

# Building Production Systems

## Production Systems and Production Patterns in General

by

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### Production system

**A production system uses resources to transform inputs into desired outputs.** Resources are:

- People,
- Plants,
- Parts,
- Processes,
- Planning and control systems.

### Resources

**People** are direct and indirect workforce,

**Plants** include the factories or service branches where production is carried out,

**Parts** include the material or supplies that go through the system

**Processes** include the equipment and steps by which production is accomplished

**Planning and control systems** are the procedures and use of information system to operate the system.

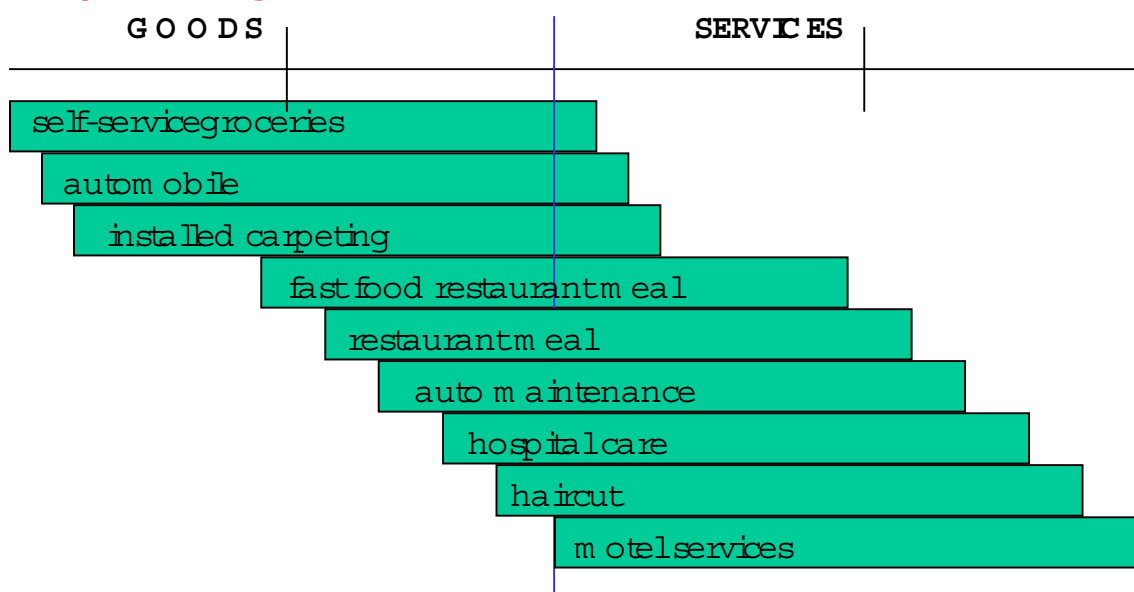
### Service and goods production?

**The difference between a good and service is something that**

**informally:** "if you drop it on your foot, it won't hurt you".

**formally:** "service is an intangible process, while a good is the physical output of a process".

### Comparison of goods and services



## What is production technology and why renew it?

**Technology can be defined as methods, tools, and know-how that is used in production process. Firms acquire new technologies**

- to reduce the cost of the product or service,
- to reduce the lead times and increase the speed of delivery,
- to improve the quality,
- to increase the level of flexibility and customizability.

## Classification of technologies

**Product technologies** refer to technological efforts to develop new products or services,

**Process technologies** refer to the collection of equipment and process (or procedures) used to make the firm's products or services.

**Hard technologies (hardware)** refers to the equipment, machine, or tools,

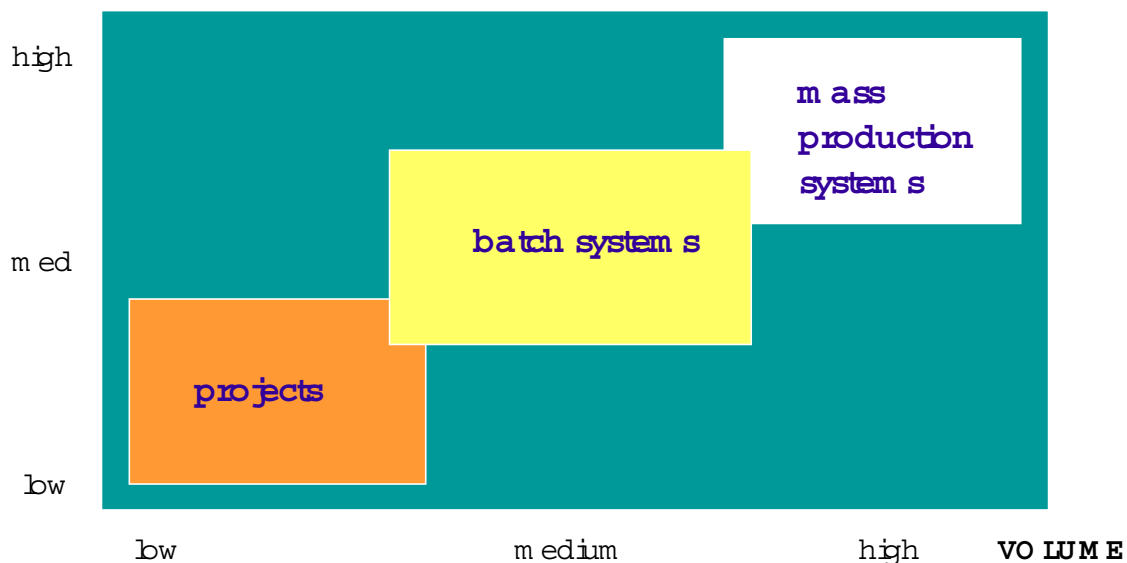
**Soft technologies (software)** refers to the set of rules, procedures, or guidelines required to use the hardware.

## Production Patterns

### Classification-1

- Individual production.
- Party (batch) production.
- Mass-production.

**BATCH SIZE**



### Classification-2

- Custom-made production.  
Produce-to-order.
- Stock type production  
Produce-to-stock

## Individual Production

- Production is not made for third parties but for only satisfying their own requirements of producers.

- A formal organization does not exist. They are mostly family-based informal organizations.
- Size of production does not exceed the requirements of individuals
- Division of work, repetition, specialization, standardization, and mechanization are not essential.
- A considerable amount of production size and capital is not needed.

### **Party type (batch) production**

- Production is not made for satisfying their own requirements of producers but for third parties (customers).
- A formal but small or medium-sized organization (company) exist.
- Production size of different types of products is adjusted according to the demand characteristics at market place.
- Customers (third parties) are not known in person but by their demand characteristics.
- Division of work, repetition, specialization, standardization and mechanization etc., are slightly needed and applied to some extend.
- A significant amount of production and capital is required for continuity of production.

### **Mass production**

- Production is not made for requirements of producers but for third parties (customers).
- A highly formalized and large-sized organization (company) exist.
- Production size of different types of products is adjusted according to the statistical analysis of demand characteristics.
- Customers (third parties) are not known in person but by their demand characteristics.
- Division of work, repetition, specialization, standardization and mechanization etc., and moreover management-related functions are strongly needed and fully applied.
- A considerable amount of production and capital is required for continuity of production.

**Custom-made production (produce-to-order);** a production scheduling system where customer orders precede the production of the item (i.e. the manufacturer must have an order in hand before issuing production orders to produce the item)

**Stock type production (produce-to-stock);** a production scheduling system where the production schedule is based on forecast sales and/or actual demand, and the finished inventory is placed in stock for subsequent customer usage.

### **Questions**

Is custom-made production pattern possible in mass production? Why?  
 Can stock type production be adopted in batch production? Why?  
 Why the organizations applying mass production must be large in size?

### **Building Production Systems**

- Conventional systems.
- Traditional systems.
- Rationalized systems.
- Industrialized systems

## **Basics of Industrial Production**

- Division of work
- Repetition
- Specialization
- Standardization
- Mechanization
- Scientific Management