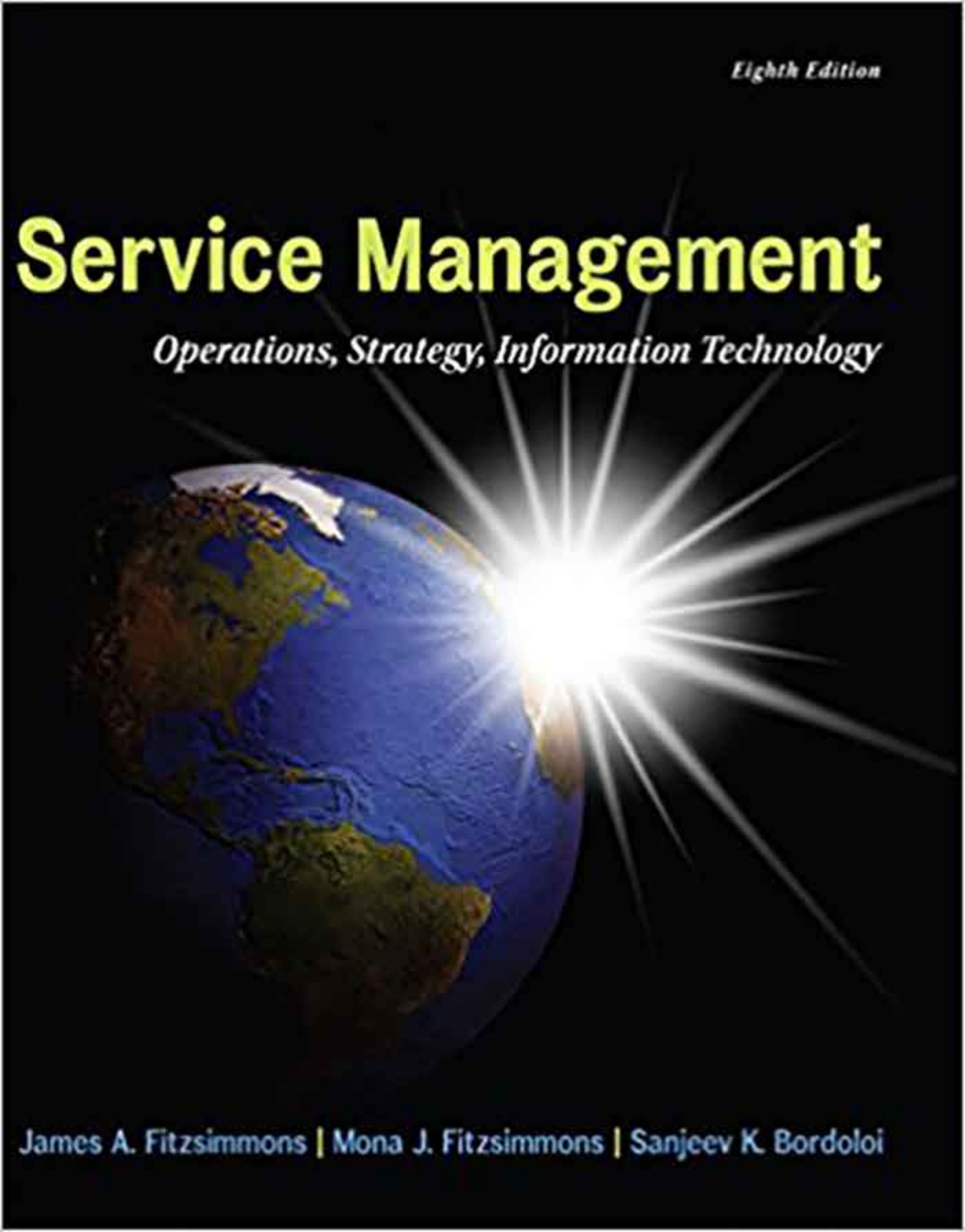
Eighth Edition

Service Management

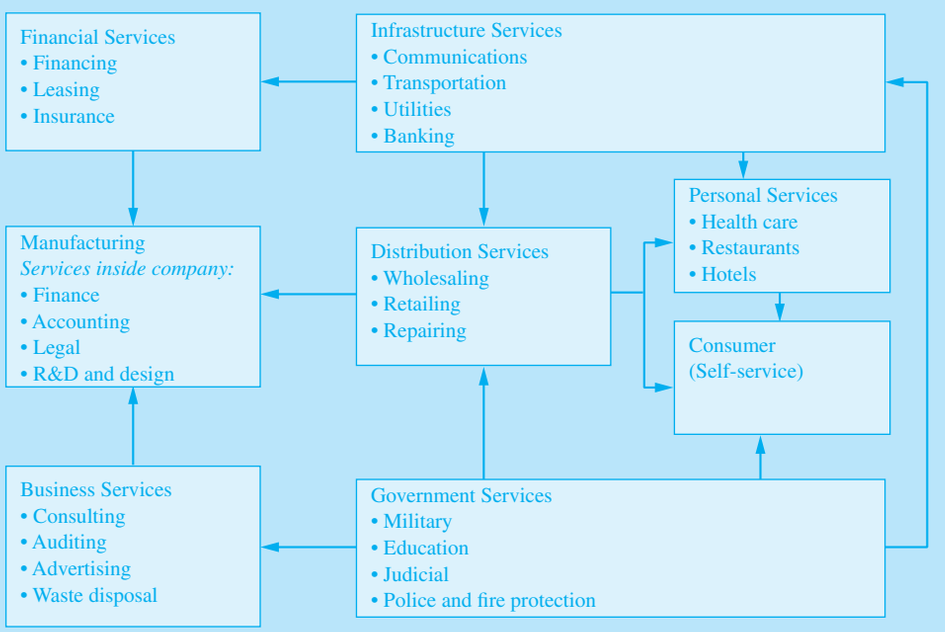
Operations, Strategy, Information Technology



James A. Fitzsimmons | Mona J. Fitzsimmons | Sanjeev K. Bordoloi

FIGURE 1.1

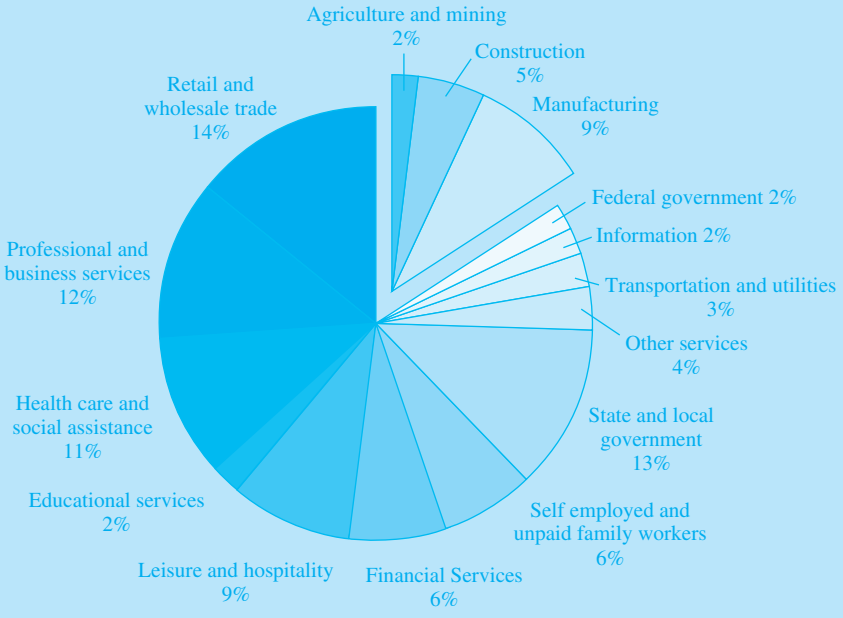
Role of Services in an Economy



Source: After Bruce R. Guile and James Brian Quinn, eds., *Technology in Services: Policies for Growth, Trade, and Employment,* Washington, D.C.: National Academy Press, 1988, p. 214.

FIGURE 1.4

Percent Distribution of U.S. Employment by Industry, 2009



Source: http://www.bls.gov/emp/ep_table_201.htm

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James A. Fitzsimmons, Seay Professor of Business Emeritus, McCombs School of Business, The University of Texas at Austin received a B.S.E. from the University of Michigan, an MBA from Western Michigan University, and a Ph.D. with distinction from the University of California at Los Angeles. His research in the area of emergency ambulance location won the Stan Hardy Award in 1983 for the best paper published in the field of operations management. Consulting assignments include the RAND Corporation; the U.S. Air Force; the cities of Los Angeles, Denver, Austin, Melbourne, and Auckland; the Texas comptroller; General Motors; La Quinta Motor Inns; Greyhound; TRICON Restaurants International; and McDonald's. Teaching experience includes faculty appointments at the University of California at Los Angeles, California State University at Northridge, the University of New Mexico, Boston University Overseas Graduate Program, California Polytechnic State University at San Luis Obispo, Seoul National University, and the Helsinki School of Economics and Business. He is a registered professional engineer in the state of Michigan and has held industrial engineering positions at Corning Glass Works and Hughes Aircraft Company. He served in the U.S. Air Force as an officer in charge of base construction projects. During his tenure at The University of Texas, he was Ph.D. graduate advisor, chair of the undergraduate programs committee, and nominated for six teaching awards. In 2004 he received an IBM Faculty Award in recognition for his contributions to the field of service operations management. He serves on the editorial board of the *Journal of Service Research.*

Mona J. Fitzsimmons, a graduate of the University of Michigan, received her undergraduate degree in journalism with major supporting work in chemistry and psychology. Her graduate work was in geology and she has taught in public and private schools and at the university level. She has done writing and editing for the Encyclopaedia Britannica Education Corporation and for various professional journals and organizations. With James Fitzsimmons she edited *New Service Development: Creating Memorable Experiences* published in 2000 by Sage Publications. Her nonprofessional activities have included volunteer work for the Red Cross aquatics program and in wildlife rehabilitation. She has particular interests in the areas of environmental issues and the responsibilities of patients and physicians in health care.

Sanjeev K. Bordoloi, Associate Professor of Operations and Supply Chain Management in the Opus College of Business at the University of St. Thomas, Minnesota, received his B.Tech. in electrical engineering from the Indian Institute of Technology, Varanasi; an MBA from Xavier Labour Relations Institute (XLRI); and a Ph.D. from The University of Texas at Austin. His prior full-time teaching experience includes the University of Illinois at Urbana-Champaign, the College of William and Mary, and the University of Alaska Fairbanks. He won the Alfred Page Graduate Teaching Award at the College of William and Mary and was featured in the "List of Teachers Ranked by Students as Excellent" at the University of Illinois at Urbana-Champaign. His research interests include operations management, process analysis and design, lean management, and theory of constraints. He has worked full-time in the service industry at the executive level, primarily in project management and technology management. He has consulted for several firms, including Sentara Healthcare, TRIA Orthopaedic Center, Archer Daniels Midland, Accenture India, Northwestern University medical unit, Fairbanks Memorial Hospital, ServiceWare (knowledge management), Humanics Incorporated, and Intandem Incorporated (event management).

Preface

Services touch the lives of every person in this country every day: food services, communication services, and emergency services, to name only a few. Our welfare and the welfare of our economy now are based on services. The activities of manufacturing and agriculture always will be necessary, but we can eat only so much food and we can use only so many goods. Services, however, are largely experiential, and we always will have a limitless appetite for them.

Service operations management is established firmly as a field of study that embraces all service industries. The discipline was first recognized as an academic field by the Decision Sciences Institute (DSI) at its 1987 Boston meeting. In 1989 the *International Journal of Service Industry Management* was inaugurated. The First International Research Seminar in Service Management was held in France in 1990.

The *Journal of Service Research* was first published in August 1998 and quickly became the leading journal of the field. At the 2004 Boston meeting of Production and Operations Management Society (POMS), a College on Service Operations was established. In 2005 the IBM Almaden Research Center launched an initiative to establish a new discipline called Service Science, Management, and Engineering (SSME). Visit the Academic Initiative SSME website at http://www.ibm.com/developerworks/spaces/ssme to find articles, case studies, and lecture materials. The first issue of *Service Research* was published by INFORMS on September 2011.

This edition continues to acknowledge and emphasize the essential uniqueness of service management. These are some key features:

- The book is written in an engaging literary style, makes extensive use of examples, and is based on the research and consulting experience of the authors.
- The theme of managing services for competitive advantage is emphasized in each chapter and provides a focus for each management topic.
- The integration of technology, operations, and human behavior is recognized as central to effective service management.
- Emphasis is placed on the need for continuous improvement in quality and productivity in order to compete effectively in a global environment.
- To motivate the reader, a vignette of a well-known company starts each chapter, illustrating the strategic nature of the topic to be covered.
- Each chapter has a preview, a closing summary, key terms and definitions, service benchmark, topics for discussion, an interactive exercise, solved problems and exercises when appropriate, and one or more cases.
- Available on the text's Online Learning Center, www.mhhe.com/fitzsimmons8e, is access to the Mortgage Service Game, a facility location Excel spreadsheet, chapter quizzes, and websites. Service Model simulation software is also available using the passcode on the Premium Content card packaged with the text, which is required to access the software.
- The instructor's side of the text website contains an instructor's manual, case analyses, exercise solutions, sample syllabi, yield management game, and lists of supplementary materials.

Key Updates in the Eighth Edition

This edition has benefited greatly from thoughtful suggestions from students, colleagues, and reviewers. In particular, we have incorporated information technology as a theme

throughout the book, recognizing the central importance of IT in today's world. We note several changes and additions to this new edition:

- A new section on the topic of sustainability has been added in Chapter 2, Service Strategy, with examples from Walmart that include the impact of the triple bottom line.
- The topic of customer relationship management (CRM) has been added to Chapter 4, The Service Encounter.
- The two topics of Six Sigma and Lean Service have been expanded with examples in Chapter 7, Process Improvement.
- In Chapter 8, Facility Location, the topic of geographic information systems (GIS) has been rewritten, expanded, and illustrated with an application to a residential community.
- A new section on social media in services is included in Chapter 9, Service Supply Relationships.
- In Chapter 10, Globalization of Services, the section on service offshoring has been expanded to include knowledge workers.
- The Blackjack Airline yield management example in Chapter 11, Managing Capacity and Demand, has been revised following a critique by Professor Anand Paul.
- Chapter 12, Managing Waiting Lines, has been extensively revised and features Disney's FastPass system.
- A new section on independent and dependent demand has been added to Chapter 15, Managing Service Inventory.
- This new edition has something of a "whodunit?"—check out Case 3.1, United Commercial Bank and El Banco.

Perhaps the most important change in this edition is that we welcome Sanjeev Bordoloi aboard our project as a new coauthor. He is a gifted teacher and an active researcher, and he brings a broad range of expertise, especially in the areas of information technology, consulting, and social media.

Special thanks and acknowledgment go to the following people for their valuable reviews of the first edition: Mohammad Ala, California State University, Los Angeles; Joanna R. Baker, Virginia Polytechnic Institute and State University; Mark Davis, Bentley College; Maling Ebrahimpour, University of Rhode Island; Michael Gleeson, Indiana University; Ray Haynes, California Polytechnic State University at San Luis Obispo; Art Hill, the University of Minnesota; Sheryl Kimes, Cornell University; and Richard Reid, the University of New Mexico.

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The sixth edition has benefited greatly from the thoughtful suggestions of an outstanding group of reviewers: Sanjeev Bordoloi, University of Illinois-Urbana; Robert Burgess, Georgia Institute of Technology; Maureen Culleeney, Lewis University; Dick Fentriss, University of Tampa; Craig Froehle, University of Cincinnati; Susan Meyer Goldstein, University of Minnesota; Jaideep Motwani, Grand Valley State University; Rodney Runyan, University of South Carolina; and Rajesh Tyagi, DePaul University. We give special thanks to Ravi Behara, Florida Atlantic University, for his comprehensive revision plan.

The seventh edition benefited from the constructive suggestions of the following reviewers: Michael Bendixen, Nova Southeastern University; Dan Berg, Rensselaer Polytechnic Institute; Elif Kongar, Bridgeport University; Stephen Kwan, San Jose State University; Mary McWilliams, LeTourneau University; Kenneth Shaw, Oregon State University; and Donna Stewart, University of Wisconsin-Stout. We appreciate the contributions for improvements from Jeanne Zilmer, Copenhagen Business School.

The following reviewers contributed their generous time and expertise to the eighth edition: Laura Forker, University of Massachusetts-Dartmouth; Mike Galbreth, University of South Carolina; David Geigle, Texas A&M University; Lowell Lay, Texas Tech University; Mark Leung, University of Texas at San Antonio; Mark McComb, Mississippi College; Jaideep Motwani, Grand Valley State University; Rene Reitsma, Oregon State University; Jeff Smith, Florida State University; G. Peter Zhang, Georgia State University; and Shu Zhou, San Jose State University.

We wish to acknowledge two students who assisted us. Fang Wu, Ph.D. student at The University of Texas at Austin, assisted in the development of some exercises and preparation of the PowerPoint lecture presentations for the second edition. Edmond Gonzales, an MBA student at Texas, prepared the chapter quizzes for the third edition CD-ROM. A special thanks is extended to Rob Bateman of the ProModel Corporation for the preparation of the Pronto Pizza simulation case and assistance in our adoption of the ServiceModel software.

We express special appreciation to all of our friends who encouraged us and tolerated our social lapses while we produced this book. In particular, James and Mona Fitzsimmons are indebted for the support of Richard and Janice Reid, who have provided lively and stimulating conversations and activities over many years, and who generously allowed us the use of their mountain retreat. The beginning of the first edition was written in the splendid isolation of their part of the Jemez Mountains of New Mexico. No authors could want for better inspiration.

James A. Fitzsimmons

Mona J. Fitzsimmons

Sanjeev K. Bordoloi

Overview of the Book

Part One begins with a discussion of the role of services in an economy. We first look at the historical evolution of societies based on economic activity and conclude with a discussion of the emerging experience economy. Next, we consider the distinctive characteristics of service operations, concluding with an open-systems view of service operations management. The strategic service vision begins the final chapter in this section. Generic competitive service strategies are discussed with an emphasis on the role of information as illustrated by the virtual value chain.

Designing the service enterprise to support the competitive strategy is the topic of Part Two. New services are developed using techniques such as a service blueprint that diagrams the flow of activity occurring onstage above a line of visibility and backstage functions that are not seen by the customer. The notion of a service encounter describes the interaction between service provider and customer in the context of a service organization. The importance of the supporting facility is captured by how the servicescape affects customer and employee behavior. Process analysis is treated in depth by identifying the bottleneck and calculating performance metrics such as throughput time. The challenge of delivering exceptional service quality is addressed by comparing customers' perceptions and expectations. The process improvement chapter describes tools and programs for continuous improvement, and a supplement measures service productivity using data envelopment analysis. The strategic importance of service facility location is explored with analytical models in the conclusion of this part.

Management of service operations is addressed in Part Three. The topic of service supply relationships includes a discussion of professional services and the controversial topic of outsourcing services. The next chapter is devoted to the topic of service-firm growth and the importance of globalization in services. Strategies to manage capacity and demand follow including the concept of yield management. We address the question of managing waiting lines from a psychological viewpoint. Capacity planning using queuing models with a supplement on computer simulation featuring ServiceModel animated software concludes this part.

Part Four is devoted to quantitative models for service management. The first chapter addresses the topic of forecasting service demand using exponential smoothing models. The next chapter explores models for managing service inventory and discusses the uses of RFID. The topic of project management using Microsoft® Project software as the foundation concludes the final part.

Brief Contents

Table of Contents

Part 1

Understanding Services

We begin our study of service management in Chapter 1, The Service Economy, with an appreciation of the central role that services play in the economies of nations and in world commerce. No economy can function without the infrastructure that services provide in the form of transportation and communications and without government services such as education and health care. As an economy develops, however, services become even more important, and soon the vast majority of the population is employed in service activities.

However, services have distinctive features that present unique challenges for management. Perhaps the most important characteristic of service operations is the presence of the customer in the service delivery system. Focusing on the customer and serving his or her needs is the basis for a service-dominant logic that is an alternative to the traditional goods-centered paradigm.

An effective competitive strategy is particularly important for service firms because they compete in an environment where there are relatively low barriers to entry. We begin Chapter 2, New Service Development, with a discussion of the strategic service vision, a framework in the form of questions about the purpose and place of a service firm in its market. The well-known generic competitive strategies—overall cost leadership, differentiation, and focus—are applied to services. The competitive role of information in services is highlighted.

Chapter 1

The Service Economy

Learning Objectives

After completing this chapter, you should be able to:

1. Describe the central role of services in an economy.
2. Identify and differentiate the five stages of economic activity.
3. Describe the features of preindustrial, industrial, and postindustrial societies.
4. Describe the features of the experience economy contrasting the consumer (B2C) with the business (B2B) service experience.
5. Explain the essential features of the service-dominant logic.
6. Identify and critique the six distinctive characteristics of a service operation, and explain the implications for managers.
7. Describe a service using the five dimensions of the service package.
8. Use the service process matrix to classify a service.

We are witnessing the greatest labor migration since the industrial revolution. This migration from agriculture and manufacturing to services is both invisible and largely global in scope. The migration is driven by global communications, business and technology growth, urbanization, and low-cost labor. Service industries are leaders in every industrialized nation, they create new jobs that dominate national economies, and have the potential to enhance the quality of life of everyone. Many of these jobs are for high-skilled knowledge-workers in professional and business services, health care, and education. As shown in Table 1.1, the extent of this migration to services is significant in the industrialized nations (United States, Japan, and Germany) but also represents a proportion of the labor force larger than that employed in goods production for the developing BRIC economies (Brazil, Russia, India, and China).

TABLE 1.1
Sector Employment in Top Ten Nations by 2010 Labor Force Size

Source: http://www.nationmaster.com.

Nation	% of World Labor	% Agri	% Goods	% Services
China	21.0	50	15	35
India	17.0	60	17	23
U.S.	4.8	2	20	78
Indonesia	3.9	45	16	39
Brazil	3.0	23	24	53
Russia	2.5	12	23	65
Japan	2.4	5	26	69
Nigeria	2.2	70	10	20
Bangladesh	2.2	63	11	26
Germany	1.4	3	28	69

Chapter Preview

In a discussion of economic development, we learn that modern industrialized economies are dominated by employment in the service sector industries. This represents a natural evolution of economies from preindustrial to industrial and finally to postindustrial societies. The nature of the service economy is explored in terms of employment opportunities and the transition to experienced-based relationships for both consumers and businesses.

The distinctive characteristics of service operations suggest that the service environment is sufficiently unique to question the direct application of traditional manufacturing-based management techniques. In particular, the service manager operates in a system in which the customer is present and a co-creator of value. The concept of a service package to describe a service from an operations point of view is the foundation for an open-systems view of service management challenges. We begin with a selection of service definitions.

Service Definitions

Many definitions of service are available but all contain a common theme of intangibility and simultaneous consumption. The following represent a sample of service definitions:

> Services are deeds, processes, and performances. (Valarie A. Zeithaml, Mary Jo Bitner, and Dwayne D. Gremler, *Services Marketing,* 4th ed., New York: McGraw-Hill, 2006, p. 4.)
>
> A service is an activity or series of activities of more or less intangible nature that normally, but not necessarily, take place in interactions between customer and service employees and/or physical resources or goods and/or systems of the service provider, which are provided as solutions to customer problems. (Christian Gronroos, *Service Management and Marketing,* Lexington, Mass: Lexington Books, 1990, p. 27.)
>
> Services are economic activities offered by one party to another, most commonly employing time-based performances to bring about desired results in recipients themselves or in objects or other assets for which purchasers have responsibility. In exchange for their money, time, and effort, service customers expect to obtain value from access to goods, labor, professional skills, facilities, networks, and systems; but they do not normally take ownership of any of the physical elements involved. (Christopher Lovelock and Lauren Wright, *Services Marketing: People, Technology, Strategy,* 6th ed., Upper Saddle River, NJ: Prentice-Hall, 2007, p. 6.)
>
> A service system is a value-coproduction configuration of people, technology, other internal and external service systems, and shared information (such as language, processes, metrics, prices, policies, and laws). (Jim Spohrer, Paul Maglio, John Bailey, and Daniel Gruhl, *Computer,* January 2007, p. 72.)

Facilitating Role of Services in an Economy

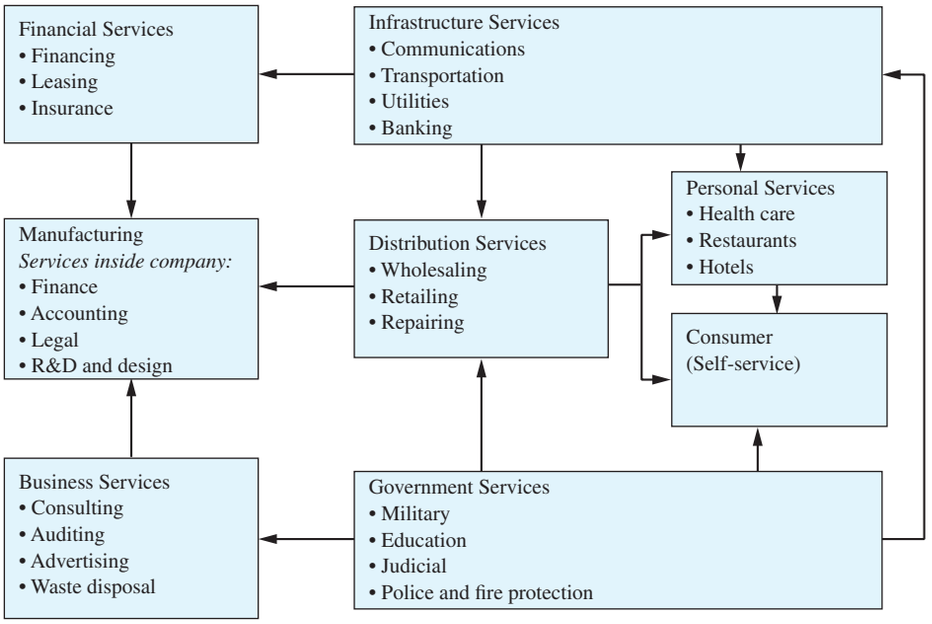
As shown in Figure 1.1, services are central to the economic activity in any society. Infrastructure services, such as transportation and communications, are the essential links among all sectors of the economy, including the final consumer. In a complex economy, both infrastructure and distribution services function as intermediaries and as the channel of distribution to the final consumer. Infrastructure services are a prerequisite for an economy to become industrialized; therefore, no advanced society can be without these services.

In an industrialized economy, specialized firms can supply business services to manufacturing firms more cheaply and efficiently than manufacturing firms can supply these services for themselves. Thus, more and more often we find advertising, consulting, and other business services being provided for the manufacturing sector by service firms.

Except for basic subsistence living, where individual households are self-sufficient, service activities are absolutely necessary for the economy to function and to enhance

FIGURE 1.1
Role of Services in an Economy

Source: Bruce R. Guile and James Brian Quinn, eds., *Technology in Services: Policies for Growth, Trade, and Employment,* Washington, D.C.: National Academy Press, 1988, p. 214.



the quality of life. Consider, for example, the importance of a banking industry to transfer funds and a transportation industry to move food products to areas that cannot produce them. Moreover, a wide variety of personal services, such as restaurants, lodging, cleaning, and child care, have been created to move former household functions into the economy. In fact, the consumer performing self-service activities is a service contributor often using technology (boarding kiosk) to eliminate non-value-adding tasks or affording personalization and control (online brokerage).

Government services play a critical role in providing a stable environment for investment and economic growth. Services such as public education, health care, well-maintained roads, safe drinking water, clean air, and public safety are necessary for any nation's economy to survive and people to prosper.

Increasingly, the profitability of manufacturers depends on exploiting value-added services. For example, automobile manufacturers have discovered that financing and/or leasing automobiles can achieve significant profits. Otis Elevator long ago found that revenues from after-sales maintenance contracts far exceed the profits from elevator equipment sales. As personal computers become a commodity product with very low margins, firms turn to network and communication services to improve profits.

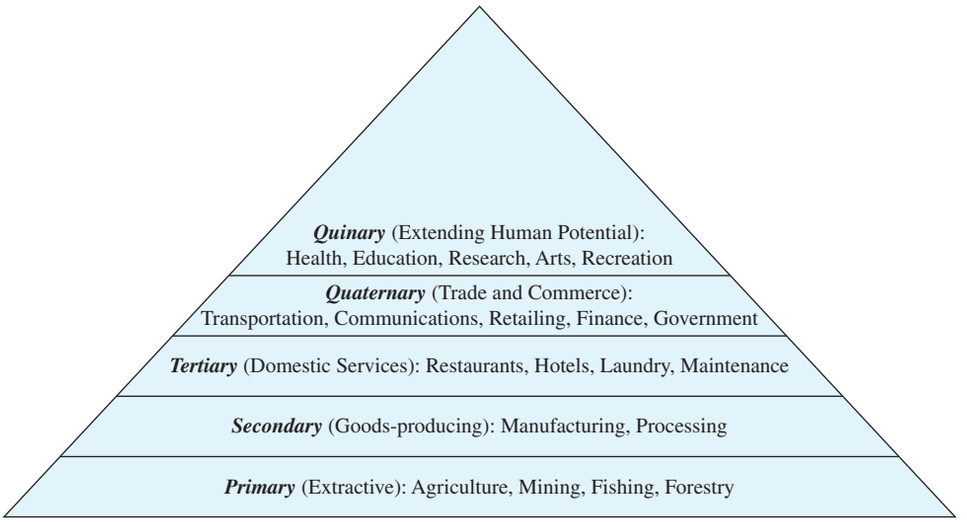
Thus, it is imperative to recognize that services are not peripheral activities but rather integral parts of society. They are central to a functioning and healthy economy and lie at the heart of that economy. Finally, the service sector not only facilitates but also makes possible the goods-producing activities of the manufacturing sectors. Services are the crucial force for today's change toward a global economy.

Economic Evolution

In the early 1900s, only 3 of every 10 workers in the United States were employed in the services sector. The remaining workers were active in agriculture and industry. By 1950, employment in services accounted for 50 percent of the workforce. Today, services employ about 8 out of every 10 workers. During the past 90 years, we have witnessed a major evolution in our society from being predominantly manufacturing-based to being predominantly service-based.

Economists studying economic growth are not surprised by these events. Colin Clark argues that as nations become industrialized, there is an inevitable shift of employment

FIGURE 1.2
Stages of Economic Activity



from one sector of the economy to another.[1] As productivity (output/labor-hour) increases in one sector, the labor force moves into another. This observation, known as the *Clark-Fisher hypothesis,* leads to a classification of economies by noting the activity of the majority of the workforce.

Figure 1.2 describes a hierarchy of economic activity. Many economists, including Clark, limited their analyses to only three stages, of which the tertiary stage was simply services. We have subdivided the service stage to create a total of five stages.

Today, an overwhelming number of countries are still in a primary stage of development. These economies are based on extracting natural resources from the land. Their productivity is low, and income is subject to fluctuations based on the prices of commodities such as sugar and copper. In much of Africa and parts of Asia, more than 70 percent of the labor force is engaged in extractive activities.

Figure 1.3 shows the rapid increase in service employment in the United States over the past century and illustrates the almost mirror image decline in agriculture employment. This sector employment trajectory is repeated for all of the nations represented in Table 1.1. We can observe that migration to services is a predictable evolution in the workforce of all nations, and successful industrial economies are built on a strong service sector. Furthermore, competition in services is global. Consider the growth of call centers in India and commercial banking by the Japanese. Trade in services remains a challenge, however, because many countries erect barriers to protect domestic firms. India and Mexico, for example, prohibit the sale of insurance by foreign companies.

Stages of Economic Development

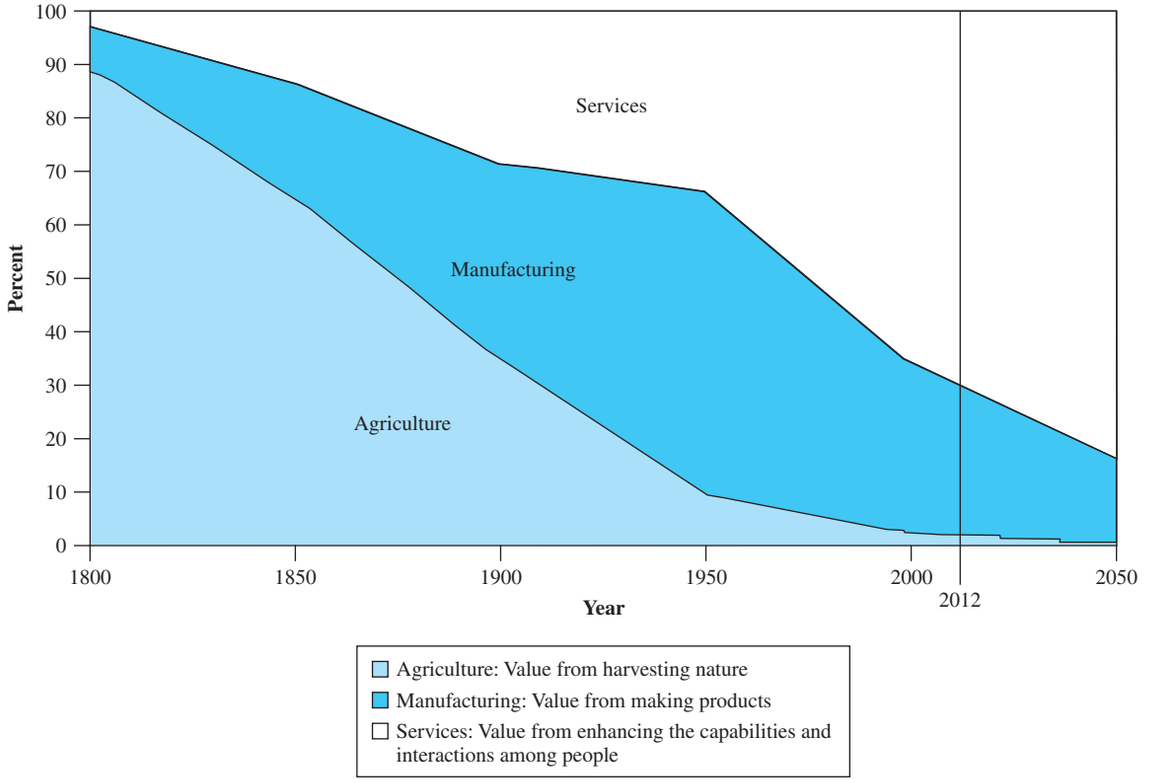
Describing where our society has been, its current condition, and its most likely future is the task of social historians. Daniel Bell, a professor of sociology at Harvard University, has written extensively on this topic, and the material that follows is based on his work.[2] To place the concept of a postindustrial society in perspective, we must compare its features with those of preindustrial and industrial societies.

Preindustrial Society

The condition of most of the world's population today is one of subsistence, or a *preindustrial society.* Life is characterized as a game against nature. Working with muscle power and tradition, the labor force is engaged in agriculture, mining, and fishing. Life is conditioned by the elements, such as the weather, the quality of the soil, and the availability of water. The rhythm of life is shaped by nature, and the pace of work varies with the

FIGURE 1.3 **Trends in U.S. Employment by Sector, 1800–2050 (projected)**

Source: U.S. Department of Commerce, Bureau of the Census, http://www.census.gov/compendia/statab/cats/labor_force_employment_earnings/employment_projections.html; http://www.bls.gov/emp/ep_table_101.htm; https://www.gov/news_release/ecopro.t02.htm.



seasons. Productivity is low and bears little evidence of technology. Social life revolves around the extended household, and this combination of low productivity and large population results in high rates of underemployment (workers not fully utilized). Many seek positions in services, but of the personal or household variety. Preindustrial societies are agrarian and structured around tradition, routine, and authority.

Industrial Society

The predominant activity in an *industrial society* is the production of goods. The focus of attention is on making more with less. Energy and machines multiply the output per labor-hour and structure the nature of work. Division of labor is the operational "law" that creates routine tasks and the notion of the semiskilled worker. Work is accomplished in the artificial environment of the factory, and people tend the machines. Life becomes a game that is played against a fabricated nature—a world of cities, factories, and tenements. The rhythm of life is machine-paced and dominated by rigid working hours and time clocks. Of course, the unrelenting pressure of industrial life is ameliorated by the countervailing force of labor unions.

An industrial society is a world of schedules and acute awareness of the value of time. The standard of living becomes measured by the quantity of goods, but note that the complexity of coordinating the production and distribution of goods results in the creation of large bureaucratic and hierarchic organizations. These organizations are designed with certain roles for their members, and their operation tends to be impersonal, with persons treated as things. The individual is the unit of social life in a society that is considered to be the sum total of all the individual decisions being made in the marketplace.

Postindustrial Society

While an industrial society defines the standard of living by the quantity of goods, the *postindustrial society* is concerned with the quality of life, as measured by services such as health, education, and recreation. The central figure is the professional person, because rather than energy or physical strength, information is the key resource. Life now is a game played among persons. Social life becomes more difficult because political claims and social rights multiply. Society becomes aware that the independent actions of individuals and organizations can combine to create havoc for everyone, as evidenced by environmental pollution and traffic congestion. The community rather than the individual becomes the social unit.

Bell suggests that the transformation from an industrial to a postindustrial society occurs in many ways. First, there is a natural development of services, such as transportation and utilities, to support industrial development. As labor-saving devices are introduced into the production process, more workers engage in nonmanufacturing activities, such as maintenance and repair. Second, growth of the population and mass consumption of goods increase wholesale and retail trade, along with banking, real estate, and insurance. Third, as income increases, the proportion spent on the necessities of food and home decreases, and the remainder creates a demand for durables and then for services.

Ernst Engel, a Prussian statistician of the 19th century, observed that as family incomes increase, the percentage spent on food and durables drops while consumption of services that reflect a desire for a more enriched life increases correspondingly. This phenomenon is analogous to the Maslow hierarchy of needs, which says that once the basic requirements of food and shelter are satisfied, people seek physical goods and, finally, personal development. However, a necessary condition for the "good life" is health and education. In our attempts to eliminate disease and increase the span of life, health services become a critical feature of modern society.

Higher education becomes the condition for entry into a postindustrial society, which requires professional and technical skills of its population. Also, claims for more services and social justice lead to a growth in government. Concerns for environmental protection require government intervention and illustrate the interdependent and even global character of postindustrial problems. Table 1.2 summarizes the features that characterize the preindustrial, industrial, and postindustrial stages of economic development.

TABLE 1.2 **Comparison of Societies**

	Features						
Society	**Game**	**Predominant Activity**	**Use of Human Labor**	**Unit of Social Life**	**Standard of Living Measure**	**Structure**	**Technology**
Preindustrial	Against nature	Agriculture Mining	Raw muscle power	Extended household	Subsistence	Routine Traditional Authoritative	Simple hand tools
Industrial	Against fabricated nature	Goods-production	Machine-tending	Individual	Quantity of goods	Bureaucratic Hierarchical	Machines
Postindustrial	Among persons	Services	Artistic Creative Intellectual	Community	Quality of life in terms of health, education, recreation	Inter-dependent Global	Information

Nature of the Service Sector

For many people, *service* is synonymous with *servitude* and brings to mind workers flipping hamburgers and waiting on tables. However, the service sector that has grown significantly over the past 50 years cannot be described accurately as composed only of low-wage or low-skill jobs in department stores and fast-food restaurants. Instead, as Figure 1.4 shows, approximately 25 percent of the total employment in 2008 occurred in high-skill service categories such as professional and business services, health care and social assistance, and educational services.

Changes in the pattern of employment will have implications on where and how people live, on educational requirements, and, consequently, on the kinds of organizations that will be important to that society. Industrialization created the need for the semiskilled worker who could be trained in a few weeks to perform the routine machine-tending tasks. The subsequent growth in the service sector has caused a shift to white-collar occupations. In the United States, the year 1956 was a turning point. For the first time in the history of industrial society, the number of white-collar workers exceeded the number of blue-collar workers, and the gap has been widening since then. The most interesting growth has been in the managerial and professional–technical fields, which are jobs that require a college education.

Today, service industries are the source of economic leadership. During the past 30 years, more than 44 million new jobs have been created in the service sector to absorb the influx of women into the workforce and to provide an alternative to the lack of job opportunities in manufacturing. The service industries now account for approximately 70 percent of the national income in the United States. Given that there is a limit to how many cars a consumer can use and how much one can eat and drink, this should not be surprising. The appetite for services, however, especially innovative ones, is insatiable. Among the services presently in demand are those that reflect an aging population, such as geriatric health care, and others that reflect a two-income family, such as day care.

The growth of the service sector has produced a less cyclic national economy. During the past four recessions in the United States, employment by service industries has increased, while jobs in manufacturing have been lost. This suggests that consumers are willing to postpone the purchase of products but will not sacrifice essential services like education, telephone, banking, health care, and public services such as fire and police protection.

FIGURE 1.4
Percent Distribution of U.S. Employment by Industry, 2009

Source: http://www.bls.gov/emp/ep_table_201.htm.