

15.4: Production Processes

What you'll learn to do: describe the four main categories of production processes

Even though you may not spend much time thinking about the processes used to make different products, they surround you daily. Every time you come in your front door or eat a meal or even drive your car, you interact with things that were made by combinations of job-based, batch, mass, and flow production processes: they were all produced or manufactured by someone somewhere, and a great deal of thought and planning were needed to make them available.

Businesses know what they want to produce, but the challenge is to select a process that will maximize the productivity and efficiency of production. Senior management looks to their operations managers to inform this decision. As we examine the four major types of production processes, keep in mind that the most successful organizations are those that have their process and product aligned.

Learning Objectives

- Describe batch production
- Describe mass production

Project- or Job-Based Production

Project-based production is one-of-a-kind production in which only one unit is manufactured at a time. This type of production is often used for very large projects or individual customers. Because the customer's needs and preferences play such a decisive role in the final output, the operations manager must maintain open and frequent communication with that customer. The workers involved in this type of production are highly skilled or specialists in their field.

The following are examples of project- or job-based production:

- custom home construction
- haircuts
- yachts

Consider the home in which you live. When the house was built, the contractor used a job process, and highly skilled workers were brought in to install the plumbing, heating, and electrical systems.

Custom Prints

For example, a print shop may handle a variety of projects, including newsletters, brochures, stationery, and reports. Each print job varies in quantity, type of printing process, binding, color of ink, and type of paper. A manufacturing firm that produces goods in response to customer orders is called a job shop.

Some types of service businesses also deliver customized services. Doctors, for instance, must consider the illnesses and circumstances of each individual patient before developing a personalized treatment plan. Real estate agents may develop a customized service plan for each customer based on the type of house the person is selling or wants to buy.

Advantages

- Unique, high-quality products are made.
- Workers are often more motivated and take pride in their work.
- Products are made according to individual customer needs and improve customer satisfaction.
- Production is easy to organize.

Disadvantages

- It is very labor intensive, so selling prices are usually higher.
- Production can take a long time and can have higher production costs (e.g., if special materials or tools are required)

Batch Production

Batch production is a method used to produce similar items in groups, stage by stage. In batch production, the product goes through each stage of the process together before moving on to the next stage. The degree to which workers are involved in this type of production depends on the type of product. It is common for machinery to be used for the actual production and for workers to participate only at the beginning and end of the process.

Examples of batch production include the following:

- bakeries
- textiles
- furniture

15.4.1 Example

American Leather, a Dallas-based furniture manufacturer, uses mass customization to produce couches and chairs to customer specifications within 30 days. The basic frames in the furniture are the same, but automated cutting machinery precuts the color and type of leather ordered by each customer. Using mass-production techniques, they are then added to each frame.

Advantages

- Because larger numbers are made, unit costs are lower.
- Batch production offers the customer some variety and choice.
- Materials can be bought in bulk, so they are cheap.
- Production is flexible because different batches are made.
- Workers specialize in one process.

Disadvantages

- Workers are often less motivated because the work becomes repetitive.
- Initial set-up costs are high.
- It is expensive to move products around the workplace.
- Storage space will be needed to store raw materials.

Mass Production

Mass production, manufacturing many identical goods at once, was a product of the Industrial Revolution. Henry Ford's Model-T automobile is a good example of early mass production. Each car turned out by Ford's factory was identical, right down to its color. If you wanted a car in any color except black, you were out of luck. Canned goods, over-the-counter drugs, and household appliances are other examples of goods that are mass-produced. The emphasis in mass production is on keeping manufacturing costs low by producing uniform products using repetitive and standardized processes. As products became more complicated to produce, mass production also became more complex. Automobile manufacturers, for example, must now incorporate more sophisticated electronics into their car designs. As a result, the number of assembly stations in most automobile manufacturing plants has increased.

Peeps

Watch the following video on the process used to manufacture the amazing candy known as Peeps. It will serve as a reference point because it features many of the process components to be discussed in this reading.



Advantages

- Labor costs are usually lower.
- Materials can be purchased in large quantities, so they are often cheaper.
- Large numbers of goods are produced.
- Unit costs are relatively low.

Disadvantages

- Machinery is very expensive to buy, so production lines are very expensive to set up.
- Workers are not very motivated because their work is very repetitive.
- Mass production is not very flexible, as a production line is difficult to adapt.
- If one part of the line breaks, the whole production process will have to stop until it is repaired, delaying the production process.
- Maintenance costs are very high.

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