Capacity and demand essay

Capacity management is the activity of coping with mismatches between supply and demand. Capacity is the ability an operation or process has to supply demand. Usually this means how many products or services it can produce over a period of time. It's something that is a basic responsibility of operations managers in any kind of organization. Therefore, one of the first things that any manager must ask themselves is, what is the operation's, or process's, current capacity. Unless we understand this it is impossible to say whether an operation can meet the demand that is placed on it.

But, although measuring capacity might seem straightforward, it isn't. First, it depends on exactly what is being produced. A surgical operating theatre performing a mix of relatively routine surgical procedures will have a far higher capacity for processing patients than one performing a variety of more difficult complex surgical procedures. Second, it depends on the time period being considered. We can all produce output at a fast rate for short periods of time, but we couldn't maintain that output on a regular basis.

Third, it depends on how strictly an operation adheres to its product or service specification. A call centre can process more customers by occasionally taking short cuts in the questions it asks customers, or by not exploring every single opportunity of helping the customer. This is why a simple capacity figure may include many assumptions that need exploring before we can really understand the effective capacity of an operation or process. The next questions is, how well are demand- capacity mismatches understood? Again, this is not always straightforward.

Both demand and capacity may not always be easy to forecast. In particular of course, demand forecasting is of central concern in capacity management. Here we must distinguish between predictable and unpredictable variation in demand. Predictable variations in demand may cause an operation some problems, but at least if demand variation is known, the operation can plan for it. Unpredictable variation in demand is significantly more difficult to deal with. It usually means having to keep some spare capacity in reserve to be deployed as and when it is needed. Usually this is expensive.

Most businesses are subjected to a mixture of predictable and unpredictable demand. For example, ice-cream manufacturers know that they will sell more of the product in hot weather. Yet sudden increases in temperature can still taken them by surprise. This is why many Operations put so much effort into trying to predict demand. In the case of the ice- cream manufacturer, this would involve buying sophisticated and expensive weather forecasts from meteorological companies. Most operations will fluctuate their capacity around some nominal or base level of capacity.