

Chapter 6: Production Planning and Control

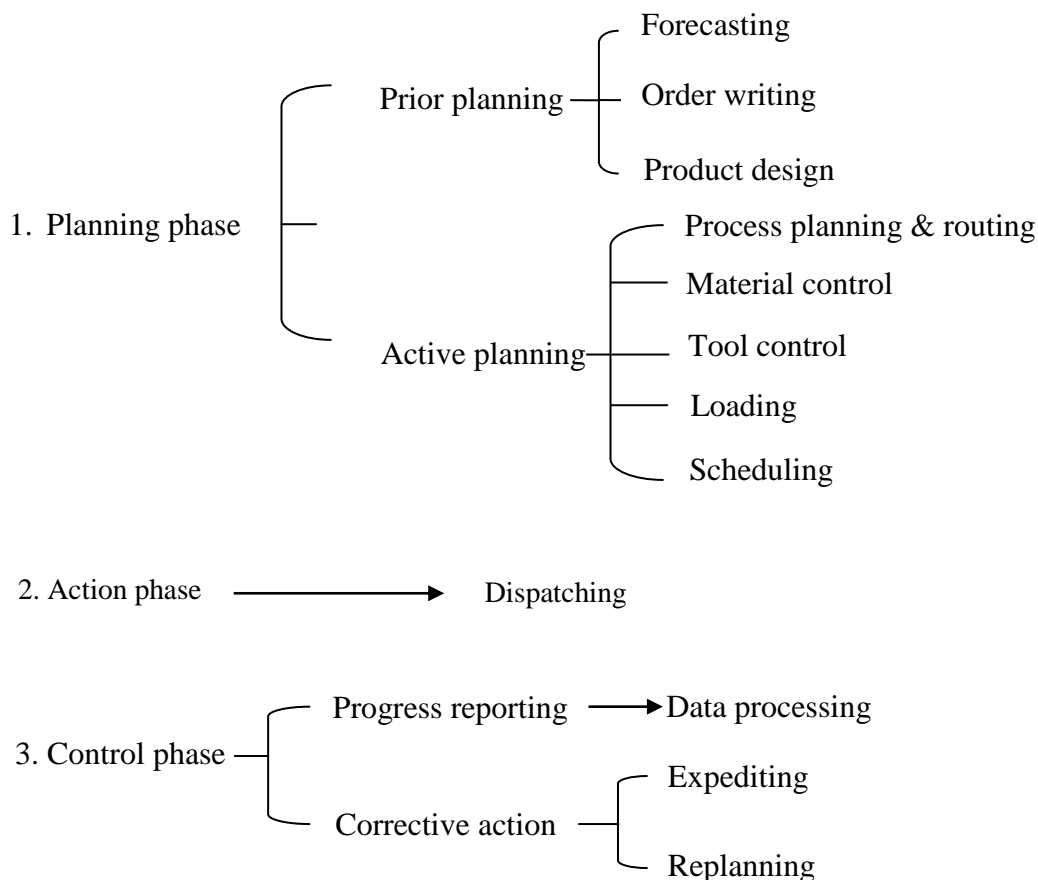
6.1 Production:

It is an organized activity of converting raw materials into useful products. But before starting the actual production, production planning is done to anticipate possible difficulties and to decide in advance as to how the production process should be carried out in a best and economical way to satisfy customers. Since only planning of production is not sufficient, hence management takes all possible steps to see that plans chalked out by planning department are properly adhered to and the standard set are attained. In order to achieve it, control over production is exercised. The ultimate aim of production planning and control (PPC) is to produce the products of right quality in right quantity at the right time by using the best and least expensive methods.

Production planning and control can thus be defined as:

- The process of planning the production in advance.
- Setting the exact route of each item.
- Fixing the starting and finishing date for each item.
- To give production orders to different shops.
- To see the progress of products according to order.

The various functions of PPC department can also be systematically written as:



Explanation on each term

1. Forecasting: Estimation of type, quantity and quality of future work.
2. Order writing: Giving authority to one or more persons to undertake a particular job.
3. Product design: Collection of information regarding specification, bill of materials, drawing, etc.
4. Process planning and routing: Finding the most economical process of doing work and then deciding how and where the work will be done.
5. Material control: It involves determining the material requirement and control of materials.
6. Tool control: It involves determining the requirement and control of tools used.
7. Loading: Assignment of work to man power and machining etc.
8. Scheduling: It determines when and in what sequence the work will be carried out. It fixes the starting and finishing time for the job.
9. Dispatching: It is the transition from planning to action phase. In this phase the worker is ordered to start the actual work.
10. Progress reporting: Data regarding the job progress is collected. It is interpreted by comparison with the preset level of performance.
11. Corrective action: (i) Expediting means taking action if the progress reporting indicates a deviation of the plan from the original set target. (ii) Replanning of the whole affair becomes essential, in case expediting fails to bring the deviation plan to its right path.

Objectives of PPC

1. To determine the sequence of operations to continue production.
2. To issue co-ordinated work schedule of production to the supervisor/foreman of various shops.
3. To plan out the plant capacity to provide sufficient facilities for future production programme.
4. To maintain sufficient raw materials for continuous production.
5. To follow up production schedule to ensure delivery promises.
6. To evaluate the performance of various shops and individuals.
7. To give authority to right person to do right job.

PPC and related functions

The Fig. 6.1 shows the relation of PPC with other functional departments.

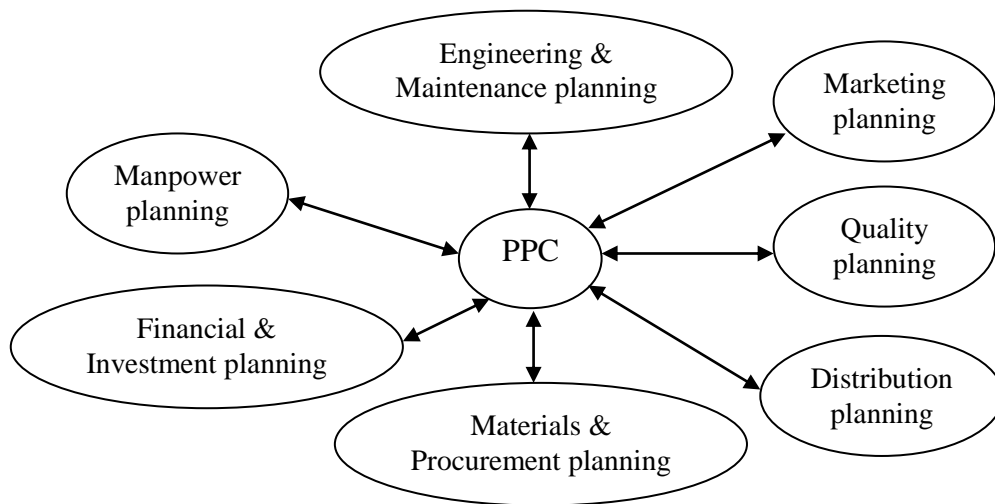
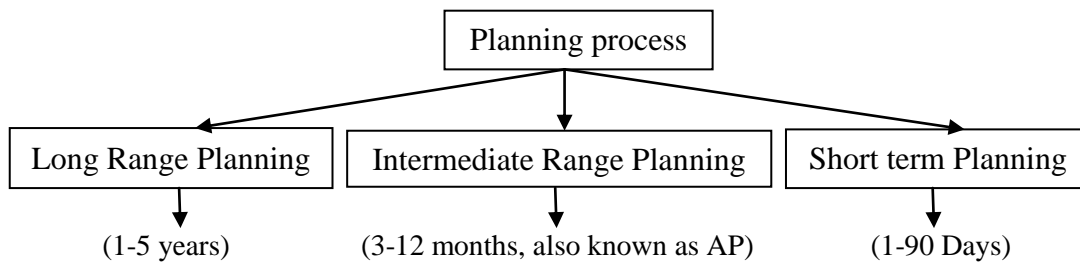


Fig. 6.1 Relation of PPC with other functional departments

6.2 Aggregate planning (AP)



Planning hierarchy

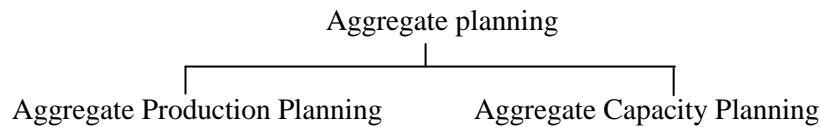


AP: Production planning in the intermediate range of time is termed as Aggregate planning.

Explanation of AP

The aggregate planning concentrates on scheduling production, personnel and inventory levels during intermediate term planning horizon such as 3-12 months. Aggregate plans act as an interface between strategic decision (which fixes the operating environment) and short term scheduling and control decision which guides firm's day-to-day operations. Aggregate planning typically focuses on manipulating several aspects of operations-aggregate production, inventory and personnel levels to minimize costs over some planning horizon while satisfying

demand and policy requirements. In brief the objectives of AP are to develop plans that are feasible and optimal.



Aggregate Production Planning indicates the level of output.

Aggregate Capacity Planning keep capacity utilization at desired level and test the feasibility of planned output.

6.3 Decision options in Aggregate Planning

Decision options are basically of 2 types:

- (i) Modification of demand for a product.
- (ii) Modification of supply of a product.

(i) Modification of demand

Demand can be modified in several ways:

- (a) Differential pricing: It is often used to reduce the peak demand or to increase the off period demand. Some examples are: reducing off season fan/woollen item rate, reducing the hotel rate in off season.
- (b) Advertising and promotion: These methods are used to stimulate/smooth out demand. Advertising is generally so timed as to increase demand during off period and to shift demand from peak period to the off period.
- (c) Backlogs: Through the creation of backlogs, the manufacturers ask customers to wait for the delivery of products, thereby shifting the demand from peak period to off period.
- (d) Development of complementary products: Producer, who produces products which are highly seasonal in nature, applies this technique. Ex: Refrigerator company produce room heater, TV Company produces DVD, etc.

(ii) Modification of supply

There are various methods of modification of supply.

- (a) Hiring and lay off employees: The policy varies from company to company. The manpower/work force varies from peak period to slack/off period. Accordingly, firing/lay off employee is followed without affecting employee morale.
- (b) Overtime and undertime: Overtime and undertime are common options used in cases of temporary change of demand.
- (c) Use of part time or temporary labour: This method is attractive as the payment of part time/temporary labour is less.
- (d) Subcontracting: The subcontractor may supply the entire product/some of the components needed for the product.
- (e) Carrying inventories: It is used by manufacturers who produce items in a particular season and sell them throughout the year.