

A Review on JIT System Implementation in Current Market Scenario

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Abstract— JIT is not just a philosophy but an actual process. The core JIT philosophy is to achieve the performance of activities based on immediate need or demand. JIT can be applied not just in the manufacturing area, but it also can be broadly used as a process that is designed to assist companies in operating cost, reduce their energy usage, processing times and material. In fact, JIT have now become popular in many industries such as hospitals, education, banks, trade, information technology and many others. In this paper a study on impact of JIT for current market scenario is studied.

Keywords— JIT, Eliminating waste, organization, Set-up time reduction.

I. INTRODUCTION

The concept of Just-in-Time (JIT) was pioneered by Toyota in the 1950's and since then has been expanded and modified by companies all over the world. Originally, managers viewed JIT as an inventory reduction technique. This narrow focus centered on small batches of product delivered just in time for downstream consumption. In today's progressive organizations the meaning of JIT embodies a wide variety of concepts and principles.

Just-in-time philosophy promoted a change in the market conditions going from large orders of the same product to small orders of a variety of products. Furthermore, productivity, agility, and customization are the main necessities driven by market conditions. These changes in market scenario turned product life cycles shorter [1] and changed the paradigms for automation, moving from high volumes to small volumes with variety [2]. Due to these changes, the logistics market has been impacted by the increase of e-commerce and mass customization as well as the need for reduction time-to-market to maintain competitiveness. Just-in-time philosophy, mass customization, e-commerce, and omni-channel distributions influence the supply chain causing the need to automate logistics processes and to achieve an improvement in performance in a shorter period of time [3, 4].

Most of manufacturing and management systems are not aware about the methodology and benefits of JIT and even not

confident about the successful implementation of these advance production methodology. The motive of this part is to draft out the challenges in automobiles service station and barriers in advancing the Indian automobile service station, barriers in implementation of JIT. There are still problems with the quality of the products, services and market environment [5].

Some of the problems identified are discussed as below:

- Lack of service management
- Failure of knowledge management system
- How to manage Workers
- Systems of total quality management

This study focuses on identifying the application and benefits of JIT in warehouse management system.

II. JUST IN TIME (JIT)

JIT is defined as it is a system of inventory management, used to manage the stock that is kept in storage. JIT can be considered as manufacturing techniques that produce and deliver part or Product in just amount needed. To achieve JIT conditions, three elements listed [6]. The JIT methodology includes a set of tools for the continuous analysis of the production process, such as kaizen, the pull system, etc. Through JIT application, the intention is to move from the idea to practice as quickly as possible, as shown in Fig. 1.

These elements are

- Continuous flow,
- Take time production, and
- Pull system.

Just-in-time - JIT has been the name commonly used to describe a manufacturing system where necessary parts to complete finished products are produced or delivered at the assembly site as needed. The term JIT has gradually developed from a specific practice to be implemented on the factory and with suppliers to a philosophy of management that is aimed at continuous improvement in productivity through the continuous reduction of waste and reduction of inventories [7].

This system has potential to compete in the present scenario of rapid development and growth of industrialization. JIT production methods are now widely practiced in many industries.

A. Concept formation of JIT

The concepts are that the company produces only what is needed, when it is needed and in the quantity that is needed. JIT concept is built based on the concept of pull production which eliminates the total inventory. As JIT has been spread globally, the word JIT have been interpreted in various definitions as it being introduced outside Japan. JIT derives various inventory levels for optimum materials requirements and maximizes long-term efficiency by focusing upon inventory management in the short-run. Implementation of JIT concerns the company's production function from two unique [8].

B. Perspectives of JIT

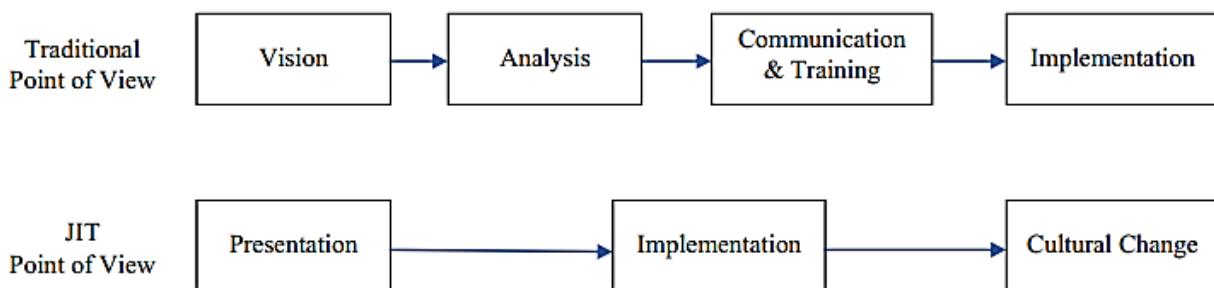


Fig. 1. Traditional versus JIT point of view

III. PROBLEM IN IMPLEMENTATION OF JIT

Indian labor is usually uneducated, lacking in motivation and more concerned with monetary benefits and job security than career progress and development of their potential. Labor unions and their reluctances are also unfavorable for implementing the JIT. Therefore, specific cultural changes are required for successfully implementing the JIT. On this issue some researchers opined that Japanese training models are not very successful in India. Therefore, some specific designed training programs should be organized for Indian workforce after studying their behavior pattern, personal traits, attitudes and social values [9].

Role of right product with value added service: The “right product” means that a customer gets a product not only that conforms to specifications but also on the associated value-added services as well as the processes that produce these services. This could be translated into an integration of the organizational structure in the process of producing value-added services for a customer.

In the right quantities at the right times means that customers get exactly what they want or need at the exact time they want or need it. Right-time is based not when the transactions are entered but when they go through the final process to produce right-time decision support.

It provides a method for deriving optimum materials requirements and inventory levels in production process. It maximizes long term benefits by accepting short term dis-economies.

- Related timing to delivery,
- Schedule changes,
- Design changes,
- Customer needs,
- Simultaneous efforts.

It involves specialized technologies and expertise, and facilitates simultaneous achievement of objectives within a limited timescale. Thus, timing appeared to be a critical component of customer service. To capture the timing dimension, timely supply chain data should be available for making decisions to achieve two significant objectives: improve customer service and improve operating efficiencies.

Precise quality and timing are derived from customer demand. These aspects also include suppliers to take the right decisions about inventory replenishments and information sharing about product flow. Precise quality and timing are related to on-time delivery including diminishing inventory at the every point of supply chain.

JIT promotes conditions necessary to manufacture high-quality products to meet customer demand with reduction of inventory and high level of productivity. It improves customer service changing the circumstances that cause a waste to exist. As a manufacturer produces and delivers items at the rate required by the customer at the precise time required, a customer is no longer dissatisfied by the defects of waste time, money and inventory. According to this aspect we could consider JIT a time-compression and customer-oriented strategy. It allows a multinational company to compete on waste elimination by taking time and inventory out of the entire system and deliver appropriate products with a fixed time frame as customers' need arises [10].

Thus, producing value-added services which implies continuous supply chain improvements with a goal to satisfy customer needs. If consider JIT distribution with customers, the relationship between JIT with customers and each of the organizational structure should be looked upon both internally

and across boundaries. The coordination and integration of the company's structure as a single entity as well as recognizing the service level requirements of final customers are of vital importance for successful development and integration of JIT with customers.

Customer Satisfaction: Satisfaction is the consumer's fulfillment response. It is a pleasurable level of consumption-related fulfillment, including levels of under-or over fulfillment. "The consumer's response to the evaluation of the perceived discrepancy between prior expectations and the actual performance of the product as perceived after this consumption". An evaluation that the chosen alternative is consistent with prior belief's with respect to that alternative. The buyer's cognitive state of being adequately or inadequately rewarded for the sacrifices he has undergone.

Customer Service: Customer Service is a valuable action or effort performed to satisfy a need or fulfill a demand. Customer service is the act of taking care of the customer's needs by providing and delivering professional, helpful, high quality service and assistance, before, during and after the customers' requirements are met. Customer service is meeting the needs and desires of any customer.

Customer Service: Customer service is defined as an organization's ability to meet the needs and desires of its customers. Customer service begins before a customer arrives and ends long after the customer leaves your enterprise.

Quality: Quality is the features of a product that will meet customer's satisfaction. For example, products must be reliable, useable, and repairable. Similarly, service should be courteous, efficient, and effective. Quality is those characteristics of a product or service that will meet customer's needs and wants.

Quality of Customer Service: "Quality of customer service is the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs".

Customer satisfaction will depend on product and service quality. Quality has been defined by various experts as

- fitness for use
- conformance to requirements
- Freedom from variation.

Customer Service Development: Good customer services, and its continuous development, are necessary to build a successful business. Marketing to the possible new customers is a very significant factor in expanding the business and its customer segments but companies should remember that the old and satisfied customers are important assets for their business and its success.

IV. MEASUREMENT OF JIT PERFORMANCE

JIT performance can be measured by inventory turnover, cycle time, lead time, delivery performance, and other measures there are some variables to measure JIT performance are:

- The size of reduction of inventory due to JIT;

- The level of reduction of rejects of finished goods due to JIT;
- The degree of improvement in on-time receipts from suppliers due to JIT;
- The extent of lead time reduction due to JIT,

The level of improvement of relationship with suppliers due to JIT.

V. FEATURES OF JIT BASED SERVICE SYSTEM WORKSHOP

1. Less space needed: With a faster turnaround of stock, it will not need as much warehouse or storage space to store goods. This reduces the amount of storage an organization needs to rent or buy, freeing up funds for other parts of the business.
2. Waste reduction: A faster turnaround of stock prevents goods becoming damaged or obsolete while sitting in storage, reducing waste. This again saves money by preventing investment in unnecessary stock, and reducing the need to replace old stock.
3. Smaller investments: JIT inventory management is ideal for smaller companies that don't have the funds available to purchase huge amounts of stock at once. Ordering stock as and when it's needed helps to maintain a healthy cash flow.

VI. CONCLUSION

This paper explores that JIT (Just- in-time) System is used as a process in order to achieve high performance level. A JIT System is an inventory management philosophy aimed at reducing waste and redundant inventory by delivering products, components, or materials just when an organization needs them. This study will provide the concept, to get familiar of advance production techniques (JIT) even in micro and small scales industries. It has uncovered the major and minor barriers in implementation process of JIT based service in an automobile workshop.

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