Can You Make It?

Nature of Production

Bring it together

Get it out the door

Make it happen

Objectives

- **A** Describe the importance of production to the organization.
- **B** Describe types of production activities.

Production. You've heard the term before, and it brings pictures to your mind of cars rolling down assembly lines and white steam billowing out of factory smokestacks. While production is certainly a common word in industrial settings, it has a broader meaning as well.

Every time you take something and use it to create something else, that's production! Let's say you have a term paper due for your English class. You create the term paper from your research, thinking, and writing. It is the product you created by combining those resources.

A working knowledge of production will serve you well, no matter what career you decide to pursue. Learn more about the importance of production, and explore key production activities.

Producing Success

Have you ever been to a Broadway musical or play? So much time, effort, and money goes into the final product that you see. It's a combination of talented writers, actors and choreographers, finely tuned musical instruments, a theater with just the right lighting and acoustics, and the money it takes to pay for it all. No wonder that when it all comes together, it's called a production! Examples of production are all around you, every day. If it weren't for production, our economy would fail, jobs would disappear, and we'd be without most of the goods and services we depend on to live! As you can see, production is extremely important.

Production is the creation of goods and services from economic resources. It combines human, natural, and capital resources to produce such varied products as clothing, restaurant meals, agricultural products, home appliances, college graduates, farm equipment, and haircuts. The resources used are called the **factors of production**. What do the following businesses produce:

- Hospitals?
- Schools?
- Cell phone companies?
- Record labels?
- Dairy farms?

Goods and services don't just create themselves. For production to occur, all businesses need certain components. These components are **inputs**, or resources; a process for converting the inputs into products; and **outputs**, or products. Let's take a closer look at each component.

Inputs

The specific economic resources used in producing goods and services are called inputs. The basic categories of inputs are **human resources**, **natural resources**, and **capital** or **capital goods**. In other words, the business must have workers, materials from which to make products, the necessary production equipment, and the money to pay for it all. A restaurant, for instance, must have skilled chefs and servers, quality ingredients, and equipment such as ovens, freezers, and dishwashers to produce meals for consumers.

It's important to note that businesses don't receive resources for free. They cost money. Take the restaurant, for example. Its human resources, or employees, must be paid wages and benefits. It must buy fresh produce and other ingredients (natural resources) from food suppliers. And, it must purchase its capital goods—appliances, dishes, tables, the building, etc. The money a business needs to purchase resources can come from various sources—investors, bank loans, profits from previous sales, etc. It is often referred to as **financial capital**.

Conversion process

Inputs turn into products during the **conversion process**. Conversion processes could include manufacturing, cooking, teaching, constructing, printing—any activity that takes resources and turns them into something usable.

Some conversion processes rely heavily on the special skills of workers. Because of this, these conversion processes are known as **labor-intensive**. Examples of labor-intensive conversion processes are dentists performing tooth repair and contractors constructing homes. These professionals use their skills and knowledge to convert inputs into outputs. Other conversion processes depend more on the use of equipment than human resources. These are known as **capital-intensive** conversion processes. Examples of capital-intensive conversion processes are the production of electricity in a generating plant and the mass production of automobiles.

Outputs

The goods and services produced as the result of combining inputs are called **outputs**. Outputs may be **tangible** products such as computers or jewelry. Or, they may be **intangible** products such as education or health care. Can you think of more examples of tangible and intangible outputs?

Outputs are categorized as **industrial goods** if they are sold to producers who will use them to make other products. When a manufacturer sells sewing machines to a clothing producer, the sewing machines are industrial goods. They are being used to make other products for resale. Outputs are categorized as **consumer goods** if they are sold to ultimate consumers. You use consumer goods every day—a carton of orange juice, a desk lamp, a bottle of shampoo, etc.

Objective A

Importance of production

A key benefit of production is that it gives resources **form utility**—usefulness created by altering or changing the form or shape of a good to make it more useful to the consumer or user. Production gives crude oil form utility by refining it into gasoline and oil that consumers can use in their vehicles. Without production, the crude oil would be of little use to most consumers. Can you think of more examples of natural resources that receive form utility through the production process?

Production is also important to businesses because, without production, they would not have anything to sell. Production creates the products that all businesses must sell to stay in business. A clothing boutique could not succeed without clothes and jewelry to sell, and a movie theater would have to close if it had no films to show. Even non-profit organizations rely on production to keep going. The March of Dimes, for instance, wouldn't receive many grants or donations if it didn't use its resources to produce results or outputs—research studies, community services and education, and advocacy for parents and babies.

When production is efficient, businesses turn out the maximum number of products at the lowest cost. This enables businesses to be competitive. If the business's costs of production are higher than its competitors' costs, it will have to set its prices higher than competitors' prices. This is likely to reduce sales. For example, if it costs a sporting-goods company more to make golf balls than it costs its competitor, the company will have to charge more for its golf balls than the competitor charges. The company may not be able to sell as many golf balls as its competitor.

The Gray Zone

The goal of production is to be efficient—that is, to create the maximum number of products for the lowest cost. Consider the manufacturing of soft drinks. Years ago, soft drinks such as Coke and Pepsi were made with real sugar. Today, they're made with high-fructose corn syrup, an ingredient that many people say is much worse for the human body than sugar. However, high-fructose corn syrup is cheaper and more stable to use in manufacturing than sugar is, so it makes production more efficient.

What do you think? Is it unethical for companies to use potentially unhealthy ingredients and materials in manufacturing, even if those resources are allowed by law? Or, should businesses be concerned with efficiency above all?

Summary

Production is the creation of goods and services from economic resources. For production to occur, a business needs inputs, a conversion process, and outputs. Inputs are resources, such as human resources, natural resources, and capital resources. Conversion processes are needed to change inputs into outputs. Conversion processes may be either labor-intensive or capital-intensive. Outputs are the goods and services created as a result of combining inputs. Outputs may be either tangible goods or intangible services. If outputs are sold to other producers, they are called industrial goods. If they are sold to ultimate consumers, they are called consumer goods. Production is important because it gives form utility to natural resources; it keeps companies in business; and, when it is efficient, businesses turn out the maximum number of products at the lowest cost.

TOTAL RECALL

1. What is production?
2. What components are needed for production to occur?
3. What economic resources are needed for production?
4. What are the two different types of conversion processes?
5. What are outputs?
6. Why is production important?

Convert It

It takes more than one production activity to produce most of the products we use. Most production is the result of combining several different production activities. The specific activities used depend on the product. The production activities involved in making cereal, for instance, are much different from the production activities involved in educating and training attorneys. Let's examine some activities that may be part of the production process.

Planning

Planning is an important ingredient of success. If a business starts production without taking the time to plan first, it greatly lowers its chances of maintaining effective, efficient production. Before production planning begins, companies spend a lot of time, effort, and money finding out what customers want and need, designing new products, and updating existing products. **Production planning**, then, determines *how* those products will be produced and in *what amounts*.

Determining how products will be produced. This activity involves determining the specific needs for equipment, time, and human resources. For example, a business that prepares income tax returns must decide how many computers it needs, the time needed to prepare an average return, and how many workers to hire.

Determining how much of the product to produce. This activity is important because a business should try to produce only as much as it can sell. If a business does not produce enough to meet customer demand, it will lose sales to competitors. But, if it produces too much, it will lose money on unsold products. Some businesses try to obtain advance orders from customers to help with planning production quantities. Other businesses try to estimate the amounts they can sell. An aircraft manufacturer, for instance, might try to get advance orders for planes to determine demand, while a fast-food restaurant would have to estimate the number of food items it will need to produce.

Businesses that produce multiple products must undertake the planning process for each separate product.

Purchasing

Buying the resources needed for production is called **purchasing**. This is the production activity that assembles all the inputs needed for production to take place. These resources may include raw materials, parts, equipment, supplies, machinery, and labor. To produce its goods, a clothing manufacturer needs to purchase patterns, fabrics, thread, buttons, zippers, cutting equipment, and sewing machines, and to hire workers trained in cutting and sewing tasks.

Production process

The **production process** is the way in which production will be carried out. A business must choose the production process that is most appropriate for its product(s).

The two kinds of production processes that are generally used are intermittent and continuous. An **intermittent production process** is one in which production periodically stops and then restarts. It can be used in the production of standard products such as tools or in the production of custom products such as individual insurance policies. A producer of garden tools or snow shovels, for instance, might use an intermittent production process to make these products since the products are not in demand all year long. An insurance agent would customize a policy only when a specific customer requests it, which would not be on a continuous basis.

A **continuous production process**, on the other hand, turns out products without stopping. It is used in the production of standard products with steady demand, such as toothpaste or cell-phone service. Most continuous production is carried out by machines monitored by a limited number of workers.

The amount that is produced using either method depends upon the business's choice of unit, batch, or mass production. **Unit production** means producing one item at a time or items in small quantities. It would be used to produce a custom-tailored suit, to write a song for a recording artist, or to clean one customer's carpet.

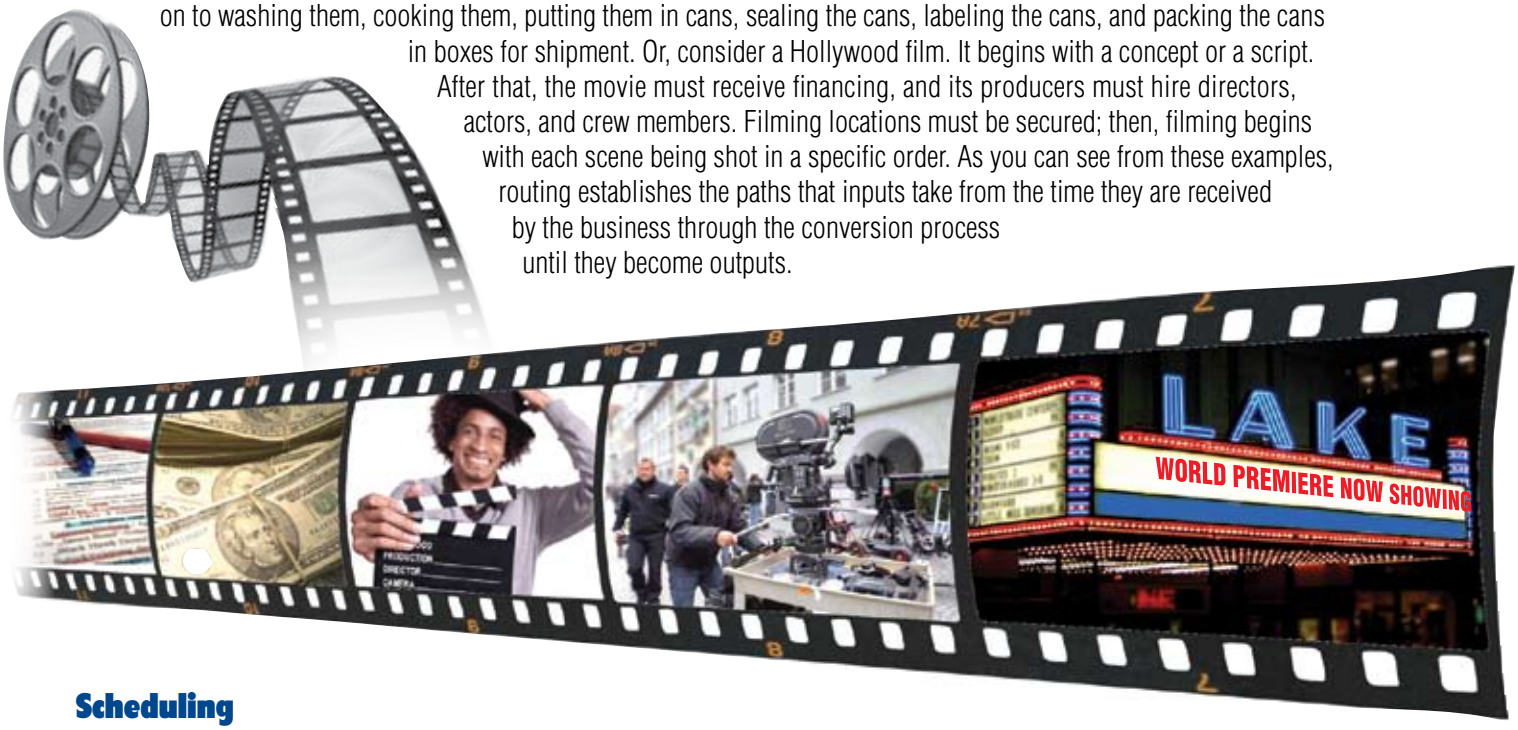
Batch production means producing items in specific amounts, or batches. It is often used to meet specific or short-term market needs. For example, Starbucks usually produces batches of pumpkin lattes in the fall and batches of peppermint mochas in the winter.

Mass production means producing products in large quantities. It is used in the production of such outputs as jeans, CDs, cars, and appliances. Many products that are mass produced have standardized, interchangeable parts. The parts for one mass-produced Whirlpool dishwasher will fit all Whirlpool dishwashers of the same model, for instance. To produce large quantities efficiently, mass production uses such production techniques as:

- **Assembly lines** in which the product moves past workers, each one of whom performs an assigned production task
- **Robotics** in which robots carry out the repetitive tasks that workers would find monotonous and tiring
- **Automation** in which machines perform tasks automatically
- **Computer-controlled equipment** in which computers are programmed to direct the production equipment

Routing

The production activity that determines the sequence for the steps in the production process is called **routing**. Most production must follow a certain order. Producing canned peas, for example, would begin with shelling the peas and move on to washing them, cooking them, putting them in cans, sealing the cans, labeling the cans, and packing the cans in boxes for shipment. Or, consider a Hollywood film. It begins with a concept or a script. After that, the movie must receive financing, and its producers must hire directors, actors, and crew members. Filming locations must be secured; then, filming begins with each scene being shot in a specific order. As you can see from these examples, routing establishes the paths that inputs take from the time they are received by the business through the conversion process until they become outputs.



Scheduling

Scheduling establishes the timetable to be followed in production. Employees responsible for scheduling look at the number of steps in the production process and estimate how long each step will take. They then set the times for each step to begin and end and schedule delivery of the resources that will be needed in the production process.

Scheduling helps a business to meet customers' needs without wasting time or resources. A toy company, for instance, would schedule more production of toys before Christmas than it would after Christmas because demand is greater before the holidays. Because scheduling can be a complicated process for some products, many businesses use special software programs to do their scheduling.

Dispatching

Issuing orders for production to start is known as **dispatching**. Dispatches are usually written orders that tell employees what their job assignments are, when to move materials from storage to the work area, or which tools and equipment to assemble. For example, a work order might list the parts to be brought to the work area to produce a certain number of circular saws.

Follow-Up

The last production activity is following up to make sure production was carried out according to plan and that products meet company standards. To be competitive in a global market, many companies must also meet the standards set by outside groups or agencies, such as the **International Organization for Standardization (ISO)**, that set international quality-control standards.

As part of follow-up, managers review production schedules to make sure that deadlines were met and products were ready when customers wanted them. The quality of most products is inspected during their production. Managers review the results of product inspections to see whether there are problems in the production process. For example, inspection reports that indicate product flaws would tell the manager that there was a production problem that needed to be corrected.

Summary

It takes more than one production activity to produce most products. Production activities include planning how products will be produced and in what amounts; purchasing the needed inputs; determining the production process (determining intermittent vs. continuous production and determining unit, batch, or mass production); routing the sequence of steps in the production process; scheduling a timetable for the production process; creating dispatches (orders) for the production process; and finally, following up on the production process to ensure schedules are followed and standards are met.

1. Describe the following production activities:
   a. Planning
   b. Purchasing
   c. Production process
   d. Routing
   e. Scheduling
   f. Dispatching
   g. Follow up

What products are created in your local area?
Choose one business near you.
What output(s) does it produce?
What inputs does it need to do so?
What conversion processes does it use?

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