Delhi Business Review ⩽ Vol. 3, No. 2, July - December 2002

Communication

IMPLICATION OF JUST-IN-TIME (JIT) ON ACCOUNTING

Mohammad Talha

TODAY manufacturing companies are becoming increasingly aware that excellence in manufacturing can provide a competitive weapon to compete in sophisticated worldwide markets. In order to compete effectively, companies must be capable of manufacturing innovative product of high quality at a low cost, and also provide a first class customer services. At the same time, they must have the flexibility to cope with short product life cycle, demands for greater product variety from more discriminating customers and increasing international competition. World-class manufacturing companies have responded to these competitive demands by changing their traditional production system. To eliminate waste and improve quality, an innovation approach to inventory control called the Just-in-Time (JIT) system was developed by the Japanese-Taiichi Ohno, but has gained popularity throughout the world.Taiichi Ohno was considered to be the creator of the Toyota Production system and the father of the JIT system. JIT production system means an organization purchases materials and parts and produces components just when they are needed in the production process. Goods are not produced until it is time for them to be shipped to a customer. Many organizations adopt JIT systems to eliminate sources of manufacturing waste by producing the right part in the right place at the right time. The goal is to have minimum or zero inventories, because holding inventory is a non-value-added activity.

The main goals of JIT manufacturing system are eliminate non-value-adding activities, to increase the focus upon product quality throughout the production process, reduction of inventory level, space requirements, wasted materials, time and effort. Plants are design for maximizing efficiency which smoother production flow with fewer disruptions. Improve the organization's ability to compete with others and remain competitive over the long run.

Implications

The changing of global competitive business environment has forced the organizations to transform themselves in order to become more competitive. Many companies adopted Just-in-Time system to process reengineering among the competitors. The adoption of JIT manufacturing system will implicate all the organization's control system such as accounting information system. All the systems have to be updated to follow the innovation of changing manufacturing system.

The implication of JIT manufacturing system in accounting area are very significant because the new system will affect all the accounting entries by the different type of accounting information measurement. Accounting for a JIT system is often simpler than other systems. Most accounting systems focus on determining product costs for inventory valuation. But JIT systems have minimal inventories, so there is less benefit from an elaborate inventory costing system. In true JIT systems, material, labor, and overhead costs can be directly to cost of goods sold because inventories are small enough to be ignored. All costs of production are assumed to apply to products that have already been sold.

JIT in Manufacturing

JIT in manufacturing is a system to operate and develop a system in factory. It is mainly based on the total decrease of waste by producing only the necessary units, in the necessary quantities, at the necessary time and

brings production rates exactly in line with market demand. The main goal of JIT manufacturing is developing a system that allows a factory to have only the materials equipment and people by hand required doing the same plan. In order to achieve this goal, there are four key elements required to make sure the successful operation of a JIT manufacturing system. The four key elements include improving plant layout, reducing the setup time, striving for zero defect and developing a flexible workforce. By providing these four key elements, waste can be eliminated effectively.

Factories have to improve the manufacturing flow lines in its plant in order to implement JIT properly. Plant layout approach used in JIT manufacturing is called "focused factory". Using this approach, a "mini" factories are created, where all machines in a product flow line for separated product with manufacturing cells (one worker several machines) are tightly grouped together so that work in process are not shifted from place to place all over the factory. As a result, an improved plant layout can increase 'throughput' (total volume of production through a facility during a period) and reduce 'throughput time' or the cycle time.

Setups involved activities such as moving materials that must be performed whenever production is switched over from making one type of item to another. Setups should be avoided because of the expense and the time involved in such setups. A technique used in JIT manufacturing is called 'single-minute-exchange-of-dies'. This technique can only be applied if flow line is dedicated to a single product. Die must be changed when it wears out or when production is switched to a different product and this will be time-consuming. As the effect, batch sizes can be very small.

Companies that are involved in JIT tend to become zealously committed to a goal of zero defects. If the complete goods contain even one defective unit, the manufacturer has to restart the whole production process just to make one unit. This can delay a shipping order and may generate a ripple effect that delays other orders. In JIT system, the suppliers are responsible for the quality of the incoming parts and materials. The company's production workers are directly responsible for spotting the defective units rather than using inspections. Workers on JIT line must be multiskilled and flexible. Moreover, in JIT workers are expected to operate all of the equipment on the flow line and may perform minor repairs as well as do maintenance work when they would otherwise be idle. Therefore, factory should develop a flexible workforce.

JIT in Purchasing

Management accounting are familiar with the use of Just-in –Time (JIT) in purchasing with the aim to reduce the finished goods inventory that a company has to keep and to overcome or avoid the delay of raw material at ordering, receiving and incoming inspection. This means that JIT purchasing enable the materials to be delivered in time once it is needed for production. JIT purchasing works well to reduce wastes in many forms such as waste in raw materials, times, transaction process, etc. There are several goals of JIT purchasing: Firstly, to remove or eliminate inessential activities or process in the production. Secondly, to eliminate the carrying of stock inventory. Thirdly, to eliminate of transit inventory and finally to improve the quality and reliability of the suppliers.

However, to implement JIT program effectively, a series of changes needs to be made on to the production process. If these changes are not made, production will increase the level of work-in-process (WIP) inventory, which will result in higher cost of production. JIT also requires the plant to be balanced so that each task has the same output level to create transfer batches of equal size. JIT required fewer inventories, which led to reduction in manufacturing costs, better responsiveness to customer requirements, and the opportunity for better product quality. JIT results in lowering WIP inventories, which leads to lower investment in manufacturing costs. The most challenging area for most manufacturers in achieving JIT system can only be operated successfully when the material being fed into it are of sufficient quality and delivered on time. Therefore, unless the quality and delivery of purchased material does not create production issues, the purchasing function should begin to establish a JIT supplier base.

Organizations are now giving increasing attention to reducing stock level to a minimum by implementing JIT purchasing techniques. By arranging with suppliers for more frequent deliveries of smaller quantities of materials, so that each delivery is just sufficient to meet immediate production requirement, stock can be cut to a minimum. Just-in-time (JIT) purchasing reduces the wastage that is present at receiving and incoming inspection. It also

reduces excess inventory, the delay of sending the materials to the manufacturer. It also increased the cycle times thus produce a good quality of products. In contrast, this will reduce the stocks in warehouses, transaction processing, and account payable function and save money. JIT requires a close and trusting relationship between the purchasing company and the supplier. A potential supplier will provide the manufacturer special price, delivery charges, technical services and advice , quality materials, and so on.

Companies that have implemented JIT purchasing techniques have substantially reduced their investment in raw material and work in progress stocks. Other advantages includes a substantial savings in factory space, large quantity discounts and a reduction in paperwork arising from issuing blanket long-term orders to fewer suppliers instead of purchase orders. It also closely matches the receipt of material used in order to reduce stock carrying.

Just-In-Time System and Variance Analysis

JIT approach can reduce or eliminate many unfavorable cost variances. For instance, long-term pricing agreements with select group of suppliers can virtually eliminate material price variances. Material uses variances caused by defective materials also may be minimized. Should a batch of inferior material be encountered, the production process is halted and the supplier is contacted to resolve the problem immediately. Thus, rather than discovering quality control problems after the fact, a JIT system makes it possible to detect and correct quality problems as they occur. Workers in a JIT system must be able to shift production quickly from one product to another. Adherence to carefully planned production schedules reduces idle time and eliminates non-value-added activities. As a consequence, labor efficiency variances often are improved under JIT approach. Well-trained employees, working smarter with more efficiency, can minimize the need for overtime hours. Thus, JIT system may reduce or eliminate favorable labor rate variances. Finally, by cutting overhead costs associated with non-value-added activities, JIT system also help management avoid unfavorable overhead spending variances.

Elements of Successful JIT System

There are three important elements in JIT system. Firstly, a company must have dependable suppliers who are willing to deliver on short notice exact quantities of raw materials according to precise quality specifications (even including multiple deliveries within the same day). Suppliers must also be willing to deliver the raw materials at specified work stations rather than at a control receiving department. This type of purchasing requires constant and direct communication with suppliers, which is facilitated by an on-line computer that links between the company and it's suppliers.

Secondly, a multi-shifted work force must be developed. Under JIT, machines are often strategically grouped around work cells and most of the work is automated. As a result, one worker may have the responsibility to operate and maintain several different types of machines.

Thirdly, a total quality control system must be established throughout manufacturing operations. Total quality control means no defects. Since only required quantities are signaled by the pull approach, any defect at any work stations will shut down operations at subsequent work stations. Total quality control requires continuous monitoring by both employees and supervisors at each work station. The main objective of JIT is to achieve a system that has high quality products, with the least amount of equipment, material and people on hand. If a company has decided to implement JIT after their research, the company should create a flow line data sheet. This paper work should show material requirement, production cost and the flow of material in it. Every material needed to process a product from scrap to finished goods are all part of the material requirement, should be found on the flow line data. Labor costs and material costs to make the final product are included in the production cost section of the data sheet. After defining the materials requirement and production cost a company now must determine the flow of materials.

Conclusion

Thus, from the above discussion it has brought out that the Just-in-time can make products become more efficient, reliable and with a higher quality with its implementation. In accounting area, the JIT manufacturing system minimizes the amount of holding inventory in the warehouse. This means that, all the production cost

likes direct costs, factory, overhead costs can be directly counted into the cost of goods sold. Besides this, most cost accounting systems are implemented to determine the production costs in a budget way. But when JIT manufacturing systems come across to accounting, the inventory costing system can be eliminated by the minimal inventory level at an optimal point in the JIT system. The firm can reduce the inventory costing system costs by improving the inventory control system. Furthermore, the change in the accounting system also influences the financial statement of the firms. After adopting the JIT manufacturing system, the inventory costing costs are eliminated and result in a low inventory holding costs. All these factors increase the profit of the firm, result in more attractive financial statement to the end users.

Bibliography

Anthony A. Atkinson, Rajiv D. Banker, Robert S. Kaplan, Management Accounting. International Edition, (Third Edition), Phipe, Prentice Hall.

Bregg. S.M. (1996) Just-in-time Accounting; 3rd Edition, John Wiley and Sons. Inc., Malaysia.

Colin Drury, Costing: An Introduction. International Thomson Pulishing, Malaysia.

Garrison Noreen (2000) Managerial Accounting International Edition, Ninth Edition,Irwin McGraw-Hill.

Horgren, Sundem, Stratton, (1996) Introduction To Management Accounting. Tenth Edition, Prrntice Hall.

Meigs Williams Haka Bettner, Accounting— The Basis for Business Decisions; Mc Graw- Hill, Eleventh Edition.

Ronald W Hilton (1999) Management Accounting; Fourth edition.

www.inventorysolution.org/def_jit.html