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Just-in-Time: A Study

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ABSTRACT: The hidden problem in the whole value stream is decreases by the application of Just-in-time system. The waste which is also known as *"Muda"* is also reduces by the Just-in-time system. The just in time production system takes care of all wastes related with the flow. The paper highlights the main features and benefits of implementing JIT system. The concept present in the study deals with the principle and the method of the implementation.

Keywords*:* JIT, Benefits of JIT, Element of JIT.

I. INTRODUCTION

JIT is the integral part of lean manufacturing paradigm. It is the method which incorporates the art of eliminating the wastes which are associated with flow of material in the entire supply chain. By the implementing the JIT system, the most important waste which is reduced is the waste in the form of inventory. The inventory level across the organization gets reduced by the effective implementation of just-in-time system. Effective implementation of this system also helps in controlling the cost associated with various aspects of the production such as process planning, supply chain and quality and delivery.

It is obvious that JIT is having a genesis in the Toyota production system popularly known as TPS and there JIT emphasis totally different work culture and environment. JIT is based on pull based approach which depicts that manufacturing of any product will take place only when customer demands it. The simple mean of JIT system is to providing the product to the customer in right quantity and of right quality and on right time.

II. LITERATURE REVIEW

One of the methods which have long been proven effective in the manufacturing sector in cutting costs, improving quality, productivity, efficiency and decreasing waste is the just in time (JIT) system. JIT is a management approach which originated in Japan in the 1950s. It was subsequently adopted by Toyota and many Japanese manufacturing establishments with considerable success in raising productivity by eliminating waste (Kaneko and Nojiri, 2008). Various researchers studied about the just in time review of empirical studies, the main concept of this paper is to study the key features of JIT system followed by the importance and benefits of the JIT implementation. Kyobe (2004) revealed that JIT arrangements can provide the firm with greater negotiating power to ensure prompt deliveries thereby reducing stock. The management philosophy underlying JIT is to continuously search for ways to make processes more efficient with the ultimate goal of producing goods or services without incurring any waste. First main objective of this study is to provide awareness to the reader about the JIT system. JIT support many other lean tools such as Single minute exchange of dies (SMED), Kanban, Cellular manufacturing, Line balancing and many more.

III. BASICS OF JIT

JIT is the Japanese technique which is implemented in the manufacturing system which includes the right product, at the right quality of the right quantity, at the right place at the right time finally on the right prices. JIT has become a very popular subject currently being investigated by many worldwide organizations. Currently, many companies are implementing the JIT approach in the age of competitive environment. In order to remain competitive and experience economic success, companies have focused on increasing productivity, improving the quality their products and improving the overall efficiency. The implementation of JIT system is directly improves the overall productivity of the organizations. The ability to achieve higher productivity without compromising quality is also an important goal of a manufacturing firm. In the long run, implementation of JIT manufacturing paves the way for the companies to achieve above stated objectives coupled with manufacturing excellence.

IV. ELEMENTS OF JIT MANUFACTURING

1. Employee involvement: Involvement of employee in every system is very critical. Having support and coordination from the different department in the company and is quintessential for achieving fundamental success of the JIT manufacturing system.

2. System: Systems which are companies normally used also forms the critical element of JIT system. In any company system refers to the process and the technology used to link plan and coordinates the activities and also the material used for the production. Many systems such as manufacturing resource planning and ERP are now days companies are using. The role of information technology has also increased in the modern just-in-tie systems.

3. Working culture: working culture is also one of the important elements of JIT systems. Positive mindset and favorable work culture leads to successful implementation of JIT systems.

V. BENEFITS OF JIT MANUFACTURING

(i) Reduction in all kind of inventory level: Implementation of Just-in-time system reduces the all kind of inventory level such as work in process inventory, finished product.

(ii) Reduction in the scrap and the rework cost: Just-in-time also reduces the scrap and the rework in the cell of the organization. JIT involves lot of standard operating procedure and due to this companies save a lot by reducing the scrap and rework cost.

(iii) Effective utilization of the resources: Use of JIT system also increases the optimum use of resources such as men, material, machine, money and time.

(iv) Reduction in the paper work: Since the JIT system also provides the simplification of many things and this leads to the minimum use of paper work related with the documentation and several formats are generally combined in to one simple format**.**

Table 1: Characteristics of JIT systems.

Characteristics of the JIT systems		
Employee Involvement stage	**Quality stage**	**Production Flow Stage**
➢ Work force flexibility ➢ Greater participation ➢ Continuous Improvement ➢ Jidoka ➢ Multiskilling employee	➢ Product Design ➢ Process Design ➢ Supplier Quality	➢ SMED ➢ Machine cell ➢ Work cell ➢ Pull system ➢ JIT purchasing

VI. CONCLUSIONS

Just-in-Time has transformed the way manufacturing organizations do the things. Self participation of employees and training is necessary. JIT can be applied in any manufacturing company. It is one of the salient features of the JIT system that it can be applied in any type of industry and size of the organization does not matter. It is not easy for the companies to adopt the JIT system in a one stroke. It is concluded that for a company to adopt JIT system, it should start to implement JIT elements that are easy to implement JIT can be very useful in improving the performance of any company. This provides the direction for future research also.

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