UNIT 1 – THE INFORMATION AGE

1.1 The Information Age

OBJECTIVES

- To be aware of key technologies used to convey information
- To be aware of how technology allows us to present information in different ways
- To understand how information can be shared quickly, allowing people greater interaction with others
- To understand some of the issues and challenges surrounding the use of technology

This unit has been designed to explore how the world we live in is constantly changing as a result of new technologies. We live in an age full of data and information which, in many cases, is crucial to our standard of living and overall quality of life.

Key Technologies

These are the key technologies that help to shape the way we live:

- **Internet**: The global **superhighway** that facilitates the transfer of data and information around the world. Like a spider's **web** it connects us all. Using **email** and **websites**, we can share images, sound files, textual documents and video files with people anywhere in the world as long as they have Internet access.
- **Multimedia**: This is the name given to systems that enable the interactive use of text, images, video, animations and sound. To be part of a multimedia system, the components must be created in or converted to a digital format (for example, sound must be in .mp3, .wav or other digital file format). A multimedia system is one in which previously diverse components converge into one fully **interactive system**.
- **Broadband**: This term comes from the expression 'broad bandwidth' and describes a high capacity communications link that connects the end user to multiple network suppliers. This system utilises **multiplexing** to enable the simultaneous operation of many channels or services on a single cable. This technology is fast and capable of transferring full motion video, voice communication and data over the Internet.
- **Wireless**: A radio-based system which allows the rapid transference of data and information without a physical connection. Wireless systems are becoming more common as people want to connect two or more computers to the same broadband connection but don't want to have trailing wires in their homes. A wireless system allows you to have one broadband **router** connected to your main computer with each additional computer having a small wireless interface

Tip:

Before we talk about some of the key technologies, here is a quick reminder that the work you complete on this course needs to be provided as evidence of your attainment. Look at Appendix A, 'Standard Ways of Working', and familiarise yourself with the section on 'e-portfolios'. This is very important because you need to learn how to collect information in an appropriate format.

adaptor. This adaptor enables the user to access the Internet just as if their computer were connected via a cable. If you have a **laptop** computer, you can even sit in the garden to do your ICT research on the Internet.

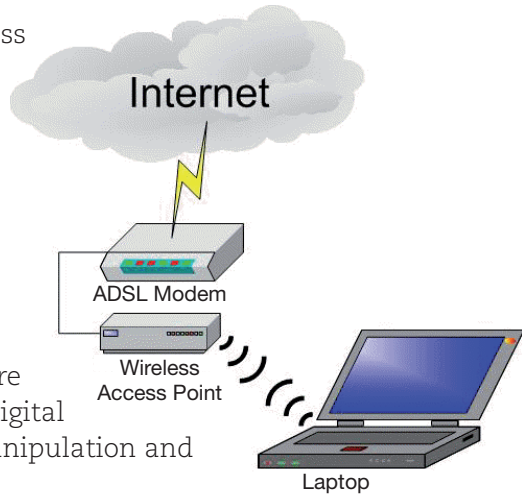

Figure 1.1

- **Digital television** and video: **DTV** stands for Digital television. This technology transmits a TV programme by encoding it in a digital format. DTV can be compressed and features better sound quality and a much higher picture resolution than previous television systems. Digital video refers to the capture, possible future manipulation and the storage of video in a digital format.

Portfolio Builder: ***Later in the course you will be constructing an e-book to describe and evaluate five different types of online service. Using the five subheadings from the bulleted list above, start reviewing these key technologies with a view to using your findings in your e-book. As an example, you may like to look at the growth of the Internet and see how this has affected the way we shop for merchandise.***

Opportunities created by the information age

In this section we will take a brief look at how ICT has revolutionised the way we live and work.

Presenting information in different ways

ICT provides a host of features which allow us to present information in exciting and eye-catching ways. For example, our reports might include imaginative text styles, graphics, colour and data presented as graphs and charts. In addition, the Windows environment allows us to switch between applications so we can manipulate data from a variety of sources. These features enable us to provide content-rich documents with a professional appearance. We will be investigating some practical examples later in the book.

Figure 1.2

Sharing information quickly

In the same way that ICT helps us to present our information, it also allows us to share that information more quickly and easily. The fact that our files are stored in a digital format makes the whole sharing process extremely flexible and seamless. For example, large files can be emailed across the world, facilitating collaborative work – colleagues can review important images, documents, sound files or video footage within a short time frame. If you compare sending an email

Figure 1.3

attachment and a fax, you can see that a fax would come a very poor second for sharing images and text; and sending sound and video files is simply not possible by fax.

Exercise

Why is it important that our documents look good and have a professional finish? What tools are available to help us achieve this? Make some comparisons between using a typewriter and a word processor to produce a document. What features are available in the word processor that make such a difference?

Exercise

Write a short article explaining why you think a graphic design company can be more efficient today than it was 20 years ago. You may need to conduct an Internet search to find information on this subject. Read the chapter on Internet research if you need help.

Greater interaction with others

Another obvious benefit that comes from using ICT effectively is the opportunity for greater interaction with other people and organisations. There was a time when marketing companies would have to print a full-colour copy of an advertisement, ship it by air to the client, wait for the client review panel to authorise the image and then receive the go-ahead to print. This process would be prolonged if the client had two offices in different parts of the world that both needed to see the proof. Nowadays, of course, this whole process is simplified and streamlined by the use of portable document formats (PDFs) and email attachments.

Business opportunities, large and small

Case Study

The following article supports the idea that all businesses, no matter what their size, can benefit from the effective use of ICT. Modern application packages such as word processors, databases, spreadsheets, presentation graphics, graphics software and video editing software all contribute to assisting companies with improving performance and efficiency.

'There is compelling evidence to show that businesses using ICT perform better and have more opportunities for growth. The Economist states that Broadband, currently the fastest growing area of ICT, will bring about the biggest behavioural shift since electricity. However there are many businesses in the community that do not fully appreciate the benefits ICT can bring.'

(Source: http://www.businesslinkwessex.co.uk/xpand/ downloaded 2005)

Exercise

Write a short article for a newspaper, highlighting why you think that ICT is becoming even more essential for business users than it has been in the past.

Virtual communities

The Internet has brought with it a variety of ways of communicating, including email, blogs, chat rooms, forums and news groups. Each of these services bring individuals and groups together and allows them to communicate more effectively. Like-minded individuals can create and use discussion areas where themes of mutual interest are discussed. For example, a family may have a child with a disability who will need specialist help throughout his or her life. In most cases there will be a specialist help group, whose members worldwide can offer advice and support via a dedicated website. The use of electronic noticeboards for these specialist groups allow people to post and receive messages relating to their queries and concerns. Special interest groups in thousands of areas, ranging from classic cars to the LINUX operating system, are catered for on the Internet. People 'meet' electronically on these specialist websites to discuss topics of common interest.

Exercise

In small groups, discuss how the internet has developed the world of communication. You will need to consider the differences between various communication methods including: email, blogs, chat rooms, forums and news groups.

Mobile technologies

The microchip, which is at the heart of all computers and ICT devices, is getting smaller. This means that previously 'desk-bound' computer systems are now

becoming mobile. State-of-the-art batteries with increased capacity and longevity, and highly durable materials including plastics and super-light metals are now being produced in large enough quantities to make them an economic option for use in ICT equipment. Add to this scenario our 'need' to be mobile (as opposed to being desk-bound), and you can see why mobile technologies are really accelerating forward. The creation of more mobile technologies is blurring the distinction between home and work, as ICT equipment from the workplace can be brought home and vice versa.

Exercise

Write a short article for an imaginary company newsletter illustrating how mobile computing has benefited the sales personnel who visit potential customers.

A self-service environment

ICT has revolutionised the way we make purchases and even the way we learn. It has created a self-service culture in which consumers carry out activities and transactions by themselves – these activities include shopping, banking and learning. Many petrol pumps have become automated to the extent that we can place a credit or debit card in the pump itself and avoid going to the service till. We can purchase goods in certain supermarkets by scanning the items ourselves and paying the bill at the same scanning terminal, without the intervention of another human! And the number of people who shop online is increasing all the time – Internet shopping tends to be cheaper and save time. We can also learn using interactive materials that don't involve face to face interactions with a human teacher.

The issues and challenges of the information age

It is important to develop your awareness of the issues and challenges that are as much a part of the information age as the benefits.

Figure 1.4

The need for lifelong learning

Most technological advances enable us to do things more efficiently; however, there is always a price to pay. In this world of change, it is essential that we continue to learn throughout our lives in order to keep our skills and knowledge up to date. Technology is moving so rapidly that we need to update our skills constantly in order to participate fully in daily life and work. ICT both creates the need for lifelong learning and enables us to do it more easily – providing a variety of learning sources including the Internet, electronic books, CD-ROM technology and interactive video. With every advance in technology we have to learn the skills that go with it. For some, this is a challenge, while others see it as an exciting opportunity.

Privacy rights

As we have seen, the digital age brings with it a fast-moving technology, allowing rapid file transfers over long distances – as soon as you click 'Send' it's gone! This

ease of communication brings with it the need to respect and protect personal privacy – both our own and other people's. There are now established laws regarding information exchange and we have rights of privacy when using the Internet. But there are always people who will try to break the rules and invade our privacy. For example, fraudsters who send spoof emails claiming to be from our bank and asking us to reveal our personal details and account numbers. These people are not only trying to invade our privacy, but also our pockets!

Copyright and legislation

ICT is making certain products, such as films and books, very portable as they are stored in digital format. Although they are often protected by copyright, it is very easy to transfer the files over the Internet illegally. The same is true for music CDs. When the CD format was invented, no one realised that quite soon most home computers would be equipped with writable CD systems. This has allowed people to make illegal copies of CDs quickly and easily. And now that MP3 files are widely available, a simple right-click and 'Save As' will capture a file from the Internet and store it on a hard drive in seconds. Do you think that the Internet and MP3 file formats could be contributing to increased copyright infringement?

Impact on employment

When ICT systems were first being introduced into the workplace, many people thought it would be the end of their jobs. There was much publicity about computers replacing people and many workers were worried about their future? For people who knew nothing about ICT it was even more worrying. They were the ones who felt the most vulnerable.

As time has passed, ICT has become almost universally accepted in the workplace. Workers know that companies need ICT systems in order to compete with other organisations both in this country and abroad. Companies nowadays are more likely to employ people who have good ICT skills; in addition they often ensure that the existing workforce is updated with new skills. The effective use of ICT within a modern business frees up employees to tackle the 'people intensive' problems and lets the computers get on with 'number crunching' activities.

The digital divide

The **digital divide** is the gap between people who have the equipment and the knowledge to use technology and people who do not have the technology or the education to be able to use it effectively. The digital divide also refers to the difference between different parts of the world – the areas with modern communications infrastructures such as telephone systems and electricity lines and those where such infrastructures are not fully in place. The digital divide will be discussed in more detail in later chapters.

Exercíse

What do you understand by the term 'digital divide'?