JIT Implementation and Indian Industries

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Just-in-time (JIT) philosophy is most widely adopted and practiced in the recent years worldwide. It is based on a radically different concept, deviating substantially form the existing traditional manufacturing practices in many respects. It uses a small lot size and reduced lead time in sharp contrast to a large lot size used in traditional manufacturing units in order to cushion the effect of uncertain demand pattern of the market. JIT is a very useful concept, which can increase productivity significantly by stretching the breadth of the market with improved customer satisfaction. But some of the Indian industries far lag behind in using the concept of JIT. They have not realized the possible benefits of JIT because of their complete unawareness about it. JIT has huge potentials and it can change a company's fortune and make it globally competent.

In the present paper, it has been attempted to find out the possible reasons of unawareness of Indian industries about JIT and means have been suggested to make them JIT friendly. The study results have been arrived at after visiting many industrial units and holding informal discussions with concerned persons in the organization. JIT implementation will eliminate inventory wastage by managing it effectively and efficiently, which is in the long-term interest of a company.

INTRODUCTION

JIT is relatively a new management philosophy firstly used in Japan by Toyota Motor Company. Successful JIT implementation made that company truly a global player and helped it to make its presence felt everywhere around the world. Today majority of the Japanese industries, many American and western industries are using JIT successfully and are tremendously benefited out of its successful implementation. JIT has the potential to increase the organizational efficiency and effectiveness [1]. It is a very effective tool to reduce the wastage of inventory and manage it effectively. It requires all types of inventory, be it raw materials, in-process parts or finished products to be arranged at the time of its actual requirement and not before, thereby tremendously reducing the lead time significantly. Keeping a long time large storage of inventory to take care of the fluctuative demand of the market is now not in the best interest of a company. Inventory constitutes large part of a company's total investment and large size inventory means more

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money blocked which may be put to some other purpose otherwise. Poor inventory management can have a devastating effect on new product development. It is of strategic importance, rather than a mere buying function performed at lower levels of the organization, as has been the case in the past [2].

CRITICAL COMPONENTS OF JIT

- A high product quality helps in speedy implementation of JIT, because of its increased scope of acceptance in the market.
- A small lot size helps to cut short lead time, thereby reducing the in pipeline inventory.
- A chaos-free manufacturing environment is conducive for JIT implementation. It smoothens the flow of materials and reduces in-process inventory.
- A teamwork culture accelerates JIT implementation. Quality circle is an example of teamwork culture.
- A good supplier-manufacturer relationship is very much essential to ensure continuous flow of materials in the organization [3-6].
- An effective supply chain is useful for continuous flow of information between various sections in the organization and hence helping to reduce pipeline inventory.
- All non-value adding activities pertaining to operations must be eliminated in order to reduce the lead time.
- A flexible organization offers more conducive atmosphere for implementing JIT, by providing increased interactions between various sections in the organization.
- Automation helps in reducing lead time and setup time and thus reducing in-process inventory.
- Regular preventive maintenance ensures uninterrupted flow of materials, thereby reducing pipeline inventory.

REASONS OF FEAR ABOUT JIT

Lack of Quality Awareness

The very basic question which comes in the mind before discussing quality awareness is that what the quality is. Quality can be defined in many ways. If a product is manufactured strictly according to the well defined specification with respect to its design and performance, then the product is said to be of high quality. But it may happen that, even if the product is fulfilling all the specification requirements, it is not satisfying the customer. So the next definition of quality is related to customer satisfaction. A quality product must fully satisfy its customer and should possess all the characteristics

which a customer is looking for. The customer must feel that he has got the value for which he has deservedly paid the price. The third definition of quality is connected with its ability to be used as a competitive weapon. This quality goes beyond meeting the designed specification and satisfying the customer and emphasizes on increasing its scope so that it can be used as a business strategy to gain competitive advantage in the global market [7]. The third definition of quality has wide acceptance. Quality is a key consideration during all phases starting with raw materials and ending with its users i.e. customers.

Indian market is very price-sensitive. Customer usually believes in buying low priced products, overlooking their quality. The possible reason for this is their low purchasing power. Initially a high quality product has higher price, so a limited group of customers is attracted towards these products. Majority of the customers fall in the low-income group and industries are well aware of this. This fact prevents a company in paying attention towards quality in a product or service. It can not be denied also that without quality of products or services, a firm loses its ability to compete in the market and increase its share. Profitability of a company gets adversely affected in the long run on account of its bad reputation earned, due to its poor quality products and services. But gradually, customers are becoming more and more aware about products' quality and are willing to pay more for better quality products.

Now the question is how quality affecting JIT implementation is. A high-quality product has a better chance of its acceptance in the market than a poor quality product and thus it ensures continuous flow in the market, reducing all types of inventory drastically. In other words, we can say that high product quality accelerates JIT implementation. Figure 1 shows a direct relationship between quality and customer satisfaction. With increased quality, level of customer satisfaction is higher.

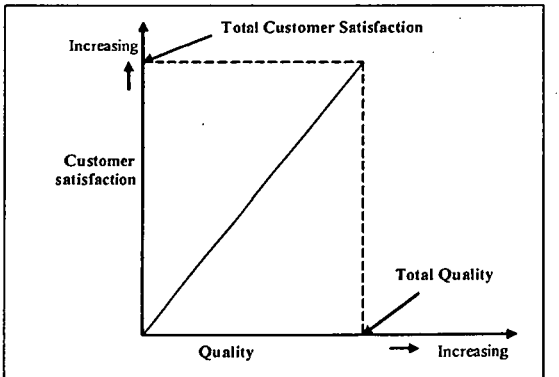

Fig 1: Relationship between quality and customer satisfaction

Ignorance about Inventory Management

Inventory management is an important area of manufacturing management. Effective inventory management enables a firm to provide lower costs, rapid response and flexibility for its customers. Poor inventory management can have a devastating effect on new product development [2]. There is always fear of surplus inventory becoming outdated and useless and incurring substantial loss to a company, because in this case it has to dispose off its inventory often at cost lower than its original cost. In Japan, inventory management is considered a strategic activity which has long-term effect on the future of a company. If much weightage is not given to inventory management, then a large inventory is kept as a safeguard against any uncertainty in the market on account of uncertain demand pattern. Because of the dynamic nature of the market, by the time the excess inventory gets consumed, it has already become obsolete which decreases a company's capacity to compete with others and hence loosing significant market share. Surplus inventory prevents the company to think about product innovation and develop new products. As a result, a company can not increase its base. JIT is very difficult to implement in an environment of poor inventory management.

Customer is not at the Central Focus

Indian industries have always ignored the possibility of having a choiced product by a customer. They believe in mass production of similar items and usually offer products with little or no variation. Customer is generally not in the central focus area of their business activities. A customer's view print is not much respected by them, what to talk of customer satisfaction. It has been proved that product variation has a positive effect on the sale of a product, because of its potential to attract a large number of customers. A customer feels satisfied, if he is offered a variety of similar products at almost same price level. In order to compete in the global market, concept of product customization is gaining momentum, which is nothing but the ability to satisfy the unique needs of each customer by changing product or service designs. Customization ensures flexibility in the operating system to handle specific customer needs [8]. Customization requires continuous improvement in the existing product in order to make it look always new and different. But Indian industries seem to be reluctant in this direction and prefer to stay with their existing operating range. A JIT System works faster with increased level of customer satisfaction.

Lack of Conducive Atmosphere

JIT requires strict discipline in the organization, if it is to be implemented successfully. A strong relationship between supplier and manufacturer is

absolutely required in order to maintain continuous flow of materials. A stable market with predictable demand pattern is another condition to be realized for JIT implementation. Flexible organizational structure is helpful in implementing JIT.

While talking about Indian industries, all these characteristics tend to be missing. No close relationship exists between manufacturer and its suppliers. This puts extreme pressure on the manufacturer, whether its supplier can meet its (manufacturer's) requirement on time or not. The manufacturer is always uncertain about its supply from the supplier. To implement JIT successfully, the manufacturer-supplier relationship should be of partnership type, and then only the two can rely upon each other and may think to offer benefits mutually.

The Indian market is unstable and unpredictable due to a large number of contributing factors. Labour strikes, unionized trade, ego clash, lack of transportation facilities are a few of them responsible for making market unstable.

Successful implementation of JIT requires a flexible organizational structure where formality and hierarchy are missing, thereby ensuring openness in the organization. A flexible structure induces innovation, which in turn tremendously helps in new products development. On the other side, Indian industries follow conventional structure where long chains of command and a strictly defined hierarchy exist; rigid work methods and extensive procedures are followed. These are the most orthodox characteristics, putting a lot of barriers in generating innovative ideas and thus limiting the scope of a company.

The task of JIT implementation becomes easier with the introduction of rewards and incentives schemes, meant for good performers in a company. Such things accelerate the implementation process of JIT. In the context of Indian industries, such schemes do not yield the desired results due to lack of focussed commitment from the top management in the organization. Employees are not well informed about JIT, a factor which discourages them to think positive about it, what to talk about its implementation.

Financial Constraints and lack of Proper Infrastructure

Investments in technologies such as computer-integrated manufacturing (CIM) and advanced manufacturing technology is of strategic importance, because it provides competitive options for a company [2]. Advanced manufacturing technologies are mainly computer-based and require significant capital investment. These are computer-aided design (CAD), computer-aided manufacturing (CAM), computer-aided engineering (CAE) and flexible manufacturing system (FMS). They are of tremendous use in providing automated manufacturing environment meant for producing defect-free products

with reduced lead time and reduced set-up time. Also they help in realizing a small lot size concept. Additionally, they offer atmosphere conducive for innovations and new products development. All these things collectively accelerate JIT implementation.

Some of the industries are always facing scarcity of funds. Lack of funds prevents a company to buy new and sophisticated equipments and modernize the manufacturing environment necessary for moving it to compete in the global market. The financial problem hinders every business activity. The industries are forced to stay with old and outdated machines and equipments preventing them to acquire a new market. How can they think of JIT and its implementation in such a precarious situation?

Lack of Competitive Environment

Competitive environment encourages thinking new and challenging, which in turn foster innovations and new products development. Innovation leads to offer variations in a product and makes it available at highly competitive price. Thus JIT becomes easier and necessary to implement.

Indian market was not opened to global competition, till recently. Staying uncompetitive for long time and getting nursed under protected atmosphere drastically reduced the competitive skill of a company. The government's long sustained overprotection prevented them to stand on their own feet. This is similar to a situation in which a small child doesn't learn to walk on his own feet, until he is left alone to do so. Gradually the situation is changing after India's commitment to accept globalization. Now its market is open for global competition and Indian industries are fighting with their global counterparts to increase their market share and want their presence felt everywhere. Maruti Udyog Limited is a leading Indian car manufacturing company which has outperformed many other global players due to its dedicated competitive nature. It has successfully made its presence felt in many foreign countries due to its outstanding performance.

Non-realization of benefits out of JIT Implementation

JIT implementation offers many tangible and intangible benefits. These benefits include improved product quality, increased productivity, reduced lead time and setup time, improved organizational efficiency, improved relationship between company and its suppliers and enhanced customer satisfaction [5]. On close examination, we find that some of the benefits realized after JIT implementation are also required to be effected before implementing JIT. For example, product quality, which plays a key role in implementing JIT, is found to be significantly improved on account of its increased ability to grab a market. Customer satisfaction helps in JIT

implementation which in turn helps to sustain increased customer satisfaction. A company can acquire good reputation by producing consistently good quality products which will result in enhanced customer satisfaction, helping to increase its market share. Indian industries are unaware of possible benefits of JIT. They are reluctant to change their existing setups to effect new things. JIT implementation requires strict discipline in the organization, but these industries love to stay with their old culture and attitude, making things difficult for new changes. They least bother about product quality and customer's requirements and ignoring these things costs them dearly in terms of their restricted or limited market and long term future.

HOW THE JIT FEAR CAN BE MINIMIZED OR ELIMINATED?

To increase Quality Consciousness

Quality is not a one-time affair, which can be attained once and forgotten afterward. Quality needs to be pursued continuously and should be made the integral part of every activity in the organization. A good quality product increase market share and enhances the reputation of a company, which has long-term effect. The concept of a world class company can only be realized by delivering consistently high quality products in the market. The central idea of quality management is that quality improvement practices lead to operational efficiency and, subsequently, customer satisfaction [9].

Change in traditional manufacturing and organizational setup

Conventional company follows traditional means of manufacturing and usually avoids any attempt to make change in the existing setup. This has negative effect on its business and restricts its market. These companies are not in a position to cope up with new players that use advanced technologies. Hence the company should be encouraged to adopt new technology in place of traditional one, which has the capacity to competitively move it forward. Openness and total employee involvement are important. It encourages open discussion in all sections of the organization and hence JIT implementation becomes easier.

To increase awareness about JIT

Increased awareness and information about JIT facilitates its implementation. Regular workshops, seminars and training programmes on JIT should be arranged to increase the awareness level. These things may prove to be useful in developing the knowledge, skills or attitudes of an individual participant which in turn can help in implementing JIT successfully.

Realization of close relationship between manufacturer and its suppliers

The success of JIT depends on a close link between a company and its suppliers. The close relationship will increase their faith and confidence on each other and they can work in a more coordinated atmosphere. They can act as a partner of one another and can understand the requirements of each other in an effective manner. Better understanding between the two greatly helps in JIT implementation.

Preparing the industry for competitive environment

Indian industry till recently had been working under the protected environment of the license-permit-quota raj, before it was opened for globalization. Globalization has forced them to mend their old way of operations and face competition; otherwise they will be out of the scene from the map. The competitive environment will induce feeling about quality products and services, which in turn will make the task of JIT implementation easier.

Customer should be made the central focus in the organization

JIT emphasizes devotion to the customers. Every activity in a business unit must be customer oriented. Customer orientation refers to the extent to which the needs of customers are appreciated, considered or addressed in different business activities [9-10]. Continuous process improvement keeping in mind customer as the central focus is vital for operational efficiency and customer satisfaction. Customization is purely based on this concept which offers increased level of customer satisfaction through improving facilities, speeding up deliveries and reducing defects in the products.

Government should encourage the industries to implement JIT

Despite globalisation environment, Government's role in JIT implementation is also important. It can provide assistance in the form of tax rebates, duty cuts, rewards and other incentives to recognize the contribution made by a company. The government can provide directions to industries regarding use of latest technologies facilitating JIT implementation. The role of Japanese government is quite admirable in this respect. The government helps in making business plans for the industry. Its Ministry of International Trade and Industry (MITI) provides direction concerning which industries will flourish and which will decline and be phased out. MITI is responsible for industrial planning for the activities that formulate industrial policy and determine the patterns for future growth [11].

Deming Prize for Quality, constituted in honour of Dr. Edwards Deming, is awarded annually since 1951 by the Union of Japanese Scientists and Engineers to companies that have demonstrated outstanding quality improvement programs

[11]. Very few companies outside Japan have received this prestigious award. Another prestigious award, Malcolm Baldridge National Quality Award was constituted by America in 1987 to honour those companies which offer significant contributions in the field of quality achievement.

CONCLUSION

Just-in-time (JIT) is a very useful concept. It can produce many changes in an organization. It has the potential to change the outlook of a company and make it globally competent. It increases the market share of a company with the help of higher level of customer satisfaction. Japan, America and many western countries are using JIT successfully. This tool has tremendously benefited them to acquire a broad market. JIT has proved its worth and many companies have acquired world-class status due to its successful implementation. Indian industries are slow in adopting new technology because of numerous reasons. They are always in doubt whether the technology to be adopted will produce the desired result or not. Even if they are convinced about its positive outcome, they implement it half-heartedly, resulting in its total failure. Their attitude, work culture and surrounding environment need to be drastically overhauled to make them amenable to JIT.

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