

Chapter 1—Goods, Services, and Operations Management

TRUE/FALSE

1. Operations management is focused primarily on the application of technology in manufacturing.

ANS: F PTS: 1

2. To apply the principles of operations management, managers need to understand people, processes, and technology.

ANS: T PTS: 1

3. Every job entails some aspect of operations management.

ANS: T PTS: 1

4. Employees who work in financial and accounting functions of organizations need little knowledge of operations management.

ANS: F PTS: 1

5. Ensuring that a credit card has accurate customer information and is delivered quickly to the customer is an example of inventory management in OM.

ANS: F PTS: 1

6. A product that typically lasts at least three years is called a durable good.

ANS: T PTS: 1

7. A toothbrush is an example of a nondurable good.

ANS: T PTS: 1

8. Both goods and services can be standardized for the mass market or customized to individual needs.

ANS: T PTS: 1

9. Customer participation in manufacturing processes and activities is generally high.

ANS: F PTS: 1

10. Customers and service providers often work together to co-produce a service.

ANS: T PTS: 1

11. Services always involve direct customer contact.

ANS: F PTS: 1

12. Moments of truth consist of one or more service encounters.
ANS: F PTS: 1
13. A service encounter is any interaction between a customer and the service provider.
ANS: T PTS: 1
14. The demand for services is usually easier to predict than the demand for goods.
ANS: F PTS: 1
15. Service facilities must be physically located close to the customer.
ANS: F PTS: 1
16. The greater the customer participation, the more uncertainty the firm has with respect to service time.
ANS: T PTS: 1
17. A customer benefit package (CBP) consists of both a primary good and a primary service.
ANS: F PTS: 1
18. The ability to download music onto a cell phone would be considered a primary service.
ANS: F PTS: 1
19. Peripheral goods and services are not essential to a primary good or service.
ANS: T PTS: 1
20. Many products that appear to be only physical goods often include bundled services.
ANS: T PTS: 1
21. Process thinking is the traditional way of viewing an organization by function.
ANS: F PTS: 1
22. Value creation processes focus on primary goods and services.
ANS: T PTS: 1
23. A process can be designed by operations managers independently of the choice of a customer benefit package, which is chosen exclusively by marketing staff.
ANS: F PTS: 1
24. Taking a customer order at a quick service restaurant would generally be viewed as a support process.
ANS: F PTS: 1

25. Quality has been a principal focus of operations management since the industrial revolution.

ANS: F PTS: 1

26. The reason that many Japanese firms captured major shares of world markets in the 1970s was the result of their focus on quality rather than efficiency.

ANS: T PTS: 1

27. As manufacturers sought to customize products for global markets and increase goods and service variety, they were able to leverage the mass production methods that are very efficient and cost-effective.

ANS: F PTS: 1

28. Today, almost half the U.S. economy is involved in service industries.

ANS: F PTS: 1

29. Many business-to-business manufacturers think of the physical good they produce as peripheral to their service offerings.

ANS: T PTS: 1

30. Time-based competition means providing new and innovative products that surprise and delight customers.

ANS: F PTS: 1

31. Operations management is the only function by which managers can directly affect the value provided to all stakeholders – customers, employees, investors, and society.

ANS: T PTS: 1

MULTIPLE CHOICE

1. Which one of the following statements is false?

- a. Service encounters can be between a customer and a building.
- b. High customer contact systems generally have high process efficiency.
- c. A hotel room is a perishable asset.
- d. The demand for services is time-dependent, especially over the short term.

ANS: B PTS: 1

2. Which one of the following statements is false?

- a. Service that do not involve significant interaction with customers can be managed much the same as goods in a factory.
- b. A service is any primary or complementary activity that does not directly produce a physical product.
- c. Some very significant differences exist between goods and services that create different demands on the operations function.
- d. Designing and managing operations in a goods-producing firm is quite similar to that in a service-providing organization.

ANS: D PTS: 1

3. Which one of the following statements is true?
- a. A variant is always a durable good with new features.
 - b. An automobile is a nondurable good.
 - c. Demand for goods is more difficult to predict than demand for services.
 - d. Normally patents do not protect services.

ANS: D PTS: 1

4. In relating operations management and the customer benefit package (CBP), which is the correct timing sequence?
- a. Operating system processes lead to customer needs and expectations, which lead to customer benefit package.
 - b. Customer benefit package leads to customer needs and expectations, which lead to operating system processes.
 - c. Customer needs and expectations lead to customer benefit package, which leads to operating system processes.
 - d. Customer needs and expectations lead to operating system processes, which lead to customer benefit package.

ANS: C PTS: 1

5. Which of the following is not true regarding the differences between goods and services?
- a. Demand for services is easier to forecast.
 - b. Customers participate in many services.
 - c. Services cannot be stored as physical inventory.
 - d. Patents do not protect services.

ANS: A PTS: 1

6. Which of the following is not a key activity of an operations manager?
- a. translating market knowledge into goods, services, and processes
 - b. continually learning and adapting to global and environmental changes
 - c. managing cash flows and strategic investments
 - d. exploiting technology to improve productivity

ANS: C PTS: 1

7. Computer software would be an example of
- a. an intangible good
 - b. a nondurable good
 - c. a service
 - d. a value creation process

ANS: B PTS: 1

8. Which one of the following has the lowest goods content?
- a. automobile muffler replacement
 - b. computer diagnosis and repair
 - c. movie presentation
 - d. fast food restaurant

ANS: C PTS: 1

9. Which one of the following has the highest goods content?
- a. medicine prescription
 - b. computer repair
 - c. automobile loan
 - d. symphony performance

ANS: A PTS: 1

10. Service organizations generally
- a. are in close proximity to the customer
 - b. rely on physical inventory
 - c. take advantage of patents
 - d. can delegate human behavior and marketing skills

ANS: A PTS: 1

11. A customer benefit package (CBP) includes
- a. only core offerings
 - b. only peripheral offerings
 - c. either core or peripheral offerings but not both
 - d. both core offerings as well as peripheral offerings

ANS: D PTS: 1

12. Support processes would typically include all of the following except
- a. inventory management
 - b. customer help desk operations
 - c. research and development
 - d. manufacturing and assembly

ANS: D PTS: 1

13. Which of the following is the correct sequence describing the evolution of operations management?
- a. efficiency, customization, quality, service, sustainability, time-based competition
 - b. quality, efficiency, time-based competition, sustainability, customization, service
 - c. efficiency, quality, customization, time-based competition, service, sustainability
 - d. quality, service, customization, time-based competition, efficiency, sustainability

ANS: C PTS: 1

14. The following terms -- interchangeability of parts, division of labor, highly repetitive tasks -- best relate to a focus on
- a. quality
 - b. efficiency
 - c. quality
 - d. time

ANS: B PTS: 1

15. The quality revolution is most related to
- a. continuous improvement
 - b. mass production
 - c. time-based competition
 - d. service

ANS: A PTS: 1

16. Which of the following is not a current challenge to OM?

- a. globalization
- b. technology
- c. quality
- d. mass production

ANS: D PTS: 1

17. A value creation process could be any of the following except

- a. shipping a customer's order
- b. providing a home mortgage
- c. assembling a dishwasher
- d. purchasing production material

ANS: D PTS: 1

18. Which is generally related to service operations?

- a. tangible product
- b. need for flexible capacity
- c. separation of production from consumption
- d. large amount of inventory

ANS: B PTS: 1

19. A support process could be any of the following except

- a. assembling automobiles
- b. purchasing materials and supplies
- c. managing inventory
- d. installing a product

ANS: A PTS: 1

20. Which of the following would be the lowest in goods content and highest in service content?

- a. fast food restaurant
- b. attending a theater production
- c. getting an oil change for your car
- d. filling a medical prescription

ANS: B PTS: 1

21. Service management skills would include all of the following except

- a. accounting and finance
- b. knowledge and technical expertise about operations
- c. marketing and cross-selling
- d. human interaction

ANS: A PTS: 1

22. A golf simulator in a retail sports store is an example of

- a. non- durable goods replacing services
- b. primary good
- c. goods content
- d. biztainment

ANS: D PTS: 1

23. Which one of the following is not an example of biztainment?

- a. iPhone applications
- b. automobile leasing
- c. product demonstrations
- d. virtual factory tours

ANS: B PTS: 1

24. Which one of the following statements about the structure of the U.S. economy is true?

- a. About 91 percent of all U.S. jobs are in service-providing processes.
- b. All goods-producing jobs account for 25 percent of total U.S. jobs.
- c. All service-providing jobs account for 65 percent of total U.S. jobs.
- d. The largest U.S. industry with respect to U.S. jobs is manufacturing.

ANS: A PTS: 1

25. The three issues that are at the core of operations management include all of the following except

- a. cost
- b. quality
- c. utilization
- d. efficiency

ANS: C PTS: 1

SHORT ANSWER

1. Define OM and provide some examples of what operations managers do.

ANS:

Operations management (OM) is the science and art of ensuring that goods and services are created and delivered successfully to customers. Some examples of OM activities are:

- Translating market knowledge of customers to design and manage goods, services and processes.
- Helping organizations do more with less.
- Ensuring that resources (labor, equipment, materials, and information) and operations are coordinated.
- Exploiting technology to improve productivity.
- Building quality into goods, services, and processes.
- Understanding how to determine resource capacity and schedules.
- Creating a high-performance workplace.
- Continually learning and adapting the organization to global and environmental changes.

PTS: 1

2. Differentiate between a good and a service. What is the difference between a durable and nondurable good. Give an example of each.

ANS:

A **good** is a physical product you can see, touch or possibly consume. A **service** is any primary or complementary activity that does not directly produce a physical product. Services represent the non-goods part of a transaction between a buyer (customer) and a seller (supplier).

A **durable good** is a product that typically lasts at least three years. Vehicles, dishwashers and furniture are examples of durable goods. A **nondurable good** is perishable and generally lasts for less than three years. Examples include toothpaste, software, shoes and fruit.

PTS: 1

3. Though there are similarities between goods and service, there are significant differences; discuss five.

ANS:

- Goods are tangible while services are intangible.
- Customers participate in many service processes, activities and transactions.
- The demand for services is more difficult to predict than the demand for goods.
- Services cannot be stored as physical inventory.
- Service management skills are paramount to a successful service encounter.
- Service facilities typically need to be in close proximity to the customer.
- Patents do not protect services.

PTS: 1

4. Relate a service encounter to a moment of truth. Do they have to be person-to-person? Explain.

ANS:

A **service encounter** is an interaction between the customer and the service provider. Service encounters consist of one or more **moments of truth** - any episodes, transactions or experiences in which a customer comes into contact with any aspect of the delivery system, however remote, and thereby has an opportunity to form an impression. Employees who interact directly with customers, such as airline flight attendants, nurses, lawyers, fast food counter employees, telephone customer service representatives, dentists and bank tellers, need to understand the importance of service encounters on their customers. However, human interaction, either face-to-face or through a contact technology such as a telephone line, is not required to establish a service encounter. A service encounter also includes the interaction the customer has with buildings, equipment, advertisements, brochures, etc. For example, while driving, a customer might see a large sign for a store (one moment of truth) but observe that the store's parking lot is poorly-lit (a second moment of truth); and so, believing the area is not safe, the customer decides to keep driving and not stop to shop at that store. Customers judge the value of a service and form perceptions through service encounters.

PTS: 1

5. Explain a customer benefit package (CBP). Also, differentiate a primary good or service from a peripheral good or service.

ANS:

A **customer benefit package (CBP)** is a clearly defined set of tangible (goods-content) and intangible (service-content) features that the customer recognizes, pays for, uses or experiences. In simple terms, it is some combination of goods and services configured in a certain way to provide value to customers. A CBP consists of a primary good or service, coupled with peripheral goods and/or services. A **primary good or service** is the "core" offering that attracts customers and responds to their basic needs. For example, the primary service of a personal checking account is convenient financial transactions. **Peripheral goods or services** are those that are not essential to the primary good or service but enhance it. A personal checking account might be supported and enhanced by such peripheral goods as a printed monthly account statement, designer checks and checkbooks, a special credit card and such peripheral services as a customer service hotline and online bill payment. Finally, processes create and deliver each primary or peripheral good or service, and process design and management is a key focus of OM. A **variant** is a CBP feature that departs from the standard CBP and is normally location- or firm-specific such as a fishing pond at an auto dealership.

PTS: 1

6. Define a process. Then differentiate among a value creation process, a support process, and a general management process.

ANS:

A **process** is a sequence of activities that is intended to create a certain result such as a physical good, a service or information. A **value creation process** focuses on primary goods or services such as assembling dishwashers or providing a home mortgage. A **support process** focuses on peripheral goods and services such as purchasing materials and supplies, managing inventory, installation, customer support, technology acquisition and research and development. A **general management process** includes accounting and information systems, human resource management and marketing.

PTS: 1

7. In the last century, operations management saw six major themes. What are they? Briefly discuss each.

ANS:

- A focus on efficiency. As international trade grew in the 1960s, the emphasis on operations efficiency and cost reduction increased. Many companies moved their factories to low-wage countries. Managers became enamored with computers, robots, and other forms of technology. While advanced technology continues to revolutionize and improve production, in the 1960s and 1970s technology was viewed primarily as a method of reducing costs.
- The quality revolution. As Japan was rebuilding from the devastation of World War II, two U.S. consultants, W. Edwards Deming and Joseph Juran, were sought extensively by Japanese industry. Deming and Juran told Japanese executives that continual improvement of quality would open world markets, free up capacity, and improve their economy. The Japanese eagerly embraced that message. They embarked on a massive effort to train the workforce, using statistical tools developed at Western Electric and other innovative management tools to identify causes of quality problems and fix them. They made steady progress in reducing defects and paid careful attention to what consumers wanted. Those efforts continued at a relentless pace until, by the mid-1970s, the world discovered that Japanese goods had fewer defects, were more reliable, and better met consumer needs than American goods. As a result, Japanese firms captured major shares of world markets in many different industries such as automobiles and electronics. Therefore, quality became an obsession with top managers of nearly every major company.
- Competing through customization and design. As the goals of low cost and high product quality became "givens," companies began to emphasize innovative designs and product features to gain a competitive edge. Quality meant much more than simply defect

reduction; quality meant offering consumers new and innovative products that not only met their expectations, but also surprised and delighted them. Inflexible mass-production methods that produced high volumes of standardized goods and services using unskilled or semiskilled workers and expensive single-purpose equipment, though very efficient and cost-effective, were inadequate for the new goals of increased good and service variety and continual product improvement. The operating system had to change. New types of operating systems emerged that enabled companies to manufacture goods and services better, cheaper, and faster than their competitors, while facilitating innovation and increasing variety. The Internet began to help companies customize their goods and services for global markets.

- Time-based competition. As information technology matured, time became an important source of competitive advantage. Quick response is achieved by continually improving and reengineering processes; that is, fundamentally rethinking and redesigning processes to achieve dramatic improvements in cost, quality, speed, and service. That task includes developing products faster than competitors, speeding ordering and delivering processes, rapidly responding to changes in customers' needs, and improving the flow of paperwork.
- The service revolution. While the goods-producing industries were getting all the attention in the business community, the popular press, and in business school curricula, service industries were quietly growing and creating many new jobs in the U.S. economy. In 2008, about four of every five U.S. jobs are in services.
- Sustainability. Sustainability refers to an organization's ability to strategically address current business needs and successfully develop a long-term strategy that embraces opportunities and manages risk for all products, systems, supply chains, and processes to preserve resources for future generations. Sustainability can be viewed from three perspectives: environmental, social, and economic. These three dimensions of sustainability are often referred to as the "triple bottom line."

PTS: 1

8. For each of the three dimensions of sustainability (environmental, social, and economic), provide three examples of business practices that support it.

ANS:

Environmental:

Waste management – reduce waste and manage recycling efforts.

Energy optimization – reduce consumption during peak demand times.

Transportation optimization – use efficient vehicles and design routes to save fuel.

Technology upgrade – clean and reuse water in manufacturing processes.

Air quality – reduce greenhouse gas emissions.

Sustainable product design – design goods whose parts can be recycled or safely disposed of.

Social:

Product safety – ensure consumer safety in using goods and services.

Workforce health and safety – ensure a healthy and safe work environment.

Ethics and governance – ensure compliance with legal and regulatory requirements and transparency in management decisions.

Community – improve the quality of life through industry-community partnerships.

Economic:

Performance excellence – build a high-performing organization with a capable leadership and workforce.

Financial management – make sound financial plans to ensure long-term organizational survival.

Resource management – acquire and manage all resources effectively and efficiently.

Emergency preparedness – have plans in place for business, environmental, and social emergencies.

PTS: 1

9. What are the four key current challenges in OM that managers need to understand?

ANS:

- Technology has been one of the most important influences on the growth and development of OM during the second half of the 20th century. Microprocessors have become ubiquitous in most consumer products and industrial processes. Advances in design and fabrication of goods as well as advances in information technology to enhance services have provided the ability to develop products that one could only dream of a few decades ago. They also enable managers to more effectively manage and control extremely complex operations.
- Globalization has changed the way companies do business and must manage their operations. With advances in communications and transportation, we have passed from the era of huge regional factories with large labor forces and tight community ties to an era of the "borderless marketplace." No longer are "American" or "Japanese" products manufactured exclusively in America or Japan.
- Consumers' expectations have risen dramatically. They demand an increasing variety of products with new and improved features that meet their changing needs. They expect products that are defect-free, have high performance, are reliable and durable, and are easy to repair. They also expect rapid and excellent service for the products they buy. For the services they buy, customers expect short waiting and processing times, availability when needed, courteous treatment from employees, consistency, accessibility and convenience, accuracy, and responsiveness to unexpected problems. Companies must now compete on all these dimensions.
- Today's workers are different; they demand increasing levels of empowerment and more meaningful work. Today's work requires constant learning and more abstract thinking and on-the-spot decision-making skills. Service plays a much greater role within organizations. Finally, the environment is different; we live in a global business environment without boundaries.
Quality continues to be a challenge. Despite significant advances, organizations cannot take quality for granted and must continue to focus on it when designing goods and services, operations, and management systems.
- Perhaps the biggest challenge that OM faces in modern Western nations is the loss of manufacturing jobs.

PTS: 1