

JUST IN TIME:THE MAIN METHOD OF INVENTORY MANAGEMENT

M.KUMARAN A

SSISANT PROFESSOR CUM LIAISON OFFICER

Abstract: Management is the important term of industrialization. The new technology has changed human life in a very drastic way. It makes human very easy and comfortable. Due to the invention of science and technology, new concept of business arose. The entrepreneurship became the soul of global era. Entrepreneurs needs to manage various skills and task at workplace with the adjustment of capital investment. Working capital is the part of regular management of capital. It is short term management but its impact on the industries are of long term. Because the role of inventory management plays a vital role in variable capital investment. Japanese are known for their hard work and new technical invention at universal level. In industrial sector they have given the major concept and term of inventory management i.e. Just-in-Time(JIT). Current research work is an attempt to focus on inventory management method Just-in-time and its role in industrialized, global and technical age.

Key Words: Management, industrial, raw material, inventory, just-in-time etc.

.....
Introduction: Business is one of the top three prior earning sources. Industrialization opened many ways of an employment due to it. There are many factors which affect to business sectors. Out of which the proper planning of inventory management plays a vital role in the running and developing business. Capital investment which is required for running a business is the part of variable capital of the business. The inventory management is depend on the market survey. There are many methods of inventory

management. Major five are explained in the below image:

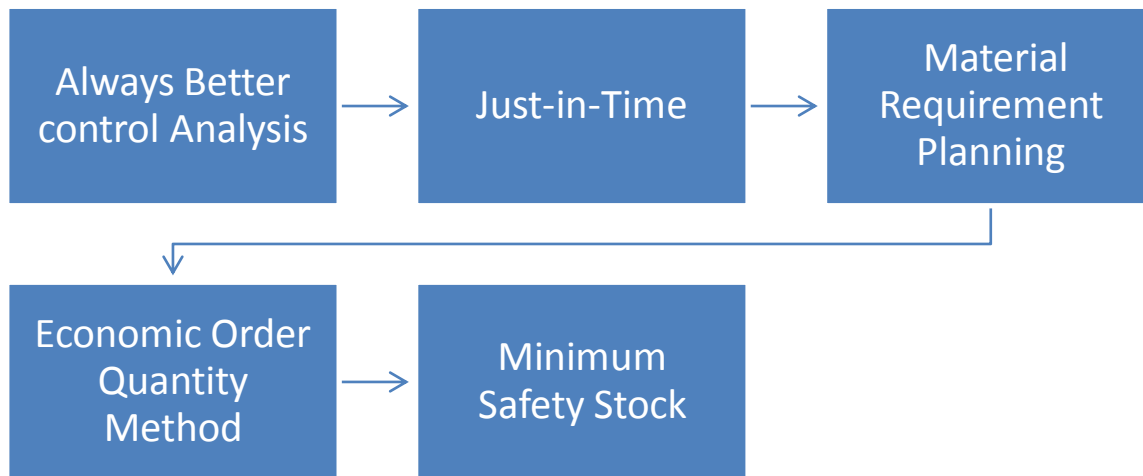


Image 1.1 Inventory Management Methods

Image 1.1 is the image of five major techniques of Inventory management study as Always Better control Analysis (ABC), Just-in-Time (JIT), Material Requirement Planning (MRP), Economic Order Quantity Method (EOQ) and Minimum Safety Stock (MSS).

Literature Review:

- a. **Ahuja et al. (2004):** This group have explained their views on management with modern tram of management approach as there are drastic changes in management approach, techniques used in production and process, expectations of customer, attitudes of supplier, as well as competitive behaviour.
- b. **Basu, (2001) George (2002):** The study Basu and George has proved that **the** global marketplace has witnessed that an increased pressure from customers and competitors in manufacturing as well as service sector.
- c. **Fullerton and McWatters, (2002):** Adoption of world-class, lean and integrated manufacturing strategies such as JIT system leads to improvement of manufacturing performance.

- d. **Gomes et al., (2004):**The changes in the present competitive business environment are characterised by profound competition on the supply side and heightened fickle in customer requirements on the demand side.
- e. **Miyake and Enkawa, (1999):**This study has shown that the extremely dynamic and rapidly changing modern era, the global competition among organisations has led to advanced opportunities from the industrial institutes.
- f. **Oke (2004):** His study has proven that the slow and steady improvements in manufacturing operations that do not guarantee the sustained profitability or survival of an organisation in this fast-changing marketplace.
- g. **Yamashina (1995):**stated that the increased global competition in current era, leads the industry to work for the increment of efficiency by means of economies of scale. Even it will help for the development of internal specialisation which will meet to the market conditions in terms of flexibility, delivery performance and quality.
- h. **NCR (Dundee Scotland):** A producer of make-to-order automated teller machines in 1998 which includes some of the same benefits which focuses on JIT purchasing. In 1998, while switching to JIT over a weekend, removed the barrier of inventories with reducing inventory from 47 days to 5 days, reduced the flow time from 15 days to 2 days, with 60% of purchased parts arriving JIT and 77% going dock to line, and suppliers reduced from 480 to 165.
- i. **Daman Products** in 1999 did a case study and listed the benefits of JIT as: it reduced cycle times 97%, setup times 50%, lead times from 4 to 8 weeks to 5 to 10 days- where the flow distance 90% – achieved via four focused (cellular) factories, pull scheduling, kanban, visual management, and employee empowerment.

Objectives of the Study:

- a. To study the basic terms of inventory management.
- b. To analyse the importance of Just-in-Time for inventory management.
- c. To help industries to select the proper inventory management i.e. Just-in-Time to reduce the wastage of manufacturing process.

Methodology of the Study:

The data is collected from internet through various research papers published by known popular research journals. The survey base paper were mostly selected for the current study. Around 500 papers published during 2010 to 2013 were taken for the review of current research work. Out of these 500 papers, 400 papers were on the study of inventory management methods used by different industries in India and 100 were published on inventory management methods used by different industries of Tamil Nadu.

History of Just-inTime: The term Just-in time is used by Motorola Company. The term Just-in-time used introduced by Japanese. They launch this term due to four main purpose as:



Image 1.2 Negative Impact of Second World War on Japan

As shown in the Image 1.2, there were major four negative impact of Second World War on Japan as:

- a. Lack of Cash.
- b. Lack of Natural Resources
- c. Lack of space to build the factories
- d. High unemployment.

These above four problems Japan faced during the Second World War. Due to it, they were under the problem of survival. Therefore, they built smaller factories in which only those inventories were kept which they need urgent which helped them to overcome the problem of inventory management, space management and financial management. Thus, the term Just-in-Time of inventory born.

Result of the Study:

a. **Need is the Mother of Invention:**

The current study found out the reality of the proverb 'Need is the Mother of Invention.' As given in the image number two, to overcome the major problems of survival that Japanese were facing after Second World War gave opportunity to prove the skills to Japanese. Just-in-Time, the technique of inventory management invented by Japanese to fulfil their need of survival in a very crucial condition after the Second World War.

b. **Just-in-Time covers major Task of an Industry:**

The term Just-in-Time is not only connected with inventory should be purchased when it needs. At initial stage it was introduced with the same purpose. But apart from it, the term JIT covers many important tasks of inventory management. The application of JIT in various activities are useful- how and where they are useful are defined by Sepheri which is given in the below table number 1.1:

Sr. No.	Task	Specification
01	House Keeping	Helpful for physical organization and maintain discipline.
02	Make it right as First Time	It will help to eliminate the defects.
03	Setup reduction	This is used for the flexible changeover operations
04	Balanced Flow	It will helpful for organizing the flow scheduling throughput
05	Skill diversification	It will helpful to manage the HR as multi-functional workers.

Table 1.1 Just-in-Time for Task Completion Process of an organization

As shown in the table 1.1, it is found that above mentioned five are only few important task which can be handled easily with the application of JIT Inventory management Method.

- c. **Alternative Methods of JIT through using JIT Technique:** It is found during the current study that Japanes used it as the Short Cycle Manufacturing method i.e. SCM, CFM and DFC. These were three major alternative terms are used for JIT Manufacturing which are given in below table:

Sr No.	Term	Used by
01	Short Cycle Manufacturing	Motorola
02	Continues Flow Manufacturing/ CFM	IBM
03	Demand Flow Manufacturing/ DFM	John Constanza

Table 1.2 JIT –different Alternate Techniques

The table 1.2, indicates the different alternate methods of JIT and their user. A term DFM is handed down at his Institute of Technology in Colorado from consultant, John Constanza.

d. **JIT Can Help to Manage the Working Capital**

As the term Just in Time method of inventory control is defined as demand of inventory should be placed for those inventory which the company can keep only as it needs during the production process. This will help to save money which may be used for the stock of inventory. It means JIT will save the cost of storage and insurance of the company. When the old stock of inventory is close to replenishment, the company orders next inventory. There is a little risk of emergency inventory management because the delay of manufacturing the product may be due to the same reason. But, capital is the major problem of organization which can be saved by Just in Time method of Inventory management. This capital can be used elsewhere for the welfare of an organization.

e. **JIT Reduces Cost Storages:**

JIT method of inventory management can help to reduce the cost and the cost storage come into two ways as given:

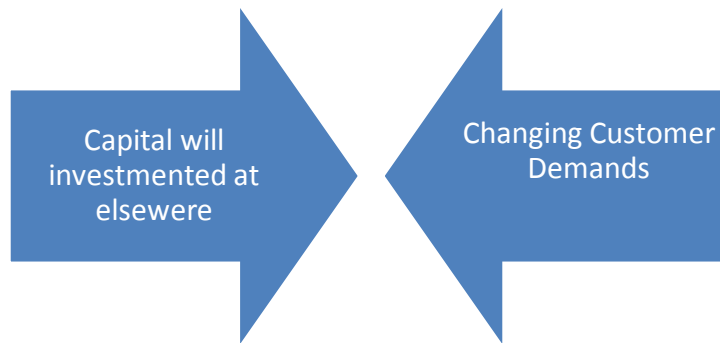


Image 1.3 Two way cost storage by JIT

As shown in image 1.3, there are two ways of cost storage in JIT inventory management. The amount which is used for the stock of inventory can be used elsewhere for the management of organizational welfare remedies. To spend a significant amount of money in order to procure the required for the raw materials, energy, logistic support, people etc. has to pay by the manufacturer. This is to be paid to produce and deliver the goods to the customer. A manufacturer has to change the raw materials for the finished goods which takes time and money, this time is called 'Manufacturing Lead Time' and the money required for it is called 'working capital'.

f. **JIT is helpful to eliminate the Wastage as Workplace:** Wastage as workplace is a major challenge in any manufacturing industries. JIT helps to eliminate this wastage problem of workplace in different ways as:

- I. It helps to overcome the problem of wastage of overproduction as there is limited stock of raw material.
- II. Its title is Just –in-time, which indicates it helps to overcome the problem of waiting of time and wastage of time.
- III. Just-in-time believes on the purchasing raw material in time from the closest raw material seller. So it helps to reduce the cost of transportation.

Apart from it, it helps to reduce the wastages of processing, inventory, motion and waste from product defects.

Conclusion: Thus, the JIT is an inventory management method which helps to reduce the cost of the production. It will avoid to manufacture overproduction, excess inventory, can improve production efficiency and competitiveness, it helps for proper planning of financial management. It helps to avoid the wastage of inventory at workplace. Therefore when one starts new business, or has limited capital to open and run the business, Jit is the best technique of Inventory management.

References:

1. Ashburn, A., 1977. Toyota's "famous Ohno system", American Machinist, July, 120–123
2. Black, J. Temple; Hunter, Steve, L. (2003). Lean Manufacturing Systems and Cell Design. Society of Manufacturing Engineers. p. 41. ISBN 9780872636477.
3. Bowers, G.H., Jr. 1991. Continuous flow manufacturing. Proc. SPIE1496, 10th Annual Symposium on Microlithography. (March 1, 1991), 239–246.
4. Caulkin, Simon. 1990. Britain's best factories. Management Today. November 60–89.
5. Grahovec, D. and Bernie Ducan, Jerry Stevenson, Colin Noone. 1999. How lean focused factories enabled Daman to regain responsiveness and become more agile. Target. 4th quarter, pp 47–51.
6. L., Kalleberg, A. (2004). "Precarious Work, Insecure Workers: Employment Relations in Transition". American Sociological Review. 74 (1): 1–22. CiteSeerX 10.1.1.1030.231. doi:10.1177/000312240907400101. ISSN 0003-1224
7. Simpson, Alex. Effective just-in-time manufacture at Hewlett-Packard. In Mortimer (1986), pp. 123–128.
8. Sepheri, M.
9. Williams, John T. "Pros & Cons of the JIT Inventory System". Houston Chronicle. Supply-chain relationships require retooling that involves multiple suppliers, closer locations, or companies that can supply materials with little advance notice. Companies ordering smaller amounts of goods may encounter difficulty meeting minimum orders, requiring a different contract or a way to break up a large order over time or among several smaller manufacturers.

10. Womack, James P., Jones, Daniel T., and Roos, Daniel. 1990. The Machine That Changed the World: The Story of Lean Production. New York: Rawson Associates.
11. <https://www.ifm.eng.cam.ac.uk/research/dstools/jit-just-in-time-manufacturing/>
12. https://en.wikipedia.org/wiki/Just-in-time_manufacturing
13. <https://www.tradegecko.com/inventory-management/what-is-just-in-time-inventory-management>
14. <https://www.investopedia.com/terms/j/jit.asp>
15. <https://cleartax.in/s/just-in-time-jit-inventory-management>