

Operations Management

Chapter 6 – Process Decision

*PowerPoint presentation to accompany Heizer
/Render, Operations Management, 12 th Ed.*

Introduction

- The objective of a process decision is to build a production process that:
 - ✓ Meets or exceeds customer requirements
 - ✓ Meets cost and managerial goals

Process Strategies

Four basic strategies

1. Process focus
2. Repetitive focus
3. Product focus
4. Mass customization

Within these basic strategies there are many ways they may be implemented

Process Strategies

- ◆ Process strategies follow a continuum
- ◆ Within a given facility, several strategies may be used

Process-Focused Repetitive-Focused Product-Focused



High variety, low volume
Low utilization (5% - 25%)
General-purpose equipment

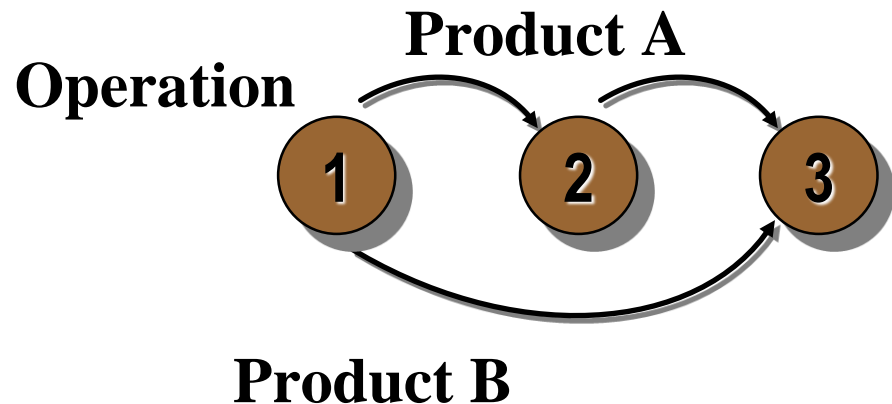
Modular
Flexible equipment

Low variety, high volume
High utilization (70% - 90%)
Specialized equipment

Process-Focused Strategy

- ◆ Facilities are organized by process
- ◆ Similar processes are together
- ◆ Low volume, high variety products

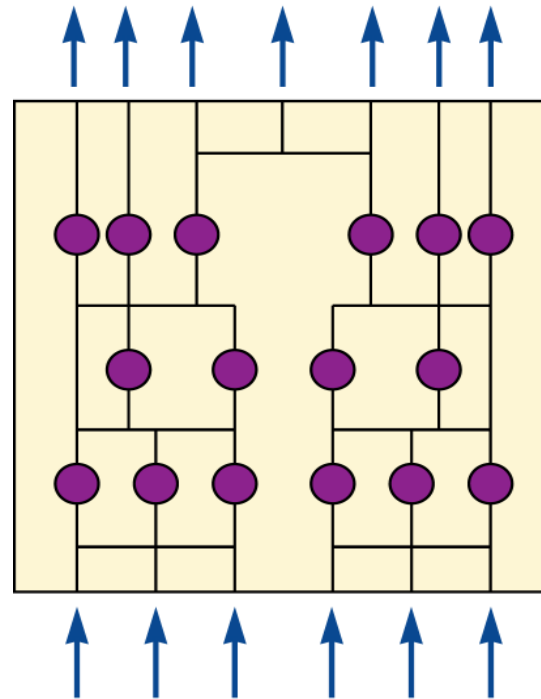
- ◆ Other names
 - ◆ Intermittent process
 - ◆ Job shop



Process-Focused Strategy

**Process-focused
(intermittent process)**

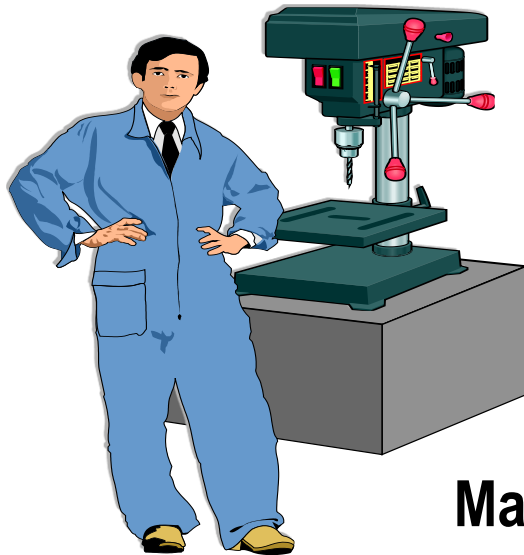
High variety of outputs



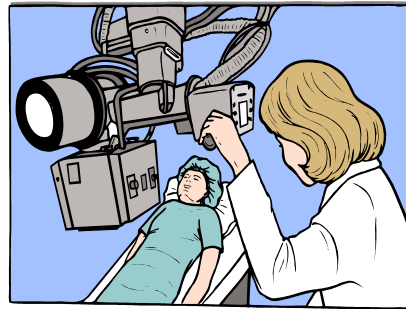
Many inputs

Process-Focused Strategy

Process-Focused Strategy Examples



**Machine
Shop**



Hospital



Process-Focused Strategy

Process Focused Strategy - Pros & Cons

◆ Advantages

- ◆ Greater product flexibility
- ◆ More general purpose equipment
- ◆ Lower initial capital investment

◆ Disadvantages

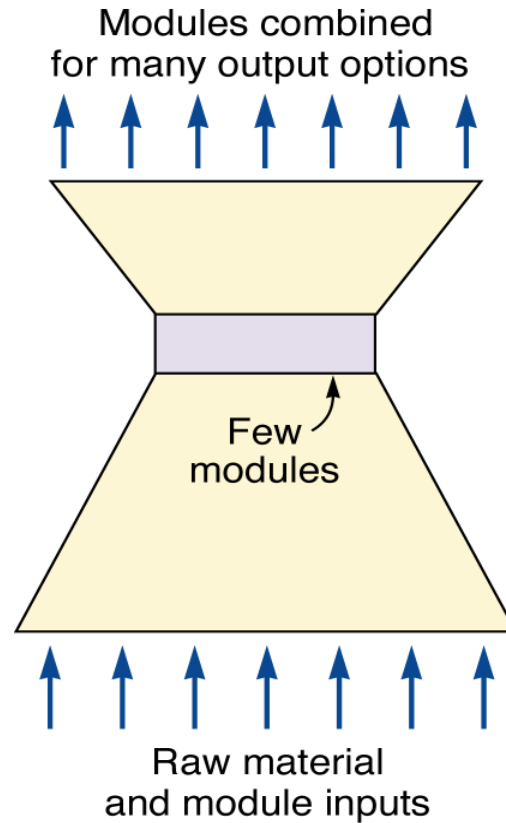
- ◆ High variable costs
- ◆ More highly trained personnel
- ◆ More difficult production planning & control
- ◆ Low equipment utilization (5% to 25%)

Repetitive Focused Strategy

- ◆ Facilities often organized by assembly lines
- ◆ Characterized by *modules*
 - ◆ Parts & assemblies made previously
- ◆ Modules combined for many output options
- ◆ Less flexibility than process-focused facilities but more efficient
- ◆ Other names
 - ◆ Assembly line
 - ◆ Production line

Repetitive Focused Strategy

Repetitive focus



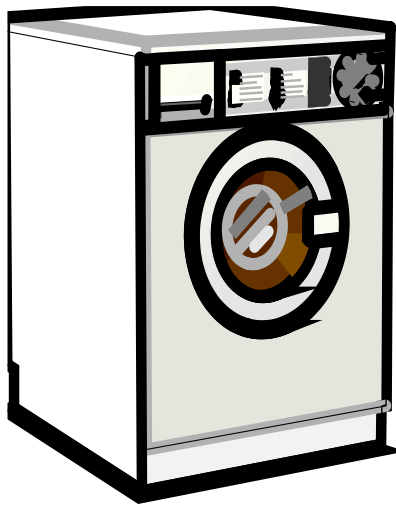
Repetitive Focused Strategy

Repetitive Focused Strategy - Considerations

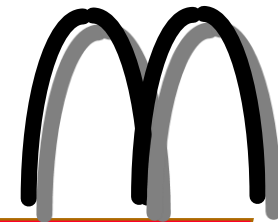
- ◆ More structured than process-focused, less structured than product focused
- ◆ Enables quasi-customization
- ◆ Using modules, it enjoys economic advantage of continuous process, and custom advantage of low-volume, high-variety model

Repetitive Focused Strategy

Examples



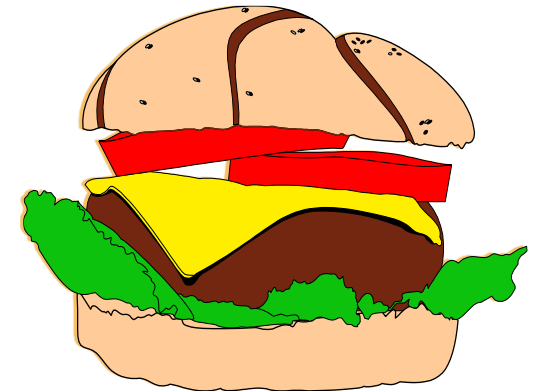
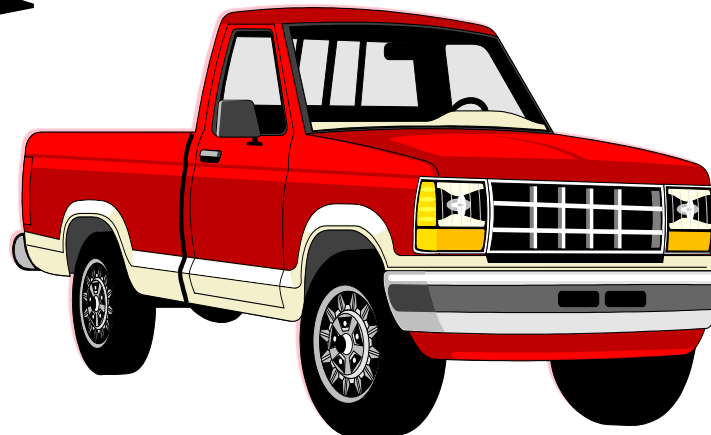
Clothes
Dryer



Fast
Food

McDonald's
over 95 billion served

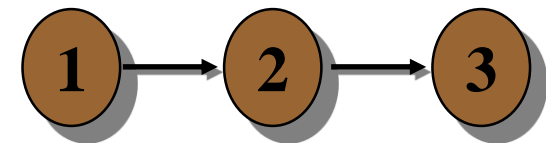
Truck



Product Focus Strategy

- Facilities are organized by product
- High volume, but low variety products
- Typically high fixed cost but low variable cost
- Generally less skilled labor
- ◆ Other names
 - ◆ Line flow production
 - ◆ Continuous production

Products A & B

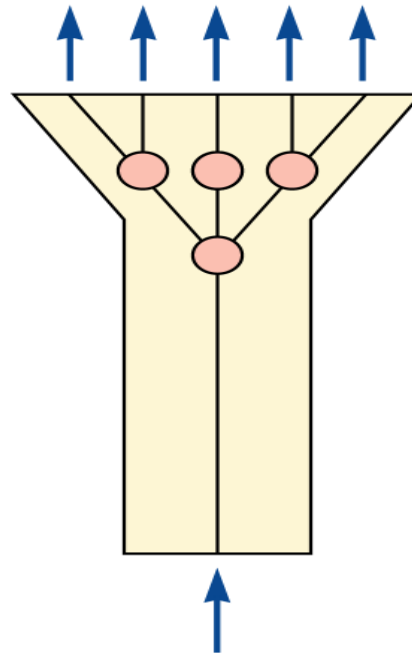


Operation

Product Focus Strategy

Product-focused (continuous process)

Output variations in size,
shape, and packaging



Few inputs

Product Focus Strategy

Product-Focused Strategy- Pros & Cons

- ◆ Advantages
 - ◆ Lower variable cost per unit
 - ◆ Lower but more specialized labor skills
 - ◆ Easier production planning and control
 - ◆ Higher equipment utilization (70% to 90%)
- ◆ Disadvantages
 - ◆ Lower product flexibility
 - ◆ More specialized equipment
 - ◆ Usually higher capital investment

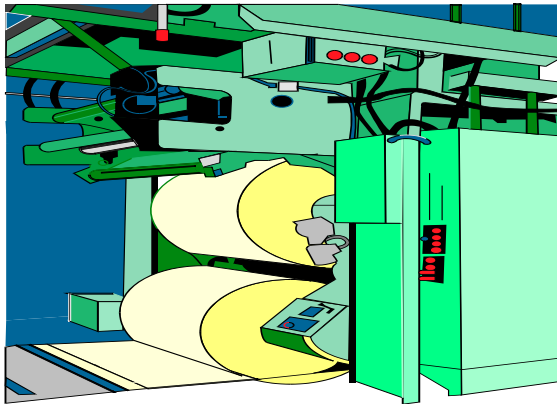
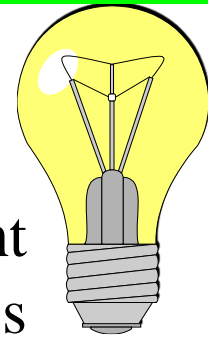
Product Focus Strategy

Examples

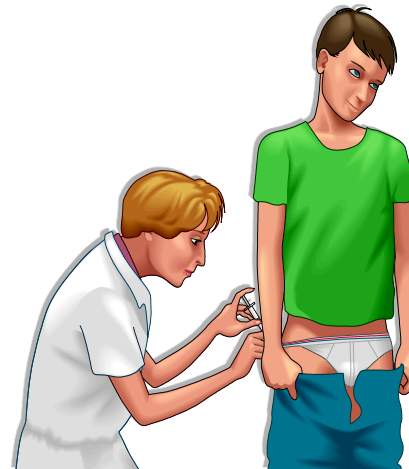
Soft Drinks
(Continuous,
then Discrete)



Light
Bulbs
(Discrete)



Paper
(Continuous)



Mass
Flu Shots
(Discrete)

Mass Customization Strategy

- ◆ The rapid, low-cost production of goods and service to satisfy increasingly unique customer desires
- ◆ Combines the flexibility of a process focus with the efficiency of a product focus

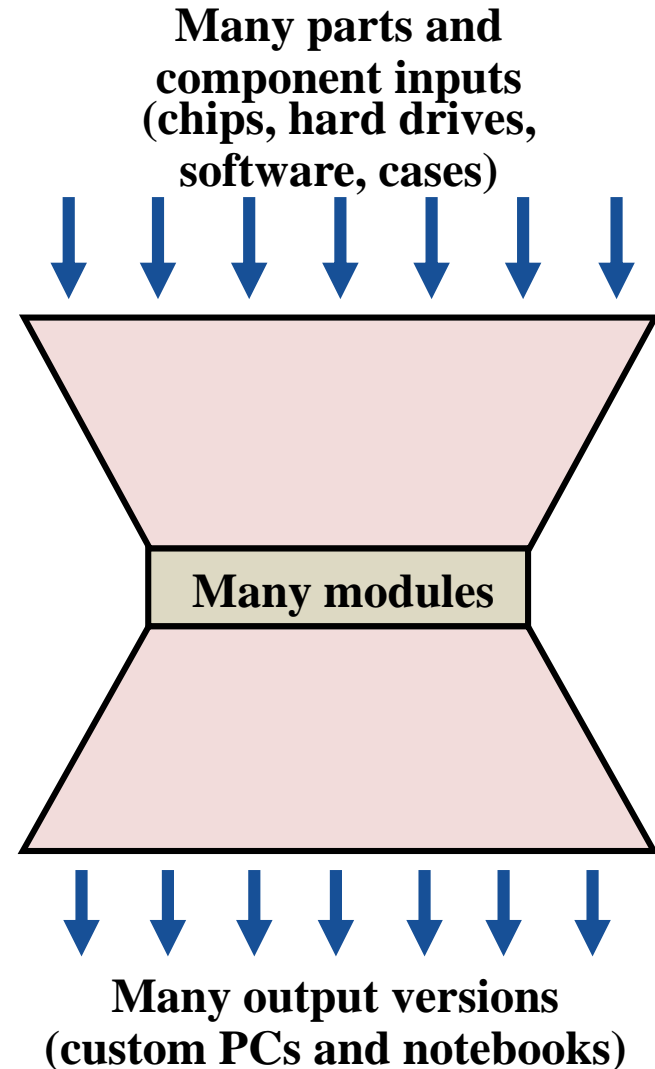
Mass Customization Strategy

Mass Customization



(high-volume, high-variety)

Dell Computer



A Comparison

<u>Process Focus</u> (Low volume, High variety)	<u>Repetitive Focus</u> (Modular)	<u>Product focus</u> (High-volume, low-variety)	<u>Mass Customization</u> (High-volume, high-variety)
1. Small quantity, large variety of products	Long runs, standardized product, from modules	Large quantity, small variety of products	Large quantity, large variety of products
2. General purpose equipment	Special equipment aids in use of assembly line	Special purpose equipment	Rapid changeover on flexible equipment

A Comparison

<u>Process Focus</u>	<u>Repetitive Focus</u>	<u>Product focus</u>	<u>Mass Customization</u>
4 Fixed costs low, variable costs high	Fixed costs dependent on flexibility of facilities	Fixed costs high, variable costs low	Fixed costs high; variable costs must be low
5 Costing, done by job, is estimated prior to doing job but only known after doing job	Costs usually known based on experience	Because of high fixed costs, cost dependent on utilization of capacity	High fixed costs and dynamic variable costs