

CHAPTER 1

OPERATIONS MANAGEMENT

CHAPTER LEARNING OBJECTIVES

1. *Describe what the operations function is and how it relates to other business functions.*

Operations can be viewed as a transformation process that converts inputs into outputs of greater value. Operations management is the study of processes directly related to the creation and distribution of goods and services. Increasingly, these operations are taking place outside of the boundaries of a traditional enterprise. Thus, while today's managers need to understand how to efficiently manage operations within their own firm, they also need to develop skills in coordinating operations across a global supply chain. This text teaches students how to analyze processes, ensure quality, create value, and manage the flow of information, products, and services across a network of customers, enterprises, and supply chain partners. Operations is the technical core or "hub" of the organization, interacting with the other functional areas and suppliers to produce goods and provide services for customers.

2. *Discuss the key factors that have contributed to the evolution of operations and the initiation of supply chain management.* Operations management did not really begin until the Industrial Revolution. Before then, products were made by skilled craftpersons and their apprentices, one at a time. With the rise of factories, though, came an increased division of labour, where workers were only responsible for one small part of the total production process. For many years, factories were dominated by the concept of mass production, but this eventually gave way to the realization that production should be tied to customer demands (the quality revolution). The field of supply chain management was born to manage the flow of information, products, and services across a network of customers, enterprises, and supply chain partners.

3. *Discuss how and why businesses operate globally and explain the roles China and India play in the current global market.* Two-thirds of today's businesses operate globally through global markets, global operations, global financing, and global supply chains. Many companies are now outsourcing much of their production and service functions to other countries. China accounts for 20% of the world's population and is the world's largest manufacturer. India, on the other hand, is known as the world's service provider. India has an enormous resource of highly skilled engineers, scientists, and technically trained workers available at less than half the cost of those located in developed countries.

4. *Calculate and interpret productivity measures used for measuring competitiveness.* Competitiveness has been defined by the OECD as "the degree to which a nation can produce goods and services that meet the test of international markets while simultaneously maintaining or expanding the real incomes of its citizens." The most common measure of competitiveness is productivity, which is the ratio of input to output.

5. Discuss the process of developing, deploying, and monitoring the success of an operations strategy. Firms choose to compete in different ways. A firm's *strategy* defines how it will compete in the marketplace—its own best way. Strategy formulation involves defining the primary task, assessing core competencies, determining order winners and order qualifiers, and positioning the firm. An effective strategy meets the order qualifiers and excels on the order winners. A competitive position is not sustainable unless the operating system that supports it is configured and managed effectively.

Policy deployment is a planning system that helps align day-to-day operating decisions with the company's overall strategy. The *balanced scorecard* reinforces a firm's strategy by providing customer-oriented and process-oriented measures of performance, in addition to traditional financial measures.

Decision making for the future can be scary at best. Fortunately, there are quantitative tools available for making decisions under uncertain conditions. The supplement to this chapter reviews several of them.

TRUE-FALSE STATEMENTS

1. Operations management is concerned only with the day-to-day operations of a firm's productive systems.

Answer: False

Difficulty: Easy

Learning Objective: Describe what the operations function is and how it relates to other business functions.

Section Reference: 1.1 The Operations Function

2. A warehouse operation is an example of a physical transformation process.

Answer: False

Difficulty: Easy

Learning Objective: Describe what the operations function is and how it relates to other business functions.

Section Reference: 1.1 The Operations Function

3. A retail operation is an example of an exchange transformation process.

Answer: True

Difficulty: Easy

Learning Objective: Describe what the operations function is and how it relates to other business functions.

Section Reference: 1.1 The Operations Function

4. Operations management designs, operates, and improves productive systems.

Answer: True

Difficulty: Easy

Learning Objective: Describe what the operations function is and how it relates to other business functions.

Section Reference: 1.1 The Operations Function

5. The four primary functional areas of a firm are marketing, finance, operations, and human resources.

Answer: True

Difficulty: Easy

Learning Objective: Describe what the operations function is and how it relates to other business functions.

Section Reference: 1.1 The Operations Function

6. A transformation process is a series of activities from supplier to customer that add value to a product or service.

Answer: False

Difficulty: Medium

Learning Objective: Describe what the operations function is and how it relates to other business functions.

Section Reference: 1.1 The Operations Function

7. Human resources management provides demand estimates that are used in production decisions.

Answer: False

Difficulty: Medium

Learning Objective: Describe what the operations function is and how it relates to other business functions.

Section Reference: 1.1 The Operations Function

8. To be effective an operations manager needs an integrated view of business organizations.

Answer: True

Difficulty: Easy

Learning Objective: Discuss the key factors that have contributed to the evolution of operations and the initiation of supply chain management.

Section Reference: 1.2 The Evolution of Operations and Supply Chain Management

9. The systematic analysis of work methods is known as scientific management.

Answer: True

Difficulty: Easy

Learning Objective: Discuss the key factors that have contributed to the evolution of operations and the initiation of supply chain management.

Section Reference: 1.2 The Evolution of Operations and Supply Chain Management

10. Operations research is concerned with the systematic analysis of work methods.

Answer: False

Difficulty: Medium

Learning Objective: Discuss the key factors that have contributed to the evolution of operations and the initiation of supply chain management.

Section Reference: 1.2 The Evolution of Operations and Supply Chain Management

11. Mass production refers to high-volume production of a standardized product.

Answer: True

Difficulty: Easy

Learning Objective: Discuss the key factors that have contributed to the evolution of operations and the initiation of supply chain management.

Section Reference: 1.2 The Evolution of Operations and Supply Chain Management

12. The adaptation of mass production to emphasize efficiency, rather than quality is known as lean production.

Answer: False

Difficulty: Medium

Learning Objective: Discuss the key factors that have contributed to the evolution of operations and the initiation of supply chain management.

Section Reference: 1.2 The Evolution of Operations and Supply Chain Management

13. The set of activities that create and deliver products to the customer is known as the supply chain.

Answer: True

Difficulty: Medium

Learning Objective: Discuss the key factors that have contributed to the evolution of operations and the initiation of supply chain management.

Section Reference: 1.2 The Evolution of Operations and Supply Chain Management

14. The process of producing high-volume, standardized products for a large market is known as craft production.

Answer: False

Difficulty: Medium

Learning Objective: Discuss how and why businesses operate globally and explain the roles China and India play in the current global market.

Section Reference: 1.3 Globalization

15. The European Union requires that strict quality and environmental standards be met before companies can do business with member countries.

Answer: True

Difficulty: Medium

Learning Objective: Discuss how and why businesses operate globally and explain the roles China and India play in the current global market.

Section Reference: 1.3 Globalization

16. Globalization has affected both manufacturing and service operations.

Answer: True

Difficulty: Easy

Learning Objective: Discuss how and why businesses operate globally and explain the roles China and India play in the current global market.

Section Reference: 1.3 Globalization

17. Two-thirds of today's businesses operate globally.

Answer: True

Difficulty: Medium

Learning Objective: Discuss how and why businesses operate globally and explain the roles China and India play in the current global market.

Section Reference: 1.3 Globalization

18. China is reshaping the way firms compete globally.

Answer: True

Difficulty: Easy

Learning Objective: Discuss how and why businesses operate globally and explain the roles China and India play in the current global market.

Section Reference: 1.3 Globalization

19. Globalization requires that firms compete on cost and *not* quality, speed, or flexibility.

Answer: False

Difficulty: Medium

Learning Objective: Discuss how and why businesses operate globally and explain the roles China and India play in the current global market.

Section Reference: 1.3 Globalization

20. Globalization of the supply chain for many products has many pros and few, if any, cons.

Answer: False

Difficulty: Medium

Learning Objective: Discuss how and why businesses operate globally and explain the roles China and India play in the current global market.

Section Reference: 1.3 Globalization

21. A major challenge and opportunity for many firms is the globalization of the supply chain.

Answer: True

Difficulty: Easy

Learning Objective: Discuss how and why businesses operate globally and explain the roles China and India play in the current global market.

Section Reference: 1.3 Globalization

22. Productivity increases enable a nation to raise its standard of living.

Answer: True

Difficulty: Easy

Learning Objective: Calculate and interpret productivity measures used for measuring competitiveness.

Section Reference: 1.4 Productivity and Competitiveness

23. A nation's productivity is unrelated to its standard of living.

Answer: False

Difficulty: Easy

Learning Objective: Calculate and interpret productivity measures used for measuring competitiveness.

Section Reference: 1.4 Productivity and Competitiveness

24. Productivity is the most common measure of competitiveness.

Answer: True

Difficulty: Easy

Learning Objective: Calculate and interpret productivity measures used for measuring competitiveness.

Section Reference: 1.4 Productivity and Competitiveness

25. Single factor productivity compares output to an individual input.

Answer: True

Difficulty: Medium

Learning Objective: Calculate and interpret productivity measures used for measuring competitiveness.

Section Reference: 1.4 Productivity and Competitiveness

26. Canadian companies can become globally competitive by emphasizing the strategic importance of operations.

Answer: True

Difficulty: Medium

Learning Objective: Discuss the process of developing, deploying, and monitoring the success of an operations strategy.

Section Reference: 1.5 Strategy and Operations

27. Many companies now find it necessary to have some global presence to remain competitive.

Answer: True

Difficulty: Easy

Learning Objective: Discuss the process of developing, deploying, and monitoring the success of an operations strategy.

Section Reference: 1.5 Strategy and Operations

28. Ensuring good quality underlies all operational decisions.

Answer: True

Difficulty: Easy

Learning Objective: Discuss the process of developing, deploying, and monitoring the success of an operations strategy.

Section Reference: 1.5 Strategy and Operations

29. Emphasizing the strategic role of operations enhances the competitiveness of Canadian companies.

Answer: True

Difficulty: Easy

Learning Objective: Discuss the process of developing, deploying, and monitoring the success of an operations strategy.

Section Reference: 1.5 Strategy and Operations

30. Deployment is a step in strategy formulation that evaluates the alignment between core competencies and order winners.

Answer: False

Difficulty: Easy

Learning Objective: Discuss the process of developing, deploying, and monitoring the success of an operations strategy.

Section Reference: 1.5 Strategy and Operations

31. Positioning is a step in strategy formulation that compares core competencies and order winners.

Answer: True

Difficulty: Medium

Learning Objective: Discuss the process of developing, deploying, and monitoring the success of an operations strategy.

Section Reference: 1.5 Strategy and Operations

32. Order qualifiers are the characteristics of a product that have to be satisfied just to be considered for purchase by a customer.

Answer: True

Difficulty: Easy

Learning Objective: Discuss the process of developing, deploying, and monitoring the success of an operations strategy.

Section Reference: 1.5 Strategy and Operations

33. An order qualifier is a customer criterion that wins the order.

Answer: False

Difficulty: Easy

Learning Objective: Discuss the process of developing, deploying, and monitoring the success of an operations strategy.

Section Reference: 1.5 Strategy and Operations

34. Core competencies tend to be processes and *not* products or technologies.

Answer: True

Difficulty: Easy

Learning Objective: Discuss the process of developing, deploying, and monitoring the success of an operations strategy.

Section Reference: 1.5 Strategy and Operations

35. Strategy formulation starts with determining a firm's order winners and order qualifiers.

Answer: False

Difficulty: Easy

Learning Objective: Discuss the process of developing, deploying, and monitoring the success of an operations strategy.

Section Reference: 1.5 Strategy and Operations

36. Order winners and order qualifiers change over time in response to the dynamics of changing market conditions.

Answer: True

Difficulty: Medium

Learning Objective: Discuss the process of developing, deploying, and monitoring the success of an operations strategy.

Section Reference: 1.5 Strategy and Operations

37. To be competitive firms must create and sustain core competencies that are in tune with their customer's order winners.

Answer: True

Difficulty: Medium

Learning Objective: Discuss the process of developing, deploying, and monitoring the success of an operations strategy.

Section Reference: 1.5 Strategy and Operations

38. Firms compete in the marketplace based on cost, speed, quality, and flexibility.

Answer: True

Difficulty: Easy

Learning Objective: Discuss the process of developing, deploying, and monitoring the success of an operations strategy.

Section Reference: 1.5 Strategy and Operations

MULTIPLE CHOICE QUESTIONS

39. Operations management is concerned with
- a) the design of a firm's productive systems.
 - b) the operation of a firm's productive systems.
 - c) the improvement of a firm's productive systems.
 - d) all of the above.

Answer: d

Difficulty: Easy

Learning Objective: Describe what the operations function is and how it relates to other business functions.

Section Reference: 1.1 The Operations Function

40. The transformation process associated with health care is best described as
- a) locational.
 - b) exchange.
 - c) physiological.
 - d) informational.

Answer: c

Difficulty: Easy

Learning Objective: Describe what the operations function is and how it relates to other business functions.

Section Reference: 1.1 The Operations Function

41. Which of the following is *not* one of the four primary functional areas of a firm?
- a) human resources
 - b) legal
 - c) marketing
 - d) operations

Answer: b

Difficulty: Easy

Learning Objective: Describe what the operations function is and how it relates to other business functions.

Section Reference: 1.1 The Operations Function

42. All of the following are responsibilities of operations managers *except*
- a) acquiring financial resources.
 - b) managing inventories.
 - c) planning production.
 - d) scheduling production.

Answer: a

Difficulty: Easy

Learning Objective: Describe what the operations function is and how it relates to other business functions.

Section Reference: 1.1 The Operations Function

43. All of the following are transformation processes *except*

- a) physiological.
- b) locational.
- c) exchange.
- d) optimal.

Answer: d

Difficulty: Easy

Learning Objective: Describe what the operations function is and how it relates to other business functions.

Section Reference: 1.1 The Operations Function

44. Linear programming, simulation, and waiting line theory are most closely associated with which era in the historical development of operations management?

- a) human relations
- b) operations research
- c) globalization
- d) Internet revolution

Answer: b

Difficulty: Medium

Learning Objective: Describe what the operations function is and how it relates to other business functions.

Section Reference: 1.1 The Operations Function

45. Which of the following is *not* an event or concept associated with the quality revolution?

- a) TQM (total quality management)
- b) PERT/CPM
- c) Business process reengineering
- d) JIT

Answer: b

Difficulty: Medium

Learning Objective: Discuss the key factors that have contributed to the evolution of operations and the initiation of supply chain management.

Section Reference: 1.2 The Evolution of Operations and Supply Chain Management

46. The work of W. Edwards Deming is most closely associated with

- a) MRP.
- b) TQM.
- c) supply chain management.
- d) time and motion studies.

Answer: b

Difficulty: Easy

Learning Objective: Discuss the key factors that have contributed to the evolution of operations and the initiation of supply chain management.

Section Reference: 1.2 The Evolution of Operations and Supply Chain Management

47. Linear programming, waiting line, simulation, and PERT/CPM are all parts of which era of operations management?

- a) Quality Research
- b) Operations Research
- c) Internet Revolution
- d) Globalization

Answer: b

Difficulty: Medium

Learning Objective: Discuss the key factors that have contributed to the evolution of operations and the initiation of supply chain management.

Section Reference: 1.2 The Evolution of Operations and Supply Chain Management

48. The major factors impacting globalization of the supply chain include all the following *except*

- a) creation of the WTO.
- b) Regional Trade Agreements.
- c) fall of communism.
- d) advances in information and transportation technology.

Answer: c

Difficulty: Hard

Learning Objective: Discuss how and why businesses operate globally and explain the roles China and India play in the current global market.

Section Reference: 1.3 Globalization

49. Companies go global to

- a) take advantage of favourable costs.
- b) to keep abreast of trends and access new technologies.
- c) to build reliable sources of supply.
- d) all the above.

Answer: d

Difficulty: Medium

Learning Objective: Discuss how and why businesses operate globally and explain the roles China and India play in the current global market.

Section Reference: 1.3 Globalization

50. A manager of a global supply chain is concerned with all the following *except*

- a) timeliness.
- b) quality.
- c) social issues.
- d) All the above are concerns.

Answer: d

Difficulty: Medium

Learning Objective: Discuss how and why businesses operate globally and explain the roles China and India play in the current global market.

Section Reference: 1.3 Globalization

51. The production system that prizes flexibility over efficiency and quality over quantity is known as

- a) mass production.
- b) craft production.
- c) lean production.
- d) electronic commerce.

Answer: c

Difficulty: Medium

Learning Objective: Calculate and interpret productivity measures used for measuring competitiveness.

Section Reference: 1.4 Productivity and Competitiveness

52. Dividing a job into a series of small tasks each performed by a different worker is known as

- a) craft production.
- b) scientific management.
- c) division of labour.
- d) interchangeable parts.

Answer: c

Difficulty: Medium

Learning Objective: Calculate and interpret productivity measures used for measuring competitiveness.

Section Reference: 1.4 Productivity and Competitiveness

53. The ratio of a firm's monthly output to the number of labour hours used in the same month would be a measure of
- a) labour productivity.
 - b) capital productivity.
 - c) machine productivity.
 - d) multifactor productivity.

Answer: a

Difficulty: Medium

Learning Objective: Calculate and interpret productivity measures used for measuring competitiveness.

Section Reference: 1.4 Productivity and Competitiveness

54. The degree of competitiveness in an industry can affect
- a) product innovation.
 - b) technological investment.
 - c) operating strategy.
 - d) all of the above.

Answer: d

Difficulty: Easy

Learning Objective: Calculate and interpret productivity measures used for measuring competitiveness.

Section Reference: 1.4 Productivity and Competitiveness

55. Japanese firms used the concept of ____ to convert from mass production to lean production.
- a) division of labour
 - b) scientific management
 - c) just-in-time
 - d) interchangeable parts

Answer: c

Difficulty: Medium

Learning Objective: Calculate and interpret productivity measures used for measuring competitiveness.

Section Reference: 1.4 Productivity and Competitiveness

56. Mass production is well suited to all of the following *except*
- a) producing large volumes of goods quickly.
 - b) adapting quickly to changes in market demand.
 - c) producing standardized products for a large market.
 - d) all of the above.

Answer: b

Difficulty: Easy

Learning Objective: Calculate and interpret productivity measures used for measuring competitiveness.

Section Reference: 1.4 Productivity and Competitiveness

57. All of the following are characteristics of today's consumer market *except*

- a) longer product life cycles.
- b) shorter product life cycles.
- c) more customized products.
- d) product proliferation.

Answer: a

Difficulty: Medium

Learning Objective: Calculate and interpret productivity measures used for measuring competitiveness.

Section Reference: 1.4 Productivity and Competitiveness

58. A firm who is adept at recognizing global windows of opportunity, acting on those very quickly, with tight linkages can be said to be competing on

- a) flexibility.
- b) speed.
- c) quality.
- d) cost.

Answer: b

Difficulty: Hard

Learning Objective: Discuss the process of developing, deploying, and monitoring the success of an operations strategy.

Section Reference: 1.5 Strategy and Operations

SHORT-ANSWER ESSAY QUESTIONS

59. Briefly describe how operations can be viewed as a transformation process.

Answer:

Difficulty: Easy

Section Reference 1: 1.0 Introduction

Solution: Operations is often defined as a transformation process. Inputs such as raw materials, labour, equipment, and capital are transformed into outputs (goods and services). Customer feedback is used to adjust the transformation process. An objective of the operations manager is to ensure that the transformation process operates efficiently and the outputs of the process have greater value than the sum of the inputs. In this way the transformation process creates value, making it possible to view the transformation process as a value chain extending from supplier to customer.

60. Briefly describe the four primary functional areas of a firm. How is operations related to them?

Answer:

Difficulty: Medium

Learning Objective: Describe what the operations function is and how it relates to other business functions.

Section Reference: 1.1 The Operations Function

Solution: The four primary functional areas of a firm are marketing, finance, operations, and human resources. For most firms, operations is the technical core or “hub” of the organization, interacting with the other functional areas and suppliers to produce goods and services for customers. For example, marketing provides sales forecasts to operations and operations provides marketing with product availability information, lead time estimates, and delivery schedules. Operations provides finance with inventory and production data, capital budgeting and equipment requests, and technology plans. Finance provides the capital resources for financing inventory and securing more capital equipment. Operations relies on human resources to meet its personnel needs—hiring, training, and evaluating workers.

61. What is electronic commerce?

Answer:

Difficulty: Medium

Learning Objective: Discuss the key factors that have contributed to the evolution of operations and the initiation of supply chain management.

Section Reference: 1.2 The Evolution of Operations and Supply Chain Management

Solution: Trade that occurs over the Internet (or any other computer network) is called electronic commerce, e-commerce, or e-business. Electronic commerce can take the form of trade between businesses (B2B), between consumers, or between business and consumers (B2C). B2B trade typically involves companies and their suppliers while B2C trade can take the form of

online retailing. Companies that integrate both B2B and B2C are said to have a fully integrated value chain.

62. What is productivity and how is it measured?

Answer:

Difficulty: Easy

Learning Objective: Calculate and interpret productivity measures used for measuring competitiveness.

Section Reference: 1.4 Productivity and Competitiveness

Solution: Productivity is the ratio of output to input. Output can be expressed in units or dollars. Single factor productivity compares output to individual inputs, such as labour hours, investment in equipment, or material usage. Multifactor productivity relates output to a combination of inputs, such as labour + capital. Total factor productivity compares the quantity of goods and services produced with all the inputs used to produce them.

63. What can lead to increases in productivity?

Answer:

Difficulty: Medium

Learning Objective: Calculate and interpret productivity measures used for measuring competitiveness.

Section Reference: 1.4 Productivity and Competitiveness

Solution: Productivity increases when firms become more efficient, expand, achieve breakthroughs that enable output increases to occur with reduced inputs, downsize while maintaining output with fewer inputs, and retrench with output and inputs decreasing but inputs decreasing at a faster rate than output.

LEGAL NOTICE

Copyright © 2014 by John Wiley & Sons Canada, Ltd. or related companies. All rights reserved.

WILEY

The data contained in these files are protected by copyright. This manual is furnished under licence and may be used only in accordance with the terms of such licence.

The material provided herein may not be downloaded, reproduced, stored in a retrieval system, modified, made available on a network, used to create derivative works, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning, or otherwise without the prior written permission of John Wiley & Sons Canada, Ltd.