

Identification of barriers in implementation of World Class Manufacturing (WCM) Practices: A Literature analysis

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Abstract - World class manufacturing practices are increasingly implemented by the manufacturing organizations in order to attain the world class performance which will enable them to remain competitive in the present global competitiveness. The organization puts their efforts for successfully implementing these practices but always confronted by the various hurdles. These hurdles need to be tackled more effectively. So, the main objective of the current work is to perform the detailed literature analysis on the barriers of the world class manufacturing practices.

Key Words: world class manufacturing, barriers, practices

1. INTRODUCTION

The rising global competitiveness and day-by-day increasing number of competitors has forced the manufacturing to improve their performance in order to survive in such type of critical environment. Due to this reason, manufacturing organizations are implementing world class manufacturing (WCM) approaches in order to improve their performance. The term "world class manufacturing" was first coined by Hayes and Wheelwright (1984). WCM is generally characterized by three core strategies namely customer focus, quality and agility and six supporting competencies namely employee involvement, supply management, technology, product development, environmental responsibility and employee safety, and corporate citizenship (Kinni, 1996; Salaheldin and Eid, 2007).

The implementation of world class manufacturing practices depends upon the various critical factors such as top management commitment, organization culture, motivation, team work, employee commitment, education & training, adequate financial resources, proper leadership etc. Besides, this, there are various barriers which inhibits the successful implementation of world class manufacturing practices which needs to be tackled more effectively in order to

implement them more successfully. So, the main objective of this paper is to perform the exhaustive literature analysis on the barriers inhibiting the successful implementation of world class manufacturing practices.

2. LITERATURE REVIEW

Literature review has been analyzed on the barriers of different WCM practices such as Total Quality Management, Total Productive Maintenance, 5S, lean manufacturing, JIT, Supply Chain Management.

- **Barriers in implementation of TQM:**

Tey et al., (2014) have identified lack of knowledgeable personnel, low bid mindset, lack of effective communication, extra cost and time consuming, lack of top management support, difficulties in measurement, level of implementation of TQM as a key barrier in the implementation of TQM in Malaysian construction industries. Alsughayir (2014) has identified various key barriers such as resistance to change, frequent turnover of employees, lack of motivation, lack of understanding of TQM concepts in the implementation of TQM in private medical services organizations in Saudi Arabia.

Talib et al., (2011) identified lack of top-management commitment, high turnover at management level, attitude of employees towards quality, lack of proper training & education, lack of coordination between department, human resource barrier, no benchmarking, poor planning and employee's resistance to change as the barriers affecting the implementation of TQM in service organizations.

- **Barriers in implementation of 5S:**

Mehra et al., (2015) have identified the various barriers such as lack of top management commitment, financial constraints, lack of awareness of 5S, lack of strategic planning of 5S, lack of employee commitment, resistance to change and adoption, lack of cooperation/teamwork, lack of education and training, lack of motivation, inability to change organizational culture, non-clarity of organization policy and 5S program, lack of communication, no proper vision and mission, lack of leadership, conflict with other quality management system.

Becker (2001) has discussed that management need to shorten communication lines in order to implement the 5S methodology more successfully.

- **Barriers in implementation of TPM**

Poduval et al., (2013) identified various barriers to TPM implementation such as lack of top management commitment, organization resistance to change, unwillingness to commit resources, non-involvement of non-management staff, work culture, lack of knowledge of TPM, resistance by employees, long term commitment of management and employees, need for training.

Ahuja and Khamba, (2008) have classified the barriers of TPM into various categories namely organizational, cultural, behavioural, technological, operational, financial and departmental barriers.

- **Barriers in implementation of SCM**

Luthra et al., (2011) have identified various barriers in the implementation of SCM such as lack of organization encouragement; poor quality of human resources; market competition and uncertainty; lack of government support system; lack of top management commitment; cost implications; supplier reluctance to change and unawareness of customers. Harland et al., (2007) discussed that main barriers towards the supply chain information integration among SMEs are lack of strategic alignment of information technology, lack of awareness of potential benefits of supply chain technology and lack of motivation.

Walker et al., (2008) discussed that there exists two categories of barrier in the implementation of environmental supply chain management practices.

These two categories include internal and external barriers. Internal barriers contain cost and lack of legitimacy, whereas external barriers embrace regulation, poor supplier commitment and industry specific barriers. Riasi (2015) highlighted that lack of investment, lack of technology for scheduling, tariff barriers, lack of scientific collaboration between trading partners, insufficient integration of supply chain management technologies are the main hurdles in the international supply chain management in Iranian flower industry.

- **Barriers in implementation of lean manufacturing**

de Souza and Pidd (2011) identify various barriers such as perception of Lean, terminology, personal and professional skill, organizational momentum, professional and functional silos, hierarchy and management roles, data collection and performance measurement, resistance to change in lean health care implementation. Thomas et al. (2009) identified key barriers namely lack of intellectual and financial capabilities, complex implementation, and cost of reconfiguration machine to implement lean initiatives.

Sahwan et al., (2012) highlighted lack of skilled people, lack of awareness, company culture, costly consultancies, training program, lack of understanding, lack of effective measurement criteria, employee resistance and lack of resources as the main obstacles in the implementation of lean manufacturing in Malaysian automotive industries.

- **Barriers in implementation of JIT**

Shrivastava and Sridhar (2012) have characterized the barriers of JIT into different categories such as cultural barriers, employee's involvement & commitment barriers, quality related barriers, plant & equipment layout related barriers, process/production system related barriers and inventory management related barriers.

Jadhav et al., (2015) recognized lack of top management commitment and support, lack of training and education, financial constraints, employees' resistance, poor facility planning & layout, organizational cultural difference, poor sales forecasting as the key barriers to JIT production.

3. IDENTIFICATION OF BARRIERS IN WCM PRACTICES

On analyzing the different manufacturing practices like SCM, 5S, TPM, TQM, JIT and lean manufacturing, it has been found that there exists a common category of barriers in all the world class manufacturing practices. These barriers are as follows:

- **Lack of knowledge:** Lack of knowledge about the world class manufacturing practices also ruins the organizations efforts. The top management should arrange proper training on the concepts, reasons of implementing the program.
- **Lack of top management support:** The successful implementation of any management program depends upon the commitment and support from the top management. Top management of the organization should develop plan, policies, and procedure for implementing the desired program.
- **Employee resistance to change:** Employee support is very necessary for successfully implementing the newly quality management program. Without their continuous and heartily support, a program cannot be successfully implemented.
- **Lack of education and training:** Employee working in the organization should have adequate knowledge about the program to be implemented. For this, top management of the organization should conduct proper education & training programs for the employees.
- **Lack of strategic planning:** Top management of the organization should develop proper strategic plan for implementing the new program. Lack of proper planning may result into failure of the program to be implemented.
- **Lack of employee motivation:** Employee motivation is a critical factor in the effective implementation of any management practices. It enables the employees to effectively participate in the implementation program. Absence of motivation may lead to the failure of the implementation program.
- **Non clarity of the organizational objective:** Top management of the organization should properly communicate the objectives for implementing the new program. If employees do not know the objective of program implementation, then they will not participate heartily in the implementation program.
- **Financial constraints:** The organization must adequate financial resources. Financial resources are required to conduct training programs and to provide the required resources.

- **Poor organizational culture:** The prevailing culture of the organization has a great impact on the implementation of any new management program. Organizational culture should be supportive for implementing a new concept.
- **Poor performance measurement techniques:** Organizations need to measure the effectiveness of implemented program with the help of appropriate measurement approaches. If organization does measure their performance, then they will not be able to improve their weak links.

4. CONCLUSION

This paper tries to enumerate the main barriers in the implementation of world class manufacturing practices through the extensive literature analysis. This work has identified ten significant barriers. The top management of the organization should develop proper strategies to effectively tackle them otherwise they may lead to the failure of the implementation program. These barriers are general to any type of manufacturing organization; however these barriers may differ from organization to organization and their intensity may vary. The top management needs to identify the barriers existing in their organizations. The present study is only limited to the identification of barriers of world class manufacturing practices. In future, these barriers may be validated by using the nation-wide questionnaire based survey and moreover, these barriers may be analyzed by the various multi-criteria decision making approaches.

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