Chapter 23: Factors affecting production

What is meant by production?

Production is the **provision** of a product to satisfy wants and needs. The process involves businesses **adding value** to their products. E.g. The production process of matches involve cutting wood into matchsticks, putting phosphorus ends on them and packaging them to sell.

Productivity

Productivity is the **outputs** measured against the **inputs** used to create it. This is measured by:

Output (over a given period of time)/Number of employees

If a worker makes more products in the same amount of time, his productivity increases. Firms aim to be **productively efficient** to be able to make more profits and compete against their competitors.

Methods of production

Job production

- Goods are made individually, by one person.
- Goods are usually specialized; no two goods are the same.
- Usually made to order.

Pros

- The product meets **exact requirements** of the customer.
- The workers have more **varied** jobs.
- More **job satisfaction** for workers.

Cons

- **Skilled** labour is needed.

- **Slower** and **more expensive** than other methods of production.
- Usually **labor intensive**.

Batch production

- Products are made in **batches** according to **order**.

Pros

- It is **flexible**. You can easily **change** from making one product to another.
- Still gives some **variety** to workers jobs.
- Production is not too affected by **machinery breakdown**.

Cons

- Expensive to **move** products around the workplace.
- **Storage space** will be needed to store raw materials. **Expensive**.

Flow production

- Large quantities of a product are produced in a **continuous process**.
- Uses **specialization**.
- Benefits from **economies of scale**.
- Is **capital intensive**?

Pros

- **Low costs**. Low prices. High sales.
- Increased **efficiency**.
- Little **training** is needed.
- Goods are produced **quickly** and **cheaply**.
- Goods do not need to be moved around like batch production. **Saves time**.
- Quality is **high** and **standardized** (courtesy to Muhammad Hassaan Ayyub)

Cons

- **Boring** for the workers. Little **job satisfaction**.
- Needs a lot of **capital** to set up.
- If one **machine breaks down** then the whole production process stops.

Which type of production should be used?

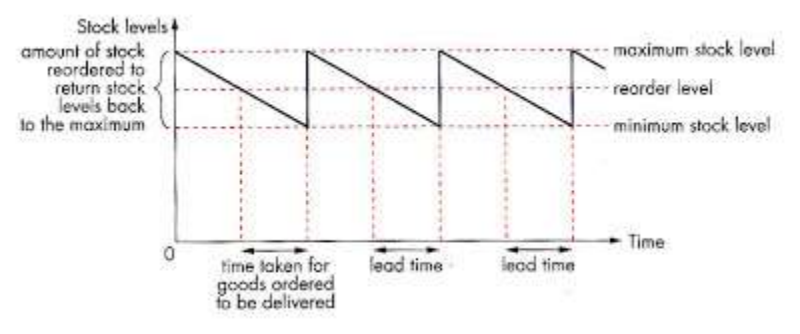
The type of production that should be used varies with how the product is demanded:

- **Job production**: **Unique** and **individual** service is required.

- **Batch production**: Demand is **higher** but products will not be sold in large quantities. Batches are made to **orders**.
- **Flow production**: Demand for the product is **high** and **steady**.

Stock control

Stock control is important so that a business will **not run out** of stock and be unable to satisfy demands. When stock levels get to a certain point, more goods need to be **reordered** for the stock level to reach its **maximum** again. If more goods are not reordered, stocks could run out because of an **unexpected surge** in **demand**. However, keeping a lot of stock costs money, so the level of stock in a company should always be balanced. The following graph demonstrates how stock can be controlled:



Lead production

- Focuses on **cutting down waste**, increasing **efficiency**.

- It tries to reduce the **time taken** to **produce** a product and transport it the selling point.
- Includes the following methods:
  - Kaizen.
  - JIT production.
  - Cell production.

- Kanban.

Kaizen

- **Continuous improvement** through the elimination of **waste**.
- **Ideas** of **workers**.
- Regular **meetings** of workers to discuss how to increase efficiency.
- The advantages of Kaizen:
- Increased **productivity**.
- Reduced amount of **space** needed for the production process.
- **Work-in-progress** is reduced.
- Improved **layout** of the factory floor may **combine jobs** of some employees, freeing others to do other things.

Just in time production

- **Eliminating** the need to hold **stocks**.
- Goods are **delivered** to the selling point just when they are **needed**.
- JIT production needs:
- **Reliable** suppliers.
- **Efficient** system of ordering raw materials.

Cell production

- Production line is divided into **cells**.
- Each cell makes an **identifiable part** of the finished product.
- Boosts **morale**.

Kanban

- A system of **ordering** used with JIT production.
- Operates with **two component bins**.
- When one is emptied, production begins to fill it.
- The other one is then left to be emptied.
- The first one is filled up when the second one is emptied.

Improvements in technology

Here are some things that technology does in the production process:

- **Automation**: Equipment in the production process is controlled by a computer.
- **Mechanization**: Tasks are done by machines **operated** by **people**.
- **CAD (computer aided design)**: Used for designing 3-D objects.
- **CAM (computer aided manufacture)**: Computers control machines in the production process.
- **CIM (computer integrated manufacture)**: CAD and CAM are used together. The computer that uses CAD is directly linked with the one that controls the production process.

Here are some things that technology does in shops:

- **EPOS (electronic point of sale)**: When products' bar codes are scanned and the information is printed out on a receipt. Data is also sent to a computer to keep track of **stocks**.
- **EFTPOS (electronic fund transfer at point of sale)**: When the cash register is connected to the retailer's **main computer** and **banks**. The customer's **credit/debit card** is swiped and the money is **debited** from the customer's bank account. A receipt is printed out to confirm the transaction.

The advantages of new technology

- Increased **productivity**.
- **Boring jobs** done by machines. Boosts **motivation**.
- **Training** is needed to operate new machines. Workers become more **skilled**.
- Better **quality**.
- Better **stock control**.
- Quicker **communication** and reduced **paperwork**.
- **Info** is available **faster**, resulting in **faster decision making** (for managers).

The disadvantages of new technology

- **Unemployment**
- **Expensive**
  - To invest in new technology.
  - To replace outdated technology.
- Employees are **unhappy** with **changes** in the workplace.

Quality control

There are three ways to control quality:

Quality control

- Involves checking and removing faulty products at the **end** of the production process.
- **Wastes** a lot of money.

Quality assurance

- Involves inspecting **during** and at the **end** of production.
- Aim to
  - Stop faults from happening.
  - Set a quality standard that all products have to achieve.
- Need teamworking and responsibility.

Total quality management

- Encourages **everyone** to **concentrate** on quality.
- Quality is the **main aim** for all staff.
- Products need to satisfy all **customer needs**.