

Impacts of Computers in Business and Commerce

ICT has the capacity to make a business more efficient, more cost effective and more responsive to the needs of its customers. ICT can assist business activities such as, research and development, design, manufacturing, marketing, distribution and sales and feedback.

Research and Development: The computer based analysis for a product, which already exists, can provide vital information on the market for a new product to be launched. Also, certain programs can help new product designs, before a final design is made.

Design: Computer Aided Design (CAD) software allows designers to create detailed designs for a product, which then can be emailed to the managers for a feedback. Then the final design can be made using Computer Assisted Manufacture (CAM).

Manufacturing: The use of Computer Assisted Manufacture (CAM) software can help the specific and professional production of various components used for the final product itself.

Marketing: Once the product is ready, direct mailing can be used (with the help of a mail merging software) to notify the existing customers, that a new product is being launched. The organization could create a web site advertising the product and to keep customers informed of current promotions available.

Distribution: A stock control system such as just in time stocking can be used to ensure that supply meets demand. Also, intranet systems can guarantee that distributors are alert of delivery requests.

Sales and Feedback: Electronic point of sale (EPOS) systems can be used at the sales outlets. These types of systems can help create feedbacks on the sales of different products.

Banking

- The banking industry makes widespread use of ICT in all its operations.
- The bank may use telephone banking which enables the customer to ring the bank to check a balance or a pay a bill 24 hours, 365 days year.
- Customers may use ATMs which enables them to re-draw cash at any time over 1000's of cash points all over the country.
- A debit card can be used to make purchases at petrol stations, supermarkets or department stores. The money can then be automatically debited from the customers account.
- Credit cards can be used to make purchases over the phone or via the Internet.
- Large quantities of checks are processed each day using MICR (magnetic ink character recognition).
- Direct Debit can pay the salaries and bills automatically.

Shopping

Via the Internet, it is possible to buy anything you want. Customers seeking the best deals on certain range of products can just type in the name of a product in a search engine for example, google and browse through the certain sites to find out what they are looking for. Products can be ordered online using the Internet. Electronic Data Interchange (EDI) is a system of sending orders, paying invoices and sending information electronically. This system can be used for doing the weekly shopping

over the Internet. The customers can go online to the supermarkets website, sign in and simply just order what they want. The order will then be sent to their destination.

Business to business

Trading between businesses is one of the major growth markets on the Internet. International carriers can make a large amount of savings by taking orders over the internet, so the customers can get online information about the whereabouts there products is and when they will be delivered.

Advantages

- Reduce costs by using fewer people.
- Improve accuracy by reducing the amount of manual processing
- Process the data more quickly giving up to date information.
- Can provide management information in a concise form.

Disadvantage

- Can be very troublesome and have a big effect on businesses
- Can cost a lot to run and set up

Impacts of Computers in Education

In the sector of education, ICT can be used as a source of information, learning assistance programs, communication of information, distance learning and administration.

Source of information

The internet can be a rich source of information for students at different ages. It allows access to specialist's sites, databases, libraries and journals. Also CD-ROMS can be available, which can include information on a wide range of topics. This contains not just text and image's but audio and video files can be played.

Learning assistance programs

Some companies have produced certain programme that enables students to learn more better (programs designed to improve spelling). With these programs, students can test themselves by taking certain quizzes. These types of programs can help those with learning difficulties. Also, available on the internet, are certain revision programs.

Communication of information

Teachers are able to use projectors that can improve the way they present their information to the class. The teachers can show the whole class material which is stored on a CD or on a website. Also teachers and students can use word processing and spreadsheet software to improve the presentation of their work, so the students can produce their project work with the use of text, images, and charts.

Distance Learning

Nowadays, students no longer have to be in the same location as the teacher. This is a big advantage for students living in remote areas and those suffering from disabilities.

Also available are other distance learning schemes, which are a combination of teaching programs, stored on a CD.

Administration

Staffs at school, apart from their core activity, teaching, have other administration duties, which consist of registering, managing exam entries and reporting students. With the use of IT systems nowadays, database applications can be used to store pupil's records and spreadsheets can be used to control budgets. Also, with the aid of the intranet, staff can share information, e.g. about student progress.

Advantages

- Pupils can gather information more quickly
- Improve accuracy by reducing the amount of manual processing
- Process the data more quickly giving up to date information.
- Can understand certain topics much more easier

Disadvantage

- Can be very troublesome and have a big effect on students and schools.

Multimedia

This is the use of computers to present text, graphics, video, animation, and sound in an incorporated way. With increases in performance and decreases in price, however, multimedia is now an everyday use. Nearly all PCs are capable of displaying video, though the resolution available depends on the power of the computer, the memory available and a CD-ROM is desirable.

The Internet

Using search engines or web address, it is possible to look up any type of material for projects and essays for almost any subject. However, by giving pupils unlimited access to the internet can produce a lot of problems. Such problems can consist of virus being downloaded and the download of music files, which takes up a lot of space on a computer hard drive. Also, by getting material from the internet for essays and projects, pupils can just copy and paste the information without even reading it.

Computers vs Teachers

If computers replace teachers than:

- Students will be able to work at their own pace
- Computers are endlessly patient
- Students could repeat sections in which they don't understand
- Material is presented in a consistent way
- Once the package is paid for, it will be more cost-effective as fewer teachers are required.-

Impacts of Computers in Manufacturing

Computer aided design (CAD)

This type of system allows manufacturing and construction business to design their product on a computer screen. It takes nearly as long to draw a design on the screen, as on paper but the benefits is that it improves accuracy, you can reuse existing designs and it is easy to update designs. CAD allows you to create 3 dimensional solid models with physical characteristics.

Computer aided manufacturing (CAM)

This system will take the CAD design and use this to directly control the machines that manufacture the part. CAM is a type of computer application that helps automate a factory. When the design of the product is completed, the specifications are input directly into a program that controls the manufacturing of parts.

Robots

Robots come in many different forms and shapes, but they all have the same basic components.

Sensors – To detect change in light, temperature, pressure and movement. They capture information from the environment.

Analogue to digital converters – To convert the analogue signals produced by the sensors into digital signals that can be processed by the computer.

Actuators – To provide mechanical movement.

A microprocessor – This is used to process data and information.

Robots may be used for spray painting or even car assembly. They are also used for security devices inside homes and offices.

Just in time stock maintenance

Just in time stock maintenance is an example of feedback. It takes advantage of stock control information system. As products pass through the EPOS, data that is needed is sent to the database containing information about stock levels. When the stock falls below a certain level, more is ordered. Only a minimum amount of stock is needed.

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Impacts of Computers in homes

Teleworking

This involves carrying out work away from the office and communicating with the employer through the use of computer and telecommunications equipment. Often teleworkers are based at home or can work even on the move.

Benefits of Teleworking.

- It may be easier to concentrate on work in a quiet environment at home than in a noisy office.
- People in different locations can work in a team.
- People can be recruited from a much higher geographical area.
- Employers save money on costs of office space and overheads such as heat and light.

Problems of Teleworking

- Management may face difficulties in controlling a workforce that is not in the office
- Employees may feel isolated and miss the social environment of an office full of colleagues.
- Employees may find it difficult to work in teams or to get help when they need it

Internet

The Internet is a worldwide network of computers that can be used by anyone through an Internet Service Provider (ISP). It consists of a large number of networks that are connected together using a common protocol called the TCP/IP.

All the information provided previously, can be obtained via the Internet and in addition there is the World Wide Web. This consists of a large number of web servers that each has a number of web pages. A web page is simply a document that can be viewed across the Internet using a web browser.

Many organisations have now created local web pages that are viewable only on their local network. This type of system is known as an Intranet.

Advantages

- Reduce costs of travelling.
- Improve accuracy by reducing the amount of manual processing
- Process the data more quickly giving up to date information.

Disadvantage

- Can cost a lot to run and set up

Impacts of Computers in health care

Computers in medicine

- Medical records stored in a hospital information system can improve the quality of patient care. They are more accurate and can keep track on dietary requirements.
- Computerised devices such as pacemakers have enabled tens of thousands of people to live longer and have a fuller life.
- Databases of organ donors and patients needing transplants mean that when an organ becomes available, a match can be quickly found.
- Surgeons can perform operations at remote locations using a remotely controlled robot arm.
- Computers can model new drugs and test their effects.

Robots

Now that robots have been introduced in medical care, Surgeons can perform operations at remote locations using a remotely controlled robot arm.

An example is that US doctors used a combination of computers, telecommunications, videoconferencing and advanced surgical robots to guide surgery that was actually being done thousands of miles away.

The robotic systems consist of a surgeons viewing and control console and a cart with robotic arms that sits next to the patient.

Expert Systems

An expert system has the ability to answer questions that might otherwise need some human expert to the answer. The system stores facts and rules about a particular subject. When it is given a problem it uses these facts and rules to give a response. An example of an expert system might be in the field of medical diagnosis. An expert system can store the knowledge of several experts but it does tend to be inflexible.

Expert systems are also called knowledge-based-systems. They are able to store and manipulate knowledge so that they can help a user to solve a problem or make a decision.

Computers and the disabled

For many disabled people, new computer technology can dramatically improve their quality of life, ability to communicate and their opportunities for employment. Nowadays, there are systems based on personal computers, which can talk, listen and teach. People that have control over some sort of organ can communicate by means of certain equipment.

For example

- Vision systems have sensors built into special glasses
- Scanners can convert printed text to verbal output for the visually impaired.

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Disadvantage

- Can cost a lot to run and set up
- Can be very troublesome and have a big effect on health care societies.

Impacts of Computers on crime and detection

As new technology increase, it creates more computer crime as well as abuse. If you provide services to someone, you have the legal responsibility to exercise reasonable care in providing the services.

Hacking

Hacking means, unauthorised access to data held on a computer system. Hacking is extremely difficult to establish and is usually discovered by accident.

Fraud on the Internet

The most common form of fraud on the Internet is purchased between traders who sell legitimate products.

Theft of data

Data can be stolen by illegally accessing it or by stealing the computer on which the data is stored.

Viruses

These are generally developed with a definite intention to cause damage to a computer file or cause annoyance to computer users.

Future in ICT

ICT will continue to improve each and every year.

Some of the examples below could be some of the uses of ICT in the future.

Robots will be created to do certain jobs such as clean the house or even

In the future you could be able to do operations just by using the computer and be at a different location, thousands of miles away.

Robots would be manufacturing all the products so no labour would be required.

Sudden changes in ICT could lead to very quick social impacts of computers.