

# Capacity planning

[Business](#), [Management](#)



" The maximum output of which an industry or factory is capable" 1. That is how the Oxford Dictionary defines capacity. As this is the case the role of Capacity Management is integral in achieving this 'maximum' output. The operations manager has to make sure there are sufficient resources available for the organisation to meet the demand. This is a process of planning (looking at what will be required or what actions will be necessary for all the future operations) as well as controlling operations so they run according to plan.

Management of capacity also involves " reacting to actual demand and actual capacity as it occurs"(Slack et al, 2001). Capacity is being estimated for future consumption. This has to be market focused " Knowing the rate of output can help in estimating or planning how long it will take to deliver an order and to plan for the materials required for a period of time". The manager faces a dilemma as demand changes are often quick but a significant time lag exists between making a decision and it coming into affect.

Generally good capacity management planning allows the firm to be more mobile in its response to market needs. It would also allow for a greater knowledge and understanding of some of the firms cost structures as the value chain itself is directly analysed, helping to reduce costs. The composition of the current workforce and the future staff requirements are also important part of capacity management. Being one of the most valuable resource of a business and potentially the most versatile resource allowing to manage work flow, it is important to manage accurately.

The level of capacity has to be adequate to meet market needs. Inadequate capacity can lead to losing customers potentially due to a slow turnover to competitors. Excessive capacity also needs to be controlled as this also leads to inefficiency and increase costs to the business.

Demand varies; it can for example fluctuate through annual to daily cycles and one season to another. A response to capacity is required based on the type of variation in demand.

Capacity planning can also be seen through different time frames, which can be divided up into four main categories. Firstly Long range planning this is 'broad brush' and an important part of overall operations strategy. To get this right is important as only at this stage large scaled sustained measures can be taken to cater for future capacity requirements resulting from for example an increase (or decrease) in market size or its share. It is important to manage these decisions looking at aspects such as the affect on the business of changing technology. Particularly important in industries used to high obsolescence. If the organisation cannot keep up to pace then it is likely to have ever-decreasing market share.

Further smaller time frames can be looked at which due to limited resources only allow for certain response or sometimes only require a certain response.

As a general rule it is better to have excess capacity than to run-out, because it could potentially allow a competitor to manoeuvre him self into this gap. A 'capacity cushion' which is " an amount of capacity in excess of expected demand" (Hayes, 1984), is often a solution. It is essential the

capacity manager gets this right. Too high a cushion and there will be a risk of obsolescence, high storage costs and money tied up unnecessarily. If this is too low then it will not be much of a cushion if the stock runs out. A fine balancing act to allow the business maximum returns. Allowing the business to cope with excess demand and place the company in a position to take advantage of attracting new customers.

### Alternative Capacity Planning Strategies

To cope with fluctuation in demand the alternative capacity planning strategies need to be implemented. This can be done in three main ways:

'Level Capacity' Plan Is probably the simplest to operate. Advantages includes ignoring any fluctuations in forecast demand by setting the capacity (production) at a constant level throughout this period. Theoretically the difference between this production and the actual demand is filled up by inventory or backorders thereby reducing any excess costs such as the need for part time labour or over time and the potential cost of subcontracting. The primary advantage of this strategy would be of maximum capacity utilisation. Making every asset sweat and maximising returns from all resources available to the firm. Thereby inherently wastage would be reduced caused by having no more 'idle time'. This would mean maximum value is being added at this stage of the value chain.

'Chase Demand' plan helps the firm match production to demand by mainly being able to increase and decrease resources, primarily staffing levels. This strategy is cost affective, in particular during periods of high unemployment

and in industries where highly skilled labour is not integral. A key cost saving is that of greatly reduced inventory costs as there is no need to stock great levels of goods (if any), as the level of capacity is closely shadowed to the actual level of demand. Costs are further reduced through this plan as it results in high levels of worker utilisation.

'Manage Demand' strategy is arguably the most difficult of the three to implement. This is an attempt to change the demand, something the firm has no direct control of.

If achieved it would result in better utilisation of capacity, reduce cost and hence increase profitability. Together with this quality is more likely to improve if not an improvement then at least maintained as the firm's resources will not be stretched as far. Varying prices by possibly having special offers is one strategy employed to increase demand, which can further be stimulated by offering alternative products and services. This would also allow competitive advantages to be earned. Managing the queue is another tool that can be used in this strategy. This often has very little cost burden on the organisation if any, and is therefore highly desirable as profitability can be increased.

Alongside these three main types Yield management is also used. This can be classed as a hybrid of the above and is particularly useful in the service industry. Again the aim is to make the asset 'sweat' and gain maximum Return on the capital employed.

Adjusting capacity

There are several methods of adjusting capacity in the short-term. Some of these are as follows.

1. By adjusting the total number of hours done in a fixed/particular period by changing work patterns and shifts.
2. Employing temporary staff often on a part-time basis to cope with excess demand.
3. Having an annual hours contract or something similar which would allow scheduling work patterns so the total workforce available over time varies inline with demand.
4. Outsourcing is another method often used.
5. Initiating product and/or process design improvements would allow increased capacity. This can for example be done by making larger batches to reduce setup costs, and adjusting the process so to increase (or decrease) processing speed
6. And offering work-in-house. Allowing the customers to do some of the work, freeing resources to be used elsewhere.

Flexible Resources is the key to all of this, but these resources need to be utilised in a well planned manner.