

Impacts of Technology

Key Words

artificial intelligence	A section of Computer Science that is concerned with making computers behave and act like humans.
censorship	Control over what people can access with technology (e.g. by governments).
Computer Misuse Act (1990)	Legislation to protect computer users against wilful attacks and thefts of information.
Copyright, Designs and Patents Act (1998)	Legislation that protects the intellectual property of an individual making it illegal to copy, modify or distribute the IP without permission.
cultural	The issues related to society and how technology can affect religious or social ideas.
Data Protection Act (1998)	Legislation that sets out the requirements for the control of and access to stored data about an individual.
digital divide	The gap between those who have access to the latest technology and those who do not.
ethics	Relates to right and wrong but in a moral sense than a legal sense.
intellectual property (IP)	Innovations and creative work that belong to a person or company.
legislation	Laws that relate to how computers can be used.
privacy	A state in which one is not observed or disturbed by other people.
stakeholder	The people or groups affected by a particular situation

Ethical

- Ethics is about what is considered right and wrong by society.
- If a company does not behave in an ethical way it might make their customers lose trust in them.
- Issues such as cyberbullying, trolling and the use of social media can raise ethical issues.
- Privacy: Users trust companies to keep their data private so companies need to take care of it
- Censorship: is when a country or organisation controls what people can access on the internet.
- Surveillance: when someone is monitored using technology.

Environmental

- Computing devices contain raw materials
- Devices use lots of energy when turned on
- E-waste is when we throw away devices because they are broken or because we want to upgrade
- E-waste can lead to pollution
- The Waste Electric and Electronic Equipment (WEEE) directive has rules for how devices should be disposed so that they're recycled/disposed of safely
- Devices can also have a positive impact on the environment – eg video calls rather than travelling a long distance causing pollution.

Stakeholders

The people or groups affected by a particular situation

Cultural

- One cultural issue in computing is the Digital Divide. Some people do have access to technology, others don't
- Not having access to technology can be a disadvantage as it limits access to information, online learning, online banking, communication etc.
- The digital divide can be due to people not having enough money to buy devices or due to living in places without internet access, or not having the skills to use the technologies available.
- Technology has also impacted how businesses run as many now use online shops and services

Society

- Customers can do more from home with less travelling involved. They can do things 24/7. They can access their data on many devices. Computers can make instant decisions without human involvement.
- Job losses as things become more automated. New types of jobs created that didn't previously exist.
- Less overheads (salary, rent, utility bills) if fewer staff and buildings required. More ways to target potential customers.
- Local shops may suffer as town centres are more empty. The elderly and vulnerable have nowhere local to go as local services are scaled back.

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Extended Reading



Exam Questions



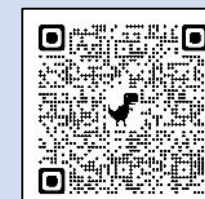
Video



Revision Techniques



Quizlet



Specification



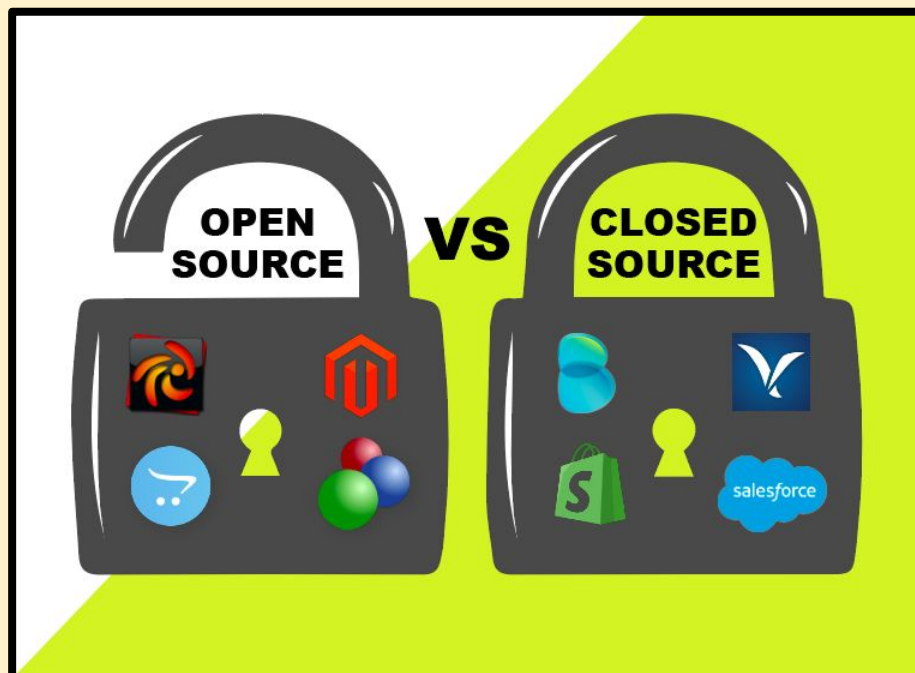
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Legislation relevant to Computer Science

Act	Details
The Data Protection Act (1998)	Sets out how data users who store data about individuals must use that data. It is a set of 8 principles which say how data must be collected, used and destroyed.
Computer Misuse Act (1990)	Introduced to deal with the increase in computer hacking in the late 1980s when home PCs started to become popular. It aims to protect computer users against wilful attacks and thefts of information. The Act makes it illegal to: → Gain unauthorised access to a person's data → With the intention of breaking the law further → To delete, alter or sabotage by introducing viruses
Copyright and Design Patents Act (1998)	Provides the creators of intellectual property (ideas = IP) with proof of ownership, and the exclusive rights to use that idea, and distribute their work. It makes it illegal to copy, modify or distribute the IP without permission.

Data Protection Act (8 Principles)

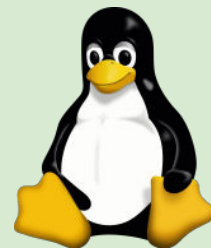
1. Data must be kept secure
2. Data stored must be relevant
3. Data stored must not be kept longer than is necessary
4. Data stored must be kept up to date and accurate
5. Data must be obtained and processed lawfully
6. Data must be processed within the data subject rights
7. Data must be obtained and specified for lawful purposes
8. Data must not be transferred to countries without adequate data protection laws



Open Source v Proprietary (Closed) Source

Open source software is freely available so others can use it. Users can access and modify the source code and create their own versions

Examples: Linux, Firefox, Android OS



Proprietary software is not freely available. The compiled code is secured and the user must use the software as provided. Any attempts to modify, copy or redistribute the software is a breach of copyright.

Examples: Microsoft Office, Photoshop, MacOS



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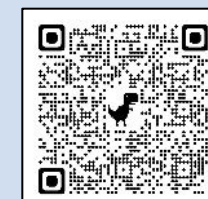
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