



Operations Management

Course:

Operations Management SOM 306

Instructor:

Dr. Andrew Yao

College of Business and Economics .

Department of Systems and Operations Management

McGraw-Hill/Irwin

A Division of The McGraw-Hill Companies

McGraw-Hill Primis

ISBN: 0-390-49958-7

Text:

Operations Management for Competitive

Advantage, 10th Ed.

Chase-Jacobs-Aquilano

Service Management, Fourth Edition

Fitzsimmons-Fitzsimmons

Fundamentals of Operations Management,

Fourth Edition

Davis-Aquilano-Chase

Operations Management, Eighth Edition

Stevenson

Operations Management

http://www.mhhe.com/primis/online/

Copyright ©2005 by The McGraw-Hill Companies, Inc. All rights reserved. Printed in the United States of America. Except as permitted under the United States Copyright Act of 1976, no part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without prior written permission of the publisher.

This McGraw–Hill Primis text may include materials submitted to McGraw–Hill for publication by the instructor of this course. The instructor is solely responsible for the editorial content of such materials.

Operations Management

Contents

Fitzsimmons–Fitz	simmons • Service Management, Fourth Edition	
	I. Understanding Services	1
	1. The Role of Services in an Economy	1
	2. The Nature of Services	14
	II. Designing the Service Enterprise	33
	6. Service Quality	33
	I. Understanding Services	71
	3. Service Strategy	71
	II. Designing the Service Enterprise	98
	4. New Service Development	98
Stevenson • Of	perations Management, Eighth Edition	
	III. System Design	127
	7. Design of Work Systems 7S. Learning Curves	127 166
Fitzsimmons-Fitz	esimmons • Service Management, Fourth Edition	
	II. Designing the Service Enterprise	177
	8. Service Facility Location	177
Chase-Jacobs-A	Aquilano • Operations Management for Competitive Advantage, 10th Ed.	
	I. Operations Strategy and Managing Change	206
	3. Project Management	206

Fitzsimmons-Fitzsi	mmons • Service Management, Fourth Edition	
	II. Designing the Service Enterprise	240
	7. E–Service	240
Stevenson • Open	rations Management, Eighth Edition	
	III. System Design	254
	6S. Linear Programming	254
Davis-Aquilano-Ch	nase • Fundamentals of Operations Management, Fourth Edition	
	9. Forecasting	285
	Text	285
Stevenson • Open	rations Management, Eighth Edition	
	V. Inventory Management and Scheduling	331
	11. Inventory Management	331
Chase-Jacobs-Aq	uilano • Operations Management for Competitive Advantage, 10th Ed.	
	IV. Planning and Controlling the Supply Chain	390
	16. Operations Scheduling	390
Stevenson • Ope	rations Management, Eighth Edition	
	V. Inventory Management and Scheduling	417
	13. MRP and ERP	417
Fitzsimmons-Fitzs	simmons • Service Management, Fourth Edition	
	IV. Toward World–Class Service	459
	15. Productivity and Quality Improvement	459
	Back Matter	50
	Appendix A: Areas of Standard Normal Distribution	50!

Chapter



The Role of Services in an Economy

Learning Objectives

After completing this chapter, you should be able to:

- 1. Describe the central role of services in an economy.
- 2. Discuss the evolution of an economy from an agrarian society to a service society.
- 3. Describe the features of preindustrial, industrial, and postindustrial societies.
- 4. Describe the features of the new experience economy.
- 5. Discuss the role of service managers with respect to innovation, social trends, and management challenges.

Services lie at the very hub of 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 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.

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.

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.

Fitzsimmons-Fitzsimmons

Service Management,

Fourth Edition

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. Furthermore, the economic activity of society determines the nature of how people live and how the standard of living is measured. The nature of the service sector is explored in terms of employment opportunities, contributions to economic stability, and source of economic leadership. The idea that a new experience economy will supersede our postindustrial society is considered. 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 and Mary Jo Bitner, *Services Marketing*, McGraw-Hill, New York, 1996, p. 5.)

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 Books, Lexington, Mass., 1990, p. 27.)

Most authorities consider the services sector to include all economic activities whose output is not a physical product or construction, is generally consumed at the time it is produced, and provides added value in forms (such as convenience, amusement, timeliness, comfort, or health) that are essentially intangible concerns of its first purchaser. (James Brian Quinn, Jordan J. Baruch, and Penny Cushman Paquette, *Scientific American*, vol. 257, no. 2, December 1987, p. 50.)

A precise definition of goods and services should distinguish them on the basis of their attributes. A good is a tangible physical object or product that can be created and transferred; it has an existence over time and thus can be created and used later. A service is intangible and perishable. It is an occurrence or process that is created and used simultaneously or nearly simultaneously. While the consumer cannot retain the actual service after it is produced, the effect of the service can be retained. (Earl Sasser, R. Paul Olsen, and D. Daryl Wyckoff, *Management of Service Operations*, Allyn and Bacon, Boston, 1978, p. 8.)

A service is a time-perishable, intangible experience performed for a customer acting in the role of co-producer. (James Fitzsimmons)

Dependency of Manufacturing on Services

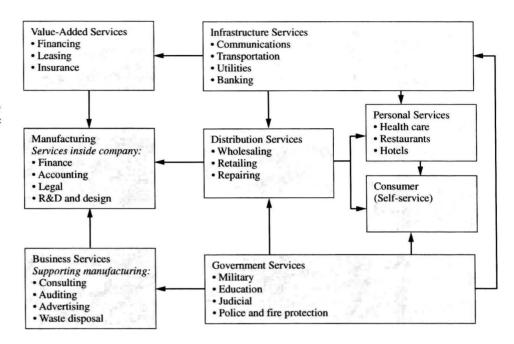
Figure 1.1 illustrates the interdependency of the services and manufacturing sectors of the economy. Many service industries provide transportation, banking, advertising, repair, or communication in support of the distribution of manufactured goods. Even as manufacturing moves offshore, many of these same services will continue to be needed. Furthermore, the success of manufacturing requires rapid feedback from the

Chapter 1: The Role of Services in an Economy 5

FIGURE 1.1 Role of Services in an Economy

Fourth Edition

(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.)



marketplace, ability to customize products, and fast delivery—all of which are dependent on integration of downstream services.

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.

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 from one sector of the economy to another. As productivity 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.

Table 1.1 describes five stages of economic activity. Many economists, including Clark, limited their analyses to only three stages, of which the tertiary stage was simply services. We have taken the suggestion of Nelson N. Foote and Paul K. Hatt and subdivided the service stage into three categories.²

TABLE 1.1Stages of Economic Activity

Quaternary (Trade and Commerce Services) Primary (Extractive) Agriculture **Transportation** Mining Retailing Fishing Communication Forestry Finance and insurance Real estate Government Secondary (Goods-Producing) Quinary (Refining and Extending Human Capacities) Manufacturing Health **Processing** Education Research Recreation Arts Tertiary (Domestic Services) Restaurants and hotels Barber and beauty shops Laundry and dry cleaning Maintenance and repair

TABLE 1.2 Percent Employment in Service Jobs for Selected Industrialized Nations, 1980–1999

(Source: 1999 Statistical Yearbook, Department of International Economic and Social Affairs Statistical Office, United Nations, New York, 1999.)

Country	1980	1987	1993	1999
United States	67.1	71.0	74.3	80.4
Canada	67.2	70.8	74.8	73.9
Japan	54.5	58.1	59.9	72.4
France	56.9	63.6	66.4	70.8
Israel	63.3	66.0	68.0	70.7
Italy	48.7	57.7	60.2	61.1
China	13.1	17.8	21.2	26.4

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.

Based on the work activity of their populations, however, many of the so-called advanced industrial nations would be better described as service economies. Table 1.2 is a partial list of industrialized countries ranked in order of the percentage of those employed in service-producing jobs. This table contains some surprises, such as finding that Canada, known for its mining industry, is high on the list and that China's economy is becoming more sophisticated. Several observations can be made: Global economic development is progressing in unanticipated directions, successful industrial economies are built on a strong service sector, and just as it has in manufacturing, competition in services will become global. In fact, many of the largest commercial banks in the world at present are owned by the Japanese. Trade in services remains a challenge, however, because many countries erect barriers to protect domestic firms. For example, India and Mexico, among others, prohibit the sale of insurance by foreign companies.

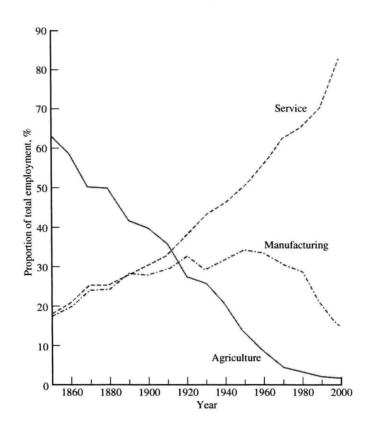
As Figure 1.2 shows, the service sector now accounts for more than 80 percent of total employment in the United States, which continues a trend that began more than

Fourth Edition

Chapter 1: The Role of Services in an Economy 7

FIGURE 1.2 Trends in U.S Employment by Sector, 1850–2000

(From U.S. Department of Commerce, Bureau of the Census, Historical Statistics of the United States. 1975, p. 137, and U.S. Department of Commerce, Bureau of the Census, Statistical Abstract of the United States, 1995, p. 417.)



one century ago. Therefore, based on employment figures, the United States can no longer be characterized as an industrial society; instead, it is a postindustrial, or service, society.

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.³ 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 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.

© The McGraw-Hill Companies, 2003

8 Part One: Understanding Services

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.

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. Of course, the unrelenting pressure of industrial life is softened by the countervailing force of labor unions.

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 can combine to create havoc for everyone, as seen in traffic congestion and environmental pollution. 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 1.3 summarizes the features that characterize the preindustrial, industrial, and postindustrial stages of economic development.

Chapter 1: The Role of Services in an Economy 9

TABLE 1.3 Comparison of Societies

- 5.61				Features		mark kare m	
Society	Game	Pre- dominant Activity	Use of Human Labor	Unit of Social Life	Standard of Living Measure	Structure	Technology
Pre- industrial	Against nature	Agriculture Mining	Raw muscle power	Extended household	Sub- sistence	Routine Traditional Authoritative	Simple hand tools
Industrial	Against fabricated nature	Goods production	Machine tending	Individual	Quantity of goods	Bureaucratic Hierarchical	Machines
Post- industrial	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 accurately described as composed only of low-wage or low-skill jobs in department stores and fast-food restaurants. Instead, as Table 1.4 shows, the fastest-growing jobs within the service sector are in miscellaneous services (e.g., health, education, professional services). Note that job areas whose growth rates were less than the rate of increase in total jobs (i.e., less than 20.82 percent) lost market share, even though they showed gains in their absolute numbers. The exceptions are in mining, manufacturing, and federal government, which lost in absolute numbers and thus showed negative growth rates.

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

Fitzsimmons-Fitzsimmons:

Service Management,

Fourth Edition

TABLE 1.4 Growth of U.S. Nonfarm Jobs, 1992–2002

	Jobs		Jobs	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Growth
	1992	1992	1999	2002	of Jobs
	(in 1000s)	%	(in 1,000s)	%	%
Goods-producing industries:					
Total	23,231	21.39	24,273	18.50	4.49
Mining	635	.58	563	.43	-11.33
Construction	4,492	4.13	6,787	5.17	51.09
Manufacturing:					
Durable goods	10,277	9.46	10,048	7.66	-2.23
Nondurable goods	7,827	7.21	6,875	5.24	-12.16
Service-producing industries:					
Total	85,370	78.61	106,939	81.50	25.26
Transportation and					
public utilities	5,718	5.27	6,898	5.26	20.64
Wholesale trade	5,997	5.52	6,933	5.28	15.61
Retail trade	19,356	17.82	23,408	17.84	20.94
Finance, insurance, and					
real estate	6,602	6.08	7,638	5.82	15.70
Service	29,052	26.75	40,992	31.24	41.10
Government:					
State and local	15,676	14.43	18,463	14.07	17.78
Federal	2,969	2.73	2,607	1.99	-12.19
Total	108,601		131,212		20.82

Source: Economic Indicators prepared for the Joint Economic Committee by the Council of Economic Advisors, U.S. Government Printing Office, June 1999, p. 16. $< http://www.palni.edu/gpo-1998/GPOAccess.cgi?economic_indicators/PDF/348904/3 = 0\%20-348904\%20 diskb/wais/data/economic_indicators/00jn99.txt; 7 = \%00; > ... + 100 for the property of the$

> 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 actually 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.

> Several reasons can explain the recession-resistant nature of services. First, by their nature, services cannot be inventoried, as is the case for products. Because consumption and production occur simultaneously for services, the demand for them is more stable than that for manufactured goods. When the economy falters, many services continue to survive. Hospitals keep busy as usual, and, while commissions may drop in real estate, insurance, and security businesses, employees need not be laid off.

> Second, during a recession, both consumers and business firms defer capital expenditures and instead fix up and make do with existing equipment. Thus, service jobs in maintenance and repair are created.

New Experience Economy⁴

Services are undergoing a transformation from the traditional concept of a service transaction to one of an experience. Consider how Starbucks and Disney World have

Chapter 1: The Role of Services in an Economy 11

stamer participation

FIGURE 1.3 The New Experience Economy

(Source: Reprinted by permission of Harvard Business Review. Exhibit adapted from "Welcome to the Experience Economy," by B. Joseph Pine II and James H. Gilmore, July–August 1998, p. 98. Copyright © 1998 by the President and Fellows of Harvard College: all rights reserved.)

FIGURE	1.4
The Four	Realms of
an Experi	ence

(Source: Reprinted by permission of Harvard Business Review. Exhibit adapted from "Welcome to the Experience Economy," by B. Joseph Pine II and James H. Gilmore, July-August 1998, p. 102. Copyright © 1998 by the President and Fellows of Harvard College: all rights reserved.)

Economy	Agrarian	Industrial	Service	Experience
Function	Extract	Make	Deliver	Stage
Nature	Fungible	Tangible	Intangible	Memorable
Attribute	Natural	Standardized	Customized	Personal
Method of supply	Stored in bulk	Inventoried	Delivered on demand	Revealed over time
Seller	Trader	Manufacturer	Provider	Stager
Buver	Market	User	Client	Guest

		Customer participation		
		Passive	Active	
Environmental relationship	Absorption	Entertainment (movie)	Education (language)	
	Immersion	Estheticism (tourist)	Escapism (scuba diving)	

defined their respective services as an experience. Figure 1.3 illustrates the evolution from an agrarian to an *experience economy*.

Experiences create added value by engaging and connecting with the customer in a personal and memorable way. As businesses explicitly charge for the memorable encounters they stage, we transition from a service economy to the new experience economy. Figure 1.4 displays four types of experiences characterized by the level of customer participation and level of interaction with the environment. Entertainment (e.g., watching a movie) is the least involved level of experience and escapist (e.g., scuba diving) requires the most commitment from the customer.

Service experience design is based on five principles. Theme the experience is illustrated by the Forum Shops in Las Vegas that are decorated with Roman columns and where salespeople wear togas. An example of harmonize impressions with positive cues is found at the O'Hare Airport Parking Garage where each floor is painted with a distinctive color and unique music (e.g., hard rock on the first floor and classical on the second) is played to help returning travelers find their parked automobiles. Eliminate negative cues is illustrated creatively by the use of talking trash containers (i.e., the container says "thank you" when an item is discarded) at the Cinemark Theater in Austin, Texas. An example of mix in memorabilia is providing group pictures of vacationers to Club Med. Engage all five senses is found at the Rainforest Café in Las Vegas (e.g., jungle sounds and mist in the air).

Sources of Service Sector Growth

Services will continue to be the source of job growth in the U.S. economy as manufacturing continues to move offshore. Innovation and social trends based on changing demographics create demand for new services and fuel service growth.

Innovation

The product development model that is driven by technology and engineering could be called a *push theory of innovation*. A concept for a new product germinates in the laboratory with a new scientific discovery that becomes a solution looking for a problem. The 3M experience with Post-it notes is one example of this innovation process. The

Fitzsimmons-Fitzsimmons:

Service Management.

Fourth Edition



Scuba divers escape to an underwater world that requires special equipment for survival. ©Stephen Frink/CORBIS

laboratory discovery was a poor adhesive, which found a creative use as a glue for notes to be attached temporarily to objects without leaving a mark when removed.

Information technology provides many examples of the push theory of service innovation. The growth of the World Wide Web as a place of commerce is changing the delivery of services. People can browse the Internet for every imaginable product or service from around the world. In fact, to stay competitive, many businesses may soon be required to offer new cost-effective and convenient services for customers who have home computers equipped with modems.

For services, the Cash Management Account introduced by Merrill Lynch is an example of the *pull theory of innovation*. During the period of high interest rates in the 1980s, a need arose to finance short-term corporate cash flows, and individual investors were interested in obtaining an interest rate that was higher than those currently available on passbook bank deposits.

The French Revolution provides another view of service formation, this time based on changing demographics. Before the revolution, only two restaurants were in existence in Paris; shortly afterward, there were more than 500. The dispossessed nobility had been forced to give up their private chefs, who found that opening their own restaurants was a logical solution to their unemployment.

For a manufacturing firm, product innovation is often driven by engineering-based research, but in service firms, software engineers and programmers are the technocrats who develop new innovations. Customers interact directly in the service process; therefore, the focus on meeting customer needs drives service innovation and explains why marketing plays such a central role in service management.

The introduction of a new technology, however, does have an ancillary effect on service innovation. For example, the VCR has spawned a video rental business and created a renewed demand for old movies. Thus, the creation of an innovative service enterprise has many sources.

Fitzsimmons-Fitzsimmons:

Service Management,

Fourth Edition

Service innovation also can arise from exploiting information available from other activities. For example, records of sales by auto parts stores can be used to identify frequent failure areas in particular models of cars. This information has value both for the manufacturer, who can accomplish engineering changes, and for the retailer, who can diagnose customer problems. In addition, the creative use of information can be a source of new services, or it can add value to existing services. For example, an annual summary statement of transactions furnished by one's financial institution has added value at income tax time.

Service innovators face a difficult problem in testing their service ideas. The process of product development includes building a laboratory prototype for testing before full-scale production is initiated. New services are seldom tested before they are launched in the marketplace, however, which provides a partial explanation for the observed high failure rate of service innovations, particularly in retailing and restaurants. At present, new service concepts usually must prove themselves in the field instead of in a "laboratory" setting. Methods to simulate service delivery systems before their introduction must be developed. One example of an effort in this direction is provided by Burger King, which acquired a warehouse in Miami to enclose a replica of its standard outlet. This mock restaurant was used to simulate changes in layout that would be required for the introduction of new features such as drive-through window service and a breakfast menu. The marketing concept of a "focus group," consisting of customers selected to review service proposals in a roundtable discussion, is another means of evaluating new service ideas. The difficulty in service prototyping is the need to evaluate the service delivery system in operation where technology, service providers, and customers are integrated.

Social Trends

Three social trends will have a major influence on services: the aging of the U.S. population, the growth of two-income families, and the increase in the number of single people. As the baby boom generation matures, the percentage of older people in America will increase greatly. The number of Americans 85 years and older is projected to be 5 million in 2005 and 11.5 million in 2035.5 This aging of the population will create opportunities for retired people to take part-time work, in part because of fewer young people entering the workforce. In the future, companies facing a labor shortage may be forced to hire retired workers, at least on a temporary or part-time basis, and this trend is already apparent. For example, The Travelers' Insurance Company has developed a Retirement Job Bank of its retired employees that is used as a source of skilled labor to fill in during peak work times, absences, and vacations.⁶ Also, elderly people are living longer and have more active lives, with consequent demands on health care, public transportation, and leisure services.

The two-income family is fast replacing the traditional family of the 1950s, which consisted of a husband, a housewife, and two children. The new two-income family unit has created demands for services such as day care, preschool, and "eating out" services. For two-income families, time is at a premium, and they are willing to pay for services that give them more free time. As a result, many new services have been created that focus exclusively on saving time for these individuals. Examples include home delivery services and personal shopping services for everything from gifts to clothing. Increased disposable income from two wage earners also may translate into increased demands for leisure, entertainment, and tourism services.

The number of single people in America is growing, and this trend is expected to continue. Recreational sports and other group-oriented activities will be in demand, because they will offer the opportunity to meet other single people. Home food delivery

Service Benchmark

WAL-MART IS NUMBER ONE ON THE FORTUNE 500 LIST

Wal-Mart achieved a remarkable first in spring 2002—it made the top of the Fortune 500 list. This accomplishment marks the first time that a service business leads the hallowed list.

Although Wal-Mart's position is unprecedented in the seven years since Fortune admitted service industries to its 500, it is not a big surprise given the position of services in today's economy. In fact, 64 of the top 100 companies on the list for 2002 are service enterprises. Consumers now spend more on services than on manufactured goods, so many manufacturers have turned to providing services in addition to hard goods. General Electric, for example, has entered the financing market, and so have American automakers. The line between manufacturing and providing services has blurred.

services that now offer pizza may find a market for the delivery of gourmet meals to single people.

All of these social trends support the notion that the home will become a sanctuary for people in the future, and that sanctuary will be supported by a communication system bringing video and electronic messages from the global community into the living room.

Summary

We have discovered that the modern industrial economies are dominated by employment in the service sector. Just as farming jobs migrated to manufacturing in the 19th century under the driving force of labor-saving technology, manufacturing jobs in due time migrated to services. Now as we begin the new millennium, an experience economy is emerging to satisfy rising expectations for services. Chapter 2 develops new managerial skills by arguing that the distinctive characteristics of services require an approach to management that is significantly different from that found in manufacturing.

Key Terms and **Definitions**

Clark-Fisher hypothesis a classification of economies according to the activity of the majority of the workforce. p. 5 Experience economy a stage of economic evolution in which added value is created by engaging and connecting with the customer in a personal and memorable way. p. 8

Industrial society a society dominated by factory work in massproduction industries. p. 8 Postindustrial society a service society in which people are engaged in information, intellectual, or creative-intensive activities. p. 8 Preindustrial society an agrarian society structured around farming and subsistence living. p. 7 Pull theory of innovation service innovations that are driven by customer needs. p. 12 Push theory of innovation product innovations that originate in scientific laboratories. p. 11

Topics for Discussion

- 1. Illustrate how the type of work he or she does influences a person's lifestyle. For example, contrast a farmer, a factory worker, and a schoolteacher.
- 2. Is it possible for an economy to be based entirely on services?
- 3. What is the value of self-service in an economy?