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COURSE NAME	: OPERATIONS MANAGEMENT
SEMESTER	: I
FACULTY NAME	: MR.RAJKUMAR
DESIGNATION	: ASSISTANT PROFESSOR
TOPIC	: OPERATION DECISION PHASES

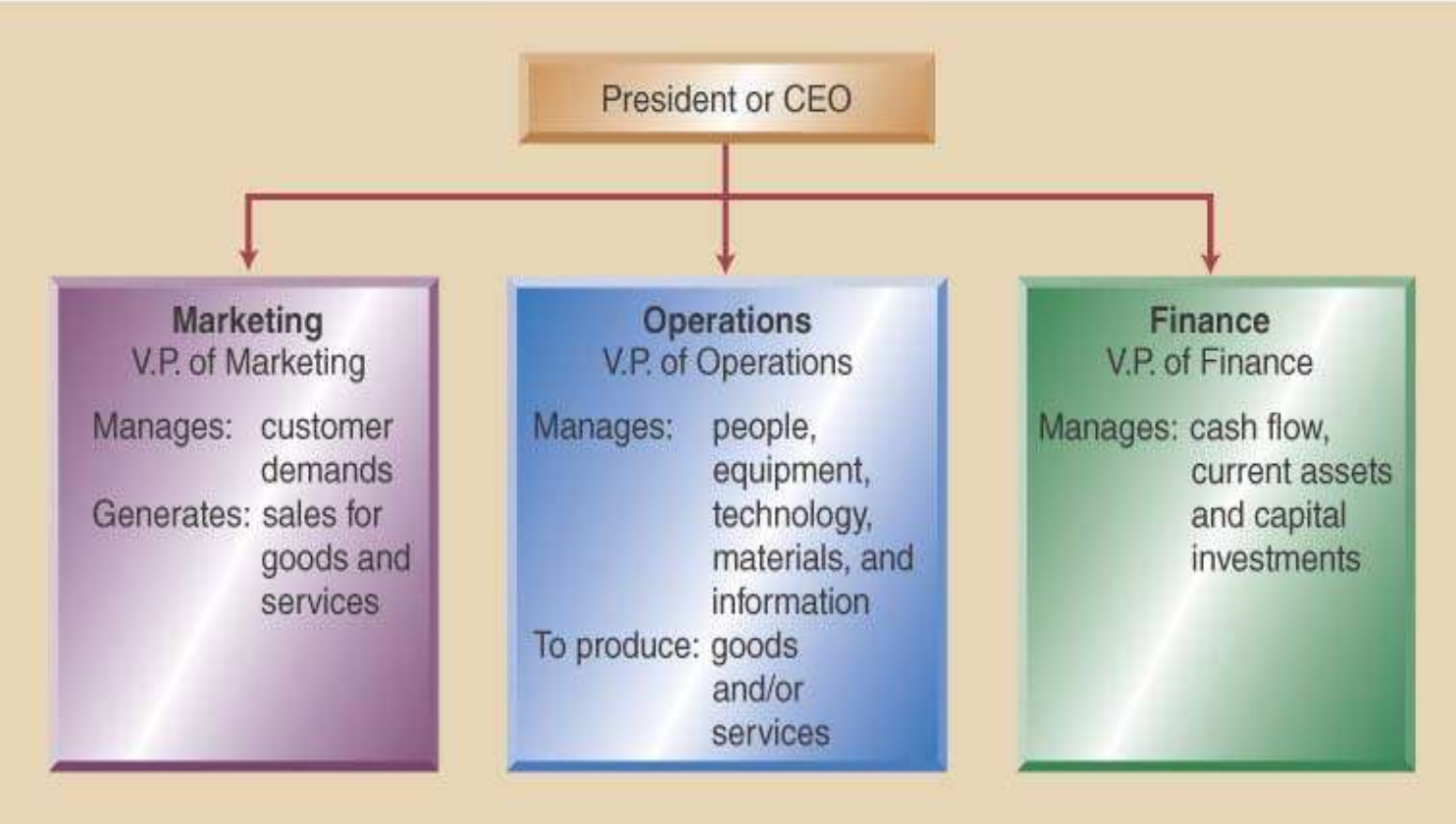
Operations Management is:

The ***business function*** responsible for **planning**, **coordinating**, and **controlling** the resources needed to produce products and services for a company

Operations Management is:

- A management function
- An organization's core function
- In *every* organization whether Service or Manufacturing, profit or Not for profit

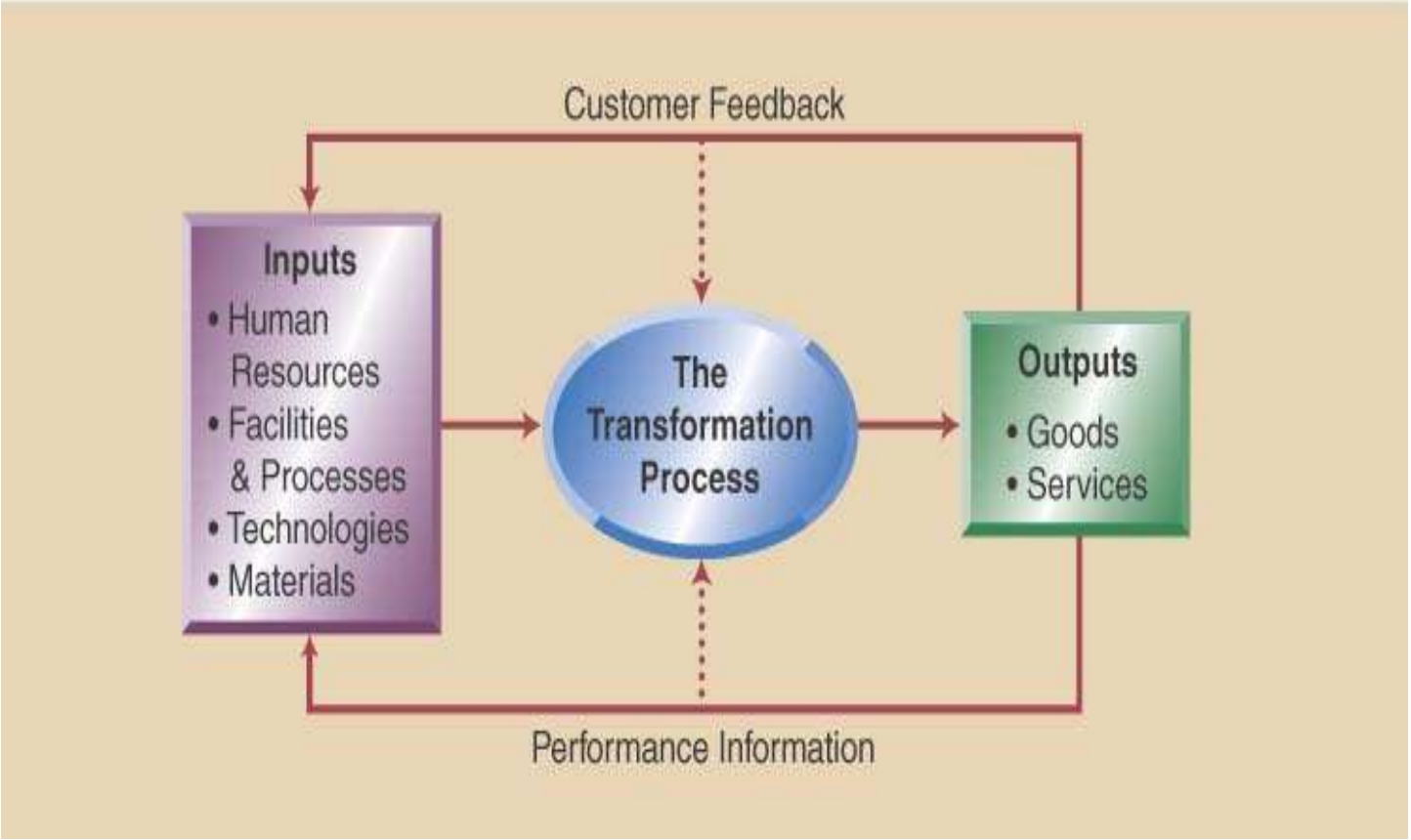
Typical Organization Chart



What is Role of OM?

- OM Transforms inputs to outputs
  - Inputs are resources such as
    - People, Material, and Money
  - Outputs are goods and services

OM's Transformation Process



OM's Transformation Role

- To add value
  - Increase product value at each stage
  - Value added is the net increase between output product value and input material value
- Provide an efficient transformation
  - Efficiency – means performing activities well for least possible cost

Goods & Services

- **Manufacturing**
- Tangible product
- Product can be inventoried
- Low customer contact
- Longer response time
- Capital intensive

- **Services**
- Intangible product
- Product cannot be inventoried
- High customer contact
- Short response time
- Labor intensive

On the other hand…

- **Both use technology**
- **Both have quality, productivity, & response issues**
- **Both must forecast demand**
- **Both will have capacity, layout, and location issues**
- **Both have customers, suppliers, scheduling and staffing issues**

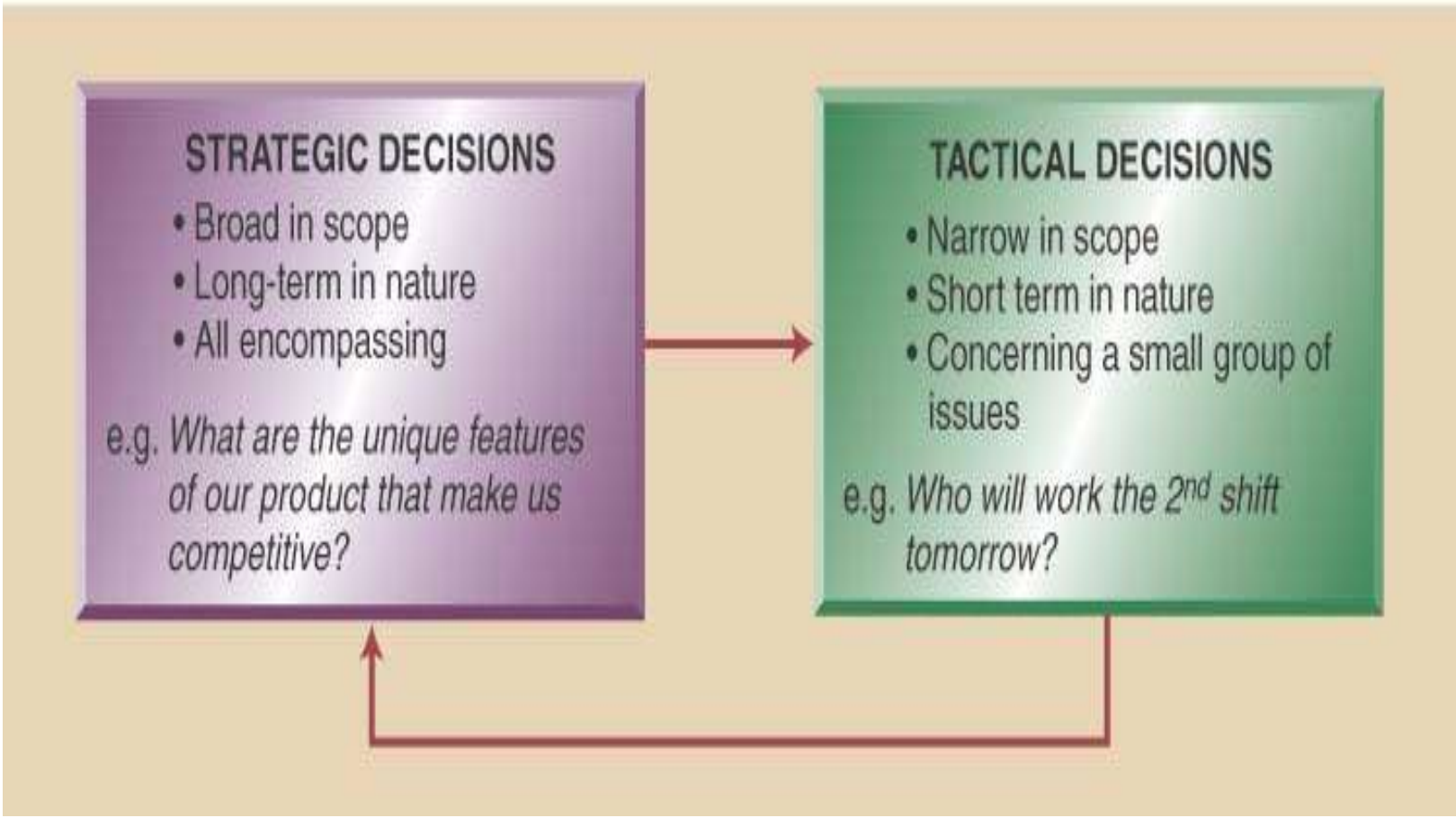
OM Decisions

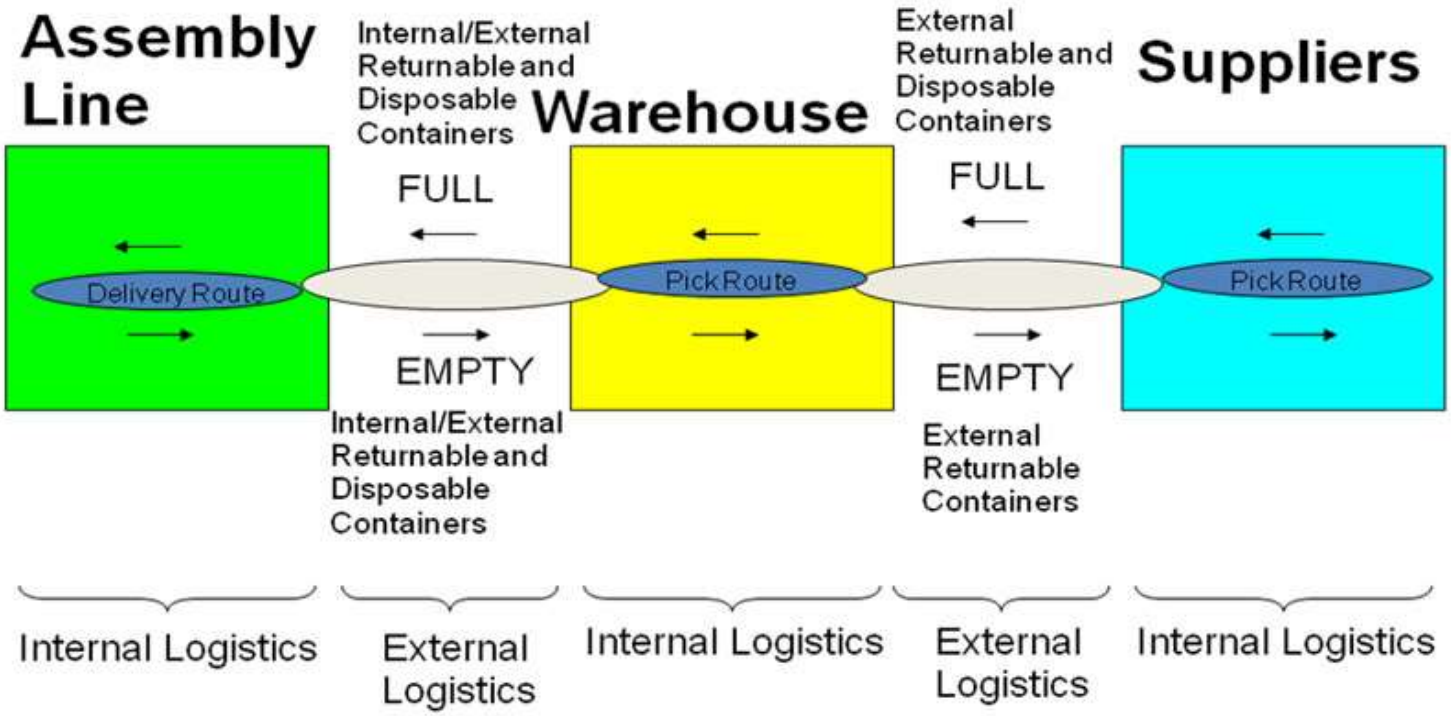
- All organizations make decisions and follow a similar path
  - First decisions very broad – Strategic decisions
    - Strategic Decisions – set the direction for the entire company; they are broad in scope and long-term in nature

OM Decisions

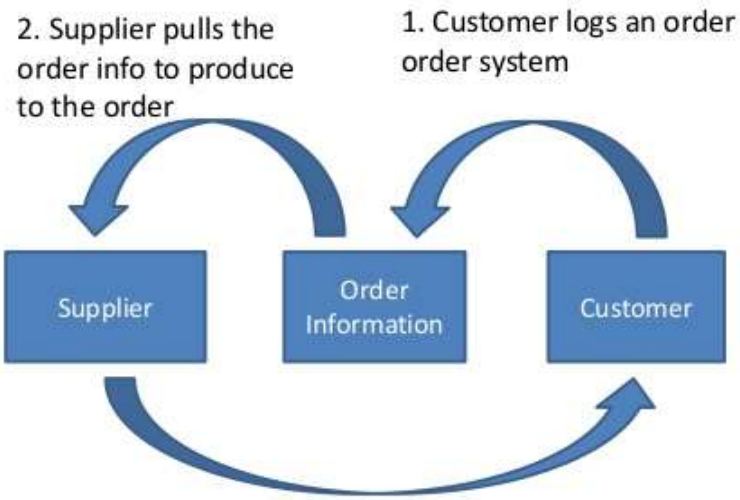
- Following decisions focus on specifics - Tactical decision
  - Tactical decisions: focus on specific day-to-day issues like resource needs, schedules, & quantities to produce
  - are frequent
- Strategic decisions less frequent
- Tactical and Strategic decisions must align

OM Decisions



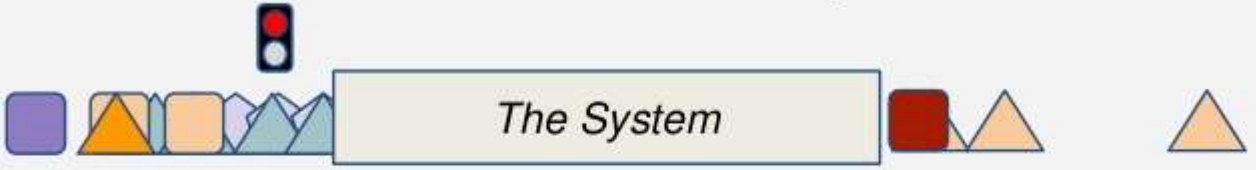

Assembly Line
Internal/External Returnable and Disposable Containers
Warehouse
External Returnable and Disposable Containers
Suppliers
FULL
FULL
Delivery Route
Pick Route
Pick Route
EMPTY
EMPTY
Internal/External Returnable and Disposable Containers
External Returnable Containers
Internal Logistics
External Logistics
Internal Logistics
External Logistics
Internal Logistics

The general idea of Kanban



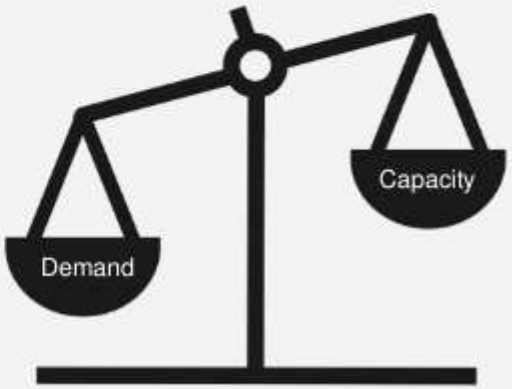
Each action is triggered by the delivery of the order itself, requiring less effort to manage the information and timing of tasks

What is a kanban system?



A flow system for work items using (physical or virtual) "kanbans" - visual signals to balance production

1. **Capacity** balanced with **demand**
2. **Flow efficiency** balanced with **resource efficiency**
3. **Stations/services/teams** balanced with each other

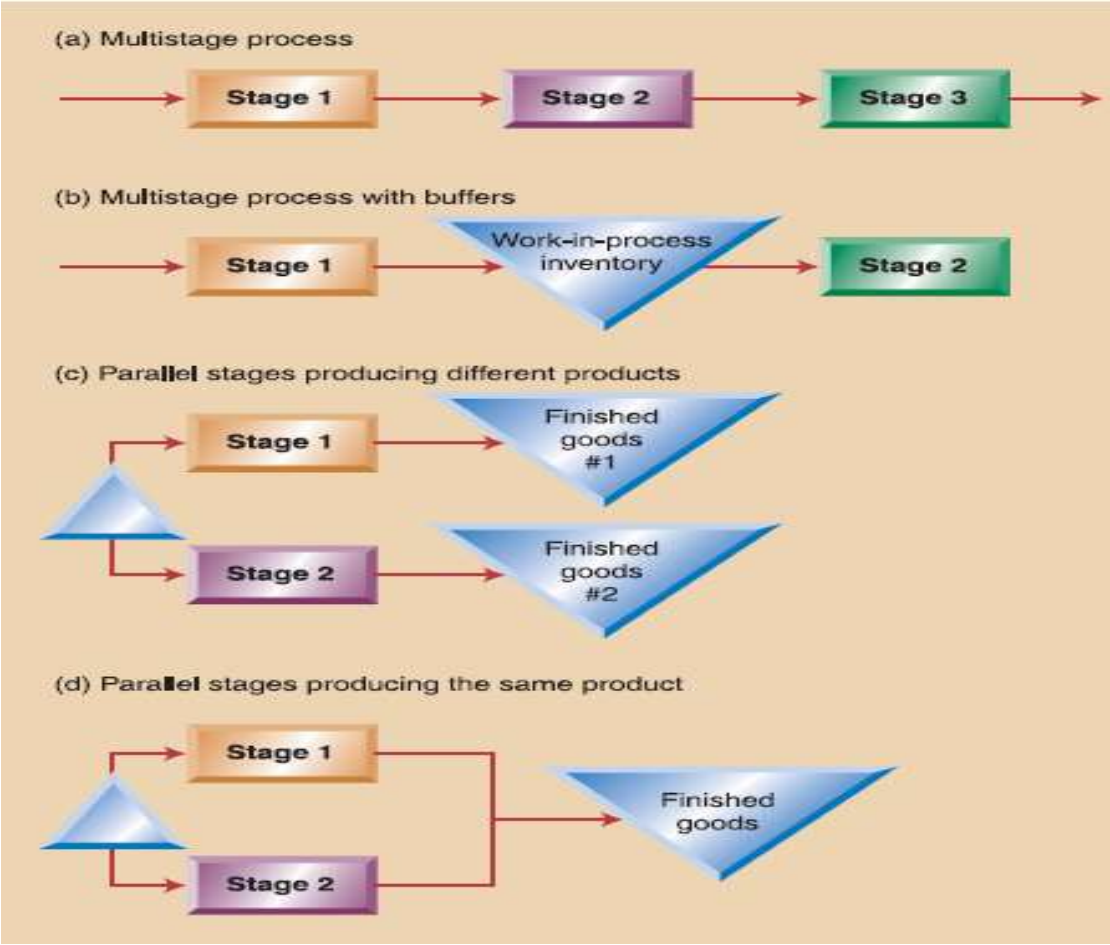


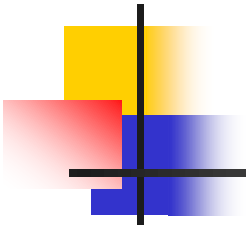
- **Kanban** (看板 ?) (literally signboard or billboard in Japanese) is a scheduling system for lean manufacturing and just-in-time manufacturing.[2] Kanban is an inventory-control system to control the supply chain.

- Kanban maintains inventory levels; a signal is sent to produce and deliver a new shipment as material is consumed. These signals are tracked through the replenishment cycle and bring extraordinary visibility to suppliers and buyers

Process Improvement

Often stages in the production process can be performed in parallel, as shown here in (c) and (d). The two stages can produce different products (c) or the same product (d).





Process Performance Metrics

Process performance metrics – defined: Measurement of different process characteristics that tell us how a process is performing

- Determining if a process is functioning properly is required
- Determination requires measuring performance

Process Performance Metrics

Measure	Definition
1. Throughput time	Average amount of time product takes to move through the system.
2. Process velocity $= \frac{\text{Throughput time}}{\text{Value-added time}}$	A measure of wasted time in the system.
3. Productivity $= \frac{\text{Output}}{\text{Input}}$	A measure of how well a company uses its resources.
4. Utilization $= \frac{\text{Time a resource used}}{\text{Time a resource available}}$	The proportion of time a resource is actually used.
5. Efficiency $= \frac{\text{Actual output}}{\text{Standard output}}$	Measures performance relative to a standard.

Linking Product Design & Process Selection

- Product design and process selection are directly linked
- Type of product selected defines type of operation required
- Type of operation available defines broader organizational aspects such as
  - Equipment required
  - Facility arrangement
  - Organizational structure

Linking Product Design & Process Selection con't

Impact of Product Life Cycle:

Intermittent and repetitive operations typically focus on producing products in different stages of the product life cycle. Intermittent is best for early in product life; repetitive is better for later when demand is more predicable.

Linking Product Design & Process Selection, con't

- Impact of Competitive Priorities: Intermittent operations are typically less competitive on cost than repetitive operations. (Think "off the rack" vs. custom tailored clothing.)

Linking Design & Process Selection: Summary

- **Organizational Decisions appropriate for different types of operations**

Decision	Intermittent Operations	Repetitive Operations
Product design	Early stage of product life cycle	Later stage of product life cycle
Competitive priorities	Delivery, flexibility, and quality	Cost and quality
Facility layout	Resources grouped by function	Resources arranged in a line
Product strategy	Make-to-order/assemble-to-order	Make-to-stock
Vertical integration	Low	High