

6.3: Process Types

Process Types include

- Project
- Job Shop
- Batch
- Repetitive
- Continuous
- Hybrids

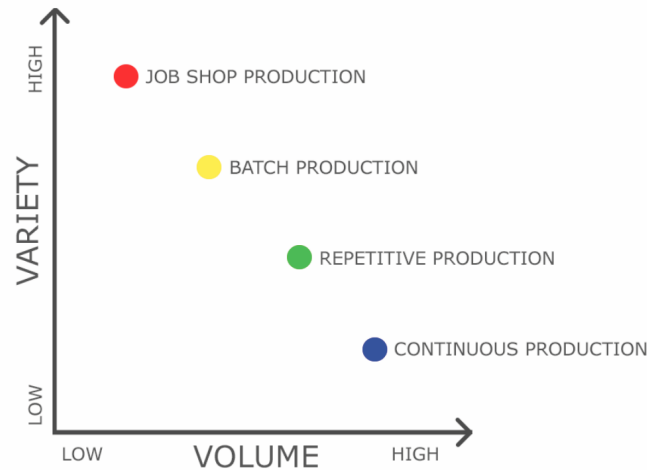


Figure 6.3.1: Process types depend on the variety and volume of production

Project

A one-time event, such as construction of an apartment building, implementation of a new ERP system, or writing a book, would all be considered a project type of process. Each of these projects have a high degree of customization, substantial use of resources, and a complex set of related activities. There is only a single output at the end of the project.



Job Shop

Many businesses have a job shop type of process. This is most commonly used when the product being produced is unique for each customer. It is a make-to-order type of business where production is intermittent (i.e. rather than one entire product being completed at a time, work will continue on multiple products as time permits). Often the product has unique characteristics for each customer. The workers in this type of business are very highly skilled in their craft or trade. Often they are referred to as craftsmen or makers. The volume of output is low in a job shop. The equipment used is quite general purpose. Examples include a small bakery that produces beautiful custom wedding cakes, or a business that makes custom guitars or bicycles based on the customers measurements and preferences of materials and components.



Batch

Some businesses are in the situation where they make groups of identical products on a regular basis. These groups are referred to as a batch. The batch will progress through a set of steps to be completed from the start to the end. An organization may have multiple batches at different stages coming through the process. This type of processing is also intermittent. (start, stop, start) There is less variety in this type of business (compared to a job shop) and the equipment used will be relatively general purpose and suited to the industry that they are in. Employees need to be skilled and experienced at operating that equipment and producing these products. Examples of products made using batch production are baked goods, aircraft parts, clothing, and vaccines. An important decision by these firms is how big the batch should be.



Repetitive

This type of business produces products that are more standardized in nature. Usually the output is high. Since the goods are quite standardized, the equipment used tends to be quite specialized and often highly customized for that process. The skill level of the employees is usually low because the steps are highly standardized. Although these types of jobs may not require a trade or extensive experience, they often do require skills such as multi-tasking, concentration, problem solving, and teamwork. Often, these processes use flexible automation that allows for customization such as the addition of upgraded features. Examples of a repetitive process include assembly lines such as assembling automobiles or electronics, a carwash, or a cafeteria line.



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Continuous

A continuous process is when a very high volume of standardized product is produced. The type of product being made is described as non-discrete. This means that these businesses do not produce individual products, rather a product that is often a liquid or a product such as sugar, gasoline, or steel. An example of this type of process is an oil refinery. There are not separate individual workstations, rather the product flows from one step to the next within the system. The equipment in this type of process is highly complex and designed solely for that product at that facility. There are very few workers except for those that are responsible for process monitoring, maintenance, and cleaning.



Hybrids

There are many firms using mixtures of process types. One such common exception is the **Mass Customization** model of production. In mass customization, a company combines low-cost high volume of output, but each and every customer order is customized to the customers specifications. Usually the use of computer-aided manufacturing systems is what permits this customization. Examples include furniture makers who wait to produce the exact model of sofa based on the customers dimensions and fabric choice, or the vehicle manufacturer that has dozens of customization packages and paint options such that each vehicle is custom for the purchaser. A key requirement for successful mass customization is a modular design to allow fast seamless change from each product to the next.



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