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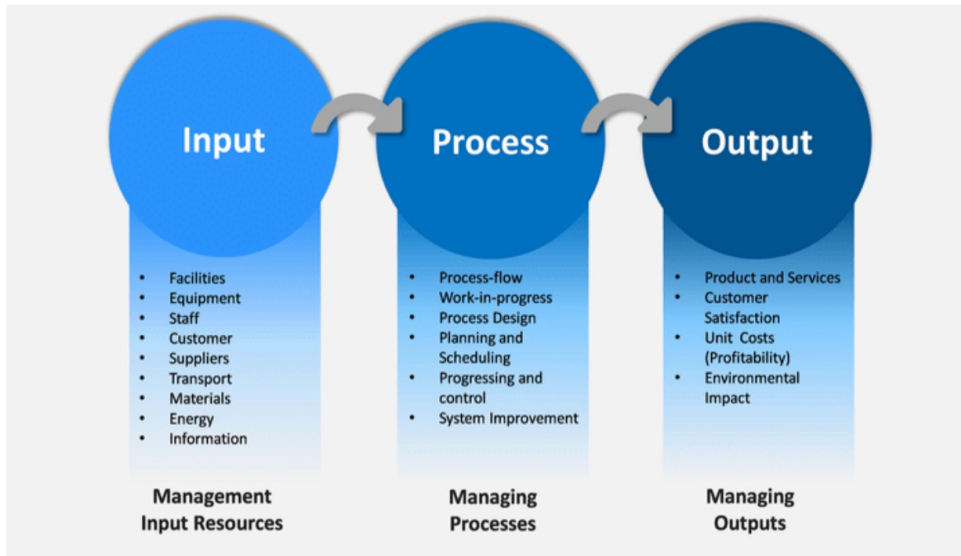
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Week 1

Definition of operations management

Operations management: management of systems or processes that create goods and/or provide services [input (labour, capital), transformation (raw material, transportation), and output]

Transformation process...



Operations management is important because it:

1. Improve productivity
2. Helps to meet customer needs
3. Leads to quality advantage
4. Leads to cost advantage
5. Helps with building of a brand's name/reputation

Real life examples

Apple: they have in house designs and outsource manufacturing; centralised supply hub

IKEA: modular design for furnitures

Coca Cola: they have a "secret" recipe; brand management; high accessibility

Toyota: high quality of cars; they have their own management principles; culture that promotes innovation; JIT processes (increase efficiency)

Maccas: franchises; standardisation; fast food chain

Planned operating model (material requirement planning or push system)

- Make the product first before distributing it in market
- Forecast future demand
- Inventory management

Just in time/lean operating model (pull system - Toyota model)

- Not producing product until customer makes an order
- Objective is to be responsive

Week 2

Forecasting of demand

- Poor forecasting can lead to extra inventory (capital-related costs) or not enough stock (opportunity costs)
- Good forecasts are timely, reliable (consistent), accurate, expressed in meaningful units, written, and easy to understand or use
- Time span of forecasting and the type of activity to use the forecasting
 - Short range (< 3 months to 1 year) - job scheduling, workforce level, planning purchasing
 - Intermediate range (3 months to 3 years) - budgeting, manufacturing forecast/production planning, sales planning
 - Long-range (greater than 3 years) - planning and rollout of new products
- Qualitative forecasting
 - Forecast is judgemental and rely on analysis from subjective input [Delphi technique]
 - Use customer surveys; having conversation with sales staff/manager
 - Used when we don't have good data (e.g. new products or new event that will cause a new trend, such as toilet paper shortage during COVID)
- Quantitative forecasting
 - Time series (use historical data to predict the future) [exponential smoothing]
 - Assumption that future will be like the past
 - Associative models (use equation that consists of one or more explanatory variables to predict demand) [regression]
 - E.g. price will affect demand; amount spent on advertising will affect sales
- Forecasting in the service industry - managing and optimising intangible products such as real time customer interaction

Forecast process

1. Know what you are forecasting
2. Time span for forecasting
3. Establish the methodology of forecasting - choose the forecasting technique
4. Collect and analyse the data
5. Document the forecast
6. Review forecasting

Inventory management

- Inventory is related to customer satisfaction: need to respond in time according to demand and this is related to the idea of service level agreement (high SLA percentage forces the need for extra inventory to meet the target)
- Companies need a good system to track of inventory on hand and on order
- Good inventory management needs knowledge of lead time (i.e. time between when the customer ordered and when they receive the order), reliable forecast of demand, and lead time variability
- Know the holding costs, ordering costs and shortage costs