CHAPTER 7
CONCLUSION

7.1 INTRODUCTION

In the beginning of the doctoral work reported in this thesis, a research work was planned to develop a model by integrating Six Sigma concept and ISO 9001:2008 standard based QMS. A research paper titled ‘Global views on integrating Six Sigma and ISO 9001 certification’ has also been published online in an international journal titled Total Quality Management and Business Excellence reporting the literature survey carried out in this direction. This paper is listed in this thesis under the section titled “List of papers published”. However just before framing this model, a similar work was reported by Bewoor and Pawar (2010). Due to this reason, the literature was reviewed to check further for the existence of any work of integrating Lean Six Sigma and ISO 9001:2008 standard based QMS. A search in the literature arena revealed the absence of such work. Therefore, L6QMS-2008 model was developed during this doctoral work by integrating Lean Six Sigma concept with ISO 9001:2008 standard.

The practicality of L6QMS-2008 model was tested in two units namely SUPER-A unit and LRT-Unit-II. The contributions of these activities carried out during the doctoral work reported in this thesis are mentioned in this chapter. The limitations of this doctoral work as well as the scope for carrying out future research in the direction of this doctoral work have also been narrated in this chapter.
7.2 CONTRIBUTIONS OF THE DOCTORAL WORK

The following are the contributions of the doctoral work reported in this thesis.

- A literature review tracing the origin of Lean Six Sigma as well as the integrated Six Sigma and ISO 9001 standard based QMS was carried out. This literature review was useful to study the outcomes of some of the recent Lean Six Sigma case studies. The various managerial models integrated with ISO 9001 standard based QMS were also studied during this literature review. The literature review was useful in identifying and validating a new area of research in the direction of implementing Lean Six Sigma implementation through ISO 9001:2008 standard based QMS. This work was published as a literature review paper in the International Journal of Productivity and Quality Management.

- The roadmap framed at the end of the literature review was utilised to develop the L6QMS-2008 model to integrate Lean Six Sigma through ISO 9001:2008 standard based QMS. Additional requirements were identified for the implementation of Lean Six Sigma under the umbrella of ISO 9001:2008 standard based QMS. Implementation steps were framed for carrying out the practical implementation of L6QMS-2008 model in organisations by considering a hypothetical case study. These works have been published as a research paper in the International Journal of Lean Six Sigma.

- Based on the implementation steps framed, L6QMS-2008 model was implemented at SUPER-A unit of Super Spinning Mills Limited. This textile yarn manufacturing unit exhibited high affinity towards the implementation of
L6QMS-2008 model yielding real time outcomes out of the executed L6QMS-2008 projects. The L6QMS-2008 projects implemented in this unit are expected to result in the annual saving of two million INR.

- After beginning the implementation of L6QMS-2008 model in the SUPER-A unit, the second practical implementation of L6QMS-2008 model was begun at LRT-Unit-II. The implementation experiences experienced in both these units revealed the practical compatibility of L6QMS-2008 model. The projected outcomes of the L6QMS-2008 projects portrayed the successful implementation of L6QMS-2008 model at both the units.

- The results drawn by conducting both the case studies and the discussions made indicated that the practical propensity of successfully implementing L6QMS-2008 model is high. However, few obstacles faced during the implementation of L6QMS-2008 model have been mentioned in this thesis. Yet these obstacles were not severe enough to obstruct the successful implementation of L6QMS-2008 model.

On the whole, the above hallmarks of the doctoral work reported in this thesis indicated the prowess of L6QMS-2008 model in enabling the organisations to implement Lean Six Sigma under the umbrella of ISO 9001:2008 standard based QMS to acquire competitive strengths by consuming less time and resources.
7.3 LIMITATIONS OF THE DOCTORAL WORK

Though the case studies reported in the doctoral work were favorable in terms of the successful practical implementation of L6QMS-2008 model, there were two limitations identified. First, due to the paucity of time, only two case studies on L6QMS-2008 model could be carried out. Second, only two L6QMS-2008 projects were carried out in each case study. Despite these limitations, it is envisaged that the findings and contribution of this doctoral work could be generalised, as the case studies were conducted in two units having different characteristics.

7.4 SCOPE FOR FUTURE WORK

The doctoral work reported in this thesis opens three new avenues of research. The first future avenue of research is the study of application of the L6QMS-2008 model in different manufacturing and service sector organisations involving diverse L6QMS-2008 projects. The second avenue of research would be the reduction in the number of steps framed for the implementation of L6QMS-2008 model. The third avenue of research is the extension of the L6QMS-2008 model to evolve an integrated Lean Six Sigma and Integrated Management System (L6IMS) model. The L6IMS model would comprise the Lean Six Sigma requirements, the requirements of ISO 9001:2008 standard, ISO 14001:2004 standard, SA 8000 (Social Audit) standard and OHSAS 18001 standard. The L6IMS model would make the organisation competitive in every aspect facilitating to imbibe all the world class requirements from different perspectives. This model could also be further extended as an integrated Theory of Constrains and L6IMS (TL6IMS) model for the inclusion of the principles of Theory of Constraints. This emphasis is made in the context of the recently published book by name
Velocity (Jacob et al., 2009) reporting the integrated Theory of Constraints and Lean Six Sigma model by name ‘TOCLSS’ (stands for integrated Theory of Constrains and Lean Six Sigma).

7.5 CONCLUDING REMARKS

The doctoral work reported in this thesis was carried out in the context of integrating Lean Six Sigma concept and ISO 9001:2008 standard based QMS. Even though the doctoral work was initially begun to integrate Six Sigma and ISO 9001:2008 standard based QMS, it was later advanced to include Lean Six Sigma. The results of the literature review conducted in the beginning of this doctoral work indicated that, this is a new area of research remained unconquered for quite some time by the researchers. The L6QMS-2008 model has been developed along with its 20 implementation steps. The L6QMS-2008 model was practically implemented in two units with fruitful experiences. This thesis is concluded by stating that, these experiences have revealed the prowess of L6QMS-2008 model contributed by carrying out the doctoral work reported in this thesis in enabling the modern organisations to implement Lean Six Sigma concept under the umbrella of ISO 9001:2008 standard based QMS and acquires competitive strengths.