

In order to find whether capacity management is ore than just inventory management we'll first understand what capacity management is.

1. Capacity Management:

There are different but somewhat similar views about capacity management:

One says,

“Capacity Management is the process that ensures that the right resource levels are available where and when they are needed, at the right price.”[1] (Andy Savvides)

Another says,

The capacity of a production unit (e.g. machine, factory) is its ability to produce or do that which the customer requires. [2]

Another says,

“Capacity Management is the function of establishing, measuring, monitoring, and adjusting limits or levels of capacity in order to execute all manufacturing schedules; i.e., the production plan, master production schedule, material requirements plan, and dispatch list.” [3]

1.2. Processes in Capacity Management

Capacity management is made up of three sub processes:

- a. Business capacity management (BCM)
- b. Service capacity management (SCM)
- c. Resource capacity management (RCM)

1.2.1. Business Capacity Management:

Business Capacity Management takes the need and plans of the business, both current and future, and translates the information into requirements that can be used to extend or transform the service delivery and infrastructure.

1.2.2. Service Capacity Management:

Service capacity management addresses the provision of IT services. It's responsible for ensuring that the performance of all services, as detailed in the targets in service level agreements, are monitored and measured.

1.2.3. Resource Capacity Management

Resource capacity management focuses on the technology components supporting the service provision. It validates that all components with declared finite resources are monitored and measured.

1.3. Functions of Capacity Management:

Its main functions are:

- Monitoring the performance and throughput or load on a server, server farm, or property
- Performance analysis - which includes program's behavior using information gathered as the program executes. Its goal is to determine which sections of a program to optimize.
- Performance tuning helps in improving systems performance. It helps tuning of activities to ensure the most efficient use of existing infrastructure.
- Understanding the demands on the Service and future plans for workload growth (or shrinkage)

- Influences on demand for computing resources
- Capacity planning – developing a plan for the Service

1.3.1 Capacity Planning:

The goal of capacity planning is to provide satisfactory service levels to users in a cost-effective manner.

There are three basic steps for capacity planning:

i. Determining Service Level Requirements

The first step in the capacity planning process is to categorize the work done by systems and to quantify users' expectations for how that work gets done.

ii. Analyzing Current Capacity

Next, the current capacity of the system must be analyzed to determine how it is meeting the needs of the users.

iii. Planning for the Future

Finally, using forecasts of future business activity, future system requirements are determined. Implementing the required changes in system configuration will ensure that sufficient capacity will be available to maintain service levels, even as circumstances change in the future.

1.4. Types of Capacity Management:

The types of capacity management are as follows:

1.4.1. Level Capacity Management:

The capacity is kept constant, the operation either tolerating the under use of the capacity or its inability to serve all demand, or alternatively (if it is capable of it) making to stock for future periods when demand will exceed capacity.

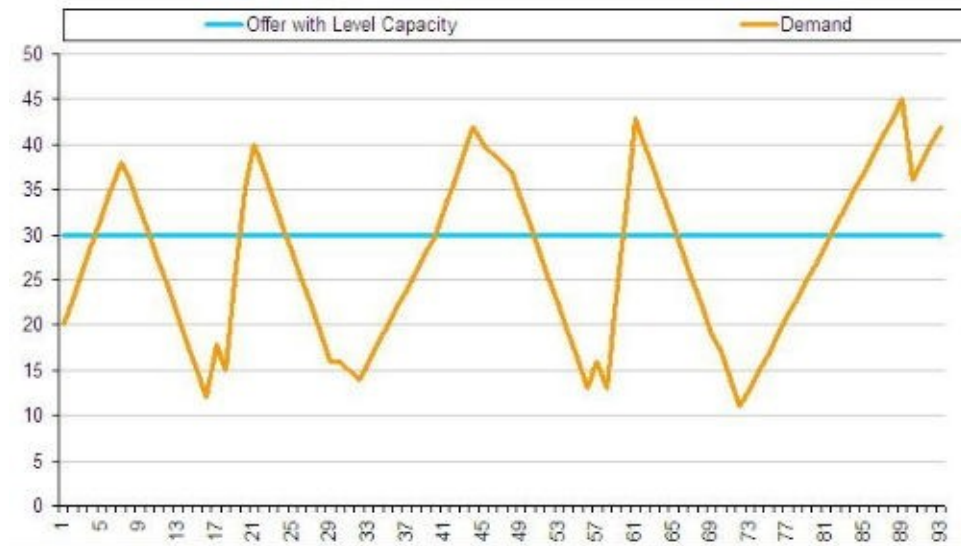
A good example of level capacity management is the public services offered by Spanish government at any public office, for example the **birth register office**.

The demand for this services is quite predictable as there exist some ratios that can help to anticipate future births, but the ageing of the society, the increase on immigration and international adoptions has increased the unpredictability of this figures (on following diagram number of births on Spain on the last 26 years).



Therefore birth register offices could have a capacity planning with part time or temporal jobs to overcome these changes on demand, but as this is a public service all employees are fixed ones, and capacity is established fixed.

The number of employees attending office desk is fixed, capacity can be reviewed on a for example yearly basis but not during the year. As it is a public service, demand must adapt to offer. Performance Objective is cost control rather than efficacy or revenue goals.

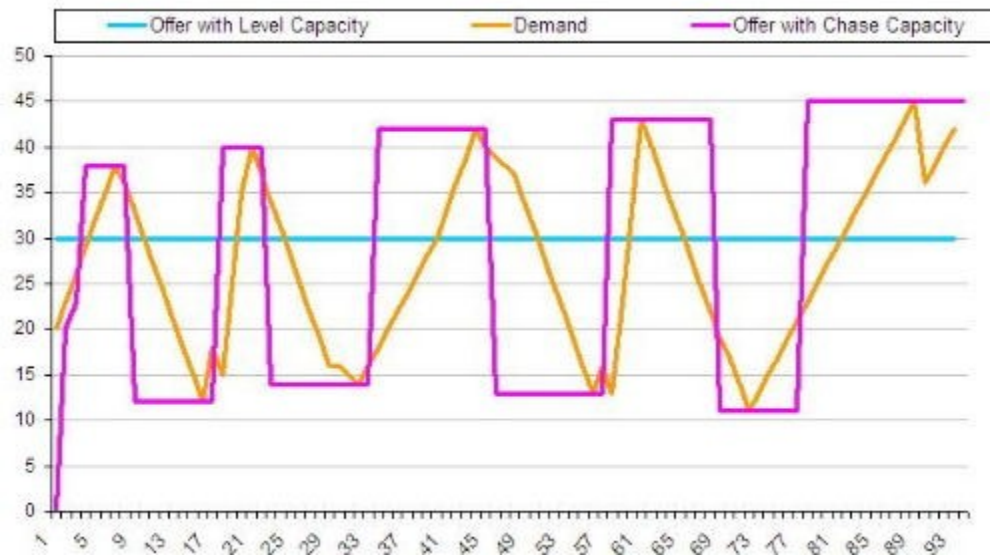


1.4.2. Chase Capacity Management

Here capacity is frequently adjusted in an attempt to match it to demand at any point in time. This can be done a number of ways such as using overtime, varying the size of the workforce, using part-time staff, or subcontracting.

What would happen for example with previous example if we were on reelection months? Maybe the political party would bet on efficacy as a performance objective in order to have happier electors.

In this case they could apply a Chase Capacity Management model, in which demand could be measured more periodically (for example a monthly basis) and capacity readapt partially in order to cope better with it. This could be done by using more resources (part time) or maybe by introducing better efficiency on current process (for example leave one desk just to collect info from the customers and work on back office generating quite an inventory or work in progress process).

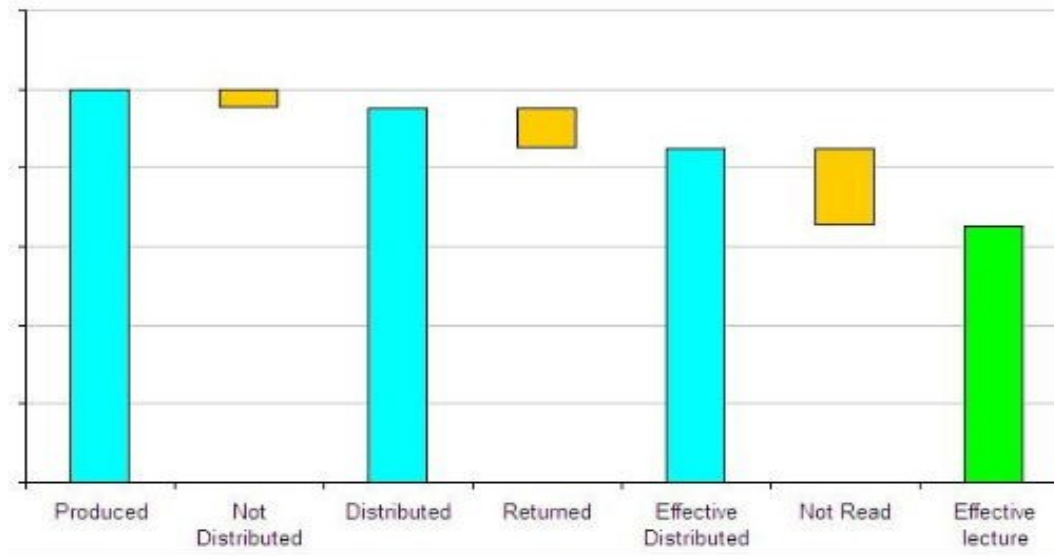


1.4.3. Yield Capacity Management

This capacity management is based on yield management theory where a consumer's behavior is studied, anticipated and influenced.

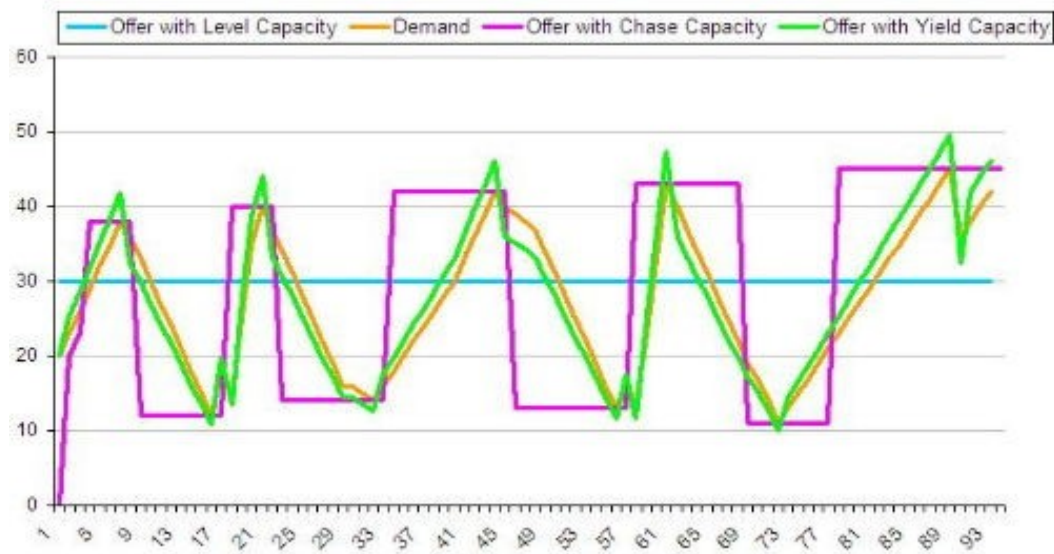
A good example of Yield Capacity Management is the newspaper industry, as newspapers can be categorized as perishable goods as their value last for only 24 hours.

On the newspaper offer there are the following indicators given in diagram to measure the yield:



All issues produced but not bought have not yield at all, and those sold but not effective read have short term yield (revenue per issue) but affect negatively mid and long term revenue (through ads revenue).

So news companies must adapt their daily circulation to demand fluctuation in order to maximize revenue.



Capacity Management is also classified as follows:

1.4.4. Potential Capacity:

The capacity that can be made available to influence the planning of senior management. This is essentially a long-term decision that does not influence day-to-day production management

1.4.5. Immediate Capacity:

It involves the amount of production capacity that can be made available in the short-term. This is the maximum potential capacity - assuming that it is used productively

1.4.5. Effective Capacity:

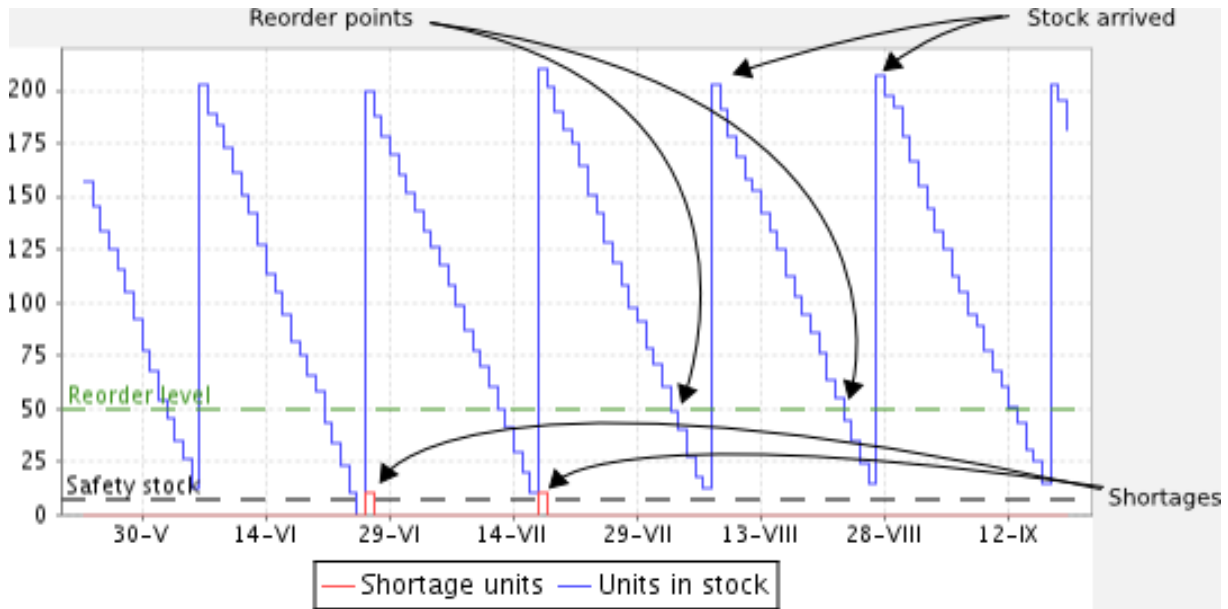
It is an important concept. Not all productive capacity is actually used or usable. It is important for production managers to understand what capacity is actually achievable.

2. Inventory Control:

It can also be referred as internal control - an accounting procedure or system designed to promote efficiency or assure the implementation of a policy or safeguard assets or avoid fraud and error etc. Inventory control is mainly concerned with minimizing the inventory cost by:

- Reducing Holding cost of inventory
- Managing order cycle for the inventory
- Assuring presence of inventory to prevent shortage cost.

Following is a graph representing how order cycle in an inventory control works. It shows that the order for the next shipment is placed after considering the lead time (which could be 3 to 4 days or even months).



We can also see that there is a safety stock line in the graph. This safety stock ensures that the production process is not affected due to late delivery of ordered stock which could be due to any reason.

Is Capacity Management more than Just Inventory Control:

From the above explained capacity management and inventory control processes we can infer that although there are many similarities in functions of the two, capacity management is certainly more than just inventory control.

- Capacity management includes program tuning. So it not only maintains performance but through sophisticated calculations also keeps upgrading the performance as per the market demand.
- Capacity Management also includes performance analysis techniques. This is done to optimize the performance of not just the warehouse but all the departments in the organization. Whereas in inventory control only as per the demand generated by the production department.
- Capacity Management assures that the company is not in an underutilized state nor over burdened with demand.

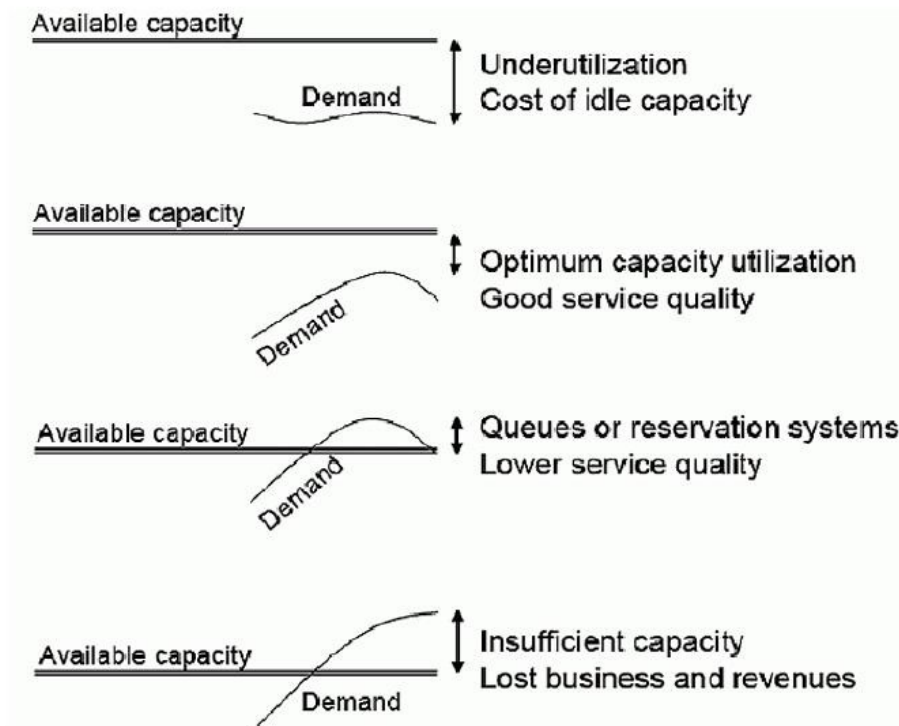


Fig: Demand Vs. Capacity four scenarios

So capacity management matches the current capacity with the demand to optimize the output of the company.

This and many other factors prove that capacity management is much more than just inventory control. It covers more perspectives than just maintaining inventory level at efficient costs.
