

# Knowledge Organiser

Learning Aim C: Implications of Digital Systems

# 01 | Sharing Data

## Key Terms

<b>GPS</b>	Stands for Global Positioning System. A navigational system that uses satellite data to calculate a device's location.
<b>Shared Data</b>	Data about an organisation or individual that is stored or used by another organisation or individual.
<b>Data Subject</b>	The individual whose personal data is being stored.

## Transactional Data

Many things that you do generate **transactional data**, such as buying something online. Transactional data is when this is used for **an additional purpose**.

For example, sales data might be used to **adjust** manufacturing or for promotions.



## Advantages of Sharing Data

## Disadvantages of Sharing Data

Allows for easier collaboration through to work in real-time.

Data must be protected by law. E.g. copyright, GDPR.

Using shared data reduces costs, e.g. sharing music.

Data can be damaged in moving or may be irrelevant.

Why does shared data have to be used responsibly?

## Uses for location data:



Navigation

Targeted ads

'Find My Friend'

Opening times

Legal








Privacy



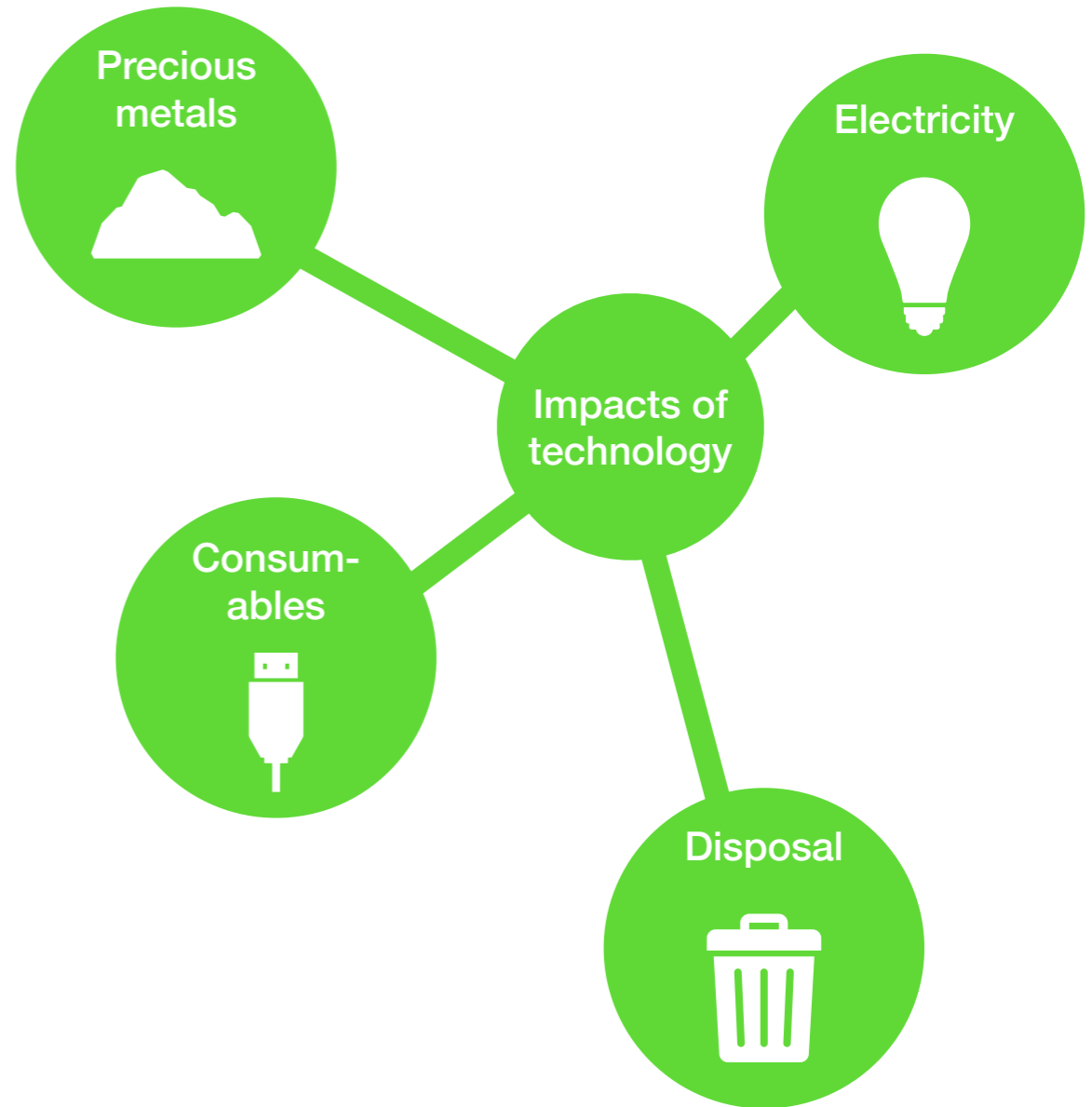
Ethical



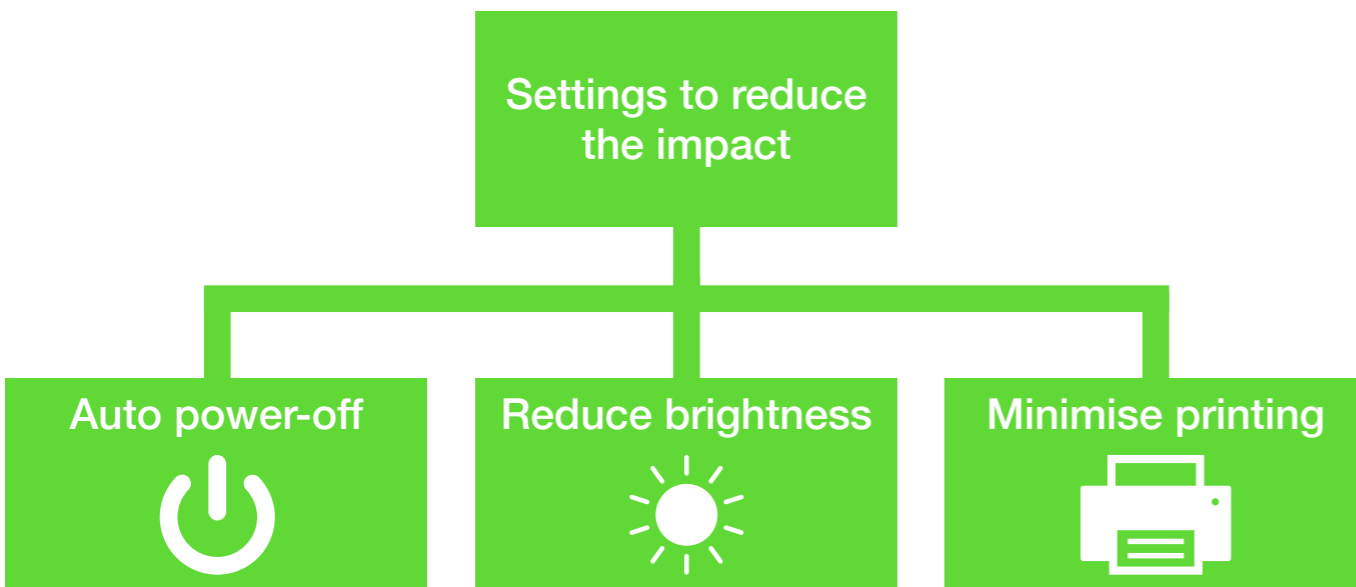
	Benefit to Organisations	Benefit to Individuals	Benefit to Society
 Email	Fast communication with customers and other stakeholders.	Faster and cheaper than letters and easy to include images with no printing.	Easier to keep in touch with friends and family in a way that is not restricted by time.
 Online Information	Competitor information, e.g. pricing is easily accessible.	Research is much easier with more information at your fingertips.	Access to a wide variety of information and online courses.
 Online Shopping	Brings an organisation's products and services to a wider market.	Convenience for individuals who can shop 24/7 and access a wider range of products.	An online business does not require as much money and can be easily set up.
 Online Chat	Online chat systems allow employees to communicate remotely and share ideas.	Online chat brings people closer together and can help those who are lonely.	Enables people in society to find and connect with others who share similar interests.
 Streaming	Access to pre-made resources easily and cheaply.	Downloading media, such as music and games, at any time of day and often cheaper.	Access to content from around the world, increasing culture.

# 03 Technology and the Environment

Benefits of Technology on the Environment	Drawbacks of Technology on the Environment
Electronic communication means less paper and ink are used.	Digital devices consume electricity (fossil fuels).
Digital devices can be used to monitor the environment.	Computers are hard to dispose of, ending up in land fill.



Environmental Impacts of a Computer	
<b>Making</b>	Manufacturing a computer requires precious metals,
<b>Using</b>	A desktop computer uses an average of 200 watts.
<b>Disposing</b>	Old computers require specialist disposal.



Upgrading	vs	Replacing
The organisation upgrades the components in its computers, e.g. memory.		The organisation replaces its entire computer systems.

## Legislation

Laws are created to make individuals or groups behave in a specific way. They are updated and reviewed regularly. If you break a law you could be punished a fine or even prison.



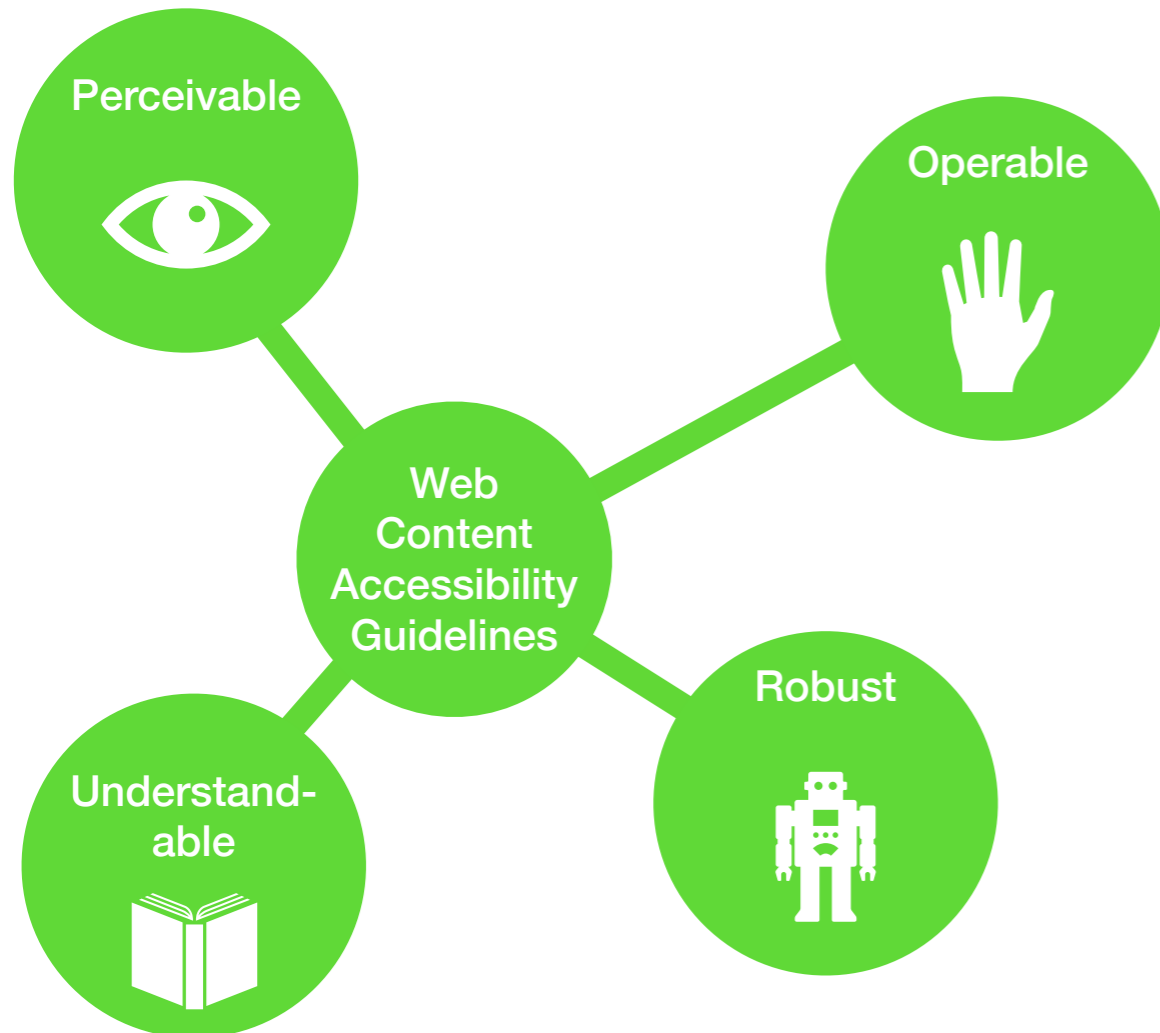
## Professional Guidelines

Professional guidelines are what govern a profession (e.g. teacher or doctor). They define how a professional should behave and the consequences for not doing (e.g. revoking a medical license).



## Accepted Standards

These are often developed over time and tend to be examples of best practice. They are not enforceable by law but are instead based on ethics.



## Legal requirements of an organisation:

**Race/religion**  
Organisations cannot discriminate in hiring because of the colour of someone's skin or their faith.

**Disability**  
Organisations should provide adequate accessibility tools for all employees to complete their job if they have a disability.

**Offensive content**  
Organisations cannot produce content that is offensive to a group or individual.

**Equality**  
Organisations cannot discriminate in hiring because of someone's age or their gender.

**Net neutrality** is the ability to pick any available product or service without choices being filtered or influenced by an **ISP (internet service provider)**.

A basic principle of the internet is that **all data is treated equally**. This means ISPs cannot block or slow down access to a particular source of data.

Popular ISPs  
(internet service providers):



### The UK

In the UK different ISPs are able to offer a range of packages that limit overall internet speeds.

These ISPs cannot prioritise speeds for certain types of data (e.g. streaming video services) or block access to rival websites because they have been paid to do so by a competitor.

ISPs cannot charge customers more for accessing particular websites.



### Advantages of Net Neutrality

Prevents user choice being limited to what the ISP allows them to see.

Allows smaller businesses to compete more fairly with larger businesses.

Prevents free speech through social networks being blocked/filtered.

Prevents monitoring of users' online traffic and it being sold to advertisers.

### Disadvantages of Net Neutrality

Prevents the development of better (faster and more reliable) services.

Reduces ISP profits, which could be used to provide free internet.

Prevents ISPs from blocking illegal or dangerous content.

Prevents ISPs from charging for more resource-hungry traffic.

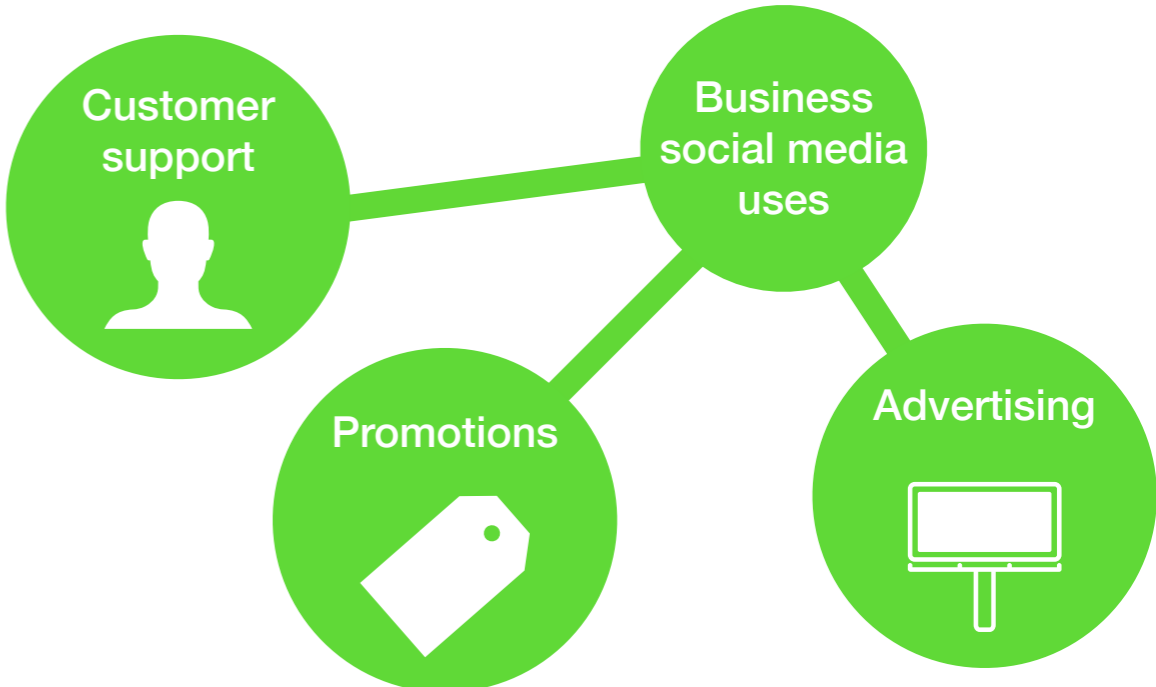
# 06 Acceptable Use Policies

Organisations create and enforce an **acceptable use policy (AUP)**. The AUP is designed to outline the ways in which an IT system can be used. It also provides a list of **restrictions** and potential **sanctions** that can be applied if the rules are broken.

AUPs can apply to **internal users** or **external customers**. An AUP may also cover employees accessing an organisation's network remotely.

Acceptable Use Policy Contents	
<b>Scope</b>	Who the document applies to (e.g. employees). What the document covers and when it is in effect.
<b>Assets</b>	What is covered by the document (e.g. equipment, email). Often includes sensitive business information.
<b>Behaviours</b>	Behaviours expected by employees (e.g. honesty, loyalty). Unacceptable behaviours (e.g. bullying, harassment).
<b>Monitoring</b>	How the organisation monitors employee behaviour (e.g. electronic passes, CCTV, internet monitoring).
<b>Sanctions</b>	Punishments for breaking the acceptable use policy (e.g. written warnings, termination, legal action).

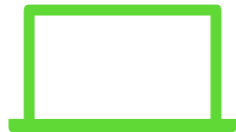
Benefits of Acceptable Use Policies	Drawbacks of Acceptable Use Policies
<p>Users know what is expected of them, which means they pose less risk to the network.</p> <p>Sets out the disciplinary action to be taken when users don't follow the rules of the policy.</p>	<p>Reduces trust between the organisation and its users, especially existing users.</p> <p>An acceptable use policy is completely voluntary and has no legal standing.</p>



# 07 Data Protection Principles

## Capturing Data

Data must only be captured for a specific purpose. It must be adequate and relevant to that purpose. Data must also be accurate and kept up to date, with subjects able to withdraw their consent.



## Processing Data

Data must be processed fairly and lawfully, to protect the rights of data subjects. Data captured for one purpose must not be used for another. Data must be processed securely.



## Storing Data

Data must not be kept for any longer than necessary. Organisations must take responsibility for safely storing data and prevent its loss/damage. Individuals have the right to find out what data is being stored about them.



## Legislation

### Data Protection Act

A UK law, active since 1998. It stipulates how data should be collected, used and handled in the United Kingdom only.

### GDPR (General Data Protection Regulation)

A European Union law, enacted in 2018, that covers all customers in the region, even if the organisation is not based there.

## Advantages of Data Protection

Individuals maintain the rights over the data that organisations stored about them.

Those who break data protection laws face heavy fines or even imprisonment.

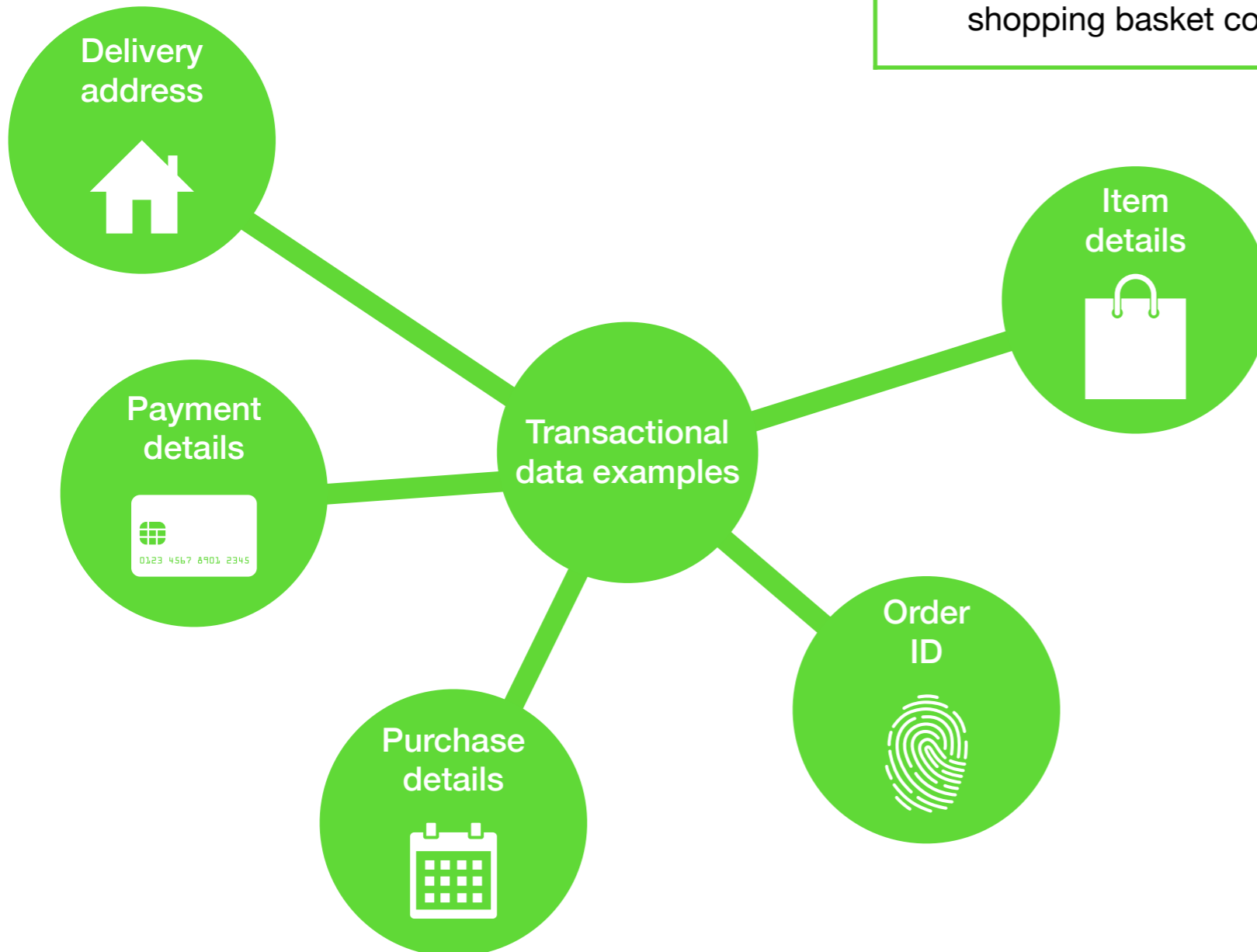
## Disadvantages of Data Protection

Data protection laws are difficult to enforce. Many organisations hold data but don't follow these laws.

Conviction rates for data protection breaches are still low, suggesting data protection laws are routinely broken.



Your digital footprint is the trail you leave when visiting different websites on the internet.



First Party Cookies	vs	Third Party Cookies
Are generally legitimate and harmless. They are used by a single website to store data for that website, like user preferences or shopping basket contents.		Track online activity across websites. These are typically used by advertisers to track user interests and target ads. They can be blocked by web browsers.

### Right To Be Forgotten

The **right to be forgotten** is a legal concept. It means an individual is free to pursue their life without being **treated unfairly** because of a specific action taken or comment made in their past.

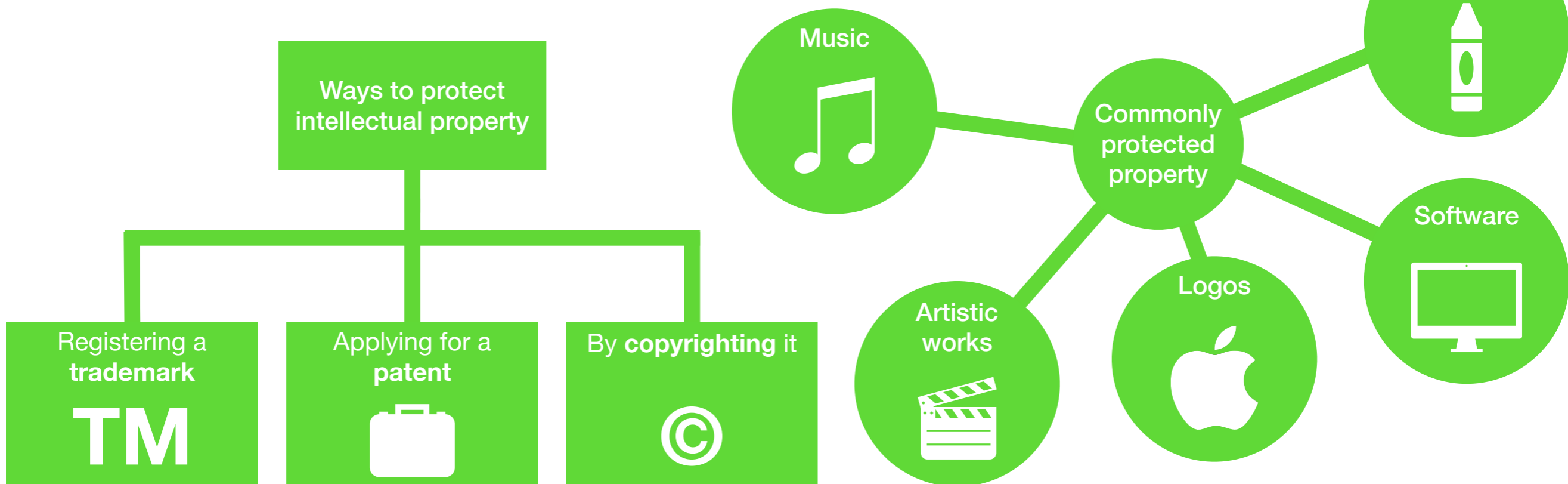
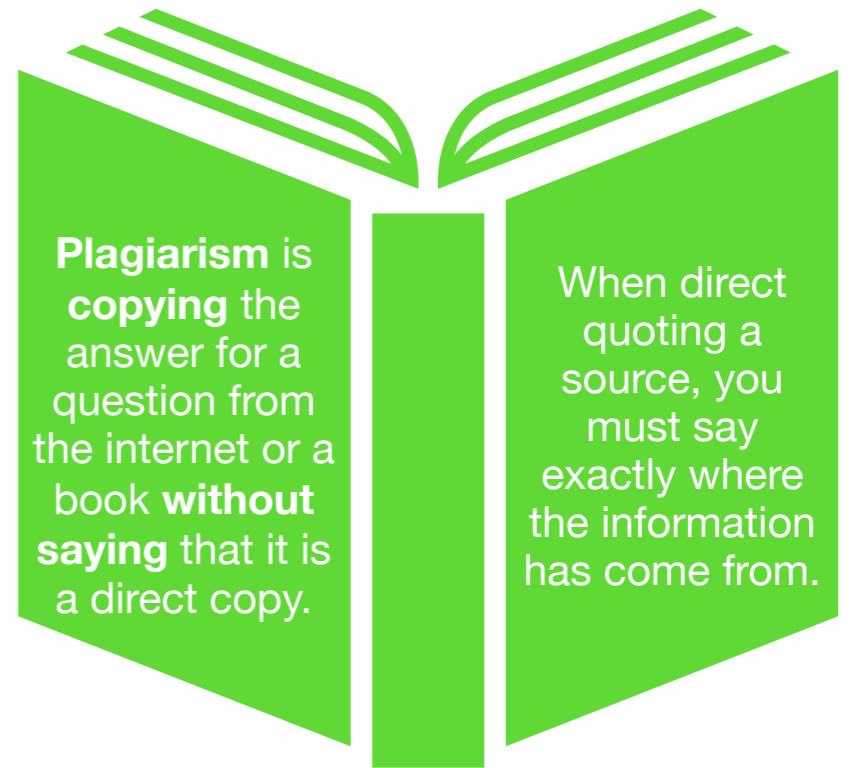
The EU has adopted the **right to erasure** of data. This can result in an individual asking an organisation to remove any copies of, or links to, information held about them.

Organisations should tell third parties who may also have copies or links to erase them.



## Key Terms

<b>Trademark</b>	The recognisable design, words or symbols that have been legally registered by a company or individual for a company, product or name.
<b>Patent</b>	The exclusive rights granted to a person or organisation for a specific idea, design or invention.
<b>Copyright</b>	A legal right protecting the use of your work. There are different rules about how and when your work could be used.
<b>Plagiarism</b>	Copying someone else's work or intellectual property without acknowledging them, claiming it as your own.



# 10 Criminal Use of Systems

## Pattern of infection:

User clicks a link

Infected file is downloaded

Infected file is opened by user

Malware activates quietly and infects other files on the computer

Malware takes action, e.g. deletes files, sends emails, encrypts data

## Main Areas of Criminal Computing Activity

<b>Unauthorised access</b>	Criminals identify a system's weaknesses and use them to gain access to the system for criminal use.
<b>Unauthorised modification</b>	When they have access to a system, criminals change files, like documents or web pages for their own gain.
<b>Creation of malware</b>	Malware, like viruses or ransomware are written with the intention infect systems for damage or financial gain.
<b>Spreading of malware</b>	Malware is intentionally spread via the internet or through the use of USB devices. This spreading of malware is malicious.

