AS Business Technology

Technology

Using Robotic Technology is Always Better than Employing People to do the Work?

Arguments for the use of Robots:

- ☑ Robots can **carry out repetitive tasks** with great accuracy time after time – repetitive tasks undertaken by humans can lead to boredom, lack of motivation and human error.
- ☑ They **do dirty**, **dangerous jobs without complaining**.
- ☑ They **do not get tired, sick, join trade unions, take days off**.
- ☑ Although initial costs high, **long-term costs reduced**.
- ☑ **Increased output** – greater speed. Likely to be fewer mistakes/errors – better quality.

However:

- ☒ **Initial purchase cost** can be very high and breakdowns can also be very expensive to resolve.
- ☒ **Maintenance can be costly** as downtime is required.
- ☒ Robots have proved to be too **inflexible** in final assembly where customer options have to be catered for.
- ☒ **Reprogramming of robots can be very expensive** indeed.
- ☒ They **cannot problem solve**.
- ☒ Maybe **costly to keep up** with technological achievements.

CAD: Computer Aided Design

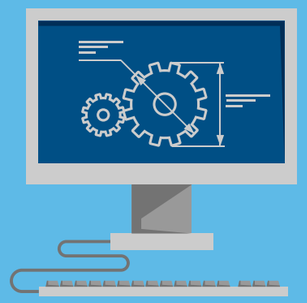
Definition: Computer-aided design is an interactive computer system that is capable of generating, storing and using computer graphics. It assists design engineers in solving design problems.

Advantages of using CAD:

- ☑ Accurate designs can be constructed on a computer, which can be **viewed in 3D and rotated** in order to demonstrate the whole range of possible images.
- ☑ They can be **easily and cheaply altered** for a client - reduce lead time.
- ☑ Designs can be accurately measured and tested on screen in order to **detect faults prior to manufacturing**.
- ☑ Increased accuracy and ability to alter designs **can reduce the cost of the design process**.
- ☑ Designs can be more **easily stored and quickly retrieved**.
- ☑ Considerable sums of **money can be saved** by eliminating the production and testing of expensive prototypes.
- ☑ **Testing programmes** can also be included, e.g. wind tunnels.

Disadvantages of using CAD:

- ☒ Cost of setting up – buying the machinery and training of employees to use machinery.
- ☒ Possible redundancy payments to unskilled workers.
- ☒ Reputation of business if made redundant.



CAM: Computer Aided Manufacturing

Definition: The use of computers in production. It occurs in all sorts of industries – for example, the use of robotic welders in vehicle production.

Advantages of using CAM:

- ☑ CAM allows for standardised quality – accuracy.
- ☑ Reliability – less waste in manufacture
- ☑ Lower labour production costs – less supervision
- ☑ Greater customer satisfaction – fewer returns
- ☑ Easy to adjust – speed – cheaper.

Disadvantages of using CAM:

- ☒ Cost of setting up – buying the machinery and training of employees to use machinery
- ☒ Possible redundancy payments to unskilled workers
- ☒ Reputation of business if made redundant.

Computer Modelling

- Computers with the right information input can be **used to model anything** from wear and tear of a pair of shoes to the electricity generated from a wind turbine in different wind conditions.
- Use of modelling allows developers to **try a huge range of 'what if' scenarios**, such as 'what happens to the life of the shoe when we change the stitching?', or 'what will happen to the efficiency of the wind turbine if we alter the angle of the blades by a few fractions of a degree?'.
- Using computer models allows businesses to **perfect their products** and continually improve efficiency of production.

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Information Technology (IT)

IT is used throughout businesses increasing their productivity in a number of ways:

- secretaries have preformatted letters
- databases are held on customers improving customer relations
- cash flow is modelled so improving financial efficiency
- bar codes and EPOS systems are used to manage stock.

Marketing is a key aspect of the effective use of information technology. In its simplest form, it may be 'how to find or contact us'; in its most complex form the web is used to gather detailed customer profiles to build a database and attempt to match these profiles.

- **The internet** allows a much wider geographical market to be targeted, cheaper advertising and improved customer convenience.
- **Information gathered from browsing and purchasing habits** allows sophisticated targeted marketing to take place, generating potential sales automatically.
- The digital revolution has had a huge effect on the business world – **social networking** is now a well-established marketing tool, tablets and portable devices are used in offices and **mobile phones** are used to buy products online.

Communications technology allows flexibility in the location of services and customer relations centres. For example calls to the directory enquiries number 118118 are answered in Cardiff during the day and in the Philippines during the night. Costs are therefore reduced and service standards improved.

Why Use Technology

Advantages of using CAM:

☑ **Improved quality** – thanks to their high precision and the ability to do the same thing in the same way day after day, robots and CAM processes have the ability to consistently produce top-quality products and accurately perform repetitive tasks.

☑ **Faster innovation** – it is much easier and less expensive to model and test new products using CAD and computer modelling.

☑ **More effective marketing and sales** – marketing new products encourages consumers to dump old products and buy new ones on a regular basis.

☑ **Less dependency on labour** – this is important to the business in reducing costs, especially if employees had used their bargaining power to push for higher wages and improved conditions.

☑ Increased productivity.

☑ Reduced waste and costs.

☑ Improved communications.

Disadvantages:

☒ The **cost of buying** the technology and training of employees to use it is high.

☒ Technology does not always work – production time that is lost can be very costly.

☒ Number of different **labour costs** related to the implementation of technology – some employees are likely to lose their jobs or the cost of retraining if specialised skills are needed.

Impact of Technological Change

Impact of technological change on businesses:

- **Cost involved** in having to frequently change and maintain machines.
- **Increase productivity** – more can be produced with less resources and as a result more profit can be made.
- New technology often results in **time being saved** and fewer materials being used, e.g. printing machines that waste less paper reduce waste.
- **Improving the working environment** – safer working environment in manufacturing modern equipment has made work easier and more tolerable.
- Technology leads to **reduction in staffing needs** – cost savings to businesses but leading to unemployment for members of staff.
- **Need for re-training** as new skills are required.
- **Reduced employment levels** as a result of technological change leading to lower costs.
- Easier to order - **24 hour shopping**.
- More **rapid delivery of goods**.

Impact of technological change on customers:

- Rapid technological change and innovation has **given customers wider choice of products**, e.g. in terms of computer games, phones, cameras and possibly higher standard of living.
- Much of the technological change has occurred in ICT resulting in **improved speed of communications**.
- **Existing products become obsolete** more quickly.