

SECTION 6 – The Effects of Using ICT

Software copyright



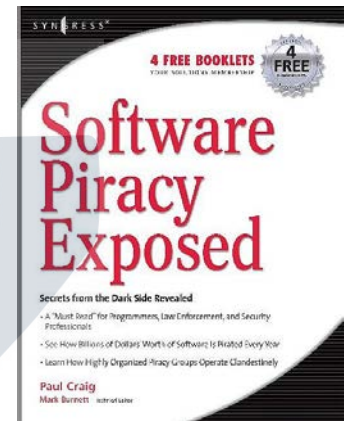
Software is covered by similar laws to those that protect books and other publications. For software, this is the Copyright, Designs & Patents Act (1998). It makes illegal the use of any commercial software that has not been purchased with an appropriate software license.

An organisation called FAST (the Federation Against Software Theft) has been set up on behalf of major software manufacturers to guard against theft and, where it can be proven that software is being used illegally (usually by a company) FAST takes action through the courts to sue for damages.

This is because illegal copying of software reduces the income of software companies. Having invested money in producing the software in the first place these companies need to earn income from software sales to recover these costs and make a profit.

There are some very serious sanctions which a court can impose on anyone breaking the law. These are:

- The copying or sale of copied software is punishable by a prison sentence of up to two years and a large fine.
- The possession of a device designed to copy software is punishable by a prison sentence of up to six months and a fine of up to £2000.
- Damages (in terms of money) can be awarded to a software company that has had its software copied.
- If the crime is committed by a company rather than an individual then the directors or other responsible members of the company can be held legally responsible.



Despite the fact that copying software is illegal many people still do it. Therefore some software companies use copy protection methods to make it harder to copy software. Software companies also use licensing agreements to restrict the use that customers can make of the software that they purchase.

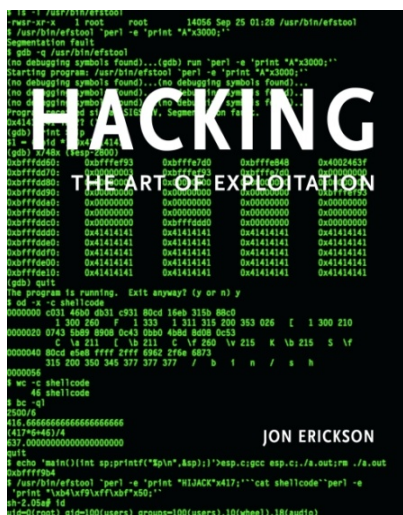
Security problems

The security of data means the protection of data. The term refers to all methods of protecting data and software from being lost, destroyed, corrupted, incorrectly modified or disclosed to someone who should not have access to it like a hacker.

Data is said to be corrupt if errors are introduced into it. Usually the errors have been introduced by faulty equipment or human error. Files may be in danger of accidentally or intentionally being:

- **Lost:** By losing discs, slid state media or tapes or because the file is in the system but badly named.
- **Destroyed:** By fire, flood or by deletion.
- **Corrupted:** By scratches on a disc, by faulty disc drives or when a computer is shut down accidently or if electricity cuts out.
- **Modified:** By being unintentionally written over, or for malicious reasons like fraud or by being updated with incorrect data.

Hacking



Hacking is attempting to gain unauthorised access to a computer without authority to do so. A hacker is a person who does this usually from outside with the use of a modem from their own home computer to connect to the computer being hacked. Hackers are associated with deleting, changing and copying and passing on private data. Before the 'Computer Misuse Act 1990' was introduced companies had to rely on older laws to try and stop hackers.

Computer Misuse Act 1990: The Computer Misuse Act of 1990 makes the misuse of a computer a criminal offence. It is essentially an anti-hacking law. The Act was created to criminalize unauthorized access to computer systems and to deter the more serious criminals from using a computer to assist in the commission of a criminal offence or from impairing or hindering access to data stored in a computer. The computer misuse act covers;

1. Unauthorised access to computer material with the intent of **copying and passing on private data**
2. Unauthorised access with intent to **delete files**
3. Unauthorised **modification (change)** of computer material

If unauthorised access to a computer system is achieved and this access is used to carry out any of the offences above then there are certain penalties e.g. a prison term of up to five years can be imposed as can a large fine.

Note: The attempt does not have to be successful. Simply trying to access a computer system that you do not have permission to access is illegal. Under this section of the Act simply trying to "guess" another user's password or trying to load a file that you do not have permission to load would be an offence.

Computer virus



A computer virus is a computer program that can copy itself and infect a computer without permission or knowledge of the user. The term "virus" is also commonly used to refer to many different types of malware and adware programs, although this is an error. The original virus may modify the copies, or the copies may modify themselves. A virus can only spread from one computer to another when its host is taken to the uninfected computer, for instance by a user sending it over a network or the Internet, or by carrying it on a removable medium such as a floppy disk, portable

hard disk, or USB drive. Meanwhile viruses can spread to other computers by infecting files on a network file system or a file system that is accessed by another computer.

Viruses are sometimes confused with computer worms and Trojan horses. A worm can spread itself to other computers without needing to be transferred as part of a host, and a Trojan horse is a file that appears harmless. Today's viruses may also take advantage of network services such as the World Wide Web, e-mail, Instant Messaging and file sharing systems, like Limewire, Kazaa and others to spread.

These malware programs are designed to damage the computer by damaging programs, deleting files, or reformatting the hard disk. Other malware programs replicate themselves and perhaps make their presence known by presenting text and video via pop-up boxes. Even these less sinister malware programs can create problems for the computer user. They typically take up computer memory used by legitimate programs. As a result, they often cause erratic behavior and can result in system crashes.

Spam

Spamming is the abuse of electronic messaging systems to indiscriminately send unsolicited bulk messages. While the most widely recognized form of spam is e-mail spam, the term is applied to similar abuses in other media: instant messaging spam, Usenet newsgroup spam, Web search engine spam, spam in blogs, wiki spam, mobile phone messaging spam, Internet forum spam and junk fax transmissions.



Spamming in different media

E-mail is an extremely cheap mass medium, and professional spammers have automated their processes to a high extent. Thus, spamming can be very profitable even at what would otherwise be considered extremely low response rates. An industry of e-mail address harvesting is dedicated to collecting email addresses and selling compiled databases.

Other types of spamming

- Instant Messaging Spam.
- Newsgroup spam and forum spam.
- Mobile phone spam.
- Online game messaging spam.
- Spam targeting video sharing sites.
- Spam targeting search engines.
- Blog, wiki, and guestbook spam.

Effect of IT on work & unemployment

You have read many positive and negative issues relating to the use of IT in our everyday lives. Now we will focus on the use of IT specifically in the working environment. The introduction of information technology is affecting the jobs of many people. Automation and the introduction of computers are part of a (continuing) dramatic change in business and industry.

How jobs are lost through IT

- Companies which introduce computers may hope to increase their output as a result and still employ the same number of people. However, if output stays the same they have to lay workers off because they need fewer people to do the same work.
- Companies which do not introduce computers often cannot compete and they may also have to make people redundant.



Examples where jobs are lost through IT are:

The electronic office

Using a word-processor and modern communications a secretary can get more work done and work is of better quality. This has however, led to job losses from typing pools which are where a group of typists work together on a job.

Automation of remote stations

Many workplaces, previously manned, are fully automated, e.g. telephone exchanges, waterworks many of which now only need to be checked occasionally, lighthouses and railway stations.

New computerised printing methods

Old typesetting methods are becoming obsolete. This is caused great problems in the newspaper industry. Desktop Publishing systems are making it easier to produce publications without expert help.

Teleworking: Working from home

Modern communications make it much easier for people to work from home. Working using a remote terminal is referred to as 'teleworking'. They can work on a freelance basis and may do work for several companies.

In order to do this type of work it is required they have; a telephone, a fax machine, a personal computer, a modem so as to work through the computer, email and teleconference facilities, as well as a room to use as an office.

Advantages of working from home

To employees

- There is no need to travel to and from work.
- They can work at hours of their own choosing and can see more of their family.

To employers

- The workers are more contented.
- There is no need to provide work space to rent, heating and lighting.
- The employee is easier to contact at home than when on the road.

Disadvantages of working from home

To employees

- People working from home may work very long hours.
- The teleworker has to provide equipment and office space.
- There is no substitute sometimes for meeting colleagues in person.
- Might lapse into bad habits if left to own devices.

To employers

- There is a security risk with confidential company information being distributed around the country in people's home.
- They are not able to keep a close eye on what employees are doing.



The effects of microprocessor-controlled devices



An embedded system is a special-purpose computer system, which is completely encapsulated by the device it controls. An embedded system has specific requirements and performs pre-defined tasks, unlike a general-purpose personal computer.

An embedded system is a computer-controlled system. The core of any embedded system is a microprocessor, programmed to perform a few tasks (often just one task). This is to be compared to other computer systems with general purpose hardware and externally loaded software.

Embedded systems which can be found in the home

- Home automation products, like thermostats, air conditioners, and security monitoring systems.
- Household appliances, including microwave ovens, dish washers, washing machines.



Benefits of Information Technology at home

There is no question that the use of the embedded devices listed above have many benefits, these include;

- Increased leisure time/free time/more time to do other things.
- Increase in social interaction.
- Can go out whenever they want.
- Although TV dinners can lead to an unhealthy diet – it does allow eating when there is little time.
- Better quality meals – easier to prepare exotic dishes.

Disadvantages of Information Technology at home



Dependency:

An increasing dependency on embedded systems can be a problem. It used to be the case that a typical householder could make minor repairs to a malfunctioning machine.

Isolation:

Home-based systems (smart homes) make it increasingly possible to live one's life without leaving the home.

People can work from home, shop from home, download whatever videos they wish to watch and communicate via email. Some analysts have suggested it leads to a greater degree of social isolation.

Cost:

All of the possibilities offered by digital technologies come at a price. Although computer-based systems are becoming more and more affordable for an increasing number of people, it is still the case that, many are excluded from the 'technology revolution' due to lack of financial resources.

Eye Strain



Eyes can become strained after staring at a computer screen for a long time, particularly if working in bad light, in glare or with a flickering screen. Fortunately, eyestrain is usually a temporary problem.

The symptoms include:

- Burning or itching eyes
- Blurring or double vision
- Headache
- Nausea (sickness)
- Fatigue

Solutions:

- Screen filters can remove a high percentage of the harmful rays emitted from a computer screen.
- Use screens that do not flicker, by altering your monitors screen refresh rate.
- Take regular breaks - do not work for more than one hour without a short break.
- Keep your eyes at least 18 inches from the screen.
- Regularly look away from the screen and focus on something in the distance.
- Lighting must be suitable and blinds fitted to windows to reduce glare.
- Have regular eye tests.
- All new monitors must comply with EU standards which ensure that radiation emissions are as low as possible.

Safety issues relating to using ICT

Safety regulations provide legal guidelines for what constitutes a safe working environment. Laws have been passed to ensure that employers provide a safe working environment for anyone who works with computers. There is also a requirement that employees do the following:

- Use workstations and equipment correctly and follow the training provided by their employers.
- Inform their employer of any problems relating to Health and Safety as soon as they arise.

Workplace Safety

Don't forget that rules for all electrical appliances apply in a computer room. This means:

- There should be no trailing wires.
- Fire extinguishers should be available.
- Food and drink should not be placed near a machine.
- Electrical sockets must not be overloaded.
- There must be adequate space around the machine.
- Heating and ventilation must be suitable.
- Lighting must be suitable with no glare or reflections.
- Benches must be strong enough to support the computers.



Ergonomics

This is the science concerned with designing safe and comfortable machines for use by people. This includes furniture design and the design of peripherals that you need to use, such as mouse and keyboard.

Social networking websites

Facebook



Facebook is a social networking website launched on February 4, 2004. The free-access website is privately owned and operated by Facebook, Inc. Users can join networks organised by city, workplace, school, and region to connect and interact with other people. People can also add friends and send them messages, and update their personal profile to notify friends about themselves.

Facebook has met with some controversy over the past few years. It has been blocked intermittently in several countries including Syria and Iran. It has also been banned at many places of work to increase productivity. Privacy has also been an issue, and it has been compromised several times.

Website: Facebook users can choose to join one or more networks, organised by city, workplace, school, and region. These networks help users connect with members of the same network. Users can also connect with friends, giving them access to their friends' profiles. The website is free to users, but generates revenue from advertising, including banner ads. Users can create profiles including photos and lists of personal interests, exchange private or public messages, and join groups of friends.

Controversy: Due to the open nature of Facebook, several countries have banned access to it including Syria and Iran. The Syrian government cited the ban was on the premise that the website promoted attacks on authorities. Facebook was also used by Syrian citizens to criticize the government, and public criticism of the Syrian government is punishable by imprisonment. In Iran, the website was banned because of fears that opposition movements were being organised on the website

Hi5 is also a social networking website, which, throughout 2007, was one of the 25 most visited sites on the web. The company was founded in 2003 by Ramu Yalamanchi who is also the current CEO. As of April 2008, hi5 claimed to have over 1 million registered members. This was blocked by proxy servers in Saudi Arabia.

Myspace



MySpace is a popular social networking website offering an interactive, user-submitted network of friends, personal profiles, blogs, groups, photos, music and videos for teenagers and adults internationally.

Twitter



Twitter is an online social networking service and microblogging service that enables its users to send and read text-based messages of up to 140 characters,

known as "tweets". It was created in March 2006 by Jack Dorsey and launched that July. Twitter has become one of the top 10 most visited websites on the Internet, and has been described as "the SMS of the Internet." Unregistered users can read tweets, while registered users can post tweets through the website interface, SMS, or a range of apps for mobile devices.

Tweets are publicly visible by default; however, senders can restrict message delivery to just their followers. Users can tweet via the Twitter website, compatible external applications (such as for smartphones), or by Short Message Service (SMS) available in certain countries.

Twitter allows users the ability to update their profile by using their mobile phone either by text messaging or by apps released for certain smartphones and tablets. **Read more:** <http://en.wikipedia.org/wiki/Twitter>