

Capacity Planning, JIT and Lean systems

Capacity comprises the resources to serve customers, process information or make products and is a mix of the people, systems, equipment and facilities needed to meet the services or products involved. Capacity decisions should be taken by firstly identifying capacity requirements and then evaluating the alternative capacity plans generated

Identifying Capacity Requirements

- Measuring Demand
- Measuring Capacity

Evaluating Capacity Plans

- Level Capacity
- Chase Demand
- Demand Management

JIT and Lean Systems

Just-In-time (JIT) is a philosophy originating from the Japanese auto maker Toyota where Taiichi Ohno developed the Toyota Production system (Ohno, 1988). The basic idea behind JIT is to produce only what you need, when you need it. This may seem a simple idea but to deliver it requires a number of elements in place such as the elimination of wasteful activities and continuous improvements.

Eliminate Waste

- Over-Production. This is classified as the greatest source of waste and is an outcome of producing more than is needed by the next process.
- Waiting Time. This is the time spent by labour or equipment waiting to add value to a product. This may be disguised by undertaking unnecessary operations (e.g. generating work in progress (WIP) on a machine) which are not immediately needed (i.e. the waste is converted from time to WIP).
- Transport. Unnecessary transportation of WIP is another source of waste. Layout changes can substantially reduce transportation time.

- Process. Some operations do not add value to the product but are simply there because of poor design or machine maintenance. Improved design or preventative maintenance should eliminate these processes.
- Inventory. Inventory of all types (e.g. pipeline, cycle) is considered as waste and should be eliminated.
- Motion. Simplification of work movement will reduce waste caused by unnecessary motion of labour and equipment.
- Defective Goods. The total costs of poor quality can be very high and will include scrap material, wasted labour time and time expediting orders and loss of goodwill through missed delivery dates.

JIT Pull Systems

- The idea of a pull system comes from the need to reduce inventory within the production system. In a push system a schedule pushes work on to machines which is then passed through to the next work centre. The pull system comes from the idea of a supermarket in which items are purchased by a customer only when needed and are replenished as they are removed. Thus inventory co-ordination is controlled by a customer pulling items from the system which are then replaced as needed.

Detailed information on this topic: Operations
Management – Albert Porter, BookBoon.com,
2011