

1.6.1 Ethical, legal, cultural and environmental impact

Ethics refer to what is right and wrong and how people should behave. Computer organisations have codes of conduct that prescribe suitable ethical behaviour for its members.

Legal issues are laws drawn up to govern activities and control computer crime such as:

- unauthorised access to data and computer systems for the purpose of theft or damage
- identity theft
- software piracy
- fraud
- harassment, such as trolling.

Culture refers to the ideas, behaviour, beliefs and values of a group of people. Cultural issues relate to how computers have impacted our lives, including:

- the widespread use of 'disposable' digital devices
- the ways in which people interact with each other – for instance, social media
- changes in the workplace
- replacing human roles in organisations
- changing human roles within organisations
- widespread data collection about individuals
- access to entertainment and social interaction
- workforce monitoring.

The negative environmental impacts of widespread computer use include:

- large global energy requirements to run computer systems and data centres
- the use of rare and non-renewable metals and minerals
- some computer components are made from toxic materials that are a hazard to the environment and to human health if not disposed of properly.

The positive environmental impacts of widespread computer use include:

- homeworking reduces the need to travel, which reduces CO2 emissions
- more on-screen documents means a reduction in the use of paper and other resources
- computers enable scientific research that leads to more environmentally friendly technologies, such as electric cars, the design of solar panels, and so on

Using computers raises concerns about individual rights to privacy. Ways in which individuals are monitored include:

- Companies can monitor exactly what their workforce are doing on their computers.
- Use of CCTV and facial recognition.
- Automatic number plate recognition (ANPR).

- Websites can track a lot of information about your internet activities: your location, your browser, this data might be used to provide insights, for example to target advertising.
- Mobile phone call records are also stored and can be accessed by law enforcement agencies if requested.

The Data Protection Act 2018 sets out seven key principles that should be central to processing personal data:

- lawfulness, fairness and transparency
- purpose limitation
- data minimisation
- accuracy
- storage limitation
- security
- accountability

Computer Misuse Act 1990 - this act makes it a criminal offence to access or modify computer material and includes hacking and the distribution of malware.

Copyright Designs and Patents Act 1988 - Protects the intellectual property of an individual or organisation making it illegal to copy, modify or distribute software or other intellectual property such as music and video.

Proprietary software is written by organisations trying to make a profit.

- The source code is kept securely and versions of the software are distributed as executable programs so that the user is not able to access the source code or modify it.
- The software is copyright protected, making it illegal to modify or distribute it.
- The software is usually licensed for a fixed number of computer systems.
- The software is fully tested and supported by the organisation.

Open-source software uses a community of developers. Software developed under open standards makes the source code available to everyone.

- It is developed and updated by a community of programmers.
- It can be installed on as many computers as necessary.
- Others can modify the code and distribute it.
- Versions are made available at no or very little cost.
- It relies upon the community for testing and support; modified versions may not be supported or fully tested.