**ASSIGNMENTS**

1. **What is Value chain analysis and what its main elements?**

It is a concept that value is added as goods and services progress through

the chain.The supply chains are the lifeblood of any business

organization,they connect suppliers,producers and final customers in a

network that is essential to the creation and delivery of goods and

services.The two main elements are :

a)Supply element-This starts at the beginning of the chain and ends with

the internal operations of the organization.

b)Demand element-this starts from the point where the organization’s

output is delivered to it’s immediate customer and ends with the final

customer in the chain.

1. What are the seven variables which production personnel‘s should zero in?

They are as follows:

1. Zero defects
2. Zero set up time
3. Zero handling
4. Zero Batch size
5. Zero breakdown
6. Zero Lead time
7. Zero surging

**What is Just in Time management system?** **Is JIT utopia?**

Just In Time(JIT) is a methodology aimed primarily at reducing times within production system as well as response times from suppliers and to customers.

It is a production model in which items are created to meet demand, not created in surplus or in advance of need.

The Just in Time methodology requires businesses to be extremely agile with the capability to handle a much shorter production cycle – so it’s not for everyone. If you’re considering adopting a Just in Time inventory management strategy, first ask yourself these questions:

* Can my product/s be manufactured or supplied in a very short period of time?
* Are my suppliers reliable and efficient enough to get products to me on time every time?
* Do I have a thorough understanding of customer demand, sales cycles, and seasonal fluctuations?
* Is my [order fulfillment system](https://www.tradegecko.com/product-tour/sales/order-fulfillment?hsLang=en-us) efficient enough to get orders to customers on time?
* Does my [inventory management system](https://www.tradegecko.com/overview?hsLang=en-us) offer the flexibility needed to update and manage stock levels on the fly?

When you can confidently say yes to all of the above, you’re in a good position to start reaping the benefits of a Just in Time business model. If not then JIT can not be realistic.

**Can it be made to work?**

Just-in-time production, or JIT, has probably received more attention in a short time than any other new manufacturing technique. The main reason is that JIT gets the credit for much of Japan’s manufacturing success.

Despite the extensive publicity and interest, few companies have implemented JIT in their manufacturing operations. If JIT provides all the benefits claimed for it, why have so few factories adopted it?

JIT’s widespread publicity has been a mixed blessing. The popular press, and even some technical articles, focus on the easily observable differences from batch production systems but ignore some of the more important but subtle features of JIT. Writers rarely get very far past the lower inventory costs attributable to JIT and seldom describe how the technique can improve the entire manufacturing process. Managers who have read only a little on JIT rarely understand how it can help their operations. Usually they focus on the fact that, in the end, JIT increases a company’s ROI.

More important than the reduction of inventory and greater ROI are the improvements in manufacturing that result from operating with low inventories. JIT removes the security blanket of high inventory and thus exposes related operating problems. These are problems that need to be faced and solved—and therein JIT can be seen to create hurdles of its own.

Converting to JIT means a big change—in the culture of a company as well as in its manufacturing operations. Established routines and rules become obsolete. Where backup inventories were once considered to be insurance against unexpected shortages or delays, they are now viewed as evidence of lack-luster planning or controls, even of laziness. Large production batches can no longer be viewed as beneficial because they help amortize setup costs. JIT forces the elimination of the waste inherent in long setups.

Few manufacturing organizations are very flexible, either in their operations or in the minds of their creators. A typical operation is like a huge steamship, for which a rapid change in course is difficult. Most factories have been making similar products using similar processes for many years; their managers are comfortable with what they know. In this environment, change comes slowly. This inflexibility combined with misperceptions of JIT keep a lot of executives from using JIT. They excuse themselves by saying: “I know JIT has done a lot for others, but our plant, and our processes, even our people, are different. In our situation, JIT won’t work.”

Since misperceptions create a roadblock to implementation of this valuable management technique,

JIT’s success depends on the high quality of incoming materials. If a supplier delivers a bad batch, the whole production line will stop! Once suppliers understand the consequences of failure, they will be sure to make on-time deliveries of high-quality materials. Although the relationship between manufacturer and supplier in a JIT setting entails risks, the rewards of perfect parts always delivered on time are tremendous.

**Batch size philosophy**.”

Experienced managers know that forcing a production process to fit a software system is a prescription for disaster. Designing processes to conform to the requirements of a particular software package often makes operations less effective. The process needs to be converted first.

There are many ways to synchronize a batch-oriented system to JIT production. The techniques depend on the most flexible system resource ever conceived—manual clerical effort. Obviously, better long-term solutions exist than reliance on pencil and paper, but when both information needs and production processes are changing rapidly, nothing is more flexible.

Simple forms can be designed and used to monitor the flow of materials on a piece-by-piece basis. Inputs can be made to the system in batches when a form is completed. Materials allocations automatically made in batches by a traditional MRP system can be manually adjusted for individual pieces. Japanese-style kanbans (or American chits) can be used to requisition parts on an individual basis, and systems transactions made only when a certain number of kanbans are accumulated.

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* Cheng TCE and Podolsky S, 1993, Just-in-Time Manufacturing - an introduction, Chapman and Hall, London.

**4.How can computers aid in development, analysis and Forecasting?**

Computer have taken a leading role in business management and operations is no way different in this regard.Computers have played various functions as follows:

1. In marketing specifically in demand forecasting and order processing
2. In design and drafting
3. In purchasing and outsourcing
4. In materials management,inward logistics and stores
5. In operations planning ,scheduling and control
6. In manufacturing
7. In process control and quality management
8. In technology and productive maintenance systems
9. In productivity measurement,performance evaluation and reward systems
10. In automatic assemblies
11. In finished product warehousing
12. In distribution or outbound logistics.

Listening to customers means analyzing their needs and wants in a systematic manner.Computers help to monitor closely and frequently that we can forecast the trend in customer needs and preferences over time.

5.**Describe the role of supporting computerized system in book keeping, processing and delivering of orders from customers?**

While some firms still do their bookkeeping by hand, most firms generally have too many transactions to sustain a manual accounting system. The more complicated the activities of your business are, the more likely it is that you'll need a computerized system to ensure effective financial planning and management.

Improvements in computer technology and information systems have replaced manual bookkeeping systems to computerized system in most companies. Companies can now capture process,store and transmit data with the help of computers. Data collections and processing were performed manually in historical systems .Fortunately,improvements in the technology have enabled companies to collect ,process and retrieve data quickly.In addition,there is less likelihood for error when data are processed with computers.In most computerized systems ,after data are captured , they should be converted into machine -readable form..In computerized systems,source data automation devices that capture data at the time and place of their origins are used since there are existing data bases that contain the stored in data bases. In this case, customers represent entities. Information about customers such as account number, credit limit, and current balance of the customer can be stored in the database. It is also facilitating faster processing and deliveries of products to the customers in a timely manner.

6**.What is flexible manufacturing system? Can use of computers facilitate it and why?**

A **flexible manufacturing system** (**FMS**) is a manufacturing system in which there is some amount of [flexibility](https://en.wikipedia.org/wiki/Flexibility_(engineering)) that allows the system to react in case of changes, whether predicted or unpredicted. This flexibility is generally considered to fall into two categories, which both contain numerous subcategories.

The first category, routing flexibility, covers the system's ability to be changed to produce new product types, and ability to change the order of operations executed on a part. The second category is called machine flexibility, which consists of the ability to use multiple [machines](https://en.wikipedia.org/wiki/Machine) to perform the same operation on a part, as well as the system's ability to absorb large-scale changes, such as in volume, capacity, or capability.

Most **FMS** consist of three main systems. The work machines which are often automated CNC machines are connected by a [material handling](https://en.wikipedia.org/wiki/Material_handling) system to optimize parts flow and the central control computer which controls material movements and machine flow.

The main advantages of an FMS is its high flexibility in managing manufacturing resources like time and effort in order to manufacture a new product. The best application of an FMS is found in the production of small sets of products like those from a [mass production](https://en.wikipedia.org/wiki/Mass_production).

Technology has developed so rapidly that we are able to integrate computers into the process of manufacturing and this shorten the time involve setting up machine and changeover. Computers have imparted the much needed flexibility and reduce the response time for manufacturing units to changing customer demands.

References:

* Kiyoshi Suzaki, 1987, The New Manufacturing Challenge: techniques for continuous improvement, the Free Press, London.
* Yasuhiro Monden, 1993, Toyota Production System: an integrated approach to Just-In Time. Second edition, Industrial Engineering and Management Press, Institute of Industrial Engineers, Norcross, Georgia..
* Module 4