CHAPTER 7

CONCLUSIONS AND SCOPE FOR FUTURE WORK

This research work has been started with a vision to develop a model for service performance management. Literature review has been carried out on various frameworks and tools used. From the gaps identified from the literature review, four models have been conceived and developed viz., AHP-EBG-QFD combined model, FAHP-EBG-FQFD combined model, Fuzzy logic-DEA-FFMEA combined model and an integrated closed loop model. These models have been illustrated with case studies from automobile repair shops. The major advantage of these models is that they consider both qualitative and quantitative criteria for performance evaluation. The developed models provided opportunities to operationalise the relationship among cost, time and service quality dimensions.

In AHP-EBG-QFD combined model, the relative service performance has been measured by the EBG model. AHP has been used to measure the service quality. QFD has been used to redesign the existing services when performance measures fall below the satisfactory level.

In FAHP-EBG-FQFD based model, the service quality is measured by FAHP. In this approach, triangular fuzzy numbers are introduced into the conventional AHP matrix in order to improve the degree of judgments of decision makers. The $\alpha$ – cut values and index of optimism $\mu$ incorporated into FAHP matrix take care of the accuracy of the service quality measurement. The data pertaining to both qualitative and quantitative
dimensions are combined using EBG model to measure the service performance. As an improvement process, FQFD has been employed to redesign the existing services. Fuzzy if-then rules are used in FQFD process.

In Fuzzy logic-DEA-FFMEA model, fuzzy set theory has been used for measuring perceived service quality. AHP is used to derive the weights of service quality parameters. Then the service performance is measured using DEA by considering both quantitative and qualitative measures. For further improvement of the service process, FFMEA is used.

Finally, an integrated closed loop service performance management model has been proposed. In order to redesign the services offered, FFMEA and FQFD are used. Fuzzy linear programming models in FQFD and FFMEA approaches eliminate the drawbacks of fuzzy if-then rules. Improving performance is a never-ending process and the organisation should exceed the expectations of customers to increase its goodwill and gain potential future business. Hence, the whole process of measuring and redesigning the service process needs to be continuously monitored and the implementation plans have to be reviewed at regular intervals.

7.1 CONCLUSIONS

The major conclusions arrived out of the research work are as follows:

i. The AHP-EBG-QFD combined model is found to combine both qualitative and quantitative dimensions for service performance measurement during illustration.
ii. When FAHP-EBG-FQFD combined is used, fuzzy sets for subjective assessment in FAHP and FQFD processes are found to enhance the decision making process and allow precise assessments.

iii. For the performance management, Fuzzy Logic-DEA-FFMEA combined model is found to prioritize the service failure modes based on FRPN values. As the risk factors and their relative importance weights are evaluated in linguistic terms rather than in crisp numbers, the assessments are found to be more realistic.

iv. Integrating FFMEA and FQFD provides a methodology for determining the fulfillment level for each DR in order to realize customer satisfaction.

v. The new integrated closed loop model is found to encompass the advantages of all the above three models and measure the current performance of an organization. It is found to provide opportunities to integrate the relationship among cost, time and service quality dimensions.

7.2 SCOPE FOR FUTURE WORK

The present study can be extended in the following directions:

i. The developed models have been demonstrated to improve the SSPM of automobile repair shops. These models can be applied to other service sector industries like Banks, Insurance companies and Hospitals and their capabilities can be studied.
ii. Conventional DEA can be modified by introducing weight restrictions for the input and output parameters and can be applied for service performance measurement.

iii. Other multi-criteria decision making tools like TOPSIS, PROMETHEE, ELECTRE etc., can be used for service quality measurement and their impact on performance of the developed models can be studied.

iv. Six dimensional measures for institutionalizing a new technology namely organisation, people, processes, tools and technologies, governance and metrics can be used and the Model Driven Engineering (MDE) approach can be applied in order to interface the proposed closed loop performance management model with standard/modified softwares.

v. Service performance measurement can be carried out by taking into account the six management quality dimensions (delegation, integration, measurement, employee participation, communication and employee development).