
Prateek Selopal  
M. Tech Student  
Department of Mechanical Engineering  
Green Hills Engineering College, Solan

O.S. Bhatia  
Associate Professor  
Department of Mechanical Engineering  
Green Hills Engineering College, Solan

Abstract

The analysis of an analytical hierarchy process (AHP) approach is engaged to suggest a generic hierarchy model for organizations to prioritize the relative importance of seven critical factors and forty two sub factors of quality management in supply chain. This study contributes to priorities of key factors and sub factors of Quality Management which will help the company to formulate approaches for implementing QM in supply chain and seeks to understand how quality can be managed using a supply chain perspective of an automobile original equipment manufacturer (OEM) to sustain competitive edge.

Keywords: Quality Management, AHP, OEM, Supply Chain Management

I. INTRODUCTION

Quality management is a method for ensuring that all the activities necessary to supplier development, design, develop and implement a product or service are effective and effectual with respect to the system and its performance and Coordinating activities to direct and control an organization with regard to quality. While the QM literature base is extensive, until recently, much of it has been descriptive or anecdotal in nature and of little help in guiding the deployment of quality management programs. Not until the late 1980s was an endeavor constructed to categorize the essential hypotheses of quality. Within the last several years however, numerous concepts had scrutinized associations between quality and enactment. Anderson et al.(1995) identified visionary headship, inner and outside collaboration, procedure supervision, and worker serenity as key constructs of quality management. Furthermore, they established that these hypotheses are teamsters of purchaser contentment. Similar theories have been recognized in other readings and been shown to certainly affect product eminence and wider dealings of manufacturing enactment. Evidence of the impact of quality management practices on business performance is more limited. Wilson and Collier confirmed that the original evidence of the Malcolm Baldrige National Quality Award that guidance energies the quality management system, which energies business performance, is effective. Studies have also shown that the MBNQA framework not only delivers a legal demonstration of paradigms normally denoted under the label QM, but that the hypotheses are reliable with those found in other studies. Although Kearney (1992) contended that approximately 80% of Quality Management (QM) initiatives in logistics companies have failed, more recent research by Yong and Wilkinson (1999) does not support this contention. The implementation of QM systems is often customer-driven; Ho (1997) proposes the TQM Excellence (TQMEX) model, which provides a step-by-step guide towards achieving logistics excellence via a 5-S scheme.1 Towill (1996) and Aitken et al. (2002) emphasize Business Process Reengineering, mostly in the context of manufacturing intended at redefining and re-designing corporate procedures in order to meet the needs of customers most effectively. In logistics, this is primarily about reducing the supply cycle time to achieve competitive advantage. But these works overemphasize the mechanics of the supply-chain and neglect the human aspects of performance. Parsons (2002) and Naude and Buttle (2000), on the other hand, do take account of the human element, focusing on supply-chain relationships such as trust, communication and cooperation. This paper assesses the contribution of QM and supply chain to performance enhancement in an automotive OEM to sustain competitiveness.

II. ANALYTICAL HIERARCHY PROCESS (AHP) IN QUALITY MANAGEMENT

Quality management (QM) is often regarded as a philosophy that aims to achieve customer satisfaction through continuous improvement and team work. The transformation towards QM is coupled with its spread, from the manufacturing to the service sector and onto public services ( Dale, 1999) Implementation of QM becomes a top management agenda in many organizations in the pursuit of positive business benefits, such better product quality, higher customer satisfaction and less quality cost and improved supply chain. Some recent studies advocated that many organizations launched QM programs have gained any positive results. There have been several approaches and model suggested for the QM introduction and implementation. This paper presents main finding of a recent study that investigated the critical factors of quality management affecting the implementation of QM in supply chain. This study attempted to identify the critical factors and sub factors for a automotive OEM (XYZ Ltd) to implement quality management in supply chain using analytical hierarchy process (AHP) approach. A general hierarchy model
was elaborated to help prioritization these factors and formulate strategy for quality management implementation in supply chain of automotive OEM. Implementing quality management needs to be a totally integrated, continuous and open system based on the commitment from to management and employees, as well as the communication with customers. For facilitating discussions, they are divided into seven categories of factors or elements, namely System and Techniques, Empowerment & Teamwork, Innovation Management Culture & People Customer Focus & Orientation, Measurement and feedback and continuous improvement. Each categories factor has several factors as elaborated later.

Fig. 1: A Decision hierarchy of quality management implementation

### III. RESULT AND DISCUSSION

While the quality management has received considerable attention in the academic literature after globalization of market, it has been analyzed principally in context of OEM organizations. In spite of significant contribution by OEMs in economic growth of all countries, analytical case studies on quality management in supply chain of OEMs are very limited or almost negligible. In most of the available studies quality management has been analyzed in terms of manufacturing parameters only rather than a holistic approach. The holistic approach, as followed and analyzed the factors of quality management and supply chain in this case study will give better understanding regarding long-term competitiveness of the organization. Therefore present study has tried to bridge the gap in the literature on quality management and supply chain. Framework used for this study has tried to capture all critical factors and sub factors which affect the OEMs supply chain performance. In spite of having various pressures and constraints on OEMs, may manage quality in supply chain by implement the factors as per prioritization in this study. This study with AHP calculations can be better than others models for analyzing OEMs quality management.

This case study can be summarized as
- XYZ Ltd has focused on proliferation, price, technology, R&D facilities and IT applications to improve its product and process development capability.
- By applying advance management systems such as IMS, TPS, Vendor development and inventory management, XYZ Ltd has improved its performance in terms of productivity, cost, quality, delivery.
In spite of some weak areas such as dependency on its collaborator for technology, poor inbound supply chain and less share in international market, HLL has managed its resources effectively to sustain its leading position in the Indian market.

IV. CONCLUSION

As the XYZ Ltd is facing tough competition due to others two wheeler OEMs are continuously reducing price of their product and doing proliferation in product. To be remained most competitive the two wheeler manufacturer is giving priorities in cultural and people development and measurement and feedback to reduce product cost and enhance quality. For staying in competitive market an organization must have continuous improvement throughout the organization with innovative plan to improve its supply chain. This study has demonstrated that even an automotive OEM organization, facing tough competitions due to globalization of markets and can maintain good quality management at supplier end. For this it is essential that organizations should not target only end results but should develop its quality system in all area of supply chain. The cultural & people and measurement & feedback are the two factors prioritized respectively in AHP calculation which makes a supply chain and quality management best integration. Any OEM can have best quality management in supply chain by enhancing the people culture and measurement & feedback system. A crucial element in the formulation of any business strategy to build people culture is having the right information about the industry and the environment, at the right time. In a competitive industry, this translates into having access to reliable and actionable information about competitors, as well as the competitive environment in the industry, including information about competitors. XYZ Ltd has greatly improved its quality management in supply chain and best at supplier and can be a role model for other area of supply chain in companies. However, “quality management” is a journey and continuous improvement and not a destination. XYZ Ltd has still a long way to go. As XYZ Ltd moves up in the value chain and targets foreign markets, it will have to identify new factors of quality management in supply chain, and acquire and build appropriate competencies.

REFERENCES