The Impact of ICT on Manufacturing Unit 12

By Jackson G T 11 c

Acknowledgements: This report has been done with the help of my teacher, friend &
obviously with the help of ICT* (Internet). I researched through the Internet & found

many helpful sites to complete my report. Search engines such as www.google.com has helped me to find the relevant sites for my report. I used some information from http://www.thekjs.essex.sch.uk/yates/it08_-_9.htm to complete my report. There are also some other sites from which the information has been taken. I have also acquired* some information from the PC World magazine to learn about the different soft wares that are used in world of manufacturing.

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Summary: In this report I found out the uses, advantages & disadvantages of ICT. They are listed below in their respective categories. I mainly concentrated on the Manufacturing* section where the ICT is used extensively. I have found the different ways in which the Industries work now days. ICT has improved the communication technology the way the different companies interact with each other & with their respected customers. ICT has brought the **World** to its feet. There is no place where ICT is never used or not being used. I have found vast amount of information with the help of ICT to complete my report. I have found how companies use ICT to manufacture the products in bulk with less effort & time waste. The accuracy of each product made is exactly the way it was designed on the computer. I have discovered some soft wares, which help in the design of the product & also manufacture them automatically. These are **CAD/CAM*** soft wares. I have concluded my report by saying that ICT has **revolutionised** the Manufacturing sector.

Terms of reference: This report I for the portfolio Unit 12 of the GNVQ course following the criteria laid down by OCR. The deadline given to me for completing this report was 31/01/2003 & I have managed to stick to that deadline. The overall purpose of my report is to make sure that I have met the requirements to achieve a high grade.

Methodology: I found out the task from my teacher & practised it on the Thomas Telford Website using banking scenarios. After my practise session I decided on the topic on which I would be doing my report. I decided it to be on 'Manufacturing'. I chose this section as ICT has changed the way of production & manufacturing. I started my research on 'The impact of ICT on Manufacturing' on the Internet, magazines, and books & also took some assistance from my parents on what they think about ICT changing the way we work & interact* with the surrounding. I then created the outline of the report & filled in the areas within findings. I also completed

the sections before findings. At the end of my report I have done the conclusion of the things I have done in the sections above. I have given my opinion on the findings that I have gathered which meets the criteria* for the current use of ICT. At the end I have checked my report for any spelling or grammar mistakes & I have tried to rectify these mistakes with the help of MSWord spell checker. I have also asked my teacher to check whether I have all what is needed for this assignment. At the end I myself have revised the whole report & ensured I have every necessary thing for this assignment.

Introduction: The task I have been set is to research how ICT has had an impact on the society. I am going to research on how ICT has had an impact on the **Manufacturing Industries**. First of all I'll research through the Internet on how the Industries worked before & after the introduction of the ICT. I am going to concentrate on what changes have come through ICT in the recent years. My research is mainly on how Industries manufacture, communicate & manage through the ICT revolution. I am going to compare the results after ICT with the results before ICT. I'll represent this data in a graph

I'll check of what sort of facilities are available now after ICT & what were not there before ICT. For instance Industries & Firms now have given the option to their customers to shop online, bank online & research online. To find out I'll research online.

Findings

Facilities means

Facilities mean the things, services & benefits available in day-to-day life for better future.

The facilities have changed rapidly with the ever-improving technology like the introduction of the ICT. Now a day's facilities are more rapid & easily available with the help of the ICT. Many things are available on the **World Wide Web*** through the ICT. This can be accessed from anywhere in the world. Facilities available such as shopping online, bank online, research, chat, play online, education online & lot more things.

Many companies now use computers in staff training and education. Computers are used as both a resource to present information and as a tool to develop practical expertise* in staff. Computers can be used as a resource to present information because of presentation programs such as Microsoft PowerPoint. This presentation package can be used for basic training such as an employee induction; the presentation could give information about the company and what the employees will be doing. Computers can also be used as tools because they can help develop employees practical skills e.g. an employee who would be working with the companies database would probably be trained on a "**dummy database**" this would allow the employee to build up practical skills.

Working practices: Working practices have changed with the introduction of the ICT. People now a days are working from home through the Internet. Electronic networking allows the innovative potential of ICT's to be exploited, including their capacity to support **flexible*** forms of organisational and business relationships. The growth, both of teleworking and call centres, provides further examples of the flexibilities which have become commonplace within the private sector as production and services are no longer tied to locality. Relatively basic technologies, such as email, document management systems and websites can bring a number of advantages to those who use them. Websites, meanwhile, allow customers to access information about services or to place orders for products out with normal office hours.

Environment: The environment has changed rapidly due to advance ICT technology. The transport system has changed entirely the way we travel now days. There are many appliances that can be used now days to control the system we live in e.g. Air Conditioner, heaters, refrigerators etc. But these technologies also have disadvantages to the surroundings i.e. nature, some of these appliances release gases which are harmful to the surroundings. This has caused '**Global Warming**'* due to release of **chlorofluorocarbons*** that damage the ozone layer. These inventions have been possible due to advancing technology. The rapid development of ICT, particularly electronic communications and easy access to information through the Internet and email, is now an undeniable fact of contemporary* life. These have changed the people communicate now days. This has made the life easy for the people who live far apart as these forms of communication are fast & communicate instantly.

Production: The production industry has managed to change the way they produce stuff. The advent of the microprocessor, mini- and microcomputers, and more

sophisticated software in the early 1970s brought about computer aided design and manufacture (**CAD/CAM**), which gave greater flexibility to designers and, most importantly, substantially* reduced the time spent on the design of a product and the agreement process. The use of **CAD/CAM** has led to major increases in productivity, faster response to the market, and reduced lead times and costs. Designers today can work closely with suppliers and experts on a global basis through the use of desktop video conferencing*.

Availability of information: The vast amount of information is available on the Internet. Many companies can access the information & find out what their rivals are offering to their customers. Through the Internet these companies can know what the public demand is. The number of resources available via the Internet is immense. Companies, organizations, educational institutions, communities and individual people all serve as information providers for the electronic Internet community. The information is secure & the personal details are protected. The information needed can be searched through websites that provide searches. For example: www.yahoo.com, www.google.com, www.ask.co.uk & www.msn.com. These sites can be accessed from anywhere in the world.

Personal/Community: ICT has made a great impact on the community & the way an individual works his/her day-to-day life. It has become an integral* part of their life. Almost all of the families & organisations have access to the Internet & other technology available through ICT. Through ICT an individual can benefit from many services such as online banking, online shopping, email, chat online with distant friends, search for relevant files & materials & also store personal details with security. Communication system has been improved due to ICT's far better technology. Now a days everything can be done through the help of ICT from anywhere in the world even through a person's own house.

Advantages: ICT has proved to be far more advantageous than disadvantageous. It has totally revolutionised* the human life. It has made a drastic change in the way we see things now a days. This technology is fast & easy to use when learnt fully how to use. Everything is now revolutionised **** on ICT as it makes it easier to manage things. Now there are more machines than about fifty years ago. The produce is immense & accurate. Communication facilities introduced by ICT have **changed** the people interact now days. These facilities are **fast** & can be accessed & used from anywhere in the world to **anywhere** in the **world**. This include-

Email: e.g. MS Outlook, Eudora (online/offline mailers)

Yahoo Mail, Hotmail (online mailers - web based)

- User can send text messages anywhere in the world very quickly

- Can attach files

- Can CC or BCC messages

- Can keep an address book

- Can create a mail filter

- Can create mailboxes

- Can subscribe to mailing lists

- Can create a "signature file"

 Telephone: Instant chat over the phone to anyone around the world.

Internet (E-Commerce):

Open 24/7

· By asking customers to "register", businesses can build up databases/customer profiles

· People can shop without leaving home

· People can search massive online databases to find exactly what they want (see the case study below)

· A site such as Amazon has reviews of books, CDs and video games. You can read what other people thought of the product before you buy.

· Amazon allows customers to listen to a sample of each track on the CD before they decide to buy

· Businesses have fewer overheads and these savings should be passed on to the customer.

Computers as an information source: In the past, computers were used for applications like payroll processing or scientific uses where their ability to perform rapid and accurate calculations made them popular. Nowadays, computers are increasingly being used as an information source. In business, information provided by a computer can be used to aid decision-making.

Levels of information:

1. **Operational Information** is a record of all events and transactions within an organisation. A record must be kept of all payments and orders. This includes payroll records and stock management.

2. **Tactical Information** is information commonly used by middle management. They need to know how fast particular products are selling, how quickly stock levels can be refreshed and at what times of the week a store is most busy.

3. **Strategic Information** is needed by senior management. The leaders of an organisation need to plan for the future and they need accurate information about economic and environmental factors, social trends and so on to decide what direction the business should take. Information can be used to build computer models to forecast the effects of certain changes.

Messenger services provided over the Internet, **GSM (*Global System for Mobile Communications)*, FAX**, **Telex** & now even **Digital Televisions**. **Video conferencing** equipment costs much less than transatlantic airfares and hotel bills.

In order to win business, companies used **CAD** to produce better designs more quickly and more cheaply than their competitors. Productivity is much improved by a **CAD** program enabling you to easily draw polygons, ellipses, multiple parallel lines and multiple parallel curves. Another advantage of a **CAD** system is its ability to store entities, which are frequently used on drawings. **CAD** is very suitable for repetitive and fast documentation where a product is one in a range of sizes. Previously, engineers and drafters wasted almost **30%** of their time looking for drawings and other documents. Modern **CAD/CAM** systems automatically generate tool paths from a **3D** model, and can simulate the cutting action on-screen. These programs have revolutionised the way the production is done now days. Companies can now also use ICT to create their website for advertising purposes, shopping, storing customer data & etc. These facilities were not available about **50** years ago. My proof:

Disadvantages**:** ICT has now taken the role of the human being, as more machines have been invented & less labour being employed. This results to job loss as the companies don't need any manual handling for the production but rather the machines do everything. Robots reduce the need for human labour (people can lose their jobs). Robots are not well suited to tasks that require initiative or flexibility. Many business people like to meet the person they are dealing with face-to-face. It seems important to shake a person's hand and observe body language (their vibes). A recent British Airways slogan was "It's Better to Be There". Some communication facilities have some disadvantages like- Email: There are many e-mail viruses in circulation, Mobiles: There is some speculation about the health risks of mobile phones. There have also been reports of mobile phone viruses. Human error (e.g. mistakes in programming, mistakes in data entry, operator errors), Computer crime (e.g. hacking, viruses) & Hardware failures (e.g. power failure, HDD crash, network failure) can lead to vast amount of information being lost. This does not happen at all times but if happen then would be a problem.

Laws & Legislation:

Data Protection Act: Any organisation that collects or uses information about recognisable living individuals is almost certain to be a data controller and is therefore affected by this Act. This data* cannot be used for direct marketing (including fundraising) if the data* subject objects. In most cases this means informing people that the information may be used for direct marketing purposes, and giving them the opportunity to opt out. The data collected is to be stored for the period it is needed for. It should be destroyed if it is no more necessary. Computers can be used to store data & keep it secure from Internet fraud. The data collected by a company from the customers should be accurate so as to comply with the data protection act.

ICT has made it possible for the companies to store a vast number of information about their employees, customers & suppliers. Banks have started providing the facility of online banking, which uses data protection to store the data of their clients & keep it secure from Internet frauds & other dangers. There are also other acts, which work alongside this act.

Conclusions: ICT has revolutionised the human era. It has changed the way people live now days. This has made the life more fast & easy to live through. The invention of ICT has given people all the services & comforts they needed. ICT is now an integral part of person's life. It has revolutionised* the human era. It has brought the changes for which the humans had only dreamt of. It has enabled the facilities which are vastly used now days. But there are some disadvantages like jobs reduction, more energy used, less social harmony* etc. For instance people now talk over the phone more to the relatives living close by than going over to their place. So this makes people lazier. But ICT has also helped people to talk to their relatives far away from them through Phone, Internet & GSM (*Global System for Mobile Communications*). ICT systems offer fast repetitive processing, vast storage capability and the facility to search and combine data in many different ways that would otherwise be impossible. But there are some disadvantages that I have mentioned above which could be a bit serious at times. But in most cases ICT has proven to be advantageous to all people in almost all the aspects of life.

Recommendations: The future of ICT: The future of ICT would be great as this is the ever improving technology which always comes with something unique & special. There might be different inventions with the help of ICT. For instance inventions like:

Vision: Intelligent fridge

- It knows what's inside

- Uses bar code reader, intelligent tags embedded in food packages or image recognition

- Has camera for sending still images to mobile phone, so that you know what to buy

- Can order automatically new food from local grocery store

- Can be programmed to ensure, that there is enough milk and beer for the weekend

- Can identify family members and refuses to open the door after 6 p.m. if dad is on diet

- Refuses to give beer for teenagers

- Alert serviceman automatically when
  there is an emerging technical problem
  (e.g. minor compressor malfunction)

- Send SMS alert to mother or father's
  mobile phone if temperature rises
  above +6 degrees.

Entertainment is THE business of future

- Movies, music, computer games, gambling.

- All kinds of content will move easily through the Internet.

Future mobiles:

- These mobiles would be equipped with the GPS (Geographical Positioning System)

- These may also have your Passport on it.

The Blue tooth technology would be used to send images, movies, data & etc through
your mobile anywhere in the world.

These developments of ICT can come into action in few years time.

Glossary:

1. **ICT:** Information& Communication Technology

2. **Acquired:** To obtain (something)

3. **Manufacturing**: To produce (goods) in large numbers, esp. in a factory using machines.

4. **CAD/CAM: Computer Aided Design/ Computer Aided Manufacturing**

5. **Interact:** to communicate with or react to (each other)

6. **Criteria:** a fact or standard by which you judge, decide about or deal with something

7. **Expertise:** (a person) having a high level of knowledge or skill; (a) specialist

8. **Flexible:** able to change or be changed easily according to the situation

9. **World Wide Web:** access millions of websites.

10. **Global Warming:** is a gradual increase in temperature caused by gases collecting in the air and other gases surrounding the Earth, which prevents heat escaping into space.

11. **Chlorofluorocarbons:** a type of chemical which is used for cooling air, as a cleaning liquid, for producing plastic foam, and for pushing out small drops of liquid from some types of can. There are various types of chlorofluorocarbon.

12. **Contemporary**: existing or happening now;

13. **Substantially:** to a large degree

14. **Conferencing:** an event, sometimes lasting a few days, at which there are a group of talks on a particular subject, or a meeting in which esp. business matters are discussed formally

15. **Integral:** necessary and important as a part of, or contained within, a whole

16. **Revolutionised:** completely new and likely to have a great effect

17. **Data:** information, esp. facts or numbers, collected for examination and consideration and used to help decision-making, or information in an electronic form that can be stored and processed by a computer