



# A STUDY ON JUST IN TIME PRODUCTION SYSTEM

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## **ABSTRACT:-**

There is a interest of observe implementation of the just in time production system for betterment of the organizations. There are many organizations put their distinct ideas about Just in time in different ways. This concept has been firstly adopted by the TOYOTA Production Plants in 1980's. and due to the tremendous benefits of this concept other organizations starts following this concept. Some of the organization put their idea about just in time production system in order to increase their productivity, minimize the wastage, decrease level of inventories, decrease the cost of warehouse and in that manner their ultimate goal of achieving higher level of profit is satisfied.

## **KEY WORDS:-**

Just in time production, inventory, Productivity.

## **INTRODUCTION:-**

In the world of globalization it is mandatory for all organization to adopt new and proactive manufacturing techniques in order to increase their product quality and manufacturing skills to remain in the competition of the today's world. For that it is mandatory that organizations have to maintain lower level of their work in progress inventory level, reduces the different type of the wastage in order to increase the productivity. For that Just In Time concept is used. Just In Time production is used to control the flow of inventory to and from business in order to minimize the inventory level and to improve the efficiency of the manufacturing processes. And in other way we can say that here goods are only ordered when required for the production.

In this paper we study about the concept of just in time production. And how it will helpful in achieving the competitive advantage.

**OBJECTIVE OF THE STUDY:-**

To learn about the detailed concepts of just in time production and its benefits to organization.

To study about how cost reduction done by eliminating waste, materials, or other resources and how sales and revenue increased.

**LITERATURE REVIEW:-**

1) Chary SN(2000),The primary aim of this study was to create a general model for implementing Just-In-Time production systems, with an emphasis on AMCE and AABGF. According to the survey results, the most compelling reasons for businesses to introduce JIT are cost savings and increased competitiveness, increased customer loyalty, reduced machine downtime, and providing a healthier and safer work environment by reducing inventory.

2) Baldwin (1995) According to him, JIT is a set of integrated hardware- and software-based technologies that, when properly applied, controlled, and evaluated, can improve a company's productivity and effectiveness in producing a product or delivering a service.

3) Zhao and Zammuto and O'Connor (1995). According to them JIT is a complete socio-technical framework in which the approach used determines the degree of technology integrated. JIT employs a family of manufacturing (CAM), flexible manufacturing systems (FMS), manufacturing resource planning (MRP II), automated material handling systems, computer-integrated manufacturing (CIM) systems, optimized production technology (OPT). Although JIT emphasises technical advancement, management's position is critical because JIT systems necessitate constant examination and adjustment.

4) Abdullah Fawaz (2003), In this paper, Lean Manufacturing tools and techniques are used, with an emphasis on steel industry. The use of lean manufacturing equipment and techniques in the process industry, specifically the steel industry as defined by ABS, is discussed in this study. First, a new process industry taxonomy was created with the aim of defining goals for adopting lean tools.. This taxonomy was used to contrast the process industry and characterize it into distinguishable groups according to (a) product characteristics and (b) material flow characteristics. In order to identify opportunities for implementation of lean methods value stream mapping was used as a tool. In particular, At ABS it was used to classify different forms of waste in the company's value stream and try to remove them. All the data for the current state map was gathered on site (at ABS); this included machine cycle times, inventory numbers, setup times, and information flow data such as how often customers placed orders. The map was studied and target areas for improvement were identified to eliminate the waste revealed by the current state map at ABS.

**RESEARCH METHODOLOGY:-**

Research methodology is a way to systematically solve the research problem.

**Source of Data**

Here the main sources of information is secondary data like facts, figures collected from internet which are analysed and summarized here.

**DATA COLLECTION METHOD:-**

Secondary data are used here which are collected from various books, magazines, reports create by research scholar, various website etc.

**INTERPRITATION:-**

There are certain benefits to the company by using JIT at their production place which are as follows.

**Reduction in inventory:-**Inventory safeguards the company against issues such as unforeseen machinery breakdowns, late deliveries, and fluctuating demand, among others. High inventory levels cause issues such as long setup times, quality defects, and equipment downtime, Defects in output planning etc. A significant amount of inventory can be reduced the inaccuracies of demand predictions at different points of production flow. Electronic data interchanges can be used implying other JIT techniques to lesson inventories. A forecast can be generated based on daily basis.

**Quality improvement:-** Just In Time systems offer an organization the means to produce more usable products. The quality of product or service reflects the health of organization and its potential for growth. Quality adds value to the products and is a never-ending process to exceed customer expectations now and in the future.

**Increased productivity:-**Increased efficiency refers to a higher amount of production from a given set of resources. Product cost is reduced as efficiency rises. The ratio of output to input is known as productivity. The outputs may be products or services and the inputs or resources may be land, materials, plant machinery, tools and a human resource.

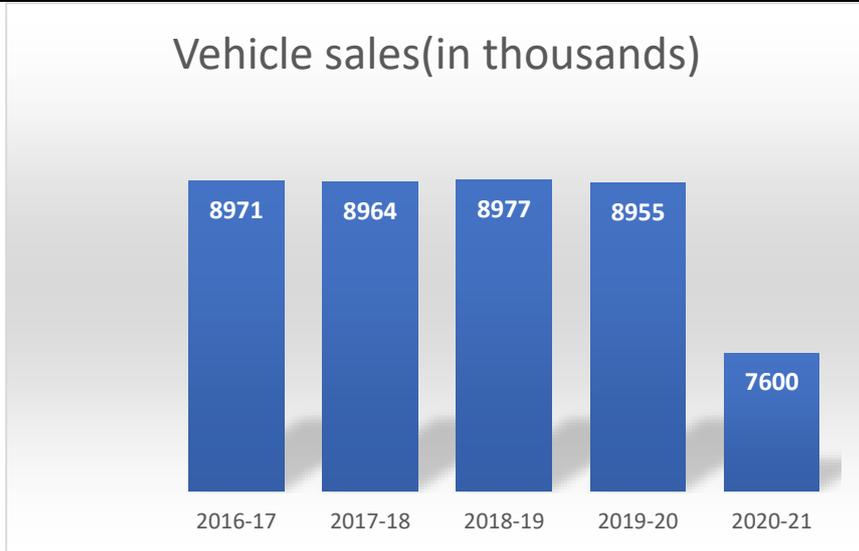
**Increased profit margin:-**Profit is the ultimate measure of the success of an organization. Profit can be improved by rising commodity sales, increasing the value/quality of goods, and lowering manufacturing costs through increased productivity. That all can be achieved by the just in time technique.

So these are the some benefits of the Just In Time technique that can company achieved by implementing in their organization.

Now here to clear the concept of the JIT and how it becomes helpful to the organization we have taken example of TOYOTA Company

1)Vehicle sales:-

Year	Vehicle sales (inthousands)
2016-17	8971
2017-18	8964
2018-19	8977
2019-20	8955
2020-21*	7600

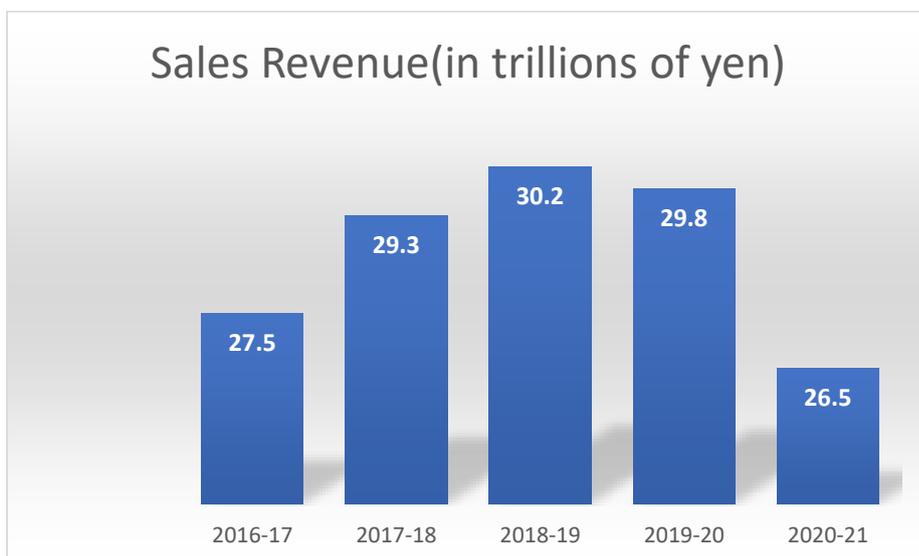


**Interpretation:**

By using JIT at their Toyota can handle their inventory in well manner in their manufacturing plant, so there warehouse cost has decreased lowering warehouse and that allowing them to concentrate on the quality of their goods. As a result, their customers are satisfied with their product and sales of the product are increasing day by day that we can see in the graph. And the sales in the year 2018-19 was highest. Here COVID-19 situation is the only reason for decreasing in the level of car sold in the year 2020-21.

**2) Sales Revenue:-**

Year	Sales Revenue(in trillions of yen)
2016-17	27.5
2017-18	29.3
2018-19	30.2
2019-20	29.8
2020-21*	26.5

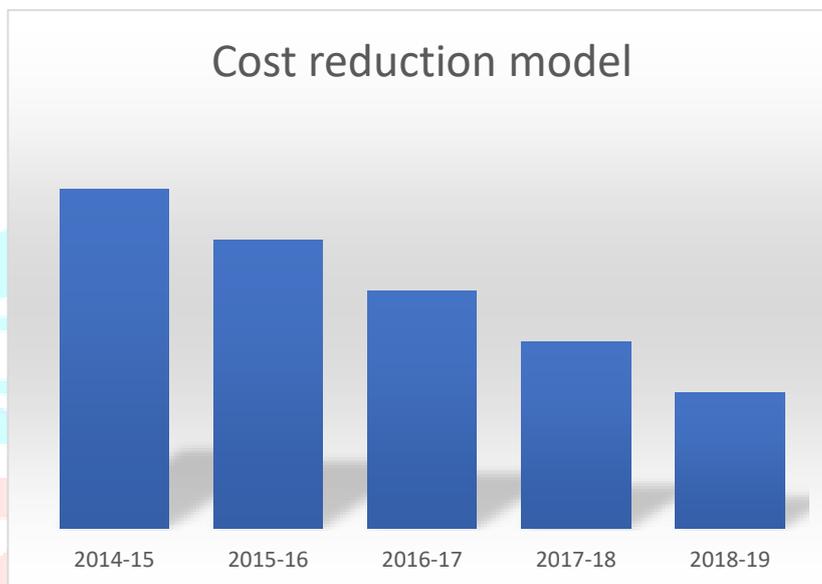


Interpretation:

The sales revenue means the income received by the company from its sales of goods or the provision of the service. By using JIT at their plant Toyota can reduce their inventory storage cost, they can minimize the different type of wastage, work in progress inventory also reduced. So by in this manner they can earn more profit from selling and the amount of their sales revenue is increased day by day. And we can see that it was highest in the year 2018-19.

And again there is reduction in the sales revenue due to pandemic condition because as there is less amount car sales during this year.

## 3) Cost Reduction:-

Interpretation:-

Here graph shows the production cost reduction model for the Toyota company. And which shows the cost reduction has been done due to advantages of the JIT technique. And they are trying to reduce the cost day by day by applying various technique and getting competitive advantage against this competitive market.

## CONCLUSION:-

The main goal of this study is to assist the company in implementing initiatives like the JIT production system to become more cost-effective in today's global market. From this study analysis, as a conclusion we can say that if a company doing a project and applying JIT principles completely, there is a big opportunity that the company can obtain the maximal of the system. From the theory context, it can be conclude that the parallel association between Toyota's JIT strategy and others is due to the fact that both are based on the manufacturing philosophy. And based on this research, we would suggest that if you want to get the most out of this method, incorporating JIT into the process can give you a strong guarantee of project success.

**LIMITATION OF THE STUDY:**

The study is purely based on secondary data. Hence the data collected from company website may be biased. As it is the secondary data based study. there is limited access to the data.

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