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Just In Time (JIT) system in Supply Chain Management and Toyota production

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ABSTRACT

The theme of this paper is to justify the effectiveness of Just in time system in supply chain management and how the company can benefit from this strategy for its supply chain operations. The automobile company Toyota tried to understand the limitations and drawbacks of Henry's just in time system with more focus given on the company employees. The effectiveness and success of this inventory management system are influenced by the companies which have implemented this strategy in their supply chain operations. HP has proved to be one of the leading companies which have benefitted a lot from the Just in time strategy by sticking to its employee-based objectives. The research paper has given us an insight about the effective uses of this strategy and we have studied about a lot of companies which have really benefitted from Just in Time system and conclude that to manage your supply chain operations a company must consider just in time in their future operations.

Keywords— Retain, Dynamic, Effective, Supply Chain

1. RESEARCH OBJECTIVES

- To study and understand the basic idea behind applying just in time system for managing the basic inventory in supply chain of the company.
- To evaluate and understand how the automobile manufacturing company –Toyota, benefitted from JIT.

2. LITERATURE SURVEY

Just-in-time manufacturing system is one of the exceptionally effective Japanese management technique which has been adopted and implemented by various companies across the globe. The basic concept behind this strategy is that a company should be delivering low cost on their products along with higher quality of the product to maintain efficient a required market share.

3. INTRODUCTION TO JUST IN TIME

Just in Time system has got a long history attached to it, about a century ago it was Henry Ford who first discovered this kind of strategy for managing the supply chain, what Henry did was he tried to connect all the parts of an manufacturing system for this strategy. Although Henry's strategy was not appropriate for that time and unfortunately it was not met with what was expected, after few years, the automobile company Toyota tried to understand the limitations and drawbacks of Henry's just in time system with more focus given on the company employees. The reintroduced method of JIT was so successful that Mr. Taichi was named the godfather of JIT system. This is the reason why the Japanese companies were keener to create and adopt just in time in their supply chain operations.

Furthermore, Richard J. states that the true definition of the concept of just-in-time is that the production of one unit of a product to be transferred for just in time is a subsequent process and must go on. The purpose of JIT is to produce a unit in such a way that there is only one unit of work in process and a minimum stock of finished goods in inventories.

The Just-In-Time (JIT) supply chain system is a type of management strategy that directly influences the supplier's raw material orders with the production cycle. Companies use the Just in time strategy to enhance the effectiveness and reduce losses by receiving goods only during the production to ensure minimal losses, thereby reducing the cost of the inventory.

The JIT inventory system manages the material in moving from a specific location at the required time phase, which means before the material is even required in the manufacturing unit, Just in time manages that requirement so there is neither shortage of goods nor waste of goods due to excess inventory in the warehouses. JIT controls the inventory that brings materials back in the desired

order whether it be warehouses or the production unit or the customers, which eventually reduces the need of the companies to store excess stock in the warehouse. This ensure in systematic manufacturing and stocks control which helps in reducing inventory throughout the supply chain operations, so it has proved to be a cost-effective approach for the supply chain operations.

4. EVALUATING THE EFFECTIVENESS OF JIT

The effectiveness and success of this inventory management system is influenced by the companies which have implemented this strategy in their supply chain operations. Moreover, the first effective model of JIT system and components was developed by Henry Ford, but it mainly emphasised on the managerial support for implementing this system in their operations rather than the operational components of the supply chain.

In order for success and greater effectiveness of this strategy quality and quantity plays very important roles. Most of the Companies utilizes quality check techniques to work directly with the distributors to assure “no defect” and promote major emphasis on quality and the quantity. The members are usually asked to choose whether or not they will be able to maintain true team player spirit. If they cannot not, they should be replaced by someone who is recognised as player with high team spirit.

This way everyone will participate in coordinating meeting agenda and problems solving. Furthermore, the proper understanding of the concepts of this strategy like how to effectively adapt this strategy helps the companies in a much better supply chain operations. Through proper understanding in the employees a vendor entry into the system can be facilitated.

The last factor for evaluating the effectiveness of just in time systems is effective communication. Right from the beginning, there should be an emphasis on open and cyclic communication between all units involved in the implementation of just in time. It is said that faster and continuous communication between the vendor and company’s buyer reduces defects or loss and enhances material inflow.

4.1 Impact of implementation JIT on Supply Chain

Basically if a supply chain faces any kind of hindrances in its operations it is most likely to break down during its operations which becomes very tedious task for the companies to rectify and put things back in place, the just-in-time system helps in avoiding such break downs of supply chains. In the case study based on HP Software’s, HP had decided to implement the JIT strategy in one of their electronic line. While the idea was different, asking one person for changing efforts is a common technique at HP .Hewlett-Packard is a company which is competing against a very dynamic market currently, the employees of HP know this very well that they need to continually increase the operations of their supply chain to remain in the market.

HP has proved to be one of the leading companies which has benefitted a lot from the Just in time strategy by sticking to its employee based objectives. When the company started seeing major improvements in productivity line, no one was laid off because of drastic changes due to the just in time strategy. There were some changes made in the techniques by the company which later improved the supply chain operations. Just in time has got its own advantages and disadvantages, it is on the company how it implements this strategy and benefits from it more effectively.

In a unit-processing area, workers have the benefit of knowing what they have to do every day. After looking at all the work-in-progress sitting around idle indicates that there is work to be done in the batch.

4.2 Toyota Production System – JIT

The most effective strategy and Japanese automobile company The TPS Concept, For Toyota, basically means that whenever some obstacle comes a machine should come to s stage of safe stop. First, the engineers build a new line component of automobile by hand to meet the standards, then, through information acquired, steadily simplify the supply chain operations. Through the repetition of these processes, the machinery becomes easier to handle and most importantly less expensive, the maintenance of such automobiles becomes less time consuming and less costly, which eventually helped Toyota to create such an environment which can adapt to the dynamic changes much more effectively. The work done by human hands in this process is the backbone of the engineering skill of the company. Machines do not think for themselves or adapt on their own. Advancing machines in this way helps to create both our manufacturing competitiveness and human resource development.

The Toyota Production System, which is based on the philosophy of the complete elimination of all waste in pursuit of the most efficient methods, has roots tracing back to Mr. Toyod’s automatic loom. Waste can manifest as excess inventory, and defective products, among other instances. All such "waste" elements interfere with each other to create more and more waste, eventually it impacts the management itself. This automatic loop was invented by Mr. Toyod and not only helped the work that used to be performed manually before, but it also built the capability to make judgments into the machines itself.

The reason behind the Toyota’s rapid industrial growth is the effective use of the Toyota production strategy which not only helped the company in its rapid growth but also managed wasteful practices of the inventory which earlier was not managed in a effective way. After looking at the growth of Toyota through this strategy more and more companies started adopting Just in time I their supply chain operations. This was also known as the Toyota way.

5. CONCLUSION

After researching in depth about the Just in time strategy we have concluded that this strategy drastically enhances the companies supply chain operations, management of inventory of the company is most effectively done by Just in time system, JIT also has some of the importance on the economic conditions of the company has it helps in reducing the costs of the goods and ensuring

that there is minimal waste in inventory storage. The research paper has given us an insight about the effective uses of this strategy and we have studied about a lot of companies which have really benefitted from Just in Time system and conclude that to manage your supply chain operations a company must consider Just in time in their future operations It not only helps in inventory management but also maintains the market competitiveness of the company hich is very essential in today dynamic environment.

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