

# PERTINENT ISSUES CONCERNING THE EFFECTIVE IMPLEMENTATION OF JUST IN TIME TECHNIQUE IN VARIOUS INDUSTRIES

Diksha Kamboj<sup>1</sup>, Dr. P.C. Tewari<sup>2</sup>

<sup>1</sup>M.Tech. Scholar, Mechanical Engineering, National Institute of Kurukshetra, (India)

<sup>2</sup>Professor, Mechanical Engineering, National Institute of Kurukshetra, (India)

## ABSTRACT

Most of the successful companies develop and implement various strategies that give them competitive advantage over others. A company that improves performance on a regular and continuous basis certainly will gain the competitive edge over others. JIT is one of such techniques but implementation of this technique is very complex in nature. This paper deals with the pertinent issues concerning the effective Implementation of JIT technique in various Industries. It has been observed that applying JIT technique, step by step helps in solving the problems in its implementation and achieving its potential benefits.

**Keywords:** Enterprise Resource Planning, Global Competition, JIT Implementation, Manufacturing Sector, Material Resource Planning

## I. INTRODUCTION

JIT is a production management philosophy. JIT is not a set of techniques but it is an inventory management approach which mainly leads to the continuous improvement in quality, reducing excessive inventory, eliminating wastes of all types. JIT means to produce right quantity and right quality of parts at right time and right place. JIT is a Japanese management philosophy which has been applied in practice since the early 1970s in many Japanese manufacturing organizations. It was firstly developed and perfected within the Toyota manufacturing plants by Taiichi Ohno as a means of meeting consumer demands with minimum delays. In 1954 Japanese Giant Toyota implemented this concept in order to reduce the wasteful overstocking in car production. According to Voss, JIT is viewed as a "Production methodology which aims to improve overall productivity through elimination of waste and which leads to improved quality." In the JIT techniques, day-to-day operations are carried out by meeting the demands of customers.

JIT is a management philosophy that mainly aims at producing product at right time. JIT strengthen the competitiveness of organization in the global market, if properly adopted. JIT philosophy guides the JIT environment and provides a base for the implementation of JIT. Through implementation of JIT philosophy all types of wastes can be reduced. Waste is anything that doesn't add value to the product. By eliminating all type

of wastes and improving the quality of product, organization can gain a competitive advantage over others in market.

JIT system consists of several key elements which all contributed together to achieve JIT goals.

These elements essentially include the human resources and the production, purchasing, manufacturing, planning and organizing function of an organization. Thus primary aim of JIT is to get zero inventory and this can be achieved by questioning each and every aspect of stock at raw materials stores and in-process buffers etc.

## II. LITERATURE SURVEY

**Pheng et al. [2011]** showcased that how Just in Time (JIT) was not only related to the manufacturing industry. This study identified the various applications of the JIT principles for a building project. The study also revealed the role of top management commitment for implementation of the JIT system as well as some of the obstacles which were essential because of the various hurdles of the construction industry such as the multidisciplinary nature of practices and complexity of projects.

**Raman et al. [2012]** described that Just In Time was firstly used by the Toyota Motor Company of Japan and for fully implementation of system, it took them 20 years. It was assumed to be very effective means of reducing the wastage of resources and to keep it as minimum as possible. It was an important philosophy to control the flow of materials within a company. It helps to improve the manufacturing efficiency by eliminating various types of wastes.

**Matt et al. [2013]** Lean production methods and instruments are not equally applicable to large and small companies. After the implementation in large enterprises belonging to the automotive sector the concept of lean thinking was introduced successfully in medium sized enterprises. Small enterprises have been ignored for a long time and special investigations about this topic are rarely.

**Akbar et al. [2013]** used Just in Time (JIT) production system to identify the hidden problems in the value chain and by using that reduced the production waste of the system. JIT system requires lot of coordination with supply chain to avoid production schedule delay. This paper discusses how JIT manufacturing can be implemented. The objective was to acquaint the reader with the overall JIT concept and the factors necessary for its implementation; the concepts represent the ideal principles and methods of implementation.

**Wen et al. [2014]** proposed a solution model based on discrete-event simulation, sequential bifurcation (SB) and response surface methodology (RSM) to represent a multi-response optimization problem developed in an auto parts supply chain. The main objective is to identify the efficient operating setting that would lead to the maximization of the logistics performance after the expansion of the assembly plant's capacity due to growth of market. They adapt the Derringer–Suich's desirability function to find the optimal solution of the metamodels. Computational study shows that the method leads to the greatest improvement in system performance.

**Jadhav et al. [2015]** reported that the reality in modern global competition is 'Survival of the fittest'. Most of the organizations around the globe are adopting or willing to adopt JIT production to deal with the competition in the market. Even though JIT is the most powerful inventory management methodologies it is not free from barriers. Barriers derail the implementation of JIT production system. One of the most significant tasks of top management is to identify and understand the relationship between the barriers to JIT production for alleviating

its bad effects. This paper aimed at studying the barriers hampering the implementation of successful JIT production and analyzing the interactions among the barriers using interpretive structural modelling technique. Twelve barriers had been identified. This paper offered a roadmap for preparing an action plan to tackle the barriers in successful implementation of JIT production.

**Alcaraz et al. [2016]** reported 31 advantages obtained by companies after a successful implementation of JIT. However, this research leads to the reduction of the list by using a data reduction technique and identified those essential benefits that must be pursued. On the one hand, a validation process and descriptive analysis were carried out for every benefit by considering their median values as a measure of central tendency and interquartile range values as a measure of dispersion.

### **III. MAJOR CHANGES IN OPERATIONS RELATED TO IMPLEMENTATION OF JIT TECHNIQUE**

There are various issues related to transformation from a traditional manufacturing system to a JIT manufacturing system. . Firstly, under a traditional system, an idle worker or an idle machine is considered a waste. So, workers are kept busy by letting machines run since JIT emphasizes the idea that nothing will be produced until there is a need from the downstream operation. Consequently, workers have to perform a lot of jobs by running several machines. Such a requirement may contradict various union contracts which state that workers remain strictly within the confined job description.

Secondally, there is a difference between a JIT system and a traditional system(Material Requirement Planning System). MRP is based on push system which involves forecasting inventory requires meeting customer demand. Companies must predict which products customers will purchase along with determining what quantity of goods will be purchased. The company will in turn produce enough products to meet the forecast demand and sell, or push, the goods to the consumer. Disadvantages of the push inventory control system are that forecasts are often inaccurate as sales can be unpredictable and vary from one year to the next. Another problem with push inventory control systems is that if too much product is left in inventory. This increases the company's costs for storing these goods. To deal with these problems, pull system is more effective. Just in Time system begins with a customer's order. With this strategy, companies only make enough products to fulfill customer's orders. One advantage to the system is that there will be no excess of inventory that needs to be stored, thus reducing inventory levels and the cost of carrying and storing goods.

Research indicates various problems in implementing JIT Technique in various industries. Inferior quality, Lack of technology, poor long term relationship with vendor and lack of top management commitment are main problems in implementation of JIT Technique in Manufacturing Industries. These problems indicate that JIT implementation is slightly difficulty, but not impossible. Therefore, certain changes are required for implementing JIT program successfully in various industries.

#### IV. VARIOUS PHASES IN IMPLEMENTING JIT TECHNIQUE

In the present phase of Industrialization, JIT system is not a very new concept. This technique is not limited to any particular country but due to its large potential benefits it has a broad spectrum of applications throughout the world. To face the competition in the market, most of the industries have adopted it and others want to implement it.

There is lot of phases of implementing JIT in various industries. Firstly start with the Top Management in which top management accepts the idea of JIT. Then employees at each level are given proper training of JIT implementation. The third step of JIT implementation includes Enterprise Resource Planning which is a system that integrates all data of an organization into a single system. Next step involves implementation of JIT and after its implementation, last step is testing and control for successful existence and developing of JIT system.

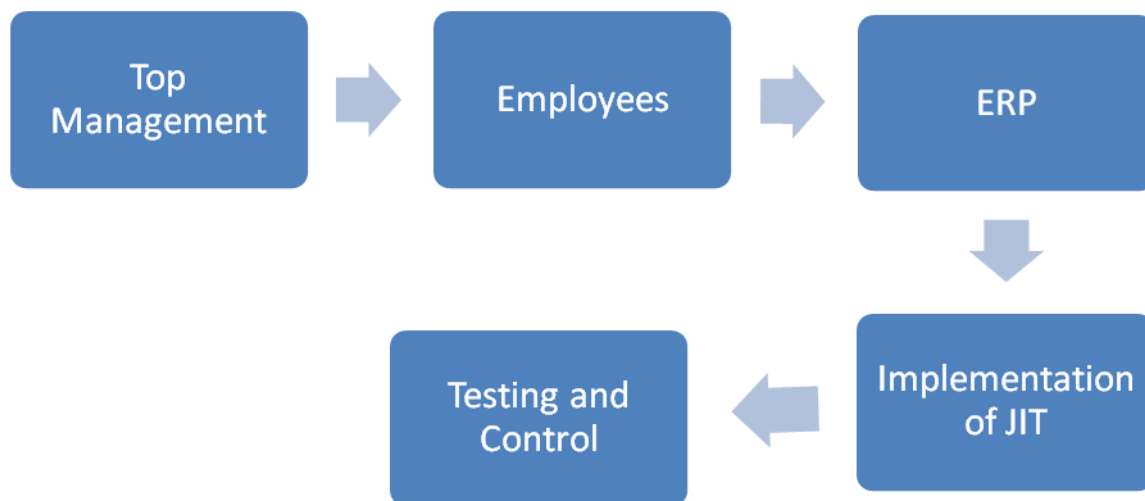


Fig.1 Various Steps in JIT Implementation

#### V. PERTINENT ISSUES CONCERNING JIT IMPLEMENTATION

JIT implementation in manufacturing sector provides new productivity ethics for successful implementation of JIT that also help them to face the competition globally and also to strengthen economy of our country. But apart from all this, various issues like social, cultural and political issues have high impact on JIT practices. Due to complex nature of JIT implementation, it is important to focus the system on a well-defined area by delimiting the domain of application appropriately.



**Fig.2 Causes of Slow Implementation of JIT Technique in Manufacturing Sector**

## VI. CONCLUSIONS

The survey done in various industries shows that every industry needs one or the other technique to deal with the competition in the market. The conclusion that can be drawn from the survey done is every industry needs technique for surviving in the growing global competitive environment. JIT is one of such techniques. However, due to some pertinent issues, implementation of JIT technique is not so easy. Many changes are needed in a firm to overcome these issues for successfully implementing JIT.

Generally, various industries don't make initiation to implement JIT technique due to various reasons such as commitment from employee, management, space, time, technology and money. Transforming from a non JIT organization to a JIT organization may require great changes and commitment from all the departments and employees. But these shortcomings can be converted into a big competitive advantage in the form of improvements in productivity, cost savings, better product quality reduction in lead time and customer delight over a period of time. So, industries should execute it step by step to experience less difficulty in its implementation.

## VII. FUTURE SCOPE

Present work is exploratory in nature. This paper deals with the pertinent issues concerning the effective implementation of JIT technique in manufacturing sector. However there is wide scope for its implementation in service sector as well for e.g. Banking, Hospitality, Healthcare and Educational Institutes etc. Once the pertinent issues for JIT implementation are resolved then JIT technique can be successfully implemented in any organization concerned.

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