Higher Business Management

Management of Marketing & Operations
Contents
What is a market? ................................................................. 6
Market Research Methods ......................................................... 7
  Sampling (Random and Quota) .................................................. 7
Using the marketing mix .......................................................... 8
Product ....................................................................................... 9
  What is a product? ................................................................... 9
  How product differentiation is created ......................................... 9
Product life cycle ......................................................................... 10
Product differentiation ............................................................... 10
Price ......................................................................................... 11
  Pricing strategies .................................................................... 11
Pricing new products ................................................................. 12
Place ......................................................................................... 12
  What is place? ...................................................................... 12
Promotion .................................................................................... 13
  Customer awareness ............................................................... 13
    How do they work? ............................................................... 16
    Targetting customers ............................................................ 16
    Equipment ........................................................................... 17
  Advantages of video conferencing ............................................... 17
  Disadvantages of video conferencing ............................................ 17
Operations .................................................................................. 18
Production System Decisions ...................................................... 18
  Purchasing Mix ..................................................................... 18
What is stock? ........................................................................... 19
Stock Control Diagram ............................................................... 19
How to ensure quality ............................................................... 20
Job, batch and flow production .................................................. 21
  Job production ...................................................................... 21
  Batch production ................................................................... 22
  Flow production .................................................................... 22
Choosing a production method .................................................. 22
  Warehousing ....................................................................... 23
Transport ...................................................................................................................... 23
Scheduling ................................................................................................................... 23
Advantages and disadvantages of using CAM............................................................. 24
Higher Business Management

Unit Content

Management of Marketing and Operations

**Outcome 1**

1 Apply knowledge and understanding of how the marketing function enhances the effectiveness of large organisations by:

1.1 Explaining how market research can be used to enhance the effectiveness of large organisations

1.2 Explaining how the marketing mix can be used to enhance the effectiveness of large organisations

1.3 Describing the costs and benefits to large organisations of having a product portfolio

1.4 Explaining how current technologies are used in the marketing function

**Outcome 2**

2 Apply knowledge and understanding of how the marketing function contributes to the success of large organisations by:

2.1 Describing the features and outlining the purposes of a stock management control system

2.2 Explaining methods that can be used to ensure customers receive quality products/services

2.3 Explaining the costs and benefits of production methods used by large organisations

2.4 Describing how current technologies are used in the operations function
### Command Words

<table>
<thead>
<tr>
<th>Command Word</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compare</td>
<td>Identify the similarities and differences between two or more factors</td>
</tr>
<tr>
<td>Describe</td>
<td>Provide a thorough description - look at the marks allocated to work out how many points you must give</td>
</tr>
<tr>
<td>Discuss</td>
<td>Offer reasons for and against</td>
</tr>
<tr>
<td>Distinguish</td>
<td>Identify the differences</td>
</tr>
<tr>
<td>Explain</td>
<td>Give a detailed response: show costs and benefits</td>
</tr>
<tr>
<td>Identify</td>
<td>State or Name</td>
</tr>
<tr>
<td>Justify</td>
<td>Give reasons to support (advantage)</td>
</tr>
<tr>
<td>Outline</td>
<td>State the main features</td>
</tr>
</tbody>
</table>
Marketing

What is a market?

Marketing is about responding to consumers’ needs. It is important to find out what these needs are before launching a new product.

Businesses sell to customers in markets. A market is any place where buyers and sellers meet to trade products - it could be a high street shop or a web site. Any business in a marketplace is likely to be in competition with other firms offering similar products. Successful products are the ones which meet customer needs better than rival offerings.

Markets are dynamic. This means that they are always changing. A business must be aware of market trends and evolving customer requirements caused by new fashions or changing economic conditions.

Marketing

Marketing is the management process that identifies, anticipates and satisfies customer requirements profitably.

Market Research

There is far more to marketing than selling or advertising. Put simply, marketing is about identifying and satisfying customer needs.

The first step is to gather information about customer’s needs, competitors and market trends. An entrepreneur can use the results of market research to produce competitive products.

New magazines will hope to retain customers after their launch.

The first step for a new business or product is to attract trial purchases.

A new magazine may run special offers to get customers to try the first issue, hoping that repeat sales are generated. The magazine will soon close if customers fail to buy future issues. The aim of a special offer scheme is to convert trial purchases into repeat sales.

Market research involves gathering data about customers, competitors and market trends
Market Research Methods

There are two main methods of collecting information:

Primary research provides new data for a specific purpose

- **Primary research** (field research) involves gathering new data that has not been collected before. For example, surveys using questionnaires or interviews with groups of people in a focus group.
- **Secondary research** (desk research) involves gathering existing data that has already been produced. For example, researching the internet, newspapers and company reports.

Factual information, which can be easily defined and measured, is called quantitative data. Information collected about opinions and views is called qualitative data.

Accurate market research helps to reduce the risk of launching new or improved products.

Some businesses opt out of field research and rely instead on the know-how and instincts of the entrepreneur to ‘guess’ customer requirements. They do this because market research costs time and money. Existing business can make use of direct customer contact to help them identify changing fashion and market trends.

- Surveys involve respondents being asked questions in the form of a questionnaire. The most common surveys are telephone surveys and postal surveys. The response rate is not always high, and incentives are usually needed to gain responses. Surveys have a major advantage in that they can reach wide geographical areas.
- Focus groups are made up of small groups of respondents being asked qualitative questions by a facilitator. Attitudes, beliefs and opinions are expressed by the respondents and time can be taken to go deeper into issues or ideas.
- Face to face interviews involve respondents being asked specific questions by a trained interviewer. These type of interviews are expensive.
- Observations are when consumer behaviour is viewed and recorded. Many supermarkets observe the patterns of how shoppers navigate around the store. They can then identify aisles that are visited often.

Sampling (Random and Quota)

Sampling is the process of creating a small unbiased population to be used in a test or experiment. The sample removes the impractical idea of surveying everyone in a market or a population.

Random Sampling is when a sample is created by chance. It is the luck of the draw.
Quota Sampling is a sample that has been created to mimic the characteristics of a market or a nation’s population. For example if 30% of the population are over 70, then the quota sample will reflect this in addition to other criteria set.

**Product Led V Market Led**

Production Orientation is when a firm endeavours to make a technologically superior product with added features and extras. They are focused also on costs and in the method of production. They use the product’s uniqueness or innovative value as its selling point. It does not take into account customer needs.

Market Orientation on the other hand begins with the customer. Through market research firms find out about what the customer actually wants or needs. They analyse their findings and then attempt to create and develop a product tailored around customer needs.

**Marketing Mix**

No one element of the marketing mix is more important than another – each element ideally supports the others. Firms modify each element in the marketing mix to establish an overall brand image and USP, or unique selling point, that makes their products stand out from the competition.

**Elements of the marketing mix**

- Product
- Price
- Place
- Promotion
- Physical layout/evidence
- Provision of customer service
- Processes

**Using the marketing mix**

An exclusive brand of jewellery uses the best materials but comes at a high price. Such designer brands can only be bought at exclusive stores and are promoted using personal selling sales assistants. By contrast, cheap and cheerful jewellery for the mass market is best sold in supermarkets and can be promoted using television adverts.

Market research findings are important in developing the overall marketing mix for a given product. By identifying specific customer needs a business can adjust the features, appearance, price and distribution method for a target market segment.
New technologies and changing fashion means goods and services have a limited product life cycle. Ideally, the marketing mix is adjusted to take account of each stage. For example, the life of a product can be extended by changing packaging to freshen a tired brand and so boost sales.

There is no single right marketing mix that works for all businesses at all times. The combination of product, price promotion and place chosen by a business will depend on its size, competition, the nature of the product and its objectives.

The overall marketing mix is the business’ marketing strategy and is judged a success if it meets the marketing department’s objectives, eg increase annual sales by 5%

**Product**

**What is a product?**

A business can adjust the features, appearance and packaging of a product to create competitive advantage.

Brands use packaging and logos to create a brand image

A product is a good or a service that is sold to customers or other businesses. Customers buy a product to meet a need. This means the firm must concentrate on making products that best meet customer requirements.

A business needs to choose the function, appearance and cost most likely to make a product appeal to the target market and stand out from the competition. This is called product differentiation.

**How product differentiation is created**

- Establishing a strong brand image (personality) for a good or service.
- Making clear the unique selling point (USP) of a good or service, for example, by using the tag line "Quality items for less than a pound" for a chain of discount shops.
- Offering a better location, features, functions, design, appearance or selling price than rival products.

Having a brand image helps products to stand out in a competitive market.

Firms face a dilemma if they choose to launch a premium brand. Improving the quality or appearance of a product adds to the cost of making it. In turn, this means that the business must charge higher prices if they are to make a profit.

An alternative marketing strategy is to produce a budget brand. If a mobile phone has limited functions and a standard design then it can be manufactured cheaply. The low production costs allow for discount pricing.
Product life cycle

The product life cycle diagram shows that four stages exist in the ‘working life’ of most products.

A chart mapping a product’s life cycle from its initial launch to growth to its subsequent maturity and decline.

These are:

1. Introduction
2. Growth
3. Maturity
4. Decline

In the introduction and growth stages sales rise. In the maturity stage, revenues flatten out. At the point where maturity is about to enter decline is called the saturation point.

Getting a product known beyond the launch stage usually requires costly promotion activity.

At some point sales begin to decline and the business has to decide whether to withdraw the item or use an extension strategy to bolster sales.

Extension strategies involve changing or altering the elements of the marketing mix. Changing or altering the packaging of the product, adding extra features, lowering the price, or offering the product in a new market.

Product differentiation

A product portfolio is the range of items sold by a business.

For example Toyota have cars catering for different needs:

- small cars, such as the Yaris
- family cars, such as the Verso
- luxury cars, such as the Avensis
A product portfolio can be analysed using the Boston Matrix.

**Boston Matrix**

**Star** products have a high market share in a fast growing market.

**Cash Cows** have a high market share in a slow growing market.

**Question marks** or **problem children** products have a low market share in fast growing markets.

**Dogs** are products with a low market share in slow growing markets.

Firms with just a few items in their product portfolio – or who have all their products at the same stage in the product life cycle – are in the dangerous position of having ‘all their eggs in one basket’. Such firms may prioritise broadening their product range.

Diversification is one way to lessen overall risk by having products in different markets, like Virgin.

**Price**

**Pricing strategies**

A business must take many factors into account before deciding on the price of a product.

Remember there is a big difference between **costs** and **price**. Costs are the expenses of a firm. Price is the amount customers are charged for items.

Firms think very carefully about the price to charge for their products. There are a number of factors to take into account when reaching a pricing decision:

- **Customers**. Price affects sales. Lowering the price of a product increases customer demand. However, too low a price may lead customers to think you are selling a low quality ‘budget product’.

- **Competitors**. A business takes into account the price charged by rival organisations, particularly in competitive markets. **Competitive pricing** occurs when a firm decides its own price based on that charged by rivals. Setting a price above that charged by the **market leader** can only work if your product has better features and appearance. When a business matches the price of competitors this is called the **market price**.

- **Costs**. A business can make a profit only if the price charged eventually covers the costs of making an item. One way to try to ensure a profit is to use cost plus pricing. For example, adding a 50% mark up to a sandwich that costs £2 to make means setting the price at £3. The drawback of **cost plus pricing** is that it may not be competitive.
There are times when businesses are willing to set price below unit cost. They use this **loss leader** strategy to gain sales and market share.

**Pricing new products**

Half price sales are an example of penetration pricing

A business can choose between two pricing strategies when launching a new product:

- **Penetration pricing** means setting a relatively low price to boost sales. It is often used when a new product is launched, or if the firm’s main objective is growth, in order to increase market share quickly.
- **Price skimming** means setting a relatively high price to boost profits. It is often used by well-known businesses launching new, high quality, premium products. Once the early adopters have bought the product and sales slow, the company then lowers their price to allow others to be able to afford the product. Many electronics products use this strategy. For example the iPad was launched in 2010 and originally cost £429. As time goes on the price will be lowered as the cream has been ‘skimmed’ off the top.

When a business is already involved in the market, it can choose between three additional short term pricing strategies:

- **Promotional pricing** is used to increase flagging sales. It is a short time reduction in price for a specific time period. A common example is the January sales after Christmas. Companies have leftover stock, which is using up valuable and expensive storage space, so they decide on a clear out.

- **Destroyer pricing** is an illegal practice where firms lower their prices to such a damaging level that they run at a loss. They do this in order to put their competitors out of the market. An infamous case was when The Times newspaper was on sale for just 10p. This damaged rivals and was deemed unfair.

**Place**

**What is place?**

As part of its marketing strategy, a company needs to decide where best to distribute a product.

**Place** is the point where products are made available to customers. A business has to decide
on the most cost-effective way to make their products easily available to customers.

This involves selecting the best channel of distribution. Potential methods include using:

*Telesales is one possible channel of distribution*

- **Retailers.** Persuading shops to stock products means customers can buy items locally. However, using a middle man means lower profit margins for the producer.
- **Producers** can opt to distribute using a wholesaler who buys in bulk and resells smaller quantities to retailers or consumers. This again means lower profit margins for the manufacturer.
- **Telesales** and **mail order.** Direct communication allows a business to get products to customers without using a high street retailer. This is an example of direct selling.
- **Internet selling** or **e-commerce.** Online selling is an increasingly popular method of distribution and allows small firms a low cost method of marketing their products overseas. A business website can be both a method of distribution and promotion.

Developing new or improved channels of distribution can increase sales and allow a firm to grow.

**Promotion**

**Customer awareness**

There is much more to promotion than advertising. Businesses use various methods to gain publicity.

**Promotion** refers to the methods used by a business to make customers aware of its product. Advertising is just one of the means a business can use to create publicity. Businesses create an overall promotional mix by putting together a combination of the following strategies:

- **Advertising:** where a business pays for messages about itself in mass media such as television or newspapers. Advertising is non-personal and is also called above-the-line promotion. Advertising can be categorised into informative advertising (telling consumers about a product on TV or radio), persuasive advertising (aimed at our emotions and trying to get us to buy their product) and corporate advertising (promoting the entire company rather than specific products. Disney is one such firm that employs corporate advertising).
- **Sales promotions:** which encourage customers to buy now rather than later. For example, 'Buy One Get One Free', point of sale displays, 2-for-1 offers, free gifts, samples, coupons or competitions. Sales promotions can be divided into two categories: into the pipeline promotions (aimed at wholesalers) and out of the pipeline promotions (aimed at customers).
- **Personal selling:** using face-to-face communication, eg employing a sales person or agent to make direct contact with customers.
• **Direct marketing:** takes place when firms make contact with individual consumers using tactics such as ‘junk’ mail shots and weekly ‘special offer’ emails. There is no one right promotional mix for all firms. The **combination of promotional elements** selected takes into account the size of the market and available resources. Large businesses have the resources to use national advertising. Small firms with limited resources and a local market may instead opt for leaflet drops to promote their activities.

Public Relations (PR) is a promotional technique used to gain media coverage. It is free and is generated through events, activities or news-worthy stories. Having celebrities opening a new store is a common PR activity, as is supporting a charity or community venture which generates positive publicity for an organisation.

![Formula 1 sponsorship logos on a car.](image)

Sponsorship occurs when companies pay to have their name associated with an event or another organisation like a football club. Sponsors pay for media exposure gained through the event such as the Olympic Games or the FIFA World Cup.

**Physical Evidence/Layout**

This refers to the way your product, service, and everything about your company, appears from the outside. Decisions need to be made about the size, shape, color, material, UPC bar code, and label of the packaging. This should be customer tested and updated when needed. It should fall in line with your other product offerings as well. Packaging involves the visual layout, practical setup, and when needed for products, clear and precise installation instructions.

- Product liability insurance is needed in case anyone suffers any harm from your product.
- Engineering tests are also needed to make sure the package can stand up to abuses. There may also be regulatory issues to consider.

Visual packaging of a tangible product can make or break a purchase. Small improvements in the packaging or external appearance of your product or service can lead to completely different reactions from your customers.

It is also important in selling and marketing services and intangible products that you *can’t* see, but that you can provide the support needed to the customer who *can* see and feel the physical evidence.

Physical Evidence can also refer to the people within your company and how they dress and act. It can refer to how your office is set up, the professionalism of your staff, nice
brochures, how you interact with your customer base, and every single visual element about
your company.

**Provision of Customer Service**

An extremely important part of any company is having the right people to support the
company’s products and/or service. Excellent customer service personnel who can provide
support with clearly known expectations, such as hours of operation and average response
time, is key to maintaining a high level of customer satisfaction. Customer service skills were
discussed in lesson 9. Lessons 1 through 4 cover everything from how to lead the people, to
hiring, retaining, training, and building teamwork. Knowledgeable staff adds much value to
the product offering.

**Processes**

Solid procedures and policies that are in place, which pertains to the company’s products
and/or service, is an extremely valuable element to the marketing strategy. Customers want
to understand more than just your product; they also want to focus on the shape and form
your business will take.

**ICT in Marketing**

**E-commerce** – This means the sales and purchase of goods over the internet. This provides
24/7 trading, a global market and potential savings on space and labour

**Social media/E-mail** – advertising directly to customers, can gain feedback from customers,
can give special promotions and competitions to encourage sales

**Desktop Publisher** – can be used to create professional looking advertisements to attract
more customers.

**Text alerts** – can be used to inform customers of new products/special offers to increase
sales.

**Apps** – can be used to give customers easier access to products and services when they are
on the move.

**Electronic point of sale information (EPOS)** - Self-contained, computerized equipment that
performs all tasks of a store checkout counter. It allows payments by bank or credit cards,
verifies transactions, provides sales reports, coordinates inventory data, and performs
several other services normally provided by employees.

**Supermarket loyalty cards** – The larger stores offer customers loyalty cards. When the
customer shops at the store they're awarded a set number of points depending on how
much they spend. The loyalty card stores their points. One point is commonly worth 1p with
a point awarded for each pound spent.
Points can be converted into vouchers that provide discounts on products or services. Each customers' loyalty card has a unique card number linked to a database which stores information about them (provided by the customer when they signed up) and their purchases.

How do they work?
Swiping a loyalty card is an example of data capture. Every time the customer visits the shop the card is swiped, reading the unique number. This identifies the customer whose points total, stored in the database, is then updated. The tills use barcodes to identify each item bought.

Targeting customers
When a customer signs up they provide basic details such as their name and address. Loyalty cards provide companies with information about customer spending habits. This information can be used to target customers generally or specifically.

Product placement
If customers frequently buy bread and milk together, these items may be put nearby each other for customer convenience or, farther apart forcing the customer to walk through the entire store (in the hope they buy additional items along their way).

Vouchers
If a customer frequently buys beans, vouchers offering money off beans will be sent to them (further increasing their loyalty), rather than for products they rarely buy.

Mailing lists
Can be used to send out tailored advertisements. For example, someone who regularly buys garden magazines might be sent special offers on garden products.

New stores
When customers sign-up they provide their address. This information can be used to see where the customers come from and identify opportunities for new stores.
Video conferencing

Video conferencing means using computers to provide a video-link between two or more people. Instead of just talking to someone by telephone, you are able to see them as well.

Equipment
The following is needed to take part in a video conference call:

- a computer
- a web cam
- a microphone (most webcams have a microphone built-in)
- speakers
- broadband Internet access
- video conferencing software

It is possible to buy a special video conferencing machine just for this purpose.

Advantages of video conferencing

- Meetings can take place without leaving the office.
- Travel costs and the time taken to travel can be reduced significantly.
- Meetings can be called instantly worldwide with little notice.
- Delegates can still attend meetings even if they are physically unable to.

Disadvantages of video conferencing

- May not be as productive as a discussion around a table.
- Confidential documents may need to be viewed and signed in person.
- There will always be times when you need to be able to meet face to face.
Operations

Operations Management is concerned with the management of the systems and processes that create goods and provide services.

Operations is the management function which deals with taking raw materials (INPUT), then transforming them (PROCESS) into finished goods/services (OUTPUT).

Production System Decisions

- Size of Market
- Resources
- Business Stage
- Labour intensive versus capital intensive
- Technology

Purchasing Mix

Who to buy from is a decision that does not come lightly to firms. Many factors can affect purchasing decisions. This is called the purchasing mix.

Alternative suppliers is a factor in that if there are other suppliers who can meet a firms order then it gives the firm more bargaining power. Also are they reliable? If not, then the firm can go elsewhere.

Price is a factor as firms will naturally want the lowest price they can agree as this in turn will keep their own costs low, enabling them to have the best profit margin as possible.

Delivery is one of the most important purchasing decisions. A supplier has to keep their word and deliver on time. Delivering late is obviously unacceptable, but delivering early has implications for storage capacity. Any deviation in delivery times can affect the production of the product/service to the end user.

Quantity is an important decision as storage facilities need to be able to house the number ordered. Also bulk buying may result in discounts which is another reason for large orders. However buying in large quantities puts pressure on the firm to sell their stock as if stock becomes unfashionable or out of date it may be difficult to clear out the stock.

Quality is hugely important, and is related to price. If the raw materials are of high quality, then it would be expected that the final product sold to customers would be of good quality. If this is the case, a premium price may be charged.

Storage is a purchasing mix factor because a warehouse or stock room has to be able to meet the demands of the stock to be held. The stock should also be under lock and key and to prevent theft or waste.
What is stock?

Managing and storing stock effectively is important for a business to maintain production and sales.

**Stock** is any item stored by a business for use in production or sales. Stock can be:

1. **Raw materials and components** waiting to be used in the manufacturing process, eg tyres stored by a car factory.
2. **Finished goods** held in store so that a customer order can quickly be met from stock.

Holding stock incurs **warehouse storage costs** and ties up **working capital**. Funds must be found to pay for materials, components and unsold goods with interest.

Running out of one item of stock could bring the whole factory to a halt. Staff must still be paid even though they do not have the parts to carry on production.

**Stock control** aims to hold sufficient items on site to enable production while minimising stock holding costs.

We will now look at the stock control diagram and the just in time method of stock control.

**Stock Control Diagram**

The Stock Control Diagram is used to help establish when materials should be re-ordered. It is important that you know the meaning of:

Bar gate stock graph

- **Maximum stock level**: the largest amount of items to be stored on site (500).
- **Minimum stock level**: the lowest amount of items to be stored on site (100).
- **Reorder level**: the amount at which new stock is ordered. 400 items are ordered and it takes two weeks **lead time** for ordered stock to arrive. There is always a **buffer stock** of 100 items held in case deliveries are held up or there is an unexpected large order.
Just in time

Just in case stock control is costly. To reduce spending and improve competitiveness, a business can switch to an alternative method of stock control called just in time. With just in time, a business holds no stock and instead relies upon deliveries of raw materials and components to arrive exactly when they are needed. Instead of occasional large deliveries to a warehouse, components arrive just when they are needed and are taken straight to the factory floor.

The benefits of reduced warehouse costs must be balanced against the cost of more frequent deliveries and lost purchasing economies of scale from bulk buying discounts.

Quality

Ensuring quality means making sure that products are made to a minimum standard or better. The cost of doing this should be covered by extra sales.

Quality is about meeting the minimum standard required to satisfy customer needs. High quality products meet the standards set by customers - for example, a high quality washing-up liquid can claim that one squirt is sufficient to clean a family's dirty plates after a meal. A poor quality washing-up liquid requires several squirts.

In many industries a quality standard is laid down by independent organisations such as the British Standards Institution (BSI). Firms benefit by adjusting the way they work to meet these standards. Businesses hope that the cost of improving quality will be more than covered by extra sales.

How to ensure quality

Producing faulty goods incurs repair costs and damages the reputation of the firm. There are two main approaches to achieving quality:

- **Quality control:** where finished products are checked by inspectors to see if they meet the set standard. This is a costly process as there is a high degree of wasted material.
- **Quality assurance** where quality is built into the production process. For example, all staff check all items at all stages of the production process for faults. In this way everyone takes responsibility for delivering quality. Successful quality assurance results in zero defect production.

Introducing quality assurance requires Total Quality Management (TQM), in which managers try to bring about a change in business culture, convincing employees to care about how products are being made and to do their part to ensure standards are met.

TQM has a few basic principles. It believes in getting it right first time and having zero defects. If this goal is reached then the company's products will be respected and valued as high quality and reliable. This in turn will mean customers will purchase from us rather than our competitors. The sea change with other quality methods is that everyone in the
company is responsible for quality. Every stage of the assembly line or production process must involve the recipient of the unfinished product challenging and inspecting what has been created. This has led to the concept of a quality chain whereby everyone in the organisation is treated like a customer.

**TQM** also believes in kaizen or continuous improvement. Companies should not rest on their laurels. They should always look to improve. TQM wants employees to work smarter, not harder. TQM embraces employee feedback and suggestions and quality circles are used in kaizen.

**Quality Circles** are small groups of workers of different levels in the firm who come together to discuss and solve problems in production. Managers, assembly line workers and engineers mix together and everyone’s opinion is valued and respected. Membership of quality circles is voluntary.

**Benchmarking** is another method of quality management. Benchmarking involves finding the best practice in your industry and then copying your competitor but adding some extra value or USP to the product. The major flaw with benchmarking is that it can take time and when you have a product superior to the market leader, a new market leader has emerged from another firm’s research and development programme.

**Job, batch and flow production**

**Production** is about creating goods and services. Managers have to decide on the most efficient way of organising production for their particular product.

There are three main types of production to choose from:

**Job production**

This is where items are made **individually** and each item is finished before the next one is started. Designer dresses are made using the job production method. Job production’s main advantages are that it is a highly specialised or customised goods which means a premium price can be charged. Therefore it is expensive for the customers as highly skilled employees do not come cheap! The time for an order to be completed can take a long time. A famous example in Scotland of job production is Linn Products in Waterfoot, East Renfrewshire. Many of their luxury sound systems are built by just one highly trained and skilled employee.
**Batch production**

This is where groups of items are made **together**. Each batch is finished before starting the next block of goods. For example, a baker first produces a batch of 50 white loaves. Only after they are completed will he or she start baking 50 loaves of brown bread. Batch production’s main advantages are that there is less demand for highly skilled workers and equipment can be standardised to a certain extent, which lowers costs. However repetition on the job can de-motivate employees and a high volume of stock may be held, tying up valuable cash.

**Flow production**

This is where **identical, standardised items** are produced on an **assembly line**. Most cars are mass-produced in large factories using conveyor belts and expensive machinery such as robot arms. Workers have specialised jobs, for instance, fitting wheels. Flow production’s main advantages are that in assembly lines vast orders can be met and large quantities produced. Standardisation of machinery can keep costs low and automated machinery can operate without breaks 24/7.

Its major disadvantages are that a large initial capital outlay is required and employees are unskilled and highly de-motivated. Customisation is difficult to meet and would increase costs. Reebok are a famous example for taking standardisation to extremes by setting up factories to make just the left shoe of a trainer, and another factory in another country making the right trainer.

**Choosing a production method**

The best method of production depends on the type of product being made and the size of the market. Small firms operating in the service sector, such as plumbers, use **job production** because each customer has individual needs. Niche manufacturers of items such as made-to-measure suits would also use job production because each item they make is different.

**Batch production** is used to meet group orders. For example, a set of machines could be set up to make 500 size 12 dresses and then adjusted to make 600 size 12 dresses. Two batches have been made.

**Job production** is used to make expensive pieces of designer jewellery

**Flow production** is used to mass produce everyday standardised (all the same) items such as soap powder and canned drinks. **Economies of scale** lead to lower unit costs and prices. Not many small manufacturers can afford the investment needed to mass produce goods. They instead opt for either batch or job production.

There is usually a trade-off between unit costs and meeting specific customer needs. Flow production offers economies of scale and low costs for a one-size-fits-all product.
**Warehousing**

Firms need to store their raw materials or works in progress in a storeroom. Their finished goods, however, are held in a warehouse until they are available for delivery.

A warehouse has to be secure to prevent break-ins and theft, and in some cases certain goods must have to be stored at a certain temperature.

Holding stock in a warehouse naturally has financial implications in terms of the amount of stock needed in the warehouse.

Firms operate either a centralised warehousing policy where all stock is held in one location before dispatch or decentralised warehousing which results in many smaller warehouses at locations throughout the country.

**Transport**

How the goods are delivered to the retailer or customer again has cost implications. Air cargo freight is very expensive and the least used way to ship goods. Container ships are a common way to send large or bulky goods vast distances across the Oceans but it is a long process due to the slow speed of the container ship, the long unloading and loading process, and then the delivery from the port to the destination.

Rail is often used in the transportation of fuels. It is less popular in the UK and Europe as in the United States.

Road haulage is the most common delivery service in the UK. Food is mainly distributed by road as many goods are perishable and have to be delivered quickly. A major advantage of delivery by road is door-to-door delivery. Eddie Stobart is Britain’s most famous road haulier.

**Scheduling**

A plan of how production is going to be organised is called scheduling. It aims to fulfil the aims of Operations in that the right materials will be in production at the right station with the right employee using the right tools to do the job. Efficient scheduling can cut down on wasted time.
ICT in Operations

IT – laptop and Internet - to purchase raw materials online

Using E-mail to keep in contact with suppliers regarding purchases
Using the Internet to compare suppliers to find the best value for money

CAD – Computer Aided Design to help with designing the product.

A common mistake is to believe that computer-aided design (CAD) refers only to drawings of a product when in reality CAD refers to any use of computer software that supports the design process.

CAD software is commonly used for circuit design. The software might use system blocks to identify which components are needed, or it might help to generate the design by calculating which components are required and laying out the circuit diagram.

One advantage of CAD software is that different design ideas can be changed quickly and easily. The circuit can be built and tested virtually to make sure that it will work. This helps to reduce the cost of buying parts and modifying prototypes.

CAM – Computer Aided Manufacturing used to create the product – think Robotics.

When a PCB layout has been designed using CAD, the board can be produced or manufactured using CAM.

Two examples of CAM are:

1. A design machined by a computer numeric control (CNC) miller, which removes all the unwanted copper from the board.
2. A design layout printed on to acetate and transferred to a copper-clad board using the photo transfer method. The unwanted copper is removed using acid.

Advantages and disadvantages of using CAM

Advantages

- In large-scale production, the results are consistent (always the same).
- Enables very high accuracy levels in large-scale production.
- Usually speeds up production of low-volume products.

Disadvantages

- The software itself is expensive so initial costs are high.
- Can be slower than traditional methods for one-off or low-volume production.
- Staff need to be trained how to use the software and machinery, which adds to costs.
**Computerised Stock control system** – to ensure the correct quantity of stock is available to continue with production.

Can use programs to re-order stock automatically once re-order level has been reached.

**Capital Intensive**

Machinery and automation is product process, this occurs when:

Standard products are being produced, labour supply is scarce, consistency is required, economies of scale is desirable, continuous production is required.

**Costs** – set-up costs are expensive, lost production time during break downs can be very costly, individual customer requirements cannot be met, worker motivation can be low due to repetitive nature of tasks.