CHAPTER 6

RESULTS AND DISCUSSION

6.1 INTRODUCTION

The implementation experiences of KMQC, KMTFMEA and Knowledge Managed ISO 9001:2000 based Quality System models revealed their propensities in successfully penetrating into practical arena. In the case of KMQC and KMTFMEA, the success of their implementation is anticipated due to their easily understandable design features incorporated into them. In the case of Knowledge Managed ISO 9001:2000 based Quality System, the propensity of its practical implementation is expected to be high because almost all companies in the world have now obtained ISO 9000 certification.

Yet the careful study of the implementation experiences of the three modules of the research indicated that some vital preparatory activities are still necessarily to be carried out to achieve success in implementing KMQC, KMTFMEA and Knowledge Managed ISO 9001:2000 based Quality System models. This observation has been used to develop the roadmaps for successfully implementing these three knowledge managed models developed during this research. The roadmaps along with the discussion on the results of the three modules of the research work have formed the major scope of this chapter.
6.2 ROADMAP FOR IMPLEMENTING KMQC

Like in the case of ISO 9000 certification, the interest for running QCs increased in the world in an exponential fashion during 1970’s (Metri 2006). The QC concept which was once considered suitable only for implementing in Japanese companies began to spread to various parts of the world. However, unlike the case of ISO 9000 certification, the pace of implementing QCs began to decline from 1990’s (Pinnington and Hammersley 1997; Spell 1999). During this period kaizen began to replace QCs in many organizations. Today QC is rarely employed in different parts of the world. This is a concerning situation considering the role of QCs in TQM projects (Hill 1996).

QC concept is acceptable to both management and employees. QC slowly creates employee involvement strategy in organizations to achieve continuous quality improvement. However, due to the various developments that have been taking place around the world make QC an obsolete technique in TQM arena. Particularly if the QC is run by considering the views of only the participating members, the outcome might not be effective in achieving competitiveness in the competitive world. This requirement is fulfilled by KMQC. However, its implementation has to precede certain preparatory activities. Particularly the interest and the commitment of both the management and employees are essential ingredients of successfully implementing KMQC in organizations. In this context, the results of developing KMQC during this research work were utilized to propose the roadmap shown in Figure 6.1 for successfully implementing KMQC in organizations.
Figure 6.1 Roadmap for implementing KMQC
As shown in Figure 6.1, the implementation of KMQC programme has to be started by obtaining the formal permission to conduct it in the company. Followed by this, training programmes on KM and QC need to be conducted in parallel. Before starting the training programme on QC, the past history of conducting QC programme in the company needs to be studied. This step is essential because currently companies possess different types of history of conducting QC programme. For example, a company might have conducted QCs a long time back and abandoned them due to work pressure. Another example could be that a company would have gained considerable benefits by implementing QCs but recently they are abandoned and kaizen teams have replaced them. Considering these types of variation in the history of conducting QCs programme in organizations, the training programme on QCs which would suit specifically the company in which KMQC is to be implemented shall be designed. This training programme shall be imparted to both management and employees. This training programme should enable the participants to realize the importance of utilizing theoretical and practical knowledge contained in human brains to solve the problems and achieve continuous quality improvement.

In parallel to the conduct of training programme on QCs, the education and training programmes on KM need to be conducted. Depending upon the level of knowledge utilized in the company, the curriculum of the education and training programmes shall be designed. For example, least knowledge is utilized in a manufacturing company which manufactures only one product on a routine basis for several years. At the same time, high knowledge level is required by the company wherein each customer order requires new design and development. After designing the curriculum, the participants of education and training programmes have to undergo hands on training on KM.
The participants of education and training programmes on QC and KM shall be swapped when those programmes are conducted in parallel. On completion of these programmes, all the participants will have adequate knowledge on those programmes and skills to involve themselves in those programmes. At this stage the exposure programme on KMQC to both the management and employees shall be conducted. At the end of this programme, a session on the feedback on KMQC shall be conducted. During this session a carefully designed questionnaire may be circulated among both management and employees.

The feedback gathered shall be analysed using statistical parameters. If the results of this analysis indicate that the management show hesitation in implementing KMQC, then the programme should be stopped at this stage. This step is necessary because the success of any programme depends on management commitment and support. If the results of analysis indicate that the employees may not show interest in participating in KMQC programme, then change management approaches shall have to be applied. This change management programme should facilitate the employees to support the KMQC programme through their enthusiastic participation.

In case, the support and commitment of both management and employees towards KMQC programme are discernable in the company, then the pilot areas may be identified to implement the first phase of KMQC programme. These pilot areas should be identified on the basis of easiness in implementation and possibility of obtaining business gains through the implementation of KMQC. Now the KMQC teams have to be formed and the proceedings shall be conducted.

During the conduct of the proceedings, the power of KMQC portal shall be exploited. Finally the reports of the KMQCs have to be prepared.
These reports have to be analysed to identify the knowledge and business gains achievable in the company through the implementation of KMQC programme. Depending upon the observations of the management on these gains, the KMQC programmes may be expanded to other areas of the company. Thus, the roadmap described here prevents the launching of KMQC without preliminary preparations and ensure its success which shall be available in the form of knowledge and business gains.

6.3 ROADMAP FOR IMPLEMENTING KMTFMEA

Even though RMP is a company aiming to grow progressively, the awareness of KM was not prevailing in its environment. Particularly despite the spreading of IT to even remote areas, very little benefits of IT have been imbibed by RMP. Hence KMTFMEA implementation has to be carried out by following a roadmap which will help the companies to lay the foundation and erect the pillars for its successful implementation and nourishment of authentic benefits. In order to meet this requirement, the roadmap shown in Figure 6.2 was designed.

As shown, this roadmap envisages the elucidation of the importance of KMTFMEA to the top management. During this stage, the top management must be apprised of the power of KM and IT. Subsequently the working of KMTFMEA is to be illustrated using a sample example. The benefits of applying KMTFMEA shall be clearly projected during this stage. On completion of this stage, the commitment and support of management towards the implementation of KMTFMEA shall be obtained.
Figure 6.2 Roadmap for KMTFMEA

1. Elucidate the importance of KMTFMEA to the Top Management
   - Management commitment and support on KMTFMEA Programme are guaranteed
     - Identify potential areas for applying KMTFMEA
       - Implement KMTFMEA in a potential area
         - Examine the results and develop a procedure to successfully implement KMTFMEA in other potential areas
           - Implement KMTFMEA in all potential areas
             - Examine the results and if need arises, refine the KMTFMEA implementation procedure
               - Develop policy, procedures and work instructions to suit KMTFMEA implementation
                 - Review the results periodically and improve the performance of KMTFMEA programme in the company

2. Management commitment and support on KMTFMEA Programme are not guaranteed
3. Stop the KMTFMEA programme
As shown in Figure 6.2, if the management’s support and commitment are not guaranteed, then the KMTFMEA procedure shall not be executed in the company. In order to express their commitment and support, the top management executives shall specify the resources that they are contributing towards the implementation of KMTFMEA. Since KMTFMEA implementation requires the advancement of knowledge on KM, IT and teamwork, its implementation shall be restricted to certain potential areas. Those potential areas refer to the locations of the company in which perennial unsolved problems do not exist and the personnel associated with them are eager to acquire knowledge and provide solutions.

Out of all potential areas, one is chosen and KMTFMEA project is implemented. This kind of restricting the experimentation to a small area is referred to in literature as “Pilot implementation” (Oakland and Tanner 2006). The results of this implementation shall be examined and a procedure to implement KMTFMEA in other potential areas may be developed. This implementation procedure ensures uniformity in approach on implementing KMTFMEA projects. After a specified period, the implementation results are examined.

If need arises the implementation procedure shall have to be modified and refined. Since KMTFMEA implementation requires the upliftment of the company towards KM era, the company’s policy, procedure and work instructions need to be refined and improved to suit this state. Since KMTFMEA is a continuous improvement process, its implementation results are to be reviewed periodically. If found necessary, the implementation aspects need to be refined and improved so that the performance of KMTFMEA programme leads to the reaping of its authentic benefits.
6.4 ROADMAP FOR IMPLEMENTING KNOWLEDGE MANAGED ISO 9001:2000 BASED QUALITY SYSTEM

The infusing of KM principles in quality system is very primitive. Hence, the contemporary practitioners may not be appreciative of its prowess. Because of this fact, during this research, full fledged implementation of Knowledge Managed ISO 9001:2000 based Quality System could not be achieved. However the experiences of pursuing this research were useful to evolve the roadmap for successfully implementing Knowledge Managed ISO 9001:2000 based Quality System. The roadmap thus evolved is pictorially depicted in Figure 6.3. Since ISO 9001:2000 certification has been obtained by majority of the contemporary organizations, this roadmap has been made suitable for the companies who have already installed the ISO 9001:2000 based quality system.

As shown in Figure 6.3, the implementation programme on Knowledge Managed ISO 9001:2000 based Quality System has to begin by examining the results of installing ISO 9001:2000 based quality system. This step is necessary as a handful of researchers have reported that many companies obtain ISO 9001:2000 certification mainly because of pressure exerted by their customers (Yahya and Goh 2001; Gotzamani and Tsiotras 2002; Williams 2004; Singh et al 2006). In those kinds of companies, the continual quality improvement journey due to the installation of ISO 9001:2000 based quality system would not be effectively sensed. In those kinds of companies, it is not advisable to implement Knowledge Managed ISO 9001:2000 based Quality System.
Figure 6.3  Roadmap for the successful implementation of Knowledge Managed ISO 9001:2000 based Quality System

- Examination of the results of ISO 9001:2000 based Quality System
  - Conduct of exposure programme on KM
    - Orientation programme on Knowledge Managed ISO 9001:2000 based Quality System to the managerial level employees
    - Orientation programme on Knowledge Managed ISO 9001:2000 based Quality System to the non-managerial level employees
    - Spelling out of the task to be carried out for implementing and sustaining Knowledge Managed ISO 9001:2000 based Quality System
    - Selection of pilot area
    - Imparting education and training to the personnel working in the pilot area
    - Implementation of Knowledge Managed ISO 9001:2000 based Quality System in the pilot area
    - Measurement of the performance of Knowledge Managed ISO 9001:2000 based Quality System in the pilot area
  - Expansion of the implementation programme to other areas based on its results
If the company is actively involved in sailing through the continual quality improvement journey by adopting ISO 9001:2000 quality system, then management commitment and support may be obtained and the implementation programme of Knowledge Managed ISO 9001:2000 based Quality System may be started. After that, an exposure programme on fundamentals and importance of KM may be conducted to both managerial and non-managerial employees. At the end of this programme, it should be ensured that both managerial and non-managerial employees prepare their minds to acquire and share knowledge for enabling the company to achieve core competencies.

Once the employees are prepared to nourish the core principles of KM, separate orientation programmes for managerial and non-managerial employees may be conducted. These orientation programmes will expose to the participants the tasks to be carried out to implement Knowledge Managed ISO 9001:2000 based Quality System. These programmes shall be interactive and aimed at overcoming fears of both managerial and non-managerial employees towards the implementation of Knowledge Managed ISO 9001:2000 based Quality System.

Since the intellectual attitude of both managerial and non-managerial employees needs to be suitably changed, the actual implementation of Knowledge Managed ISO 9001:2000 based Quality System is to be preceded by the selection of pilot area. This pilot area should be chosen on the basis of the easiness with which Knowledge Managed ISO 9001:2000 based Quality System could be implemented. For this purpose, the factors like the literacy level of employees, receptivity of employees and the size of the area to be covered are to be considered. After choosing the pilot area, the personnel working in that area will have to be imparted with education and training on Knowledge Managed ISO 9001:2000
based Quality System. Particularly these personnel should be trained to use the portal for acquiring and sharing the knowledge with the objective of enabling the organization to achieve core competencies.

Now the actual implementation of Knowledge Managed ISO 9001:2000 based Quality System has to be carried out. After completing its implementation, the performance of Knowledge Managed ISO 9001:2000 based Quality System has to be measured. According to the management’s perspective, parameters such as profit, number of customers and customer domain need to be considered while measuring the performance of Knowledge Managed ISO 9001:2000 based Quality System. If the performance of the company is improved from the management perspectives, then the Knowledge Managed ISO 9001:2000 based Quality System needs to be implemented in few more areas.

If the improvement is not visualized from the management perspectives, then the reasons for the failure to appeal the management need to be examined. Once those reasons are found and corrective actions are taken, then the implementation of Knowledge Managed ISO 9001:2000 based Quality System shall be continued in the pilot area. If the results are appreciative from the management perspectives, then the implementation programme on Knowledge Managed ISO 9001:2000 based Quality System may be expanded to other areas of the organization. Thus this roadmap will help the employees and management to become KM literate and adaptive for nourishing the benefits of implementing Knowledge Managed ISO 9001:2000 based Quality System.
6.5 CONCLUSION

Although KMQC, KMTFMEA and Knowledge Managed ISO 9001:2000 based Quality System models developed during this research revealed their practical propensities, their practical implementation need not necessarily result in success. This is due to the reason that the principles of KM are yet to fully anchor in majority of the traditional organizations. Even though the literature world claims about the spurt in KM research, its impact is not much discernable in traditional organizations (Tat and Hase 2007).

In the case of continuous quality improvement techniques, the companies largely employ them due to the insistence of customers. For example, researchers have reported that many companies obtain ISO 9001 standard due to this kind of pressure (Gotzamani and Tsiotras 2002; Terziovski and Power 2007). On seeing the failures of continuous quality improvement oriented techniques, some researchers have started to address them as fad (Ehigie and McAndrew 2005). In this context, the results of the implementation studies conducted during this research were carefully utilized to design the roadmaps presented in this chapter. These roadmaps could ensure the fruitfulness of adopting the KMQC, KMTFMEA and Knowledge Managed ISO 9001:2000 based Quality System models in organizational scenario.