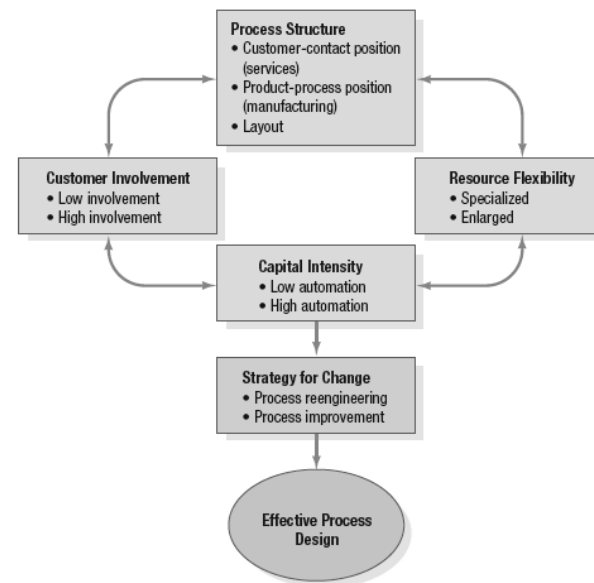


# Chapter

## 2 Process Strategy and Analysis

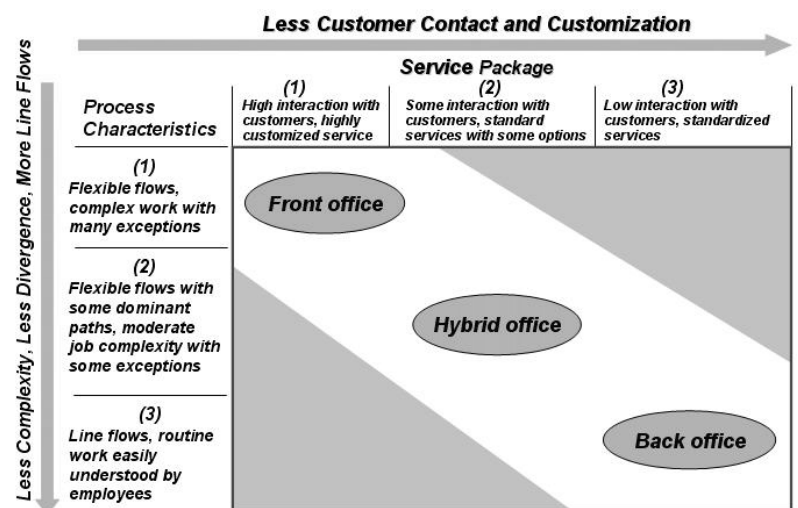
1. Processes are everywhere, in all functional areas of the enterprise.
2. Managers must see to it that processes in all departments are adding as much customer value as possible.
3. Three important principles concerning process strategy
  - a.
  - b.
  - c.
- 4.
5. Four common process decisions
  - a.
  - b.
  - c.
  - d.



### 1. Process Structure in Services

1. Describe the nature of service processes (dimensions of customer contact)
2. Dimensions of customer contact
  - a. Physical presence

- b. What is processed
  - c. Contact intensity
  - d. Personal attention
  - e. The method of delivery used in contact
3. Elements of customer-contact matrix (fitting service process with customer contact)
  - a. Customer contact and customization
  - b. Process divergence, and flow
4. Service process structuring (three process structures forming a continuum)
  - a. Front office:
  - b. Hybrid office:
  - c. Back office:



## 2. Process Structure in Manufacturing

Manufacturing processes convert materials into goods that have a physical form.

### 1. Elements of product-process matrix (how manufacturing processes relate to volume)

a.

b.

c.

### 2. Manufacturing process structuring (four process choices, forming a continuum)

a. Job process:

b. Batch process:

c. Line process:

d. Continuous flow process:

### 3. Production and Inventories

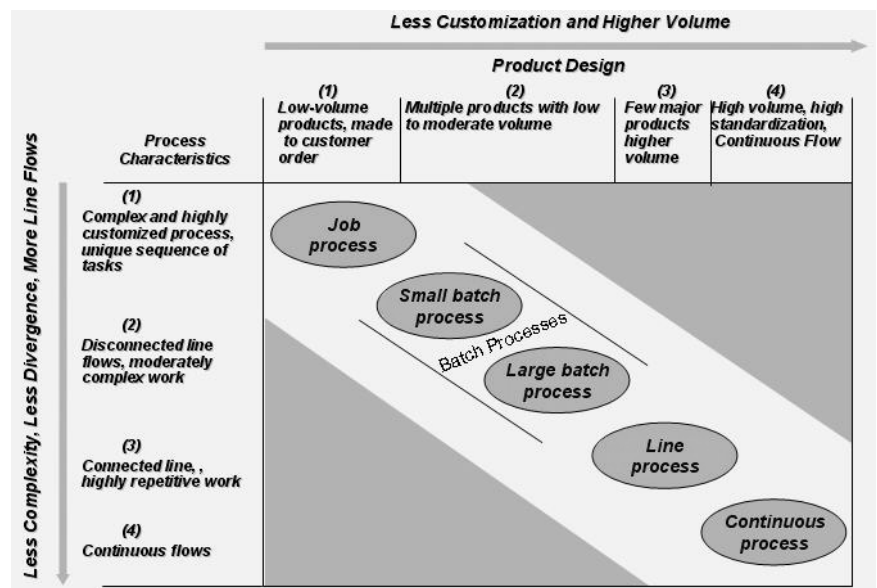
a. Design-to-Order Strategy

b. Make-to-order strategy

c. Assemble-to-order strategy

d. Make-to-stock strategy

### 4. Layout



- a. Layout:
- b. Operation:

### 3. Process Strategy Decisions

- 1. Customer Involvement
  - a. Possible advantages
  - b. Possible disadvantages
  - c. Emerging technologies
- 2. Resource Flexibility: managers must account for process divergence and diverse process flows.
  - a. Workforce
  - b. Equipment

#### c. **Application 2.1: Break-Even Analysis in Process Choice**

BBC is deciding whether to weld bicycle frames manually or to purchase a welding robot. If welded manually, investment costs for equipment are only \$10,000. The per-unit cost of manually welding a bicycle frame is \$50.00 per frame. On the other hand, a robot capable of performing the same work costs \$400,000. Robot operating costs including support labor are \$20.00 per frame. At what volume would BBC be indifferent to these alternative methods?

	<b>If welded manually (Make)</b>	<b>If welded by robot (Buy)</b>
Fixed costs	\$10,000	\$400,000
Variable costs	\$50	\$20

$$Q = \frac{F_m - F_b}{c_b - c_m} =$$

3. Capital Intensity: is the mix of equipment and human skills in the process; the greater the relative cost of equipment, the greater is the capital intensity.
  - a. Automating manufacturing processes
    - Advantage:
    - Disadvantages:
  - b. Automating service processes
  - c. Economies of Scope: Requires a family of products having enough collective volume to utilize equipment fully

## **4. Strategic Fit**

The process strategist should understand how the four major process decisions tie together.

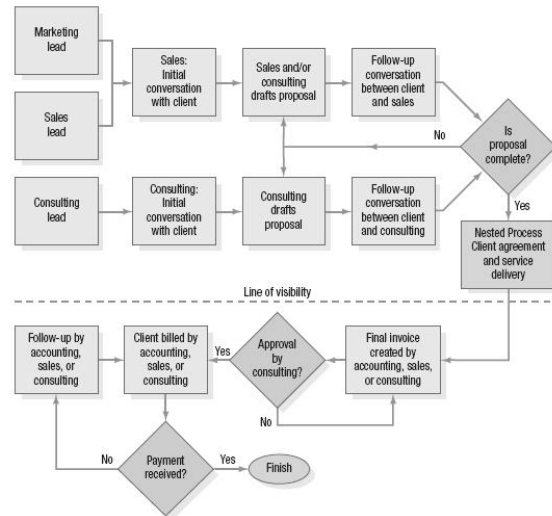
1. Decision patterns for service processes
  - a. Process structure
  - b. Customer involvement
  - c. Resource flexibility
  - d. Capital intensity
2. Decision patterns for manufacturing processes
  - a. Process choice
  - b. Customer involvement
  - c. Resource flexibility
  - d. Capital intensity
3. Gaining focus

## **5. Strategies for Change**

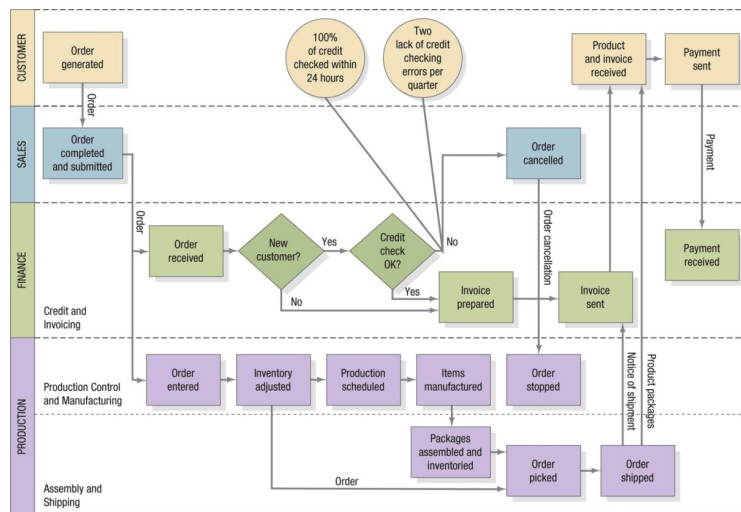
1. Process reengineering
2. Process improvement
3. Process Analysis
  - a. Six Sigma Process Improvement Model: employees must be trained in the “whys” and the “how-tos” of process performance and what it means to customers, both internal and external
    - Define:
    - Measure:
    - Analyze:
    - Improve:
    - Control:

## 6. Documenting and Evaluating the Process

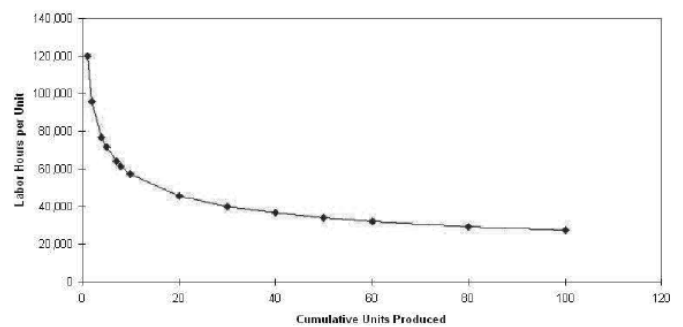
### 1. Flowcharts



#### a. Swim Lane Flowcharts



- b. Service blueprints
- 2. Work Measurement techniques
  - a. Time study methods
  - b. Elemental standard data approach
  - c. Predetermined data approach
  - d. Work sampling method
  - e. Learning curve analysis
- 3. Process Charts



- a. Purpose
- b. Possible categories
- c. Estimate the annual cost of the entire process.

Summary				
Activity	Number of steps	Time (min)	Distance (ft)	
Operation	5	23	—	
Transport	9	11	815	
Inspect	2	8	—	
Delay	3	8	—	
Store	—	—	—	

Step no.	Time (min)	Distance (ft)	●	➡	■	▼	Step description
1	0.50	15		X			Enter emergency room, approach patient window
2	1.00	-	X				Sit down and fill out patient history
3	0.75	40		X			Nurse escorts patient to ER triage room
4	3.00	-		X	X		Nurse inspects injury
5	0.75	40		X			Return to waiting room
6	1.00	-				X	Wait for available bed
7	1.00	60		X			Go to ER bed
8	4.00	-				X	Wait for doctor
9	5.00	-			X		Doctor inspects injury and questions patient
10	2.00	200		X			Nurse takes patient to radiology
11	3.00	-	X				Technician x-rays patient
12	2.00	200		X			Return to bed in ER
13	3.00	-				X	Wait for doctor to return
14	2.00	-	X				Doctor provides diagnosis and advice
15	1.00	60		X			Return to emergency entrance area
16	4.00	-		X			Check out
17	2.00	180		X			Walk to pharmacy
18	4.00	-	X				Pick up prescription
19	1.00	20		X			Leave the building



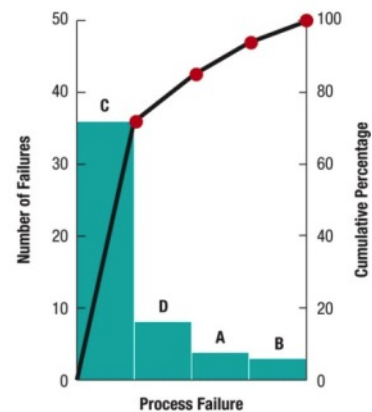
#### 4. Data analysis tools

##### a. Checklists

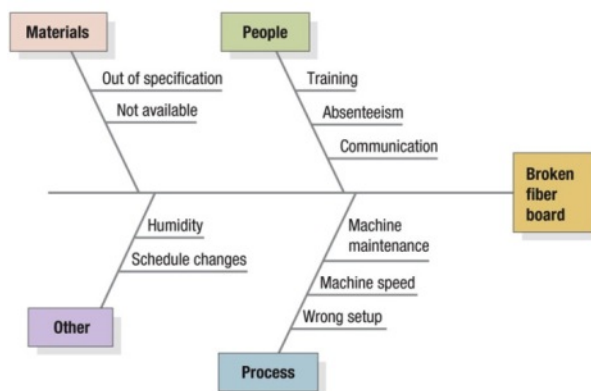
Step 1. Checklist

Headliner failures		
Process failure	Tally	Total
A. Tears in fabric	IIII	4
B. Discolored fabric	III	3
C. Broken fiber board		36
D. Ragged edges	II	7
		Total 50

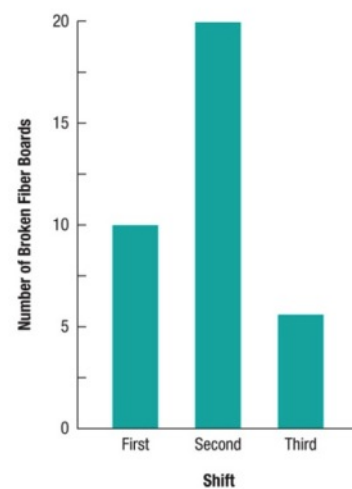
Step 2. Pareto Chart



Step 3. Cause-and-Effect Diagram



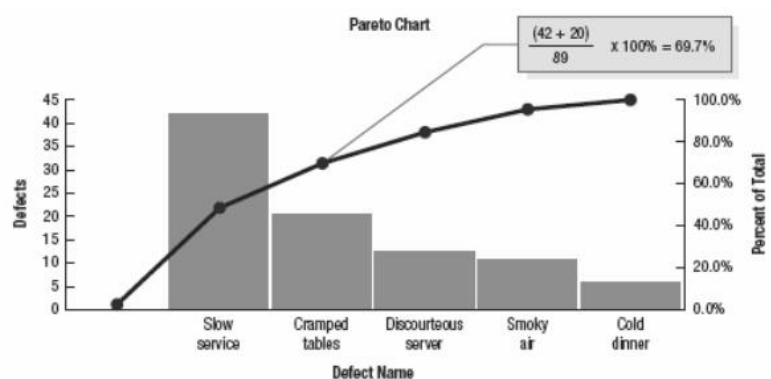
Step 4. Bar Chart



##### b. Histograms and bar charts

##### c. Pareto charts

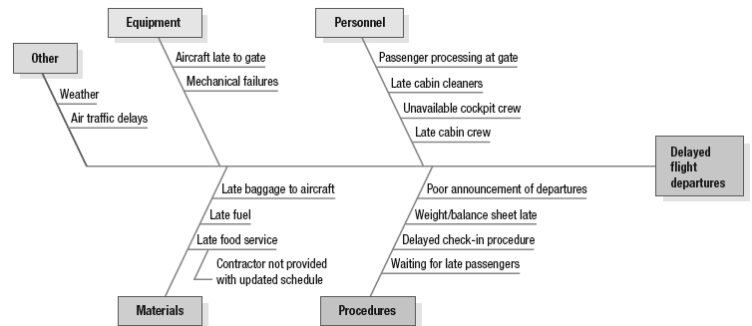
##### Example 2.2



d. Scatter diagrams

e. Cause-and-effect diagram

### Example 2.3



f. Graphs

5. Data snooping

6. Simulation

## 7. Redesigning the Process

1. Generating ideas: questioning and brainstorming

ask six questions about each step in the process

- *What* is being done?
- *When* is it being done?
- *Who* is doing it?
- *Where* is it being done?
- *How* is it being done?
- *How well* does it do on the various metrics of importance?

2. Benchmarking

a. Types

- Competitive
- Functional
- Internal

3. Implementing: Seven mistakes to avoid:

(1)

(2)

(3)

(4)

(5)

(6)

(7)