium firms. Medium firms also realise the importance of TQM components better. They implement TQM components at moderate levels. Moreover, the ‘t’ test reveals that there was significant difference in the implementation levels of most of TQM components. There was no significant difference in the implementation level of the TQM components namely, top management commitment and organisational culture by these two groups of medium firms. The discriminant analysis also indicates that type of ownership was not a discriminating feature of medium firms implementing TQM at higher levels. The regression analysis indicates that both hard and soft factors have significant impact on the organisational performance of private medium firms.
Both hard and soft factors have insignificant impact on the organisational performance of public firms.

9.3.2 TQM Practices of SMEs Established Before and After New Economic Policy

The study brings out the fact that the mean scores of the importance of TQM components vary from 4.55 to 4.65 which indicates that SMEs established before and after New Economic Policy (NEP) realise high and equal importance to TQM components. Further, ‘t’ test reveals that there was no significant difference found between the mean scores of importance of TQM components perceived by these two groups of SMEs. However, the implementation of TQM components by these two groups of firms was at moderate levels. Further, no significant difference was found in the implementation of most of the TQM components. There was significant difference between the mean scores of importance of TQM component namely, top management commitment. The discriminant analysis also indicates that year of establishment was not a discriminating feature of SMEs implementing TQM at higher levels. The regression analysis shows that the influence of soft factors on organisational performance was significant in the case of the SMEs established after NEP. Further it indicates that the influence of hard factors on organisational performance was significant in the case of the firms established before NEP.

Small firms established before and after NEP attach high importance to TQM components. The ‘t’ test reveals that there was no significant difference between the mean scores of importance of TQM components. The ‘t’ test reveals that there was no significant difference in the implementation levels of most of the TQM components by these two groups. There was significant
difference between the mean scores of implementation of TQM components namely, top management commitment and human resource management of small firms. The regression analysis indicates that soft factors significantly influence the organisation performance of small firms established after NEP. Hard factors exert significant influence on the organisational performance of small firms established before NEP. The discriminant analysis also indicates that year of establishment was not a discriminating feature of small firms implementing TQM at higher levels.

Medium firms established before and after NEP also realise the importance of TQM components. The ‘t’ test reveals that there was no significant difference between the importance of TQM components perceived by these two groups. The Y test reveals that there was no significant difference between the implementation of TQM components of these two groups. The discriminant analysis also indicates that year of establishment was not a discriminating feature of medium firms. The regression analysis indicates that both hard and soft factors have no significant impact on the organisational performance of medium firms established before NEP. It was found from the regression analysis that the influence of soft factors on organisational performance of medium firms established after NEP increases when these firms implement soft factors of TQM at a high level.

9.3.3 TQM Practices in Certified and Non-certified SMEs

The ‘t’ test indicates that there was no significant difference between the importance of TQM components perceived by certified and non-certified SMEs. Both certified and non-certified SMEs attach high importance to TQM
practices. Moreover, these firms implement all the components at moderate levels. The ‘t’ test reveals that significant difference was found in the implementation of top management commitment, customer focus, human resource management and continuous improvement by these two groups of SMEs. There was no significant difference in the implementation of most of the TQM components. The discriminant analysis also confirms that ISO certification was a main discriminating characteristic of SMEs implementing TQM components practices at higher level. The inference was that certified SMEs implement TQM practices relatively at higher levels compared to the implementation levels in non-certified firms. Regression Analysis reveals that both hard and soft factors have positive and significant impact on organisational performance of certified SMEs. Both hard and soft factors have insignificant impact on non-certified SMEs.

In the case of certified small firms there was no significant difference between mean scores of the importance of TQM components as perceived by small certified firms and non-certified firms. However, there was a significant difference between the mean scores of implementation of the TQM components of small certified firms and non-certified firms. Further, the discriminant analysis indicates that certification is not a discriminating feature of small firms implementing TQM at higher levels. The regression analysis reveals that the soft factor of TQM components influence significantly the organisation performance of certified small firms.
The study indicates that significant difference was found between mean scores of the importance of TQM components as perceived by medium certified firms and non-certified firms. Similarly, significant difference was found between the mean scores of implementation of all TQM components of medium certified firms and non-certified firms. The regression analysis shows that soft factors have positive and significant influence on organisation performance of certified medium firms. The impact of both soft and hard factors on organisational performance of non-certified medium firms was found to be insignificant. Discriminant analysis brings out the fact that certification was a discriminating feature of medium certified firms implementing TQM at higher levels.

9.3.4 TQM Practices in Awarded and Non-awarded SMEs

The analysis revealed that the perceived importance of TQM components of awarded and non-awarded SMEs was insignificant. The study reveals that the difference between mean scores of implementation of TQM components namely, top management commitment, strategic planning, customer focus, continuous improvement and benchmarking of awarded and non-awarded SMEs was statistically significant. The discriminant analysis also indicates that award status was a discriminating feature of SMEs implementing TQM at higher levels. The regression analysis shows that the influence of both soft and hard factors was significant in awarded SMEs. The same analysis for non-awarded firms show insignificant influence on organisational performance.
The study indicates the fact that the mean scores of the importance of TQM components vary from 4.92 - 5.00 for awarded medium firms. It implies that the awarded medium firms perceive all the TQM as highly important. The ‘t’ values show that there was a significant difference between mean scores of importance of all the components of TQM realised by medium awarded and non-awarded firms. The ‘t’ results also reveal that the difference between implementation of all TQM components in the medium awarded firms was statistically significant. This was due to top management commitment to quality produced in awarded firms. Top management initiates, extends support and sustain through allocation of resources. Continuous improvement and employee empowerment are considered very important components. The discriminant analysis brings out the fact that award status was a discriminating feature of medium firms implementing TQM at higher levels. The regression analysis shows that both soft and hard factors significantly influence the organisational performance of awarded firms.

9.3.5 TQM Practices in SMEs Producing Capital Goods and Consumer Goods

The study bring out the fact that the mean scores of the importance of TQM components vary from 4.57 to 4.65 indicating that SMEs producing capital goods and consumer goods realise high and equal importance to TQM components. The Y test results reveal that there is no significant difference between the importance of TQM components perceived by SMEs producing capital goods and consumer goods. The analysis shows that no significant difference was found in the implementation of most of the components. There
is significant difference between the implementation of TQM components namely organisation culture, bench marking, employee involvement and infrastructure by these two groups of firms. The discriminant analysis indicates that product type is not a discriminating feature of SMEs. It was found from the regression analysis that the influence of soft factors on organisational performance of SMEs producing capital goods increases when these firms implement soft factors of TQM at a high level.

The Y results bring out the fact that there was a significant difference between TQM importance perceived by the consumer goods and capital goods manufacturing small firms. The Y test reveals that there is a significant difference at the implementation level of TQM components by these two groups of small firms. Discriminant analysis reveals that type of products manufactured was not a discriminating feature of small firms. It was also found that soft factors influence significantly on the organisational performance of SMEs producing capital goods and hard factors exert significantly on organisation performance of small firms producing consumer goods.

Medium firms manufacturing these two goods also realise the importance of TQM components. The Y test results reveal that there was no significant difference between the importance of TQM components perceived in all medium firms producing capital goods and consumer goods. No difference was found between implementation of most of the TQM components. The difference between the implementation of employee empowerment and continuous improvement of medium firms of these two
groups were found to be insignificant. Discriminant analysis indicates that type of product is not a discriminating feature of medium firms. The regression analysis indicates that both hard and soft factors have insignificant impact on the organisational performance of both groups of medium firms.

9.3.6 TQM Practices of SMEs Catering to Domestic and International Markets

The ‘t’ results show that no significant difference was found between the mean scores of importance of most of the TQM components. There was a significant difference between the mean scores of importance of TQM components namely, human resource management, information feedback and supplier quality management as perceived by the SMEs marketing to domestic and international market. Further, the ‘t’ test indicates that a significant difference is found in the implementation of most of the components. There was a significant difference in the implementation of the components namely, top management commitment, strategic planning, customer focus, human resource management, employee empowerment, continuous improvement, benchmarking and information feedback in these two groups of firms of international market and domestic market. The discriminant analysis indicates that market is a discriminating feature of SMEs implementing TQM practices at higher level. It was also found from the regression analysis that the influence of soft factors and hard factors on organisational performance of SMEs catering to international market increases when these firms implement soft factors and hard factors of TQM at a high level.
The ‘t’ test results reveal that significant difference is found between the mean scores of importance of TQM components realised by the small firms catering to domestic market and firms catering to international market. The ‘t’ test reveals that significant difference is found in the implementation levels of TQM components by these two groups of small firms. Market was not found a discriminating feature of small firms implementing TQM at higher level. It was also found that soft and hard factors significantly influence the organisational performance of small firms marketing at international levels. Soft factors exert significant influence on the organisational performance of small firms catering to domestic market.

The ‘t’ results of medium firms show that there is a significant difference between the mean scores of domestic and international importance of TQM components realised by the firms marketing to domestic and international market. The ’t’ test reveals a significant difference in the implementation levels of TQM components by these two groups of medium firms. The regression analysis indicates that soft and hard factors exert significant impact on the organisational performance of medium firms catering to international market. The regression analysis indicates that both hard and soft factors have insignificant impact on the organisational performance of medium firms catering to domestic firms. The discriminant analysis indicates that market is a discriminating feature of medium firms.
Paired ‘t’ test revealed that there was a significant difference between importance and implementation of all the TQM components of small, medium and small and medium enterprises.

9.4 Testing of Hypotheses

The empirical findings of the study helped to test the hypotheses formulated for the study. The first hypothesis of the study states that there is no significant difference between the importance of total quality management practices of small and medium enterprises classified in terms of type of ownership, type of products manufactured, quality certification, quality award status, markets and year of establishment. The ‘t’ test was applied to test the hypothesis. This hypothesis was accepted for most of the TQM components of small and medium enterprises. The alternative hypothesis was accepted for three TQM components, namely human resource management, information feedback and supplier quality management in SMEs classified based on market. Therefore, there was a significant difference between the importance of TQM components perceived namely, human resource management, information feedback and supplier quality management in SMEs catering to domestic and international markets. SMEs perceive TQM components important practices needed for competitive environment.

The second hypothesis states that there is no significant gap between the implementation of total quality management practices of small and medium enterprises classified in terms of type of ownership, type of products manufactured, quality certification, quality award status, markets and year of establishment. The ‘t’ test was used to test the hypothesis. The hypothesis was
accepted for SMEs classified based on type of ownership. Based on year of establishment the hypothesis was proved for most of the TQM components. The alternative hypothesis was accepted for TQM components namely, top management commitment. Therefore, there was significant difference between the implementation of top management commitment in SMEs established before and after NEP. In the case of SMEs classified based on certification, the hypothesis was proved for most of the TQM components. The alternative hypothesis was accepted for four components namely, top management commitment, customer focus, human resource management and continuous improvement. Therefore, there was a significant difference between the implementation of four components namely, top management commitment, customer focus, human resource management and continuous improvement.

With regard to SMEs classified based on award status, the hypothesis was proved for most of the TQM components. The alternative hypothesis was accepted for TQM components namely, top management commitment, strategic planning, customer focus, continuous improvement and benchmarking. Therefore, there was a significant difference between the implementation of four components namely, top management commitment, strategic planning, customer focus, continuous improvement and benchmarking. The hypothesis was proved for SMEs classified based on products for most of the TQM components. The alternative hypothesis was accepted for TQM components namely, organisation culture, benchmarking, employee involvement and attitude and infrastructure. Therefore there was a significant difference between the implementation of components namely, organisation
culture, benchmarking, employee involvement and attitude and infrastructure. With regard to SMEs classified based on market, the hypothesis was rejected for TQM components namely, top management commitment, strategic planning, customer focus, human resource management, employee empowerment, continuous improvement, benchmarking and information feedback. The alternative hypothesis was accepted for these TQM components. Therefore, there was a significant gap between the implementation of TQM components namely, top management commitment, strategic planning, customer focus, human resource management, employee empowerment, continuous improvement, benchmarking and information feedback of small and medium enterprises classified based on market. On the other hand, the hypothesis was accepted for organisation culture, communication, employee involvement and attitude, infrastructure and supplier quality management. Therefore, there was no significant difference found between the implementation of TQM components namely, organisation culture, communication, employee involvement, infrastructure and supplier quality management.

The third hypothesis formulated for this study states that there is no significant difference between the importance and implementation of total quality management practices of small and medium enterprises Paired ‘t’ test was applied to test the hypothesis. The hypothesis was accepted. This was due to the fact that the TQM components were not implemented to the extent that these firms have been perceived it as important.
The fourth hypothesis states that there is no significant difference in the profiles of two groups of firms classified in terms of total quality management implementation. This hypothesis was rejected. With regard to SMEs, the awarded firms, firms catering to international markets and ISO certified firms are found keen on implementing TQM practices. Hence, the alternative hypothesis was accepted for these groups of SMEs. Therefore, there was significant difference in the profiles of two groups of firms classified in terms of total quality management implementation.

The fifth hypothesis states that the impact of total quality management of soft factors and hard factors on organisational performance is insignificant. The hypothesis was accepted for public SMEs, non-certified SMEs, non-awarded SMEs, SMEs producing consumer goods and the SMEs supplying to domestic market. With regard to certified SMEs, awarded SMEs and SMEs catering to international market, the hypothesis was rejected. Hence, the alternative hypothesis is accepted. Therefore the impact of TQM components of soft and hard factors on organisation performance was significant for certified SMEs, quality awarded SMEs, and SMEs catering to international market. Both soft and hard factors have significant influence on organisation performance of these firms. With regard to the private firms established after NEP, soft factors exert significant influence on organisation performance and hard factor have influence on organisational performance of firms established before NEP.
9.5 Conclusion

SMEs are facing challenges from the MNCs since the government of India implemented the policies of liberalisation, privatisation and globalisation. Many SMEs have started realising the importance of TQM. SMEs have already got ISO 9000 certification. Many SMEs face problems in implementing TQM components and realising business results. Suggestions are presented in this chapter to enable successful implementation of TQM and effective organisational performance.

9.6 Policy Implications

Implementation of TQM succeeds only when the organisational culture is conducive for TQM practices. Quality required should be reflected in the entire business process. Employees should realise the importance of quality in reaching organisational vision. Employees at all levels should be aware of customer expectations. Organisation structure should be made flexible to permit continual improvement. Business plan should integrate the requirements of all types of customers. Performance appraisal system must incorporate customer based measures. Communication system should be strengthened. Every employee in an organisation should have customer commitment. Top management should lay emphasis on customer oriented values and beliefs.

Employees need to be oriented and trained so that TQM philosophy could be accepted at all levels of an organisation. Each and every employee should be made to feel that he is part of the TQM implementation. Extensive training for new entrants and periodic training for all the employees must be
given to keep them informed about the latest development in an organisation. Continual encouragement from the top management is essential for sustained implementation of the programme.

Each person in an organisation must learn a common language where quality is concerned. There should be uniform understanding of quality management requirement. A structured and well-designed training programme is essential to achieve this purpose. The training objective should be to make the participants understand quality requirement and understand the implementation procedure. Training is used to communicate management’s commitment to total quality and to provide employees with significantly enhanced skills in data analysis and problem solving.

The companies should take quality award initiative. This would stimulate TQM process. Quality award demands serious work on employee involvement, customer focus and initiation of systematic quality improvement. This would result in better performance and lead to world class quality and business excellence.

Customers’ satisfaction depends on how well employees are involved in an organisation. Employee involvement results in enthusiasm and commitment of workers. Employee involvement is more than being part of quality circle movement. The creative energies of all employees must be used for problem solving and continuous improvement. Employees must be trained in new skills and motivated to apply them on the job. The number of ideas generated and the number of ideas executed should be measured to assess both individual and team performance.
Quality supplier base can be created by reducing existing the supplier base. Few suppliers’ strategy would help the company to reduce the variation and to increase supplier commitment. Selection of suppliers should be based on their capability to improve quality cost, delivery, flexibility and their willingness to become world class. Establishing link with suppliers permits an exchange of information and helps to produce a guarantee of quality required.

An organisation could be established for the Tamil Nadu small and medium enterprises to share TQM implementation experiences in order to strengthen their TQM programmes and to prepare them to face implementation challenges if encountered.

The implementation of all the components of TQM is beyond the capabilities of SMEs. Therefore, a realistic approach for SME’s for implementing components of TQM is suggested. Total quality management practices should be implemented in sequential manner and not the whole system all at once. SME’s should start with internal improvements. The individual components can provide benefit and should not be a total system.

TQM practices require little start up investment at the beginning stage of TQM implementation. Top management should accept the total initial investment needed in education and training employees. This initial investment would save more costs later in the course of implementing the TQM practices.

Many TQM practices can be implemented without large amounts of money. The practices such as acquiring top management commitment, changing management thinking and attitude, educating employees and gaining support, developing quality programmes with action plans, getting employee involvement need to be focused in the beginning.
All these outcomes can be achieved without undue cost by any small firms. Consistent support from the top management plays a vital role in implementing quality management practices. They can motivate, energies, and empower total work force and get their involvement. Inculcating the culture of change and providing them a conducive atmosphere are very important.

TQM DAY can be celebrated. This day can be used to mark a major milestone in the company’s effort to attain total quality. Every week one team should be rewarded/ honoured for the collective group effort toward TQM practice. This kind of reward and recognition structure based upon quality measures can be a very powerful stimulus to promote TQM in the company. Owners of small business should be convinced that the time and effort they put into implementation of TQM will pay off in future.

Universities and colleges can also help develop research programs to identify traits of successful implementation as well as to solve common problems encountered in specific industries. Lack of management skill is one of the weaknesses of SME’s and therefore acquiring and applying TQM knowledge is very important for SMEs. Establishing link with suppliers permits an interchange of information and helps to produce a guarantee of the quality required.

TQM fora can be established in business schools to sensitise SMEs, conduct training and consultancy on TQM. They can play a facilitating role.

Government can organise state level awareness campaign to sensitise small and medium enterprise to enable technical and managerial officials. It
can undertake research studies for monitoring the impact of the scheme. It can adopt Plan-Do-Check-Act Cycle (PDCA) for better results. They can develop a database to provide information to the small and medium enterprise.

International studies and exposure tour can be sponsored by Government for selected enterprises. A visit abroad for initiative training and site visits to targeted award winning organisations can motivate SMEs to adopt TQM and learn the approach. This can be done through expert organisations or industry associations having expertise and interest.

Cluster based approach should be promoted for economy of scale, better adoption of TQM practices and best results. Cluster development scheme should be promoted through email, industry associations and advertisements in business magazines and in newspapers. This would facilitate upgradation of manufacturing process through systematic information on product development, production technology, market trends and total quality essential for enhancing competitiveness in the turbulent environment.

The regression analysis reveals that both hard and soft factors influence the organisation performance of firms catering to international market and firms which have received quality award influence positively and significantly. Therefore, SMEs must concentrate on implementation of hard and soft factors.

The firms catering to international market implement the soft factors, namely top management commitment, employee empowerment and hard factors namely strategic planning, continuous improvement and infrastructure and bench marking.
An organisation should focus on satisfying the needs of external and internal customers. It should clearly communicate quality, policy, goals, strategies and projects to employees at all levels. The leader in an enterprise should educate every one on the purpose and vision of an organisation. Better results can be achieved by properly allocating resources and focus them on vision to achieve results.

Top management should ensure that the quality policy is well understood by all the employees. It should be framed in such a way that there is a relationship between customer and company. It should be specific, measurable and realistic. The policy can be promoted through circulation of documents, newsletters, training, meetings, pledge cards and personal contacts. Top management can meet employees in batches to communicate policy. This would also reflect the top management commitment in implementing TQM.

A gap analysis against best-in-class competitors tells a company where it stands. It identifies the strength, weaknesses and target areas for improvement. The purpose of gap analysis is to provide common objective database from which a strategic quality improvement plan can be developed.

Quality council can be formed to develop strategic quality improvement plans. Quality council can set priorities for quality improvement by developing a one year short term strategic quality plan and a five year long range plan based on the gap analysis and target criteria. Plan should be supported by all employees in an organisation including union. Quality circle can be established to take projects on continual improvement. TQM coordinators can monitor their efforts. Specific problems can be handled through quality teams.
9.7 Scope for Further Research

The study provides a model of critical success factors of TQM practices. A comparative study of TQM practices of manufacturing with those of service enterprises may be carried out. An elaborative work may be done by selecting SMEs from two or more states and such analysis may be helpful to enhance TQM movement for the entire nation. An exclusive study of TQM practices and its impact on organisational performance of awarded SMEs will be useful for improving TQM effectiveness. Similar kind of study can be carried out for the SMEs engaged in trading activity.

The researcher firmly believes that the base laid by this present study will act as a stimulus for further researches. This pioneer effort on the part of the researcher will be rewarded if many more researches are undertaken and ultimately help in shaping India as a better industrial nation.