

Operations Strategy in a Global Environment & Problem Solving

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Lecture 10



Operations Strategy in a Global Environment

Global Strategies

- Boeing – sales and production are worldwide
- Benetton – moves inventory to stores around the world faster than its competition by building flexibility into design, production, and distribution
- Sony – purchases components from suppliers in Thailand, Malaysia, and around the world



Global Strategies

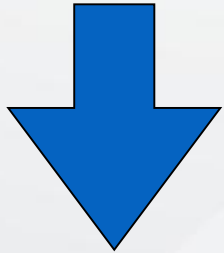
- Volvo – considered a Swedish company but until recently was controlled by an American company, Ford. The current Volvo S40 is built in Belgium and shares its platform with the Mazda 3 built in Japan and the Ford Focus built in Europe.
- Haier – A Chinese company, produces compact refrigerators (it has one-third of the US market) and wine cabinets (it has half of the US market) in South Carolina



Reasons to Globalize

Reasons to Globalize

Tangible Reasons



Intangible Reasons

1. Reduce costs (labor, taxes, tariffs, etc.)
2. Improve supply chain
3. Provide better goods and services
4. Understand markets
5. Learn to improve operations
6. Attract and retain global talent



Reduce Costs

- Foreign locations with lower wage rates can lower direct and indirect costs
 - Maquiladoras
 - World Trade Organization (WTO)
 - North American Free Trade Agreement (NAFTA)
 - APEC, SEATO, MERCOSUR, CAFTA
 - European Union (EU)



Improve the Supply Chain

- Locating facilities closer to unique resources
 - Auto design to California
 - Athletic shoe production to China
 - Perfume manufacturing in France



Provide Better Goods and Services

- Objective and subjective characteristics of goods and services
 - On-time deliveries
 - Cultural variables
 - Improved customer service



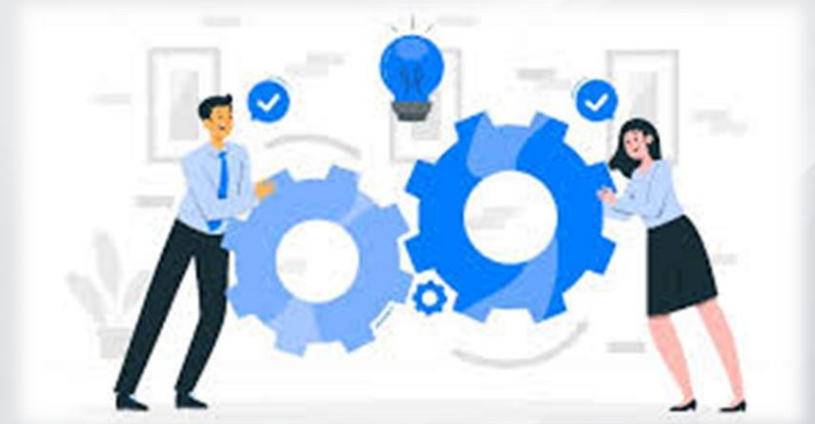
Understand Markets

- Interacting with foreign customers and suppliers can lead to new opportunities
 - Cell phone design from Europe
 - Cell phone fads from Japan
 - Extend the product life cycle



Learn to Improve Operations

- Remain open to the free flow of ideas
 - General Motors partnered with a Japanese auto manufacturer to learn new approaches to production and inventory control
 - Equipment and layout have been improved using Scandinavian ergonomic competence



Attract and Retain Global Talent

- Offer better employment opportunities
 - Better growth opportunities and insulation against unemployment
 - Relocate unneeded personnel to more prosperous locations



Cultural and Ethical Issues

- Cultures can be quite different
- Attitudes can be quite different towards

◆ **Punctuality**

◆ **Lunch breaks**

◆ **Environment**

◆ **Intellectual
property**

◆ **Thievery**

◆ **Bribery**

◆ **Child labor**



Companies Want To Consider

- National literacy rate
- Rate of innovation
- Rate of technology change
- Number of skilled workers
- Political stability
- Product liability laws
- Export restrictions
- Variations in language
- ◆ **Work ethic**
- ◆ **Tax rates**
- ◆ **Inflation**
- ◆ **Availability of raw materials**
- ◆ **Interest rates**
- ◆ **Population**
- ◆ **Number of miles of highway**
- ◆ **Phone system**



Match Product & Parent

- Braun Household Appliances
 - Firestone Tires
 - Godiva Chocolate
 - Haagen-Dazs Ice Cream
 - Jaguar Autos
 - MGM Movies
 - Lamborghini Autos
 - Alpo Petfoods
1. **Volkswagen**
 2. **Bridgestone**
 3. **Campbell Soup**
 4. **Tata Motors Limited**
 5. **Proctor and Gamble**
 6. **Nestlé**
 7. **Pillsbury**
 8. **Sony**



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1. **Great Britain**
 2. **Germany**
 3. **Japan**
 4. **United States**
 5. **Switzerland**
 6. **India**



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- 
- The diagram shows colored arrows connecting products to countries. A blue arrow connects 'Haagen-Dazs Ice Cream' to '2. Germany'. A red arrow connects 'Firestone Tires' to '3. Japan'. A grey arrow connects 'Jaguar Autos' to '4. United States'. A grey arrow connects 'MGM Movies' to '5. Switzerland'. A purple arrow connects 'Alpo Pet Foods' to '6. India'. A grey arrow connects 'Lamborghini Autos' to '1. Great Britain'. A grey arrow connects 'Braun Household Appliances' to '2. Germany'.
- | Product | Country |
|----------------------------|------------------|
| Braun Household Appliances | 2. Germany |
| Firestone Tires | 3. Japan |
| Godiva Chocolate | 5. Switzerland |
| Haagen-Dazs Ice Cream | 2. Germany |
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Developing Missions and Strategies

Mission statements tell an organization where it is going

The **Strategy** tells the organization how to get there



Mission

- ◆ **Mission - where are you going?**
 - ◆ **Organization's purpose for being**
 - ◆ **Answers 'What do we provide society?'**
 - ◆ **Provides boundaries and focus**



Merck

The mission of Merck is to provide society with superior products and services—innovations and solutions that improve the quality of life and satisfy customer needs—to provide employees with meaningful work and advancement opportunities and investors with a superior rate of return.

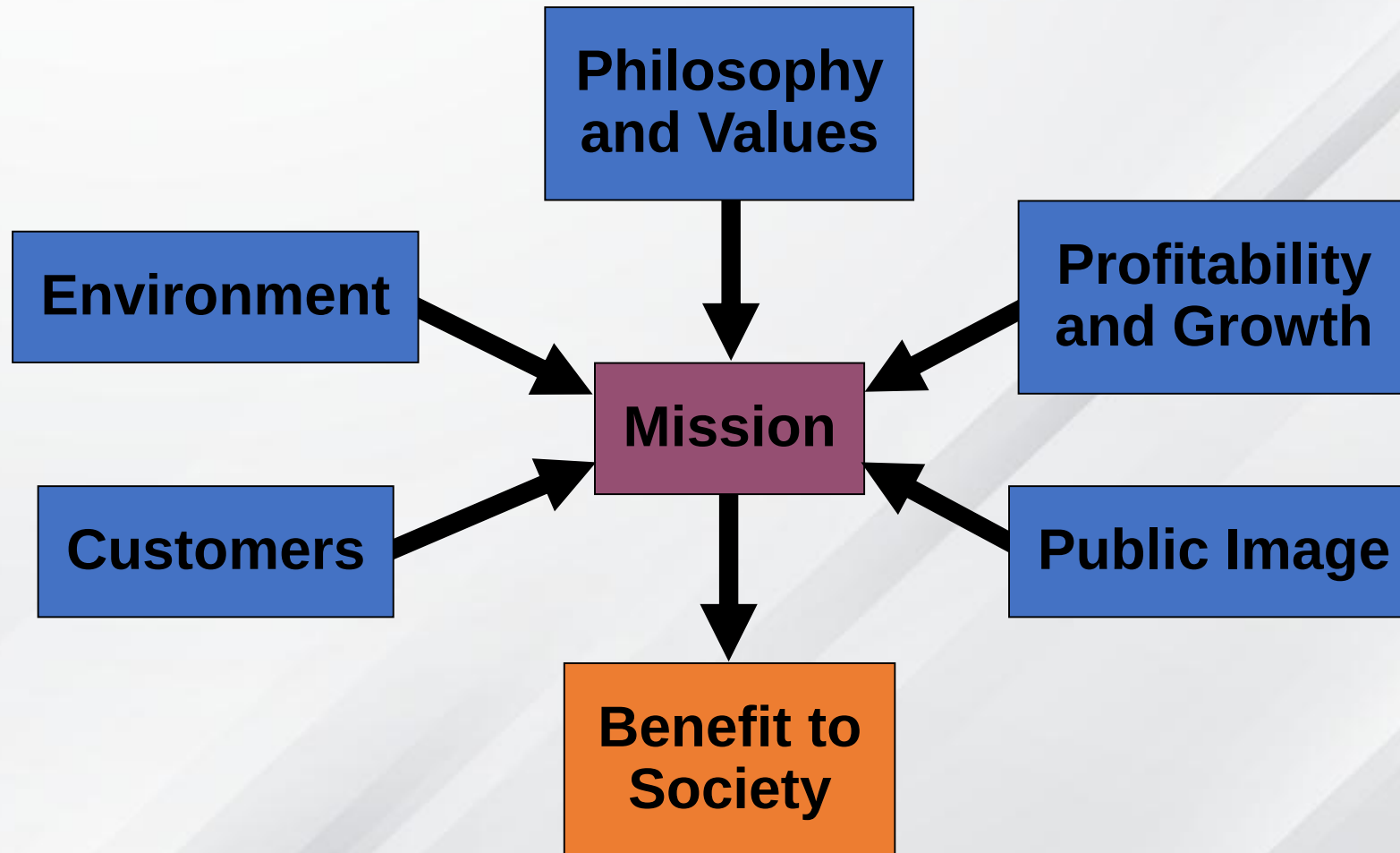




Our Mission: To spread the spirit of Rock 'n' Roll by delivering an exceptional entertainment and dining experience. We are committed to being an important, contributing member of our community and offering the Hard Rock family a fun, healthy, and nurturing work environment while ensuring our long-term success.



Factors Affecting Mission



Sample Missions

Sample Company Mission

To manufacture and service an innovative, growing, and profitable worldwide microwave communications business that exceeds our customers' expectations.

Sample Operations Management Mission

To produce products consistent with the company's mission as the worldwide low-cost manufacturer.



Sample Missions

Sample OM Department Missions

Product design	To design and produce products and services with outstanding quality and inherent customer value.
Quality management	To attain the exceptional value that is consistent with our company mission and marketing objectives by close attention to design, procurement, production, and field service operations
Process design	To determine, design, and produce the production process and equipment that will be compatible with low-cost product, high quality, and good quality of work life at economical cost.



Sample Missions

Sample OM Department Missions

Location	To locate, design, and build efficient and economical facilities that will yield high value to the company, its employees, and the community.
Layout design	To achieve, through skill, imagination, and resourcefulness in layout and work methods, production effectiveness and efficiency while supporting a high quality of work life.
Human resources	To provide a good quality of work life, with well-designed, safe, rewarding jobs, stable employment, and equitable pay, in exchange for outstanding individual contribution from employees at all levels.



Sample Missions

Sample OM Department Missions

Supply-chain management	To collaborate with suppliers to develop innovative products from stable, effective, and efficient sources of supply.
Inventory	To achieve low investment in inventory consistent with high customer service levels and high facility utilization.
Scheduling	To achieve high levels of throughput and timely customer delivery through effective scheduling.
Maintenance	To achieve high utilization of facilities and equipment by effective preventive maintenance and prompt repair of facilities and equipment.





Solving Problems



Problem-Solving Strategies



1. Draw a diagram.

- “A picture is worth a thousand words.”
- Are you a visual learner?
- Turn an abstract problem into a concrete problem by making a sketch.
- **Example:** Determine the order of the houses.



Problem-Solving Strategies



2. Make a list.

- A systematic listing of options/choices can make the answer clearer.
- Use a methodical approach to cover all options/choices.
- **Example:** How many possible tile arrangements are there?



Problem-Solving Strategies



3. *Trial and error*

- Sometimes known as “guess and check.”
- Good if the cost of a wrong guess is minimal.
- Good if the number of possible answers is not too large.
- **Example:** The product of five consecutive integers is greater than one million. What are the smallest values that do this?

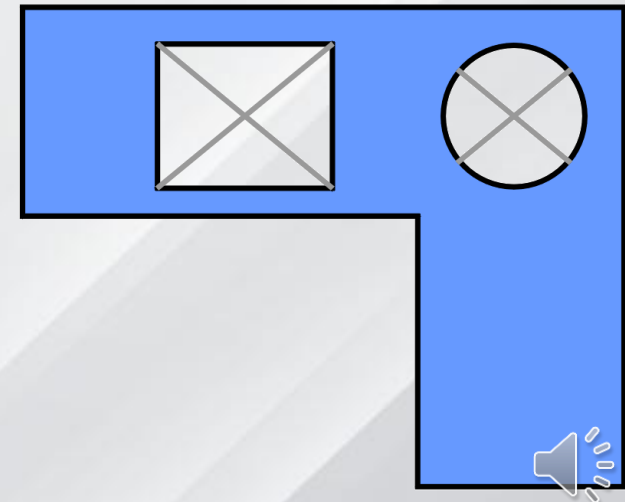


Problem-Solving Strategies



4. Divide and conquer.

- Break big problems into several smaller problems that are more easily solved.
- Example: How many tiles should be ordered for a countertop with complex geometry?



Problem-Solving Strategies



5. *Look for a pattern.*

- Often other approaches yield a ***pattern*** that suggests a possible solution. Test the solution.
- **Example:** 1000 students have 1000 lockers. Starting at locker 0001, Student #1 opens every locker. Student #2 closes every other locker. Student #3 changes every 3rd locker. Student #4 changes every 4th locker. And so on, through Student #1000. What lockers will be left open?



Problem-Solving Strategies



6. *Working backward* might be useful when...

- The result is clear, but the initial conditions are not.
- The beginning situation is complicated, but the end is simple.
- The direct approach would involve a complicated equation.
- The problem involves a sequence of reversible actions.
- **Example:** What was your previous month's bank balance if this month's statement shows \$493.18, after checks for \$17.73 and \$88.10, and a deposit of \$193.22 and interest of \$0.26?



Quality Improvement



Seven-Step Strategy for Quality Improvement



1. Identify and define the problem.
 - a) Brainstorming
 - b) Impact changeability tool
 - c) Problem statement
2. Study the current situation.
 - a) Force-field analysis
 - b) Flow chart



Seven-Step Strategy for Quality Improvement



3. Find the root cause.
 - a) Asking “why” five times
 - b) Fishbone diagram
4. Choose a solution.
 - a) Brainstorming
 - b) Evaluation grid



Seven-Step Strategy for Quality Improvement



5. Develop and action plan.
 - Specific and clear
 - Logical sequence
 - Comprehensive
 - Shared with whole team
 - Reviewed frequently



GANTT Chart



A type of bar chart that illustrates a project schedule

- Illustrates the beginning and completion dates for sub-tasks within a project

Task Name	Q1 2019			Q2 2019		Q3 2019
	Jan 19	Feb 19	Mar 19	Apr 19	Jun 19	Jul 19
Planning						
Research						
Design						
Implementation						
Follow up						

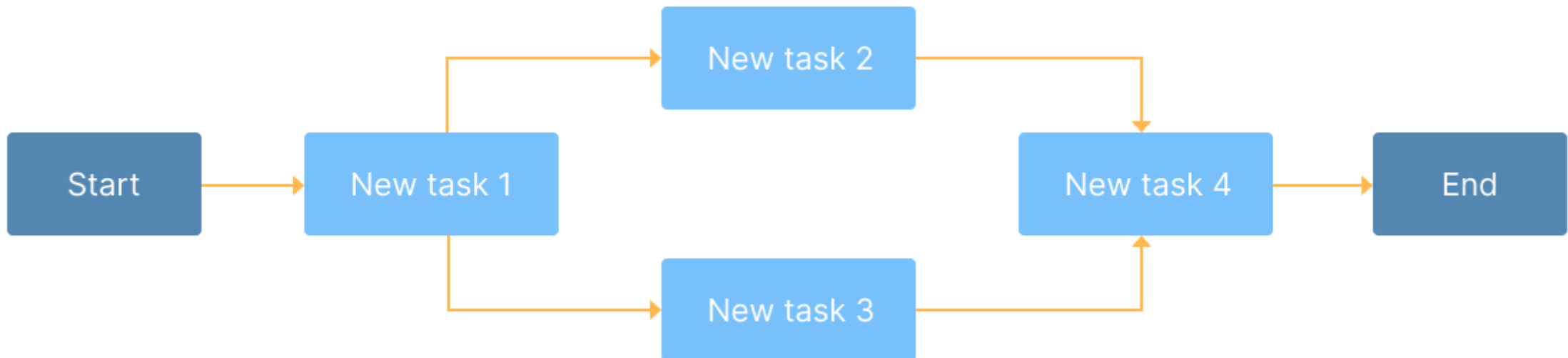


PERT Chart

a tool used to schedule, organize, and map out tasks within a project.



- Project Evaluation and Review (PERT) shows the sequence of tasks in a project or problem-solving process



Seven-Step Strategy for Quality Improvement



6. Implement the action plan.

Includes five Ws and one H:

- ✓ Who
- ✓ What
- ✓ Where
- ✓ When
- ✓ Why
- ✓ How



Seven-Step Strategy for Quality Improvement



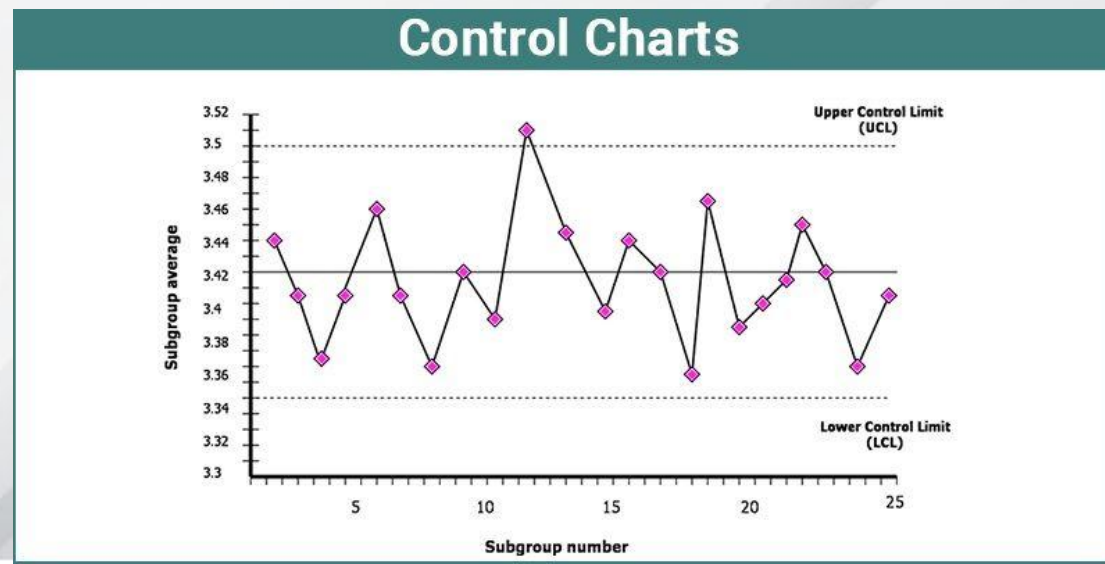
7. Check the results.
 - a) Force-field analysis
 - b) Brainstorming
 - c) Evaluation grid



Quality-Control Charting



- In statistics, **Control charts** are the tools in control processes to determine whether a manufacturing process or a business process is in a controlled statistical state. This chart is a graph which is used to study process changes over time. These charts are also known as Shewhart charts or process-behavior charts. The data is plotted in a timely order



AI in Operations Management



1. Intelligent systems for decision-making
2. Improve efficiency & reduce errors

Key Applications:

- Demand forecasting
- Inventory management
- Production scheduling
- Predictive maintenance

Examples:

- Smart logistics
- Automated factories



Impact of AI



Benefits: Higher efficiency ; Lower costs ; Better decisions and Faster response

Challenges: High cost ; Skill requirements ; Tech dependence and Data privacy

Future: Smart factories ; Intelligent supply chains and Autonomous systems



Thank You