CHAPTER 6

Conclusion

6.0 Summary

One of the major contributions of this doctoral work is the design of the following models:

i) Innovation managed quality circle programme
   (Quality Strategy: Harnessing human knowledge)

ii) Innovation integrated quality management system
    (Quality Strategy: Monitoring of QS elements) and

iii) Innovation integrated Total Failure mode and effects analysis
    (Quality Strategy: Failure Analysis)

The ultimate objective of developing the above models is to evolve innovation through the enablers of continuous quality improvement. This kind of contribution is the need of the hour as the applications of continuous quality improvement enablers in the traditionally existing companies have not been very effective in capturing the market. For example, a company which has been manufacturing the same product for more than three decades will not be able to conquer the market even if its product quality is highly enhanced. In order to overcome this situation, innovation has to be infused into the product. At this juncture, it should be noted that many innovative solutions developed in research laboratories are not fully utilized by practicing professionals. This is due to the reason that, the researchers developing those innovative solutions seldom accompany their contributions with managerial models. The contributions of the doctoral work reported in this thesis have shown the ways of overcoming this situation.
One of the reasons for the failure of innovative models penetrating into the practice arena is due to the non-availability of expertise throughout their implementation. As a solution to this problem, the professionals from information management system have offered DSS. During the recent years a large number of DSSs have been developed for various purposes (Olumolade and Norrie, 1996; Nagarur and Kaewplang, 1999; Jamieson and Fedra, 1996; Weigkricht and Fedra, 1995). As the models developed during the doctoral work would also require continuous expertise, it was decided to develop DSS for easy implementation of the above models. On adoption of these DSSs, it is anticipated that companies would be in a position to nourish the benefits of models contributed during this doctoral work.

6.1 Practicality

A historical outlook would reveal that practitioners hesitate to accept any new models for a long time. As an example the practical acceptability of TQM can be considered. Although TQM philosophy emerged during 1950s, companies started to implement the same vigorously only from 1980s. The practical acceptability also depends upon the goodwill enjoyed by the agency or the individual who contributes and promotes the new models. For example, a model contributed by a leading quality guru would be readily accepted by the companies in comparison to the one developed by a relatively unknown scientist. The same trend was expected during this doctoral work. Hence practical acceptability of these models was not anticipated and it was decided to conduct implementation studies. These studies were accompanied by informal interviews of practicing professionals who appreciated the models developed during this doctoral work. However in order to successfully implement those models, several changes in organization set up has to be carried out by these professionals. The author does not have much influence with the management of those companies to
pursue the actual implementation of the models developed during their doctoral work. As an alternative to this situation the author has contributed DSSs for this purpose.

6.2 Suggestions for future work

As mentioned in second chapter of this thesis, the author has been sanctioned a research project by Department of Science and Technology (DST), Government of India to develop DSSs for infusing innovation in quality strategies. During this doctoral work, three DSSs have been developed. In order to accomplish the DST sponsored project the author himself proposes to develop DSSs concerning innovative integration of the quality strategies, which have not been considered during this doctoral work.

Also, future researchers who intend to work in the direction of bringing out innovation integrated continuous quality improvement solutions can adopt any one of the models reported in this thesis and they can attempt to implement them in various types of companies and study its practicality. If this practice is carried out in many numbers of companies, then the models developed during this doctoral work could be further refined and practically made compatible.

During this doctoral work, SQM models developed by Aravindan et.al., (1996) and Devadasan (1996) was referred to. Some more SQM models are available in literature (Tummala and Tang, 1996, Aravindan et.al., 1996, Calingo, 1996, Srinidhi 1998, Chapman et.al., 1997). Future researchers can refer to these models too for infusing innovation in continuous quality improvement projects.

6.3 Concluding remarks

It is claimed that the contributions of this doctoral work are timely valuable as integration of innovation in TQM projects has not yet been effective and formal. For example, the recently revised ISO 9001:2000 series quality system standards do
not deal with the integration of innovation in quality system. At the same time, researchers in the field of IM have mentioned about TQM techniques such as QFD, FMEA etc. But these researchers have also not contributed any innovation integrated continuous quality improvement techniques. In this context it is claimed that, the contributions of this doctoral work attempt to fill this void in managerial engineering arena.