PART 1

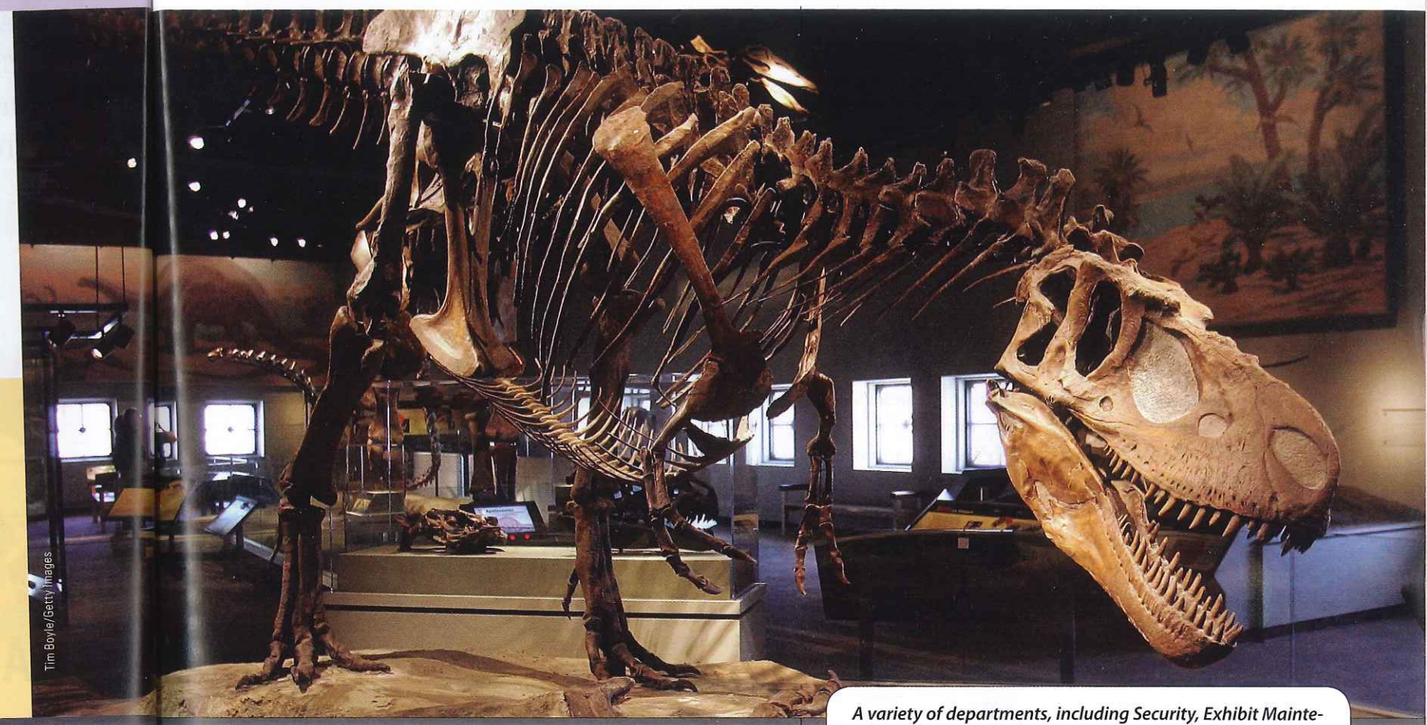
1 Goods, Services, and Operations Management

LEARNING OUTCOMES

After studying this chapter, you should be able to:

- 1-1 Explain the concept and importance of operations management.
- 1-2 Describe what operations managers do.
- 1-3 Explain the differences between goods and services.
- 1-4 Describe a customer benefit package.
- 1-5 Explain the role of processes in OM, and identify three general types of processes.
- 1-6 Summarize the historical development of OM.
- 1-7 Describe current challenges facing OM.

After you finish this chapter go to **PAGE 22** for **STUDY TOOLS**



Tim Boyle/Getty Images

A variety of departments, including Security, Exhibit Maintenance, and Guest Operations, are required to keep a museum running smoothly.

"I want to be a director of a museum like this one day," Carol said to her mom as they walked through the Chicago Museum of Science and Industry. Carol's family had just finished a tour of the 1944 German submarine known as the U-505 that was captured during World War II. They had spent the day learning about coal mines, the science of the human body, Dr. Seuss, and much more. As they walked past the museum offices, Carol noticed a directory of eight departments:

- Business Operations
- Facilities
- Food Service
- Exhibit Maintenance
- Guest Call Center
- Guest Operations
- Information Services
- Protective Services

She asked, "Dad, why does a museum need all these? All I see are the exhibits!"

WHAT DO YOU THINK?

Can you provide examples of the type of work activities and decisions that are made in each of these eight departments at the Chicago Museum of Science and Industry?

1-1 OPERATIONS MANAGEMENT

Operations management (OM) *is the science and art of ensuring that goods and services are created and delivered successfully to customers.* OM includes the *design of* goods, services, and the processes that create them; the day-to-day *management* of those processes; and the continual *improvement* of these goods, services, and processes. Why is OM important? To answer this, we might first ask the question: What makes a company successful? In 1887, William Cooper Procter, grandson of the founder of Procter & Gamble, told his employees, "The first job we have is to turn out quality merchandise that consumers will buy and keep on buying. If we produce it efficiently and economically, we will earn a profit, in which you will share." Procter's statement—which is still as relevant today as it was over 100 years ago—addresses three issues that are at the core of operations management: *efficiency*, *cost*, and *quality*. Efficiency (a measure of how well resources are used in creating outputs), the cost of operations, and the quality of the goods and services that create customer satisfaction all contribute to profitability and ultimately the long-run success of a company. A company cannot be successful without people who understand how these concepts relate to each other, which is the essence of OM, and who can apply OM principles effectively in making decisions.

The opening description of Chicago's Museum of Science and Industry suggests that the way in which goods and services, and the processes that create and support them, are designed and managed can make the difference between a delightful or unhappy customer experience. That is what OM is all about! Operations management is the only function by which managers can directly affect the value provided to all stakeholders—customers, employees, investors, and society.

The eight departments at Chicago's Museum of Science and Industry highlight the importance of OM in designing and managing the museum. Each of these departments uses one or more processes to create customer value and ensure efficient operations. The guest call center, for example, must design processes to handle a wide variety of customer inquiries, forecast call volume, determine the number (capacity) of customer service representatives (CSRs) to have on duty by time of day, schedule them, design their jobs, and train them to deliver superior customer experiences. In fact, the museum does all of the activities described in the box "What Do Operations Managers Do?" on the following page.

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

1-2 OM IN THE WORKPLACE

Many people who are considered "operations managers" have titles such as chief operating officer, hotel or restaurant manager, vice president of manufacturing, customer service manager, plant manager, field service manager, or supply chain manager. The concepts and methods of OM can be used in any job, regardless of the functional area of business or industry, to better create value for internal customers (within the organization) and for external customers (outside the organization). OM principles are used in accounting, human resources management, legal work, financial activities, marketing, environmental management, and every type of service activity. Thus, everyone should understand OM and be able to apply its tools and concepts. Following are some examples of how our former students (who were not OM majors!) are using OM in their jobs.

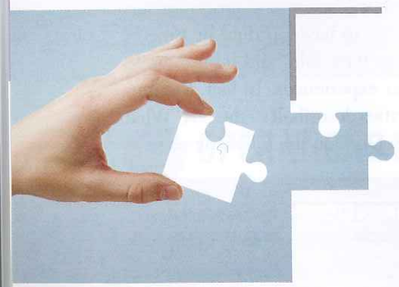
After graduating from college, Shelly Decker and her sister embarked on an entrepreneurial venture to manufacture and sell natural soaps and body products. Shelly was an accounting and information systems major in college, but she was involved in using OM skills every day:

- **Process design:** When a new product was to be introduced, the best way to produce it had to be determined. This involved charting the detailed steps needed to make the product.
- **Inventory management:** Inventory was tightly controlled to keep cost down and to avoid production that wasn't needed. Inventory was taken every four weeks and adjusted in the inventory management system accordingly.
- **Scheduling:** Production schedules were created to ensure that enough product was available for both retail and wholesale customers, taking into account such factors as current inventory and soap production capacity.

WHAT DO OPERATIONS MANAGERS DO?

Some of the key activities that operations managers perform include the following:

- **Forecasting: Predict the future demand for raw materials, finished goods, and services.**
- **Supply Chain Management: Manage the flow of materials, information, people, and money from suppliers to customers.**
- **Facility Layout and Design: Determine the best configuration of machines, storage, offices, and departments to provide the highest levels of efficiency and customer satisfaction.**
- **Technology Selection: Use technology to improve productivity and respond faster to customers.**
- **Quality Management: Ensure that goods, services, and processes will meet customer expectations and requirements.**
- **Purchasing: Coordinate the acquisition of materials, supplies, and services.**
- **Resource and Capacity Management: Ensure that the right amount of resources (labor, equipment, materials, and information) is available when needed.**
- **Process Design: Select the right equipment, information, and work methods to produce high-quality goods and services efficiently.**
- **Job Design: Decide the best way to assign people to work tasks and job responsibilities.**
- **Service Encounter Design: Determine the best types of interactions between service providers and customers, and how to recover from service upsets.**
- **Scheduling: Determine when resources such as employees and equipment should be assigned to work.**
- **Sustainability: Decide the best way to manage the risks associated with products and operations to preserve resources for future generations.**



The concepts and methods of OM can be used in any job, regardless of the functional area of business or industry.

Smart Trash Containers and Operations

A new solar-powered trash container on a Florida public road not only compacts the trash but also sends an e-mail for pickup when full. One side of the container is for recycling and the other for trash. Regular trash containers must be picked up several times a week. Each 300-pound solar-powered trash container costs about $3,800 but reduces the overall carbon footprint by lowering transportation costs, in addition to offering the environmental benefits of recycling. Compacting the trash also results in fewer pickups. The covered containers also prevent animals from foraging through the trash and harming themselves and the environment. Cash-strapped cities such as Philadelphia and Chicago have bought hundreds of these "smart trash containers."

This smart and new way of collecting trash and recycling has a major impact on the operation of this government service (see box "What Do Operations Managers Do?"). First, there is less need to forecast when the containers are full, and better quality because the containers don't overflow and contaminate the surroundings. In addition, fewer trucks (resources) are required for the total trash collection system; jobs and processes are streamlined and more efficient; the scheduling of trucks (called vehicle routing) is more efficient and reduces total miles traveled; and the trash collection system is more sustainable in preserving resources for future generations.

Richard Graulich/ZUMA Press/Newscom

Source: "Jupiter's new solar-powered trash bins already having effect across Florida," *The Palm Beach Post News*, October 24, 2011, http://www.palmbeachpost.com/news/jupiters-new-solar-powered-trash-bins-already-having-1929714.html.

- **Quality management:** Each product was inspected and must conform to the highest quality standards. If a product did not conform to standard (e.g., wrong color, improper packaging, improper labeling, improper weight, size, or shape), then it was removed from inventory to determine where the process broke down and to initiate corrective action.

Without an understanding of OM, the company would never have gotten off the ground!

Tom James is a senior software developer for a small software development company that creates sales proposal automation software. Tom uses OM skills in dealing with quality and customer service issues related to the software products he is involved in developing. He is also extensively involved in project management activities related to the development process, including identifying tasks, assigning developers to tasks, estimating the time and cost to complete projects, and studying the variance between the estimated and actual time it took to complete the project. He is also involved in continuous improvement projects; for example, he seeks to reduce development time and increase the efficiency of the development team. Tom was an information technology and management major in college.

Brooke Wilson is a process manager for JPMorgan Chase in the credit card division. After several years working as an operations analyst, he was promoted to a production supervisor position overseeing "plastic card production." Among his OM-related activities are the following:

- **Planning and budgeting:** Representing the plastic card production area in all meetings, developing annual budgets and staffing plans, and watching technology that might affect the production of plastic credit cards.
- **Inventory management:** Overseeing the management of inventory for items such as plastic blank cards; inserts such as advertisements; envelopes, postage, and credit card rules and disclosure inserts.
- **Scheduling and capacity:** Daily to annual scheduling of all resources (equipment, people, inventory) necessary to issue new credit cards and reissue cards that are up for renewal, replace old or damaged cards, as well as cards that are stolen.
- **Quality:** Embossing the card with accurate customer information and quickly getting the card in the hands of the customer.

Brooke was an accounting major in college.

United Performance Metals: The Life of an Operations Manager

United Performance Metals, formerly known as Ferguson Metals, located in Hamilton, Ohio, is a supplier of stainless steel and high-temperature alloys for the specialty metal market. Ferguson's primary production operations include slitting coil stock and cutting sheet steel to customer specifications with rapid turnaround times from order to delivery. With only 78 employees, about half of whom are in operations, the Director of Operations and Quality is involved in a variety of daily activities that draw upon knowledge of not only OM and engineering, but also finance, accounting, organizational behavior, and other subjects. He typically spends about 50 percent of his time working with foremen, supervisors, salespeople, and other staff discussing such issues as whether or not the company has the capability to accomplish a specific customer request, as well as routine production, quality, and shipping issues. The remainder of his time is spent investigating such issues as the technical feasibility and cost implications of new capital equipment or changes to existing processes, trying to reduce costs, seeking and facilitating design improvements on the shop floor, and motivating the workforce. For example, one project involves working with the Information Technology group to reduce the amount of paperwork required to process orders. The ability to understand customer needs, motivate employees, work with other departments, and integrate processes and technology are skills that all operations managers need.

Courtesy of Ferguson Metals

Coiled steel awaiting processing.

Courtesy of Ferguson Metals

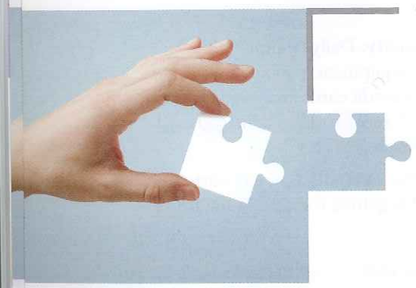
Slitting coils into finished strips.

Courtesy of Ferguson Metals

Some of Ferguson's finished products.

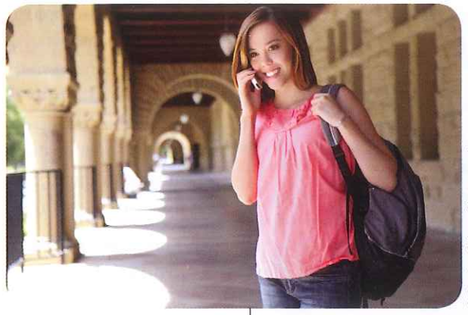
1-3 UNDERSTANDING GOODS AND SERVICES

Companies design, produce, and deliver a wide variety of goods and services that consumers purchase. *A* **good** *is a physical product that you can see, touch, or possibly consume.* Examples of goods include cell phones, appliances, food, flowers, soap, airplanes, furniture, coal, lumber, personal computers, paper, and industrial machines. *A* **durable good** *is one that does not quickly wear out and typically lasts at least three years.* Vehicles, dishwashers, and furniture are some examples. *A* **nondurable good** *is one that is no longer useful once it's used, or lasts for less than three years.* Examples are toothpaste, software, clothing and shoes, and food. Goods-producing firms are found in industries such as manufacturing, farming, forestry, mining, construction, and fishing.



Designing and managing operations in a goods-producing firm is quite different from that in a service organization.

A **service** *is any primary or complementary activity that does not directly produce a physical product.* Services represent the nongoods part of a transaction between a buyer (customer) and seller (supplier).[1] Service-providing firms are found in industries such as banking, lodging, education, health care, and government. The services they provide might be a mortgage loan, a comfortable and safe place to sleep, a college degree, a medical procedure, or police and fire protection.



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Designing and managing operations in a goods-producing firm is quite different from that in a service organization. Thus, it is important to understand the nature of goods and services, and particularly the differences between them.

Goods and services share many similarities. They are driven by customers and provide value and satisfaction to customers who purchase and use them. They can be standardized for the mass market or customized to individual needs. They are created and provided to customers by some type of process involving people and technology. Services that do not involve significant interaction with customers (e.g., credit card processing) can be managed much the same as goods in a factory, using proven principles of OM that have been refined over the years. Nevertheless, some very significant differences exist between goods and services that make the management of service-providing organizations different from goods-producing organizations and create different demands on the operations function.[2]

1. **Goods are tangible, whereas services are intangible.** Goods are consumed, but services are experienced. Goods-producing industries rely on machines and "hard technology" to perform work. Goods can be moved, stored, and repaired, and generally require physical skills and expertise during production. Customers can often try them before buying. Services, on the other hand, make more use of information systems and other "soft technology," require strong behavioral skills, and are often difficult to describe and demonstrate. A senior executive of the Hilton Corporation stated, "We sell time. You can't put a hotel room on the shelf."[3]

AP Image/Russel A. Daniels

2. **Customers participate in many service processes, activities, and transactions.** Many services require that the customer be present either physically, on a telephone, or online for service to commence. In addition, the customer and service provider often co-produce a service, meaning that they work together to create and simultaneously consume the service, as would be the case between a bank teller and a customer, to complete a financial transaction.

   This characteristic has interesting implications for operations. For example, it might be possible to off-load some work to the customer by encouraging self-service (supermarkets, cafeterias, libraries) and self-cleanup (fast-food restaurants, campgrounds, vacation home rentals). The higher the customer participation, the more uncertainty the firm has with respect to service time, capacity, scheduling, quality performance, and operating cost.

   A **service encounter** *is an interaction between the customer and the service provider.* Some examples of service encounters are making a hotel reservation, asking a grocery store employee where to find the pickles, or making a purchase on a website. Service

A **good** is a physical product that you can see, touch, or possibly consume.

A **durable good** is one that does not quickly wear out and typically lasts at least three years.

A **nondurable good** is one that is no longer useful once it's used, or lasts for less than three years.

A **service** is any primary or complementary activity that does not directly produce a physical product.

A **service encounter** is an interaction between the customer and the service provider.

Andersen Ross/Getty Images

encounters consist of one or more **moments of truth**—*any episodes, transactions, or experiences in which a customer comes into contact with any aspect of the delivery system, however remote, and thereby has an opportunity to form an impression.*[4] A moment of truth might be a gracious welcome by an employee at the hotel check-in counter, a grocery store employee who seems too impatient to help, or trying to navigate a confusing website. Customers judge the value of a service and form perceptions through service encounters.

Moments of truth are episodes, transactions, or experiences in which a customer comes into contact with any aspect of the delivery system, however remote, and thereby has an opportunity to form an impression.

Service management integrates marketing, human resources, and operations functions to plan, create, and deliver goods and services, and their associated service encounters.

Customers judge the value of a service and form perceptions through service encounters.

Therefore, employees who interact directly with customers, such as airline flight attendants, customer service representatives, and bank tellers, need to understand the importance of service encounters. Also, those who design websites and telephone menus that customers use in service encounters must also understand how they may influence customer perceptions.

3. **The demand for services is more difficult to predict than the demand for goods.** Customer arrival rates and demand patterns for such service delivery systems as banks, airlines, supermarkets, call centers, and courts are very difficult to forecast. The demand for services is time-dependent, especially over the short term (by hour or day). This places many pressures on service firm managers to adequately plan staffing levels and capacity.
4. **Services cannot be stored as physical inventory.** In goods-producing firms, inventory can be used to decouple customer demand from the production process or between stages of the production process and ensure constant availability despite fluctuations in demand. Service firms do not have physical inventory to absorb such fluctuations in demand. For service delivery systems, availability depends on the system's capacity. For example, a hospital must have an adequate supply of beds for the purpose of meeting unanticipated patient demand, and a float pool of nurses when things get very busy. Once an airline seat, a hotel room, or an hour of a lawyer's day are gone, there is no way to recapture the lost revenue.
5. **Service management skills are paramount to a successful service encounter.** Employees who interact with customers require service management skills such as knowledge and technical expertise (operations), cross-selling other products and services (marketing), and good human interaction skills (human resources). **Service management** *integrates marketing, human resources, and operations functions to plan, create, and deliver goods and services, and their associated service encounters.* OM principles are useful in designing service encounters and supporting marketing objectives.
6. **Service facilities typically need to be in close proximity to the customer.** When customers must physically interact with a service facility—for example, post offices, hotels, and branch banks—they must be in a location convenient to customers. A manufacturing facility, on the other hand, can be located on the other side of the globe, as long as goods are delivered to customers in a timely fashion. In today's Internet age and with evolving service technologies, "proximity" need not be the same as location; many services are only a few mouse clicks away.
7. **Patents do not protect services.** A patent on a physical good or software code can provide protection from competitors. The intangible nature of a service makes it more difficult to keep a competitor from copying a business concept, facility layout, or service encounter design. For example, restaurant chains are quick to copy new menu items or drive-through concepts.

These differences between goods and services have important implications to all areas of an organization, and especially to operations. These are summarized in Exhibit 1.1. Some are obvious, whereas others

Exhibit 1.1

How Goods and Services Affect Operations Management Activities

OM Activity	Goods	Services
Forecasting	Forecasts involve longer-term time horizons. Goods-producing firms can use physical inventory as a buffer to mitigate forecast errors. Forecasts can be aggregated over larger time frames (e.g., months or weeks).	Forecast horizons generally are shorter, and forecasts are more variable and time-dependent. Forecasting must often be done on a daily or hourly basis, or sometimes even more frequently.
Facility Location	Goods-producing facilities can be located close to raw materials, suppliers, labor, or customers/markets.	Service facilities must be located close to customers/markets for convenience and speed of service.
Facility Layout and Design	Factories and warehouses can be designed for efficiency because few, if any, customers are present.	The facility must be designed for good customer interaction and movement through the facility and its processes.
Technology	Goods-producing facilities use various types of automation to produce, package, and ship physical goods.	Service facilities tend to rely more on information-based hardware and software.
Quality	Goods-producing firms can define clear, physical, and measurable quality standards and capture measurements using various physical devices.	Quality measurements must account for customer's perception of service quality and often must be gathered through surveys or personal contact.
Inventory/ Capacity	Goods-producing firms use physical inventory such as raw materials and finished goods as a buffer for fluctuations in demand.	Service capacity such as equipment or employees is the substitute for physical inventory.
Process Design	Because customers have no participation or involvement in goods-producing processes, the processes can be more mechanistic and controllable.	Customers usually participate extensively in service creation and delivery (sometimes called co-production), requiring more flexibility and adaptation to special circumstances.
Job/Service Encounter Design	Goods-producing employees require strong technical and production skills.	Service employees need more behavioral and service management skills.
Scheduling	Scheduling revolves around the movement and location of materials, parts, and subassemblies and when to assign resources (i.e., employees, equipment) to accomplish the work most efficiently.	Scheduling focuses on when to assign employees and equipment (i.e., service capacity) to accomplish the work most efficiently without the benefit of physical inventory.
Supply Chain Management	Goods-producing firms focus mainly on the physical flow of goods, often in a global network, with the goal of maximizing customer satisfaction and profit, and minimizing delivery time, costs, and environmental impact.	Service-providing firms focus mainly on the flow of people, information, and services, often in a global network, with the goal of maximizing customer satisfaction and profit, and minimizing delivery time, costs, and environmental impact.

A similar classification of OM activities in terms of high/low customer contact was first proposed in the classic article: R.B. Chase, "Where does the customer fit in a service operation?" *Harvard Business Review,* November–December 1978, p. 139.

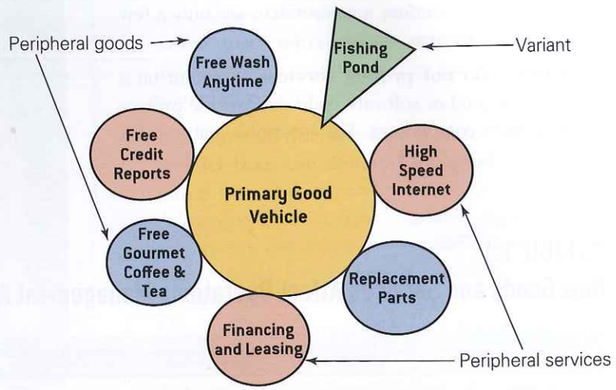
are more subtle. By understanding them, organizations can better select the appropriate mix of goods and services to meet customer needs and create the most effective operating systems to produce and deliver those goods and services.

1-4 CUSTOMER BENEFIT PACKAGES

Many goods and services are "bundled" in a certain way to provide value to customers. This not only enhances what customers receive, but can also differentiate the product from competitors. Such a bundle is often called a customer benefit package. *A* **customer benefit package (CBP)** *is a clearly defined set of tangible (goods-content) and intangible (service-content) features that the customer recognizes, pays for, uses, or experiences.* The CBP is a way to conceptualize and visualize goods and services by thinking broadly about how goods and services are bundled and configured together.

A CBP consists of a primary good or service coupled with peripheral goods and/or services, and sometimes variants. *A* **primary good or service** *is the "core" offering that attracts customers and responds to their basic needs.* For example, the primary service of a personal checking account is convenient financial transactions. **Peripheral goods or services** *are those that are not essential to the primary good or service, but enhance it.* A personal checking account might be supported and enhanced by such peripheral goods as a printed monthly account statement, designer checks and checkbooks, a special credit card, and such peripheral services as a customer service hot line and online bill payment. It is interesting to note that today, many business-to-business manufacturers, such as custom machining or metal fabricators, think of their core offering as service—providing customized design assistance and on-time delivery—with the actual good as peripheral. Finally, *a* **variant** *is a CBP feature that departs from the standard CBP and is normally location- or firm-specific.*

Exhibit 1.2
A CBP Example for Purchasing a Vehicle



A CBP can easily be expressed in a graphical fashion as shown in Exhibit 1.2. The CBP attributes and features (described in the circles) are chosen by management to fulfill certain customer wants and needs. For example, financing and leasing, which are peripheral services, meet the customer's wants and needs of personal financial security. In fact, if two vehicles have similar prices and quality levels, then the leasing program may be the key to which vehicle the customer buys. Vehicle replacement parts, a peripheral good, meet the customer's wants and needs of fast service and safety. A variant might be a fishing pond where kids can fish while parents shop for vehicles.

When defining a CBP, don't confuse the features determined by management with customers' wants and needs. For example, if a customer need is to ensure the safety of their valuables in a hotel, a CBP feature that management might select is a room safe. Thus, you would not put "safety of valuables" on a CBP diagram, but rather "room safe." A CBP diagram should reflect on the features management selects to fulfill certain customer wants and needs.

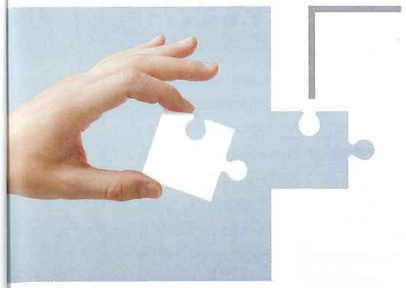
The size of the circles in the CBP framework can signify the relative importance of each good and service.

A **customer benefit package (CBP)** is a clearly defined set of tangible (goods-content) and intangible (service-content) features that the customer recognizes, pays for, uses, or experiences.

A **primary good or service** is the "core" offering that attracts customers and responds to their basic needs.

Peripheral goods or services are those that are not essential to the primary good or service, but enhance it.

A **variant** is a CBP feature that departs from the standard CBP and is normally location- or firm-specific.



Each good or service in the customer benefit package requires a process to create and deliver it to customers.

In some cases, goods and services content in a CBP framework will be approximately equal. For example, McDonald's (food and fast service) and IBM (computers and customer solutions) might argue that their primary goods and services are of equal importance, so a graphical representation would show two equal-sized and overlapping circles as the center of the CBP.

BUYING MORE THAN A CAR

People usually think that when they buy a new car, they are simply purchasing the vehicle. Far from it. Most automobiles, for example, bundle a good, the automobile, with many peripheral services. Such services might include the sales process, customized leasing, insurance, warranty programs, loaner cars when a major service or repair is needed, free car washes at the dealership, opportunities to attend a manufacturer's driving school, monthly newsletters sent by e-mail, and Web-based scheduling of oil changes and other service requirements. Such bundling is described by the customer benefit package framework.[5]

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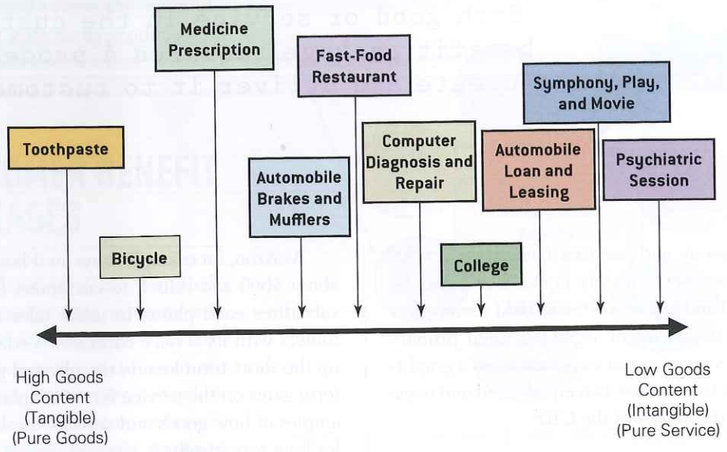
Verizon, for example, buys an iPhone from Apple for about $600 and sells it to customers for $200. Verizon subsidizes each phone to make sales and capture customers with its service contracts. Verizon tries to make up the short-term loss on the physical good by the long-term gains on the service fees. Cell phones are good examples of how goods and services are bundled together for long-term profits.[6]

Finally, we may bundle a group of CBPs together. One example would be a combined land-cruise vacation to Alaska, which might consist of a bundle of CBPs such as the travel agency that books the package and optional land excursions from the ship; the land-tour operator that handles hotels, transportation, and baggage handling; and the cruise line that provides air travel, meals, and entertainment. Bundled CBPs raise some interesting issues about pricing strategies and partnerships among firms. For example, a firm might actually be able to charge a premium price for the bundled CBPs than if purchased separately, or alliances between hotels and airlines provide discounted vacation packages that are less expensive than if booked separately.

In most cases, many "goods" and "services" that we normally think of have a mixture of both goods and service content. Exhibit 1.3 illustrates a continuum of goods and service content with several examples. Toothpaste, for instance, is high in goods content, but when you purchase it, you are also purchasing some services, such as a telephone call center to field customer questions and complaints. Similarly, a bicycle might seem like a pure good, but it often includes such services as safety instruction and maintenance. At the other extreme in Exhibit 1.3 are psychiatric services, which are much higher in service content but might include goods such as a bill, books, and medical brochures that support the service. Attending a symphony, play, or movie is essentially a pure service but may include program brochures and ticket stubs that offer discounts at local restaurants as peripheral goods.

Exhibit 1.3

Examples of Goods and Service Content



1-5 PROCESSES

Each good or service in the customer benefit package requires a process to create and deliver it to customers. *A* **process** *is a sequence of activities that is intended to create a certain result*, such as a physical good, a service, or information. A practical definition, according to AT&T, is that a process is how work creates value for customers.[7] Processes are the means by which goods and services are produced and delivered. For example, think of a car wash. A car wash process might consist of the following steps: check the car in, perform the wash, inspect the results, notify the customer that the car is finished, quickly deliver the car back to the customer, and pay the bill. In designing such a process, operations managers need to consider the process goals, such as speed of service, a clean car, no vehicle damage, and the quality of all service encounters. OM managers would ask questions such as: Should the car be cleaned inside as well as outside? How long should a customer be expected to wait? What types of chemicals should be used to clean the car? What training should the employees who wash the cars and interact with the customer have?

A **process** is a sequence of activities that is intended to create a certain result.

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Key processes in business typically include

1. ***core processes***, focused on producing or delivering an organization's primary goods or services that create value for customers, such as filling and shipping a customer's order, assembling a dishwasher, or providing a home mortgage;
2. ***support processes***, such as purchasing materials and supplies used in manufacturing, managing inventory, installation, health benefits, technology

BIZTAINMENT—(HUH?)

Why would someone pay, for example, to crush grapes with her feet? Might it be that the process of doing this is as valuable to the customer as the outcome itself? Entertainment is the act of providing hospitality, escapism, fun, excitement, and/or relaxation to people as they go about their daily work and personal activities. The addition of entertainment to an organization's customer benefit package provides unique opportunities for companies to increase customer satisfaction and grow revenue. *Biztainment is the practice of adding entertainment content to a bundle of goods and services in order to gain competitive advantage.* The old business model of just selling and servicing a physical vehicle is gone. For example, a BMW automobile dealership in Fort Myers, Florida, opened a new 52,000-square-foot facility that offers a putting green, private work areas, a movie theater, wireless Internet access, massage chairs, a golf simulator, and a café, so that customers have multiple entertainment options during their visits.

Biztainment can be applied in both manufacturing and service settings. Consider the following examples:

- **Manufacturing—old and new factory tours, showrooms, customer training and education courses, virtual tours, short films on how things are made, driving schools, history lessons on the design and development of a physical good**
- **Retail—shopping malls, simulators, product demonstrations, climbing walls, music, games, contests, holiday decorations and walk-around characters, blogs, interactive store designs, aquariums, movie theaters, makeovers**
- **Restaurants—toys, themes, contests, games, characters, playgrounds, live music**
- **Agriculture—pick-your-own food, mazes, make-your-own wine, grape-stomping, petting zoos, farm tours**
- **Lodging—kids' spas, health clubs, casinos, cable television, arcades, massage, wireless Internet, arts and crafts classes, pools, family games, wildlife, miniature golf**
- **Telecommunications—picture mail, text and video messaging, music and TV downloads, cool ring tones, designer phones, iPhone "apps"**

Some organizations that use entertainment as a means of enhancing the firm's image and increasing sales that you might be familiar with are the Hard Rock Café, Chuck E. Cheese, and Benihana of Tokyo restaurants; cable TV shows like *How It's Made;* the Las Vegas Treasure Island casino/hotel pirate battle; and so on. The data show the value of biztainment. For example, Build-A-Bear Workshop boasts an average of $600 per square foot in annual revenue, double the U.S. mall average, and Holiday Inns found that hotels with holidomes have a 20 percent higher occupancy rate and room rates that are, on average, $28 higher.[8]

PAL'S SUDDEN SERVICE: BEST-IN-CLASS OPERATIONS MANAGEMENT

Pal's Sudden Service is a small chain of mostly drive-through quick-service restaurants located in northeast Tennessee and southwest Virginia. Pal's competes against major national chains and outperforms all of them by focusing on important customer requirements such as speed, accuracy, friendly service, correct ingredients and amounts, proper food temperature, and safety. Pal's uses extensive market research to fully understand customer requirements: convenience; ease of driving in and out; easy-to-read menus; simple, accurate order system; fast service; wholesome food; and reasonable price. To create value, Pal's has developed a unique ability to effectively integrate production and service into its operations. Pal's has learned to apply world-class management principles and best-in-class processes in a customer-driven approach to business excellence that causes other companies to emulate its systems. Every process is flowcharted and analyzed for opportunities for error, and then mistake-proofed if at all possible. Entry-level employees—mostly high school students in their first jobs—receive 120 hours of training on precise work procedures and process standards in unique self-teaching, classroom, and on-the-job settings, and reinforced by a "Caught Doing Good" program that provides recognition for meeting quality standards and high-performance expectations. In such performance measures as complaints, profitability, employee turnover, safety, and productivity, Pal's has a significant advantage over its competition.

Courtesy of Pal's Sudden Service

Courtesy of Pal's Sudden Service

acquisition, day care on-site services, and research and development; and

3. ***general management processes***, including accounting and information systems, human resource management, and marketing.

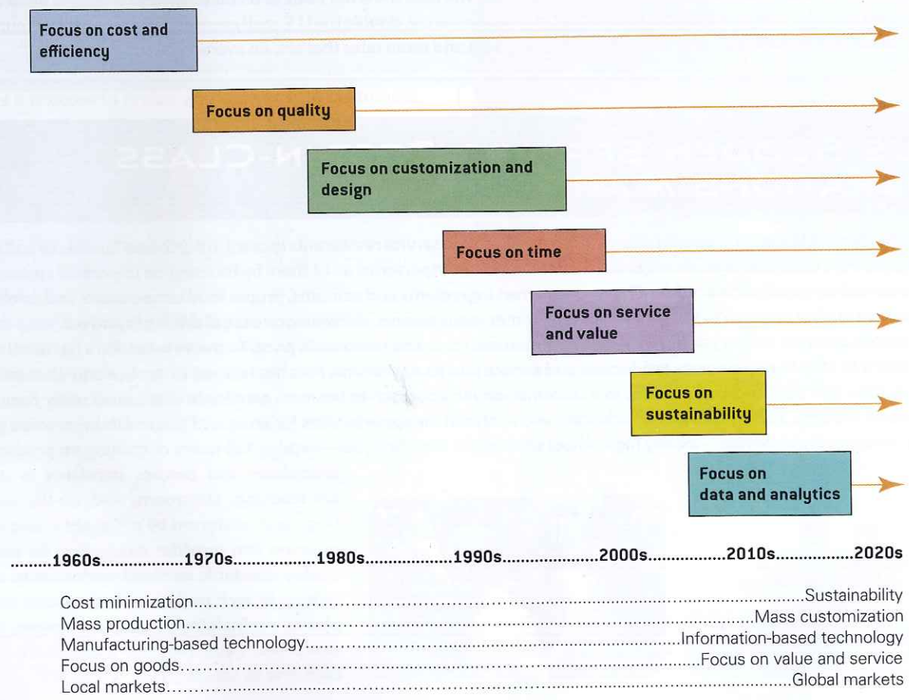
It is important to realize that nearly every major activity within an organization involves a process that crosses traditional organizational boundaries. For example, an order fulfilment process might involve a salesperson placing the order; a marketing representative entering it on the company's computer system; a credit check by finance; picking, packaging, and shipping by distribution and logistics personnel; invoicing by finance; and installation by field service engineers. Thus, a process does not necessarily reside within a department or traditional management function.

All organizations have networks of processes that create value for customers (called *value chains*, which we explore in Chapter 2). For example, Pal's Sudden Service (see the box above) begins with raw materials and suppliers providing items such as meat, lettuce, tomatoes, buns, and packaging; uses intermediate processes for order taking, cooking, and final assembly; and ends with order delivery and, hopefully, happy customers.

1-6 OM: A HISTORY OF CHANGE AND CHALLENGE

In the last century, operations management has undergone more changes than any other functional area of business and is the most important factor in competitiveness. That is one of the reasons why every business student needs a basic understanding of the field. Exhibit 1.4 is a chronology of major themes that have changed the scope and direction of operations management over the last half century. To better understand the challenges facing modern business and the role of OM in meeting them, let us briefly trace the history and evolution of these themes.

Exhibit 1.4
Seven Eras of Operations Management

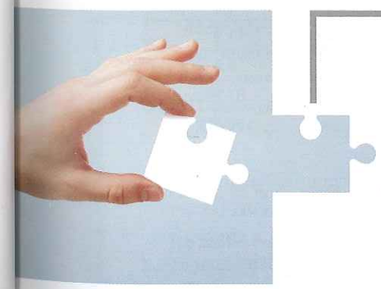


1-6a A Focus on Efficiency

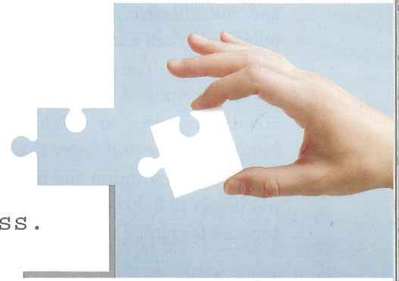
Contemporary OM has its roots in the Industrial Revolution that occurred during the late 18th and early 19th centuries in England. Until that time, goods had been produced in small shops by artisans and their apprentices without the aid of mechanical equipment. During the Industrial Revolution, however, many new inventions came into being that allowed goods to be manufactured with greater ease and speed. The inventions reduced the need for individual artisans and led to the development of modern factories.

As international trade grew in the 1960s, the emphasis on operations efficiency and cost reduction increased. Many companies moved their factories to low-wage countries. Managers became enamored with computers, robots, and other forms of technology. Although advanced technology continues to revolutionize and improve production, in the 1960s and 1970s technology was viewed primarily as a method of reducing costs, and distracted managers from the important goal of improving the quality

Chad Ehlers/Photographer's Choice/Getty Images



Today, about 90 percent of the jobs in the U.S. economy are in service-providing processes.



Operations Management is the most important factor in competitiveness.

of goods and services and the processes that create them. American business was soon to face a rude awakening.

1-6b The Quality Revolution

As Japan was rebuilding from the devastation of World War II, two U.S. consultants, W. Edwards Deming and Joseph Juran, were sought extensively by Japanese industry. Deming and Juran told Japanese executives that continual improvement of quality would open world markets, free up capacity, and improve their economy. The Japanese eagerly embraced that message. They embarked on a massive effort to train the workforce, using statistical tools developed at Western Electric and other innovative management tools to identify causes of quality problems and fix them. They made steady progress in reducing defects and paid careful attention to what consumers wanted. Those efforts continued at a relentless pace until, by the mid 1970s, the world discovered that Japanese goods had fewer defects, were more reliable, and better met consumer needs than American goods. As a result, Japanese firms captured major shares of world markets in many different industries such as automobiles and electronics. Thereafter, quality became an obsession with top managers of nearly every major company, and its impact continues to be seen today. In 1987, the U.S. government established the Malcolm Baldrige Award to focus national attention on quality.

1-6c Customization and Design

As the goals of low cost and high product quality became "givens," companies began to emphasize innovative designs and product features to gain a competitive edge. Quality meant much more than simply defect reduction; quality meant offering consumers new and innovative products that not only met their expectations but also surprised and delighted them. Inflexible mass-production methods that produced high volumes of standardized goods and services using unskilled or semiskilled workers and expensive single-purpose equipment, though very efficient

and cost-effective, were inadequate for the new goals of increased goods and service variety and continual product improvement. The operating system had to change.

New types of operating systems emerged that enabled companies to manufacture goods and services better, cheaper, and faster than their competitors, while facilitating innovation and increasing variety. The Internet began to help companies customize their goods and services for global markets.

1-6d Time-Based Competition

Companies that do not respond quickly to changing customer needs will lose out to competitors that do. An example of quick response is the production of the custom-designed Motorola pager, which is completed within 80 minutes and often can be delivered to the customer the same day. As information technology matured, time became an important source of competitive advantage. Quick response is achieved by continually improving and reengineering processes—that is, fundamentally rethinking and redesigning processes to achieve dramatic improvements in cost, quality, speed, and service. That task includes developing products faster than competitors, speeding ordering and delivering processes, rapidly responding to changes in customers' needs, and improving the flow of paperwork.

1-6e The Service Revolution

While the goods-producing industries were getting all the attention in the business community; the popular press; and in business school curricula, service industries were quietly growing and creating many new jobs in the U.S. economy. In 1955, about 50 percent of the U.S. workforce was employed in goods-producing industries and 50 percent in service-providing industries. Today, about four of every five U.S. jobs are in services.

Exhibit 1.5 documents the structure of the U.S. economy and where people work. This aggregate mix between goods-producing and service-providing jobs is 81.8 percent service and 18.2 percent goods. There are many interesting industry comparisons in Exhibit 1.5, but let's point out just a few. Manufacturing, for example, accounts for 11.6 percent of total U.S. employment, or about 1 in 10 jobs. Today, state and local government jobs are 11.9 percent of total jobs, that is, about the same percent as manufacturing. Many other countries, such as France and the United Kingdom, also have a high percentage of total jobs in the service sector. Where are you going to work?

In addition, estimates are that at least 50 percent of the jobs in goods-producing industries are service- and information-related, such as human resources management,

Exhibit 1.5
U.S. Employment by Major Industry

U.S. Industry	Percent of Total Employment
Goods-Producing Sector	
Construction	4.1%
Agriculture	2.2
Mining	0.3
Fishing, Forestry, Hunting, and Misc.	0.1
Manufacturing	11.6
Durable Goods*	7.0
Nondurable Goods**	4.6
Total	18.2%
Service-Providing Sector	
Transportation	3.0%
Communication and Public Utilities	1.7
Wholesale Trade	4.5
Finance, Insurance, and Real Estate	5.2
Agricultural Services	0.7
Hotels and Lodging	1.5
Personal Services	1.0
Business Services	8.0
Auto Repair and Parking	1.1
Motion Pictures	0.5
Amusement and Recreation Services	1.4
Health Services	8.6
Legal Services	0.8
Education Services	2.2
Child Care and Other Services	2.6
Membership Organizations	2.1
Museums and Zoological Gardens	0.1
Engineering, Architectural, and Management Services	3.1
Retail Trade and Services	15.7
Federal Government Services	1.6
State and Local Government Services	11.9
Miscellaneous Services	4.6
Total	81.8%
Grand Total	**100.0%**

Source: United States Bureau of Labor Statistics.

*Durable goods are items such as instruments, vehicles, aircraft, computer and office equipment, machinery, furniture, glass, metals, and appliances.

**Nondurable goods are items such as textiles, apparel, paper, food, coal, oil, leather, plastics, chemicals, and books.

accounting, financial, legal, advertising, purchasing, engineering, and so on. Thus, today, about 90 percent of the jobs in the U.S. economy are in service-providing processes [81.8 + (0.5)(18.2%) = 90.9%]. This means that if you are employed in the United States, you will most likely work in a service- or information-related field. Because of these statistics, a principal emphasis in this book is on services—either in service-providing industries such as health care and banking or understanding how services complement the sale of goods in goods-producing industries such as machine tools and computers.

1-6f Sustainability

In today's world, sustainability has become one of the most important issues that organizations face, and it is placing increased pressure on all goods-producing and service-providing organizations worldwide. **Sustainability** *refers to an organization's ability to strategically address current business needs and successfully develop a long-term strategy that embraces opportunities and manages risk for all products, systems, supply chains, and processes to preserve resources for future generations.* Sustainability can be viewed from three perspectives: environmental, social, and economic.

- **Environmental sustainability** *is an organization's commitment to the long-term quality of our environment.* Environmental sustainability is important because environmental concerns are placing increased pressure on all goods-producing and service-providing organizations across the globe.
- **Social sustainability** *is an organization's commitment to maintain healthy communities and a society that improves the quality of life.* Social sustainability is important because every organization must protect the health and well-being of all stakeholders and their respective communities, treat all stakeholders fairly, and provide them with essential services. The importance of social sustainability is also reflected in a new legal business concept called the "social benefit corporation."
- **Economic sustainability** *is an organization's commitment to address current business needs and economic vitality, and to have the agility and strategic management to prepare successfully for future business, markets, and operating environments.* Economic sustainability is important because staying in business for the long term, expanding markets, and providing jobs are vital to national economies.

These three dimensions of sustainability are often referred to as the "triple bottom line." Sustainability represents a broad and, to many, a new paradigm for organizational performance. Not only do sustainability practices lead to better public perception, they can improve productivity, eliminate waste, and help organizations become more competitive. OM plays a vital role in helping organizations accomplish these goals. Exhibit 1.6 provides examples of business practices

Exhibit 1.6
Examples of Sustainability Practices

Environmental Sustainability
- **Waste management:** Reduce waste and manage recycling efforts
- **Energy optimization:** Reduce consumption during peak energy demand times
- **Transportation optimization:** Design efficient vehicles and routes to save fuel
- **Technology upgrades:** Develop improvements to save energy and clean and reuse water in manufacturing processes
- **Air quality:** Reduce greenhouse gas emissions
- **Sustainable product design:** Design goods whose parts can be recycled or safely disposed of

Social Sustainability
- **Product safety:** Ensure consumer safety in using goods and services
- **Workforce health and safety:** Ensure a healthy and safe work environment
- **Ethics and governance:** Ensure compliance with legal and regulatory requirements and transparency in management decisions
- **Community:** Improve the quality of life through industry–community partnerships

Economic Sustainability
- **Performance excellence:** Build a high-performing organization with a capable leadership and workforce
- **Financial management:** Make sound financial plans to ensure long-term organizational survival
- **Resource management:** Acquire and manage all resources effectively and efficiently
- **Emergency preparedness:** Have plans in place for business, environmental, and social emergencies

Sustainability refers to an organization's ability to strategically address current business needs and successfully develop a long-term strategy that embraces opportunities and manages risk for all products, systems, supply chains, and processes to preserve resources for future generations.

Environmental sustainability is an organization's commitment to the long-term quality of our environment.

Social sustainability is an organization's commitment to maintain healthy communities and a society that improves the quality of life.

Economic sustainability is an organization's commitment to address current business needs and economic vitality, and to have the agility and strategic management to prepare successfully for future business, markets, and operating environments.

NY Daily News/Getty Images

Business analytics is a process of transforming data into actions through analysis and insights in the context of organizational decision making and problem solving.

that support these three dimensions. Operations management plays an important role in all three of these sustainability perspectives. We will discuss the role that OM has in achieving sustainability in more detail in the next chapter and throughout the book.

1-6g Data and Analytics

Today, all organizations have access to an enormous amount of data and information. In OM, data are used to evaluate operations performance, quality, order accuracy, customer satisfaction, delivery, cost, environmental compliance, and many other areas of the business. Leveraging such data is fast becoming a necessity in creating competitive advantage. A new discipline has emerged in recent years called business analytics. **Business analytics** *is a process of transforming data into actions through analysis and insights in the context of organizational decision making and problem solving.*[9] Business analytics is used

TABLE 1.1 SUMMARY OF EXCEL SPREADSHEET TEMPLATES

Template	Chapter Reference	Description
Break-Even	2	Computes a break-even point and optimal outsourcing decision
Statistical Analysis	2	Computes basic statistical measures and a frequency distribution and histogram
VLC	3	Computes the value of a loyal customer (VLC)
Taguchi	6	Computes the Taguchi loss function and economic tolerance
Little's Law	7	Computes flowtime, throughput, or work-in-process using Little's Law
Location Analysis	9	Computes total costs to determine least-cost location for production
Center of Gravity	9	Finds and plots the center of gravity
Capacity	10	Computes capacity measures
Moving Average	11	Calculates and plots moving average forecasts
Exponential Smoothing	11	Calculates and plots exponential smoothing forecasts
ABC	12	Conducts ABC inventory analysis
EOQ	12	Finds the economic order quantity and plots the cost functions
FQS Safety Stock	12	Computes safety stock and reorder point for fixed-quantity inventory systems
FPS Safety Stock	12	Computes safety stock and reorder point for fixed-period inventory systems
Single-Period Inventory	12	Finds the optimal ordering quantity for a single-period inventory systems with uniform or normal demand
Agg. Plan–Level	13	Evaluates aggregate planning using a level production strategy
Agg. Plan–Chase	13	Evaluates aggregate planning using a chase production strategy
Aggregate Planning	13	General Template for Aggregate Planning
Sequencing	14	Computes flowtime, lateness, and tradiness for job sequencing problems
Six Sigma	14	Computes DPU, dpmo, and sigma level
Pareto	15	Finds and plots a Pareto distribution
x-Bar and R-Chart	16	Plots an x-bar and R-chart for quality control
p-Chart	16	Plots a p-chart for quality control
c-Chart	16	Plots a c-chart for quality control
Process Capability	16	Computes process capability measures and a frequency distribution and histogram
Work Measurement	Supplementary Chapter A	Calculates normal and standard times for work measurement studies
Learning Curve	Supplementary Chapter A	Computes the time to produce the first 100 units for a learning curve
Single-Server Queue	Supplementary Chapter B	Calculates measures for a single-server queue
Multiple-Server Queue	Supplementary Chapter B	Calculates measures for a multiple-server queue
Queue Simulation	Supplementary Chapter D	Performs a single-server queuing simulation for discrete arrival and service time distributions
Inventory Simulation	Supplementary Chapter D	Performs a fixed-quantity inventory simulation
Decision Analysis	Supplementary Chapter E	Computes decision strategies for payoff tables for both minimize and maximize objectives

to understand past and current performance (descriptive analytics), predict the future by detecting patterns and relationships in data (predictive analytics), and identify the best decisions (prescriptive analytics).

The supplementary chapters available on the CourseMate Web site that accompanies this book provide an introduction to some key analytical techniques used in OM. With this book we also provide a unique set of Microsoft Excel spreadsheet templates that we will present throughout the text to facilitate the use of analytic techniques. The templates are found on worksheets in *OM5 Spreadsheet Templates* on the CourseMate Web site. Table 1.1 summarizes where the templates are best used.

1-7 CURRENT CHALLENGES IN OM

OM is continually changing, and all managers need to stay abreast of the challenges that will define the future workplace. Among these are technology, globalization, changing customer expectations, a changing workforce, quality, and innovation and agility.

Monty Rakusen Cultura/Newscom

- **Technology** has been one of the most important influences on the growth and development of OM. Applications in design and manufacturing as well as the use of information technology in services have provided the ability to develop innovative products and more effectively manage and control extremely complex operations. As technology continues to evolve, OM needs to find ways to leverage and exploit it.
- **Globalization** has changed the way companies do business and must manage their operations. With advances in communications and transportation, we have passed from the era of huge regional factories with large labor forces and tight community ties to an era of the "borderless marketplace." Value chains now span across many continents. Operations managers must continue to find better ways to manage and improve global value chains to compete against those of competitors.
- **Consumers' expectations** continually rise. They demand an increasing variety of high-quality goods with new and improved features that are delivered faster than ever—along with outstanding service and support. OM faces the challenge of ensuring that these multidimensional and often conflicting expectations are met.
- **Engaging the workforce** is increasingly important to achieve high-performing work environments in order to accomplish the mission and vision of today's organizations. This requires continual learning, new decision-making skills, more diversity, and better performance management. OM must be able to incorporate these new dimensions into job designs and daily management.
- **Quality** continues to be a challenge, despite the fact that organizations have focused on it intensely for more than a half century. Despite significant advances, organizations cannot take quality for granted and must continue to focus on it when designing goods and services, operations, and management systems.

MANUFACTURING IS COMING BACK

Although many have lamented the demise of manufacturing in the United States, the fact is that manufacturing is growing again. Among the reasons are significant advances in technology, investment in training for high-tech jobs, access and use of "big data," and growing demand for products across the globe. For example, GE Aviation has invested $34 million in advanced manufacturing systems since 2007, and is piloting teams of 10 to 20 workers who assume responsibility for all operations in their areas. Many goods that were produced in Asia are now being produced domestically, driven in part by customer needs for more rapid delivery and customization. Motorola, for instance, has introduced a new smart phone that will be available in 2,000 configurations, designed and produced entirely in the United States.

- **Innovation and agility** are imperative to compete in today's business environment. Manufacturers must stay ahead of consumers' needs by increasing product innovation, speeding up time-to-market, and operating highly effective global supply chains. However, many emerging concepts, such as sustainability and green manufacturing, genetic engineering, nanotechnology, new methods of energy generation, and robotic medical equipment, provide new and exciting opportunities for revitalizing manufacturing through OM.[10]

Discussion Questions

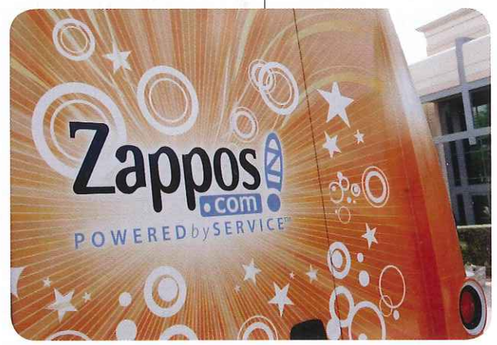
1. Explain how operations management activities affect customer experiences described in the Museum of Science and Industry anecdote at the beginning of this chapter. What "moments of truth" would a customer encounter?
2. Explain why a bank teller, nurse, or flight attendant must have *service management* skills. How do the required skills differ for someone working in a factory? What are the implications for hiring criteria and training?
3. Why is process thinking important in operations management? Thinking of yourself as an "operations manager" for your education, how could process thinking improve your performance as a student?
4. Do you think you will be working in manufacturing or services when you graduate? What do you think will be the role of manufacturing in the U.S. economy in the future?
5. Select one of the OM challenges and investigate it in more detail. Be ready to present what you found to the class in at most a 10-minute presentation.

Problems and Activities

1. Describe a customer experience you have personally encountered where the good or service or both were unsatisfactory (e.g., defective product, errors, mistakes, poor service, service upsets, etc.). How might the organization have handled it better, and how could operations management have helped?
2. Interview a manager at a local company about the work he or she performs. Identify (a) the aspects of the job that relate to OM (as in the OM activities in the box "What Do Operations Managers Do?") and (b) an example of primary, support, and general management processes.
3. Evaluate how the activities described in the box "What Do Operations Managers Do?" can be applied to a student organization or fraternity to improve its effectiveness.
4. Review the box for Pal's Sudden Service and find Pal's website. Based on this information, describe all of the OM activities that occur in a typical day at Pal's.
5. Interview a working friend or family member as to how he or she uses operations management principles on the job and write a short paper summarizing your findings (maximum two pages).
6. Choose one of the following services and explain, using specific examples, how each of the ways that services differ from manufactured goods applies.
   a. a family practice medical office
   b. a fire department
   c. a restaurant
   d. an automobile repair shop
7. Provide some examples similar to those in Exhibit 1.3, and explain the degree of goods and services content for these examples.
8. Draw the customer benefit package (CBP) for one of the items in the following list, and explain how your CBP provides value to the customer. Make a list of a few example processes that you think would be necessary to create and deliver each good or service in the CBP you selected, and briefly describe issues that must be considered in designing these processes.
   - a trip to Disney World
   - a new personal computer
   - a credit card
   - a fast-food restaurant
   - a wireless mobile telephone
   - a one-night stay in a hotel
9. One of our students, who had worked for Taco Bell, related a story of how his particular store developed a "60-second, 10-pack club" as an improvement initiative and training tool. The goal was to make a 10-pack of tacos in a minute or less, each made and wrapped correctly, and the total within 1 ounce of the correct weight. Employees received recognition and free meals for a day. Employees strove to become a part of this club and, more important, service times dropped dramatically. Techniques similar to those used to improve the taco-making process were used to improve other products. Explain how this anecdote relates to process thinking. What would the employees have to do to become a part of the club?
10. Research and write a short one-page paper that describes two new examples of how organizations are using biztainment to gain competitive advantage.
11. Search the Web for either (a) an organization that has defined its sustainability strategy and policy, and give examples of how the organization is implementing it; or (b) an organization that has received negative or controversial media coverage for its ethical or sustainablity practices. Write a paper describing what you found (maximum of two typed pages).
12. Describe new ways your college or university could apply the sustainability practices in Exhibit 1.6. Summarize your results in a short paper.
13. Discuss how the three perspectives of sustainability influence (or perhaps, should influence) your personal purchasing decisions. For example, do you consider whether apparel is made in safe and ethical factories? Should companies exploit their sustainability efforts for marketing purposes? Why or why not?
14. Research and write a short paper describing how business analytics have been applied to problems and decisions in operations management. Use the information in the box "What Do Operations Managers Do?" to help your search process.
15. Search recent articles in your local newspaper and business magazines such as *Fortune, Business Week, Fast Company,* and so on, and identify OM concepts and issues that are discussed. How do these fit into the classification in the box "What Do Operations Managers Do?" in this chapter?

Zappos Case Study

Zappos (www.zappos.com) is a Las Vegas–based online retailer that has been cited in *Fortune's* list of the Best Companies to Work For and *Fast Company's* list of the world's most innovative companies. In fact, its remarkable success resulted in Zappos being bought by Amazon for $850 million in 2009. Zappos was founded in San Francisco in 1999 and moved to Las Vegas for the cheap real estate and abundant call center workers. The company sells a large variety of shoes from nearly every major manufacturer and has expanded its offerings to handbags, apparel, sunglasses, watches, and electronics. Despite the crippling economic downturn, sales jumped almost 20 percent in 2008, passing the $1 billion mark two years ahead of schedule.



Ethan Miller/Staff/Getty Images

Zappos provides free shipping in both directions on all purchases.

The company's first core value is "Deliver WOW through service," which is obvious if you've ever ordered from Zappos. It provides free shipping in both directions on all purchases. It often gives customers surprise upgrades for faster shipping. And it has a 365-day return policy. In 2003, Zappos made a decision about customer service: it views any expense that enhances the customer experience as a marketing cost because it generates more repeat customers through word of mouth. CEO Tony Hsieh never outsourced his call center because he considers the function too important to be sent to India. Job one for these frontliners is to delight callers. Unlike most inbound telemarketers, they don't work from a script. They're trained to encourage callers to order more than one size or color, because shipping is free in both directions,

and to refer shoppers to competitors when a product is out of stock. Most important, though, they're implored to use their imaginations. Which means that a customer having a tough day might find flowers on his or her doorstep the next morning. One Minnesota customer complained that her boots had begun leaking after almost a year of use. Not only did the Zappos customer service representative send out a new pair—in spite of a policy that only unworn shoes are returnable—but she also told the customer to keep the old ones, and mailed a handwritten thank-you.[11] Over 95 percent of Zappo's transactions take place over the Web, so each actual customer phone call is a special opportunity. "They may only call once in their life, but that is our chance to wow them," Hsieh says.

Zappos uses a sophisticated computer system known as *Genghis* to manage its operations. This includes an order entry, purchasing, warehouse management, inventory, shipping, and e-commerce system. It tracks inventory so closely that customers can check online how many pairs of size 12 Clarks Desert boots are available in the color sand. For employees, it automatically sends daily e-mail reminders to call a customer back, coordinates the warehouse robot system, and produces reports that can specifically assess the impact on margins of putting a particular item on sale.

Free shipping has become a customer expectation. Research has found that online customers abandon their virtual shopping carts up to 75 percent of the time at the end of their order entry process when they can't get free shipping. Other online retailers have copied the free-shipping policies of Zappos. L.L. Bean, for example, now provides free shipping and free returns with no minimum order amount.

CASE QUESTIONS FOR DISCUSSION

1. Draw and describe the customer benefit package that Zappos provides. Identify and describe one primary value creation, one support, and one general management process you might encounter at Zappos.
2. Explain the role of service encounters and service management skills at Zappos. How does Zappos create superior customer experiences?
3. Describe how any three of the OM activities in the box "What Do Operations Managers Do?" impact the management of both the goods that Zappos sells and the services that it provides.
4. Explain how this case illustrates each of the seven major differences between goods-producing and service-providing businesses.

STUDY TOOLS 1

LOCATED AT THE BACK OF THE TEXTBOOK

- ☐ Tear-Out Chapter Review Card

LOCATED AT WWW.CENGAGEBRAIN.COM

- ☐ Key Term Flash Cards
- ☐ Practice Quizzes to prepare for tests
- ☐ "Beat the Clock" and "Quizbowl" to master concepts
- ☐ "Crossword Puzzle" to review key terms
- ☐ Spreadsheet Templates
- ☐ Videos of real-company OM examples