Managing Data and its Implications

Lecture Title: General Data Protection Regulation

Lecturer: Angelito Sciberras

Date: 28 February 2026

Undergraduate Diploma

Last Lectures

- What constitutes data - Qualitative vs Quantitative data
- Different types of data and how they're measured
- Storage
- What is big data and the 7Vs of big data
- How companies use big data and data using different tools
- Why data has become important
- Profiling - Demographic, Psychographic, Geographical, Behavioural
- Digital Footprint
- Risks with data at companies
- Phishing and Spear Phishing

Question 01

What is the definition of profiling in marketing?

A) Profiling involves creating a detailed analysis of a target market's shopping preferences.

B) Profiling refers to the process of developing a comprehensive understanding of a consumer's behavior, interests, and demographics.

C) Profiling entails selecting specific individuals for promotional activities based on their social media activity.

D) Profiling is a technique used to determine the effectiveness of marke campaigns through customer feedback analysis.

Question 02

Which of the following is NOT a type of consumer profiling ?

A) Demographic

B) Geographic

C) Photographic

D) Behavioural

Question 03

What is the definition of a digital footprint?

A) A digital footprint refers to the physical hardware used to access the internet, such as computers, smartphones, and tablets.

B) A digital footprint is the trace or trail of data that is left behind by an individual's online activities and interactions.

C) A digital footprint is a measurement of internet speed and connectivity in a specific geographic area.

D) A digital footprint is a type of encryption method used to secure online transactions and communications.

Question 04

What is Phishing?

A) A fishing technique for seafood.

B) A fraudulent attempt to obtain sensitive information.

C) Competitive swimming for catching fish.

D) A method of preserving seafood.

Question 05

How does spear phishing differ from phishing?

A) Phishing targets many with generic messages, while spear phishing targets specific individuals with personalised messages.

B) Phishing uses physical bait, while spear phishing uses digital traps.

C) Phishing involves open-water fishing, while spear phishing uses spears in shallow waters.

D) Phishing is sending emails to friends, while spear phishing involves genuine offers to strangers.

Question 06

What is the definition of business email compromise (BEC)?

A) BEC is a practice of compromising physical business premises to steal confidential information.

B) BEC is a strategy for enhancing workplace efficiency through email automation.

C) BEC is a form of cybercrime where attackers impersonate legitimate businesses or employees to deceive individuals into transferring money or sensitive information.

D) BEC is a method of negotiating business deals exclusively through email communication.

Managing Data and its Implications

Lecture Title: General Data Protection Regulation

Lecturer: Angelito Sciberras

Date: 28 February 2026

Undergraduate Diploma

to give individuals more control over their personal data

GDPR

- May 2018 replaced Directive 95/46/EC
- applies to any organisation, regardless of their location, that processes the personal data of EU citizens
- severe fines - up to €20 million or 4% of the organisation's annual global turnover
- major catalyst for organisations worldwide to take data protection seriously and implement stricter privacy policies and practices

What was different from 1995?

Directive 95/46/EC

Macintosh Performa 6200

IBM Personal Communicator

Kodak DCS 460 Camera

Iomega Zip Drive

Motorola Tango Pager

IBM ThinkPad 701C

Sony Handycam DCR-VX1000

DVDs

GDPR vs Directive 95/46/EC

- Data was less portable
- Data was less accessible from the outside world
- No social media
- No emails
- No cloud storing
- Paper filing was still common practice

GDPR vs Directive 95/46/EC

- Less risk of data breaches
- Less risk of identity thefts

Data Breaches

Give examples of data breaches

How do they happen?

Data Breaches

a breach of security leading to the accidental or unlawful

- destruction,
- loss,
- alteration,
- unauthorised disclosure of, or
- access to,

personal data transmitted, stored or otherwise processed.

Data Breaches

Ransomware (inaccessible files)

Business Email Compromise

Stolen information

Password Guessing

Distributed Denial of Service (Ddos Attack) (crash servers)

Malware (control over device)

Keystroke loggers

PHISHING

Data Breaches

Lost or stolen devices

Sending an email with multiple recipients not in BCC

Email sent to the wrong recepient

Accidental destruction of data

Unintended publication

Data of wrong person shown

Data Breaches

August 2013 - 3 billion accounts

- names
- email addresses
- telephone numbers
- dates of birth
- hashed passwords
- in some cases, security questions and answers.

https://www.csoonline.com/article/2130877/the-biggest-data-breaches-of-the-21st-century.html

Data Breaches

January 2018 - 1.1 billion Indian citizens

- Aadhaar numbers
- names
- addresses
- telephone numbers
- other personal details

https://www.csoonline.com/article/2130877/the-biggest-data-breaches-of-the-21st-century.html

Data Breaches

November 2019 - 1.1 billion

- user IDs
- mobile numbers
- purchasing details

https://www.csoonline.com/article/2130877/the-biggest-data-breaches-of-the-21st-century.html

In 2025

- The number of cyberattacks increased significantly - by 20% globally when compared to 2024

- Phishing attacks being the most common types of attacks and has seen the use of AI for such attacks

In 2025

- Stolen or compromised credentials were the leading cause of data breaches. with report noting an incident “every few hours” in so regions

- The Education and Research remained intensively targeted, with high attack frequencies reported, similar to the 2024 pattern of increased targeting around 53% increase in attacks, while the Government/Military and Healthcare sectors also saw significant rises.

In 2025

- Remote work and the use of personal devices for work purposes contributed to the increase in cyberattacks.

- Small and medium-sized businesses were targeted more frequently

Data Breaches

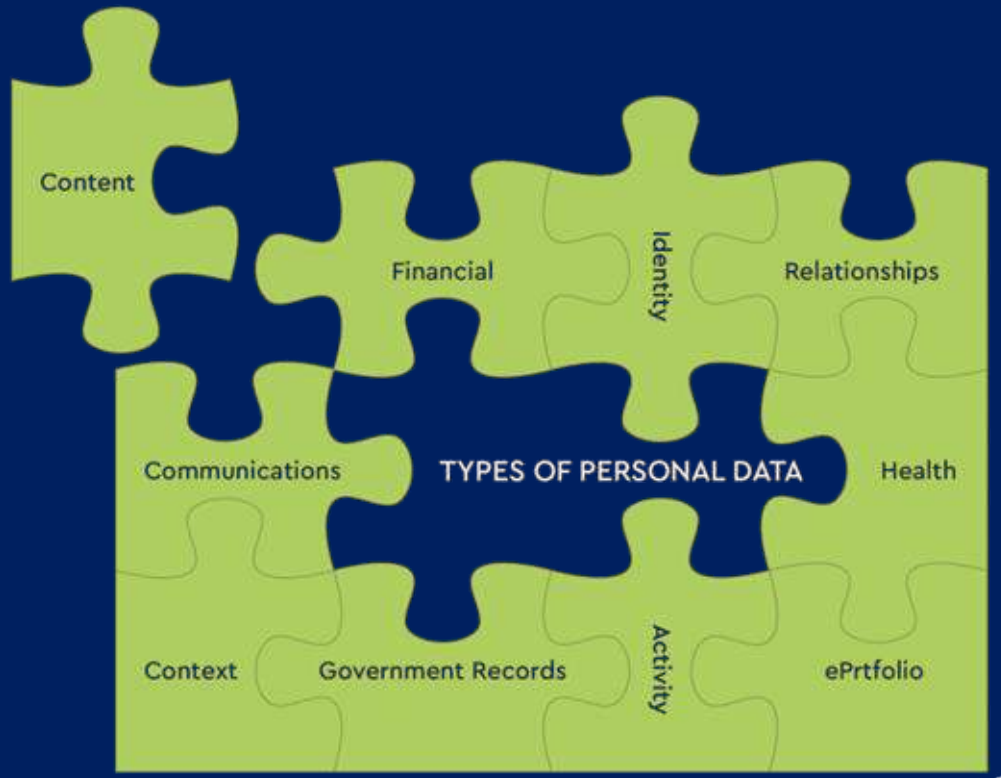
Use search engines and/or AI to make a list of data breaches in the month allocated to the group for the following sectors:

Education
Health
Finance
Information Technology

classify them by impact level and compromised data types

Identity Theft

all types of crime in which someone wrongfully obtains and uses another person's personal data in some way that involves fraud or deception, typically for economic gain.



Identity Theft

Identity Theft

https://www.realfakedocument.com/product/maltese-id-card/

21 ACADEMY

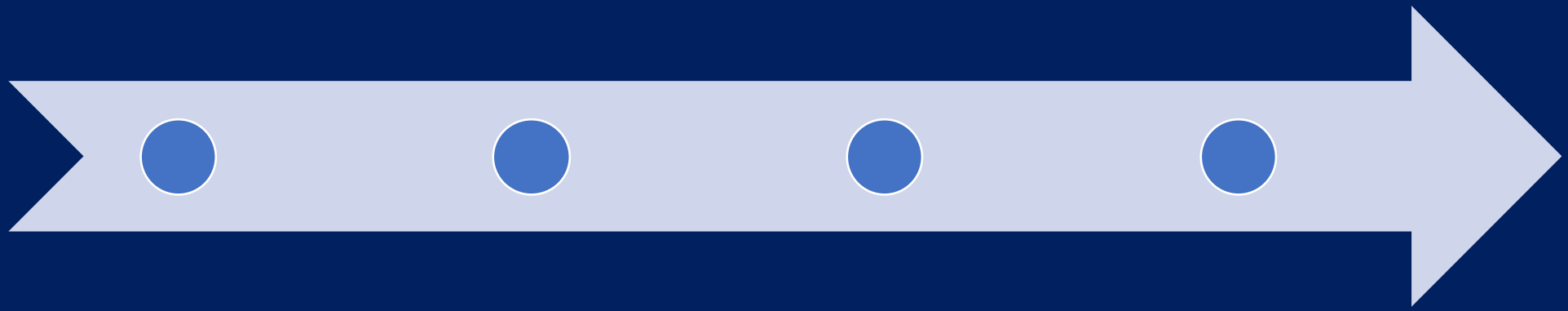
Undergraduate Diploma

21 ACADEMY

Undergraduate Diploma

How can data breaches be mitigated?

How can data breaches be mitigated?



21
ACADEMY

GDPR

- Same legislation in all EU Member states
  - Regulation not Directive

- Member states may have
  - additional legislation - Malta Data Protection Act Cap. 586
  - different supervisory authority setup - Malta IDPC

- It applies to ALL organisations processing EU citizen's personal data

GDPR

- Addresses concerns related to data breaches, cyber-attacks, and misuse of personal data by organisations.

- Strengthen the rights of individuals with respect to their personal data and to harmonise data protection laws across the EU.

GDPR

Severe fines

- up to €20 million or 4% of the organisation’s annual global turnover

- moral damages

Highest Fines

Meta

€1.2 billion

- Ireland's Data Protection Commission
- Transfer of data to the United States
- Meta used basis to transfer data which do not comply with EU Law - Privacy Shield

Highest Fines

Highest Fines

€746 million

- Luxembourg National Commission for Data Protection (CNDP)
- how Amazon processes personal data of its customers
- complaint filed by 10,000 people in 2018
- infringements regarding Amazon's advertising targeting system that was carried out without proper consent

Highest Fines

Meta

€405 million

€390 million

Forced Consent

€265 million

Data breach disclosing the personal data of 533 million users

- Ireland's Data Protection Commission
- processes personal data of teenagers between the ages of 13 and 17
- Instagram accounts automatically displayed the contact information (email addresses and/or phone numbers) of children publicly
- Meta failed to take measures to
  - provide child users with information using clear and plain language,
  - lacked appropriate technical and organizational measures, and
  - failed to conduct a Data Protection Impact Assessment.

Highest Fines

€225 million

- Ireland's Data Protection Commission
- whether WhatsApp supplied enough information to users about how their data was processed and if its privacy policies were clear enough.
- What's more of interest
  - Original proposed fine was €30 to €50 million
  - Objections from 8 countries

Highest Fines - Employment Related

€35.3 million

- Hamburg Data Protection Authority
- The company recorded and stored gigabytes of recorded one-on-one conversations with employees - back to work interviews
- Personal Data included vacation experiences, symptoms of illness, diagnosis, family issues and religious beliefs
- Details provided in those conversations were used in decisio regarding the employees

Highest Fines - Employment Related

€10.4 million

- State Commissioner for Data Protection in Lower Saxony
- The company had been using video surveillance to monitor its employees for at least two years with no legal justification
- Some of the areas recorded by the illegal cameras included workspaces, sales floors, warehouses and staff rooms
- Many of the recordings were saved for 60 days

Highest Fines - Employment Related

€5 million

- UK Information Commissioner Office (ICO)
- Cyber attack in 2020
- Personal data of up to 113,000 employees was encrypted and rendered ‘unavailable’

Highest Fines - Employment Related

€5 million

- An Interserve employee who was working from home forwarded a phishing email to another employee, who opened it and downloaded the contents
- The ICO found that Interserve:
  - failed to follow-up on the original alert of a suspicious activity;
  - used outdated software systems and protocols; and
  - had a lack of adequate staff training and insufficient risk asse

Highest Fines Malta

€250,000

- 2022
- Information and Data Protection Commissioner
- Controller infringed principles of security regarding personal data of data subjects and failed to implement appropriate technical and organisational measures
- Infringements of Articles 32(1) and 32(2) of the GDPR

Highest Fines Malta

€65,000

- 2022
- Information and Data Protection Commissioner
- Controller infringed principles of security regarding personal and special categories of data of many data subjects
- Infringements of Articles 6(1), 9(1), 9(2), 14, 32(1), 5(1)(f), 33(1) and 34(1) GDPR

Highest Fines Malta

€20,000

- 2020
- Information and Data Protection Commissioner
- Personal data undergoing processing was partially provided following a right of access request. Privacy Policy not satisfying the transparency requirements
- Infringement of Articles 13 and 15 GDPR

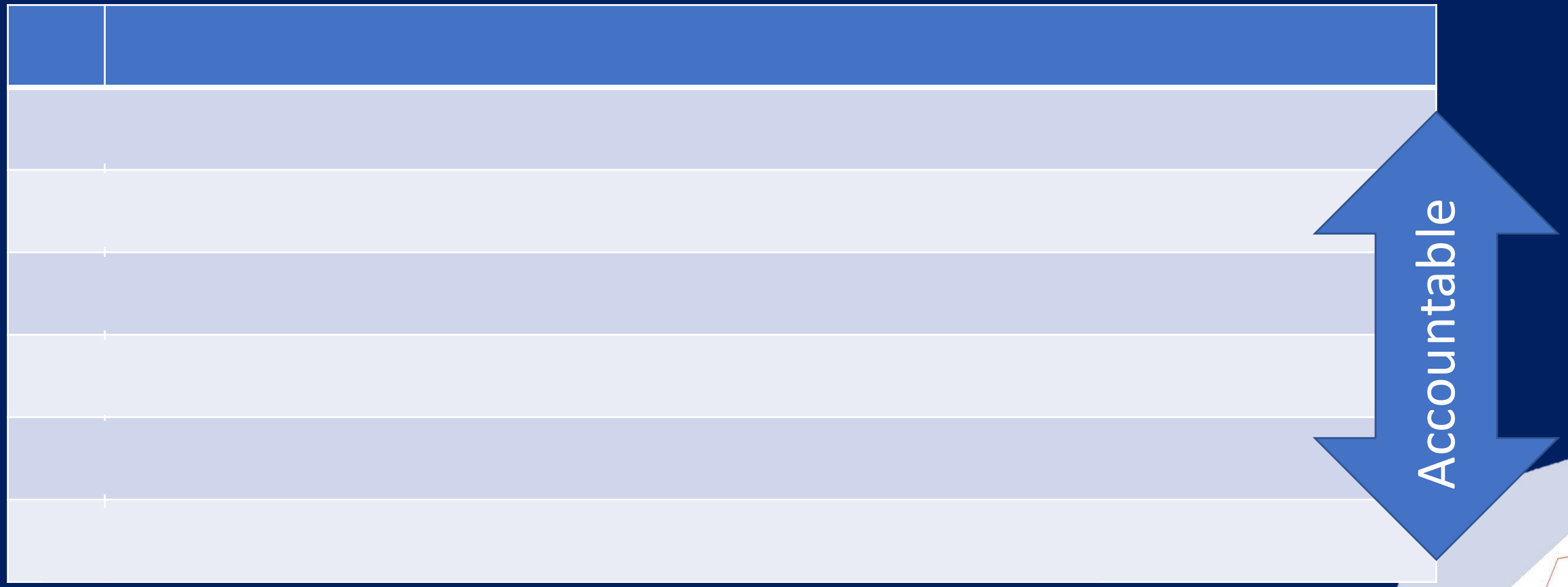
21 ACADEMY

Undergraduate Diploma

Identify the principles of GDPR

Explain each

Principles



Principles

Lawfulness

- Consent
- Contract
- Legal Obligation
- Vital Interest
- Public Interest
- Legitimate Interests

Fairness

- Cannot mislead
- Keep data honest

Transparency

- What is the data
- Why data is needed
- How data is processed
- Not shared with others

Principles

Purpose Limitation

- Data collected for specific and explicit purposes
- Disclose exactly how data will be used
- Data wont be sold or transferred
- Have a visible Privacy Notice

Principles

Data Minimisation

- Collect on the data that is necessary
- Collected data should map to the business function
- Avoid over collection

Principles

Data Accuracy

- Update incorrect or inaccurate information
- Internal and external information should be consistent
- Allow users to update their data

Principles

Storage Limitation

- Do not hold to someone’s data forever
- Apply data retention policies
- Let users know for how long you are storing their data

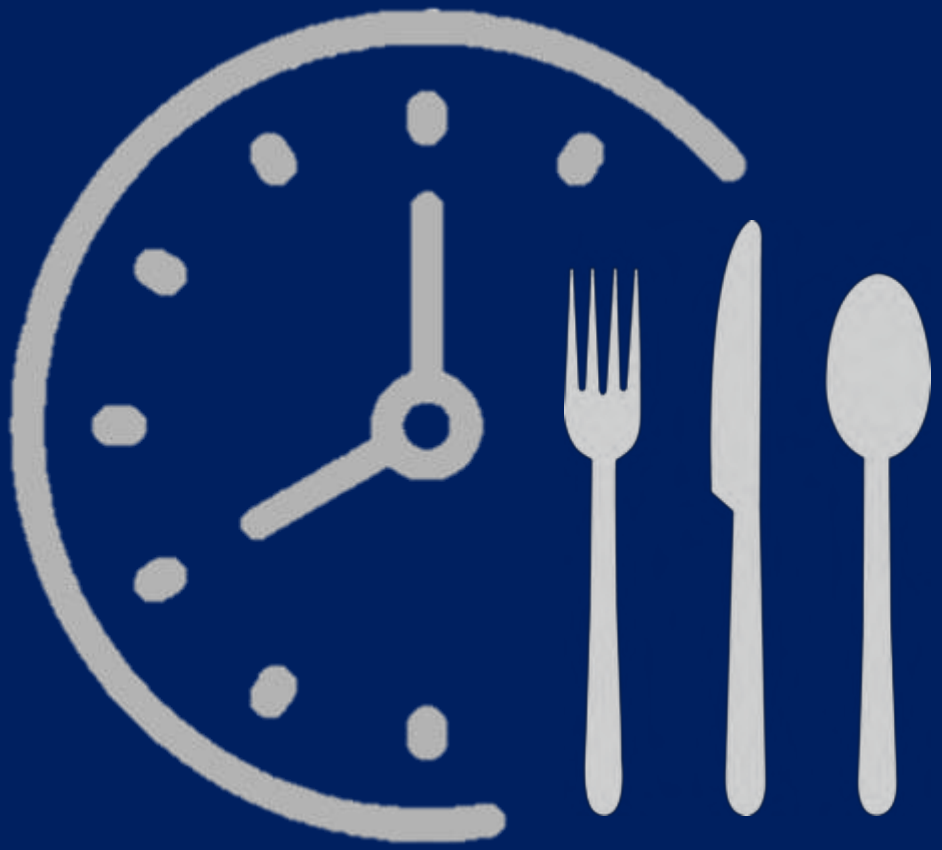
Principles

Integrity & Confidentiality

- Apply high data security standards
- Technical controls must prevent loss or damages
- Implement encryption and hashing
- Data Controller has ultimate responsability
- Immediate breach detection and reporting

21 ACADEMY

Undergraduate Diploma



21 ACADEMY

Undergraduate Diploma

Data vs Personal Data

Explain each

Data vs Personal Data

Data vs Personal Data

facts and statistics collected together for reference or analysis

vs

any information relating to an identified or identifiable individual

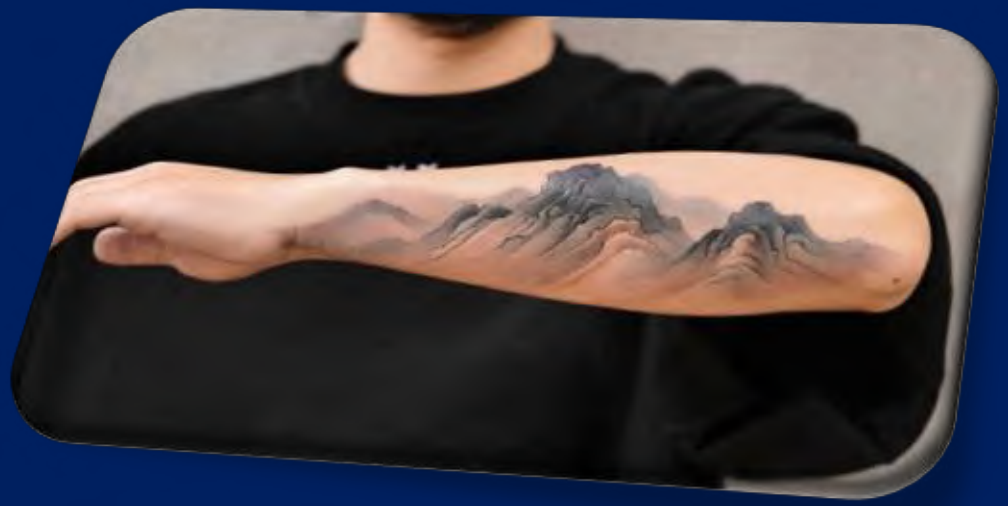
Definitions

Personal Data: **any information** relating to an identified or identifiable natural person (‘**DATA SUBJECT**’);

an identifiable natural person is one who can be **identified, directly or indirectly**, **in particular** by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity of that natural person

Is this personal data?

Is this personal data?



Is this personal data?

Is this personal data?

Is this personal data?

21 ACADEMY

Undergraduate Diploma

Special Category of Data

- racial or ethnic origin,
- political opinions,
- religious or philosophical beliefs,
- trade union membership,
- the processing of genetic data, biometric data for the purpose of uniquely identifying a natural person
- data concerning health
- data concerning a natural person’s sex life or sexual orientation

Special Category of Data

- Criminal Convictions & Offences

Special Category of Data

PERSONAL DATA	SPECIAL CATEGORIES	NOT PERSONAL DATA
• name • email address (name.surname@domain.com) • phone number • Internet Protocol (IP) address • home address	• criminal records • personal data related to racial or ethnic origin • medical records • religious or philosophical beliefs • trade-union membership • blood type • political stands...	• a company registration number; • an email address as info@company.com • anonymiZed data • information about legal entities • data related to a deceased individual

Identify (a) personal data, (b) special category of data and (c) out of scope

- Mr Ramesh Kumar
- 21 Academy
- info@21academy.education
- High blood pressure
- Police conduct certificate
- +356 2099 5486

21 ACADEMY

Undergraduate Diploma

Definitions

Processing: Means **any** operation or set of operations which is performed on personal data or on sets of personal data,

whether or not by automated means,

such as collection, recording, organisation, structuring, storage, adaptation or alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment or combination, restriction, erasure or destruction

Definitions

Pseudonymisation: means the processing of personal data in such a manner that the personal data **can no longer be attributed to a specific data subject without the use of additional information**, provided that such additional information is kept separately and is subject to technical and organisational measures to ensure that the personal data are not attributed to an identified or identifiable natural person;

Pseudonymisation vs Anonymisation

Pseudonymisation vs Anonymisation

Personal data	
Name:	Jane Doe
Birth:	13.07.1975
Email:	j865@mail.com
Medical data:	migraine

Pseudonymous data	
Name:	764566
Birth:	x1.j4.874f
Email:	[redacted]
Medical data:	migraine

Anonymous data	
Sex:	female
Age:	37-50
Medical data:	migraine

21 ACADEMY

Undergraduate Diploma

21 ACADEMY

Undergraduate Diploma

Definitions

Controller: means the natural or legal person, public authority, agency or other body which, **alone or jointly** with others, **determines the purposes and means of the processing of personal data**; where the purposes and means of such processing are determined by Union or Member State law, the controller or the specific criteria for its nomination may be provided for by Union or Member State law

Definitions

Joint Controllers: where two or more controllers jointly determine the purposes and means of processing

Definitions

Joint Controllers

Data Subjects

Controller

Meta

Controller

- Facebook's purpose is to improve its ad targeting.
- The Page admin's purpose is to learn about how people interact with its Facebook Page.

Definitions

Processor: means a natural or legal person, public authority, agency or other body which **processes personal data on behalf of the controller**

Controller & Processor

Data Subjects

Controller

Processors

Controller & Processor & Sub Processor

Employees
(DATA SUBJECT)

Company
(CONTROLLER)

External Payroll Provider
(PROCESSOR)

OneDrive
(SUB-PROCESSOR)

Controller vs Processor vs Joint Controller

Examples

Your company contracts a private market-research company to carry out some research. Your brief specifies the budget and that you requires a satisfaction survey based on the views of a sample of your clients' population. You leave it to the research company to determine sample sizes, interview methods and presentation of results.

What is the relationship?

Examples

The research company is processing personal data on your behalf, but it is also determining the information that is collected (what to ask the clients) and the manner in which the processing (the survey) will be carried out. It has the freedom to decide such matters as which clients to select for interview, what form the interview should take, what information to collect from clients and how to present the results. This means the market-research company is a joint controller with you regarding the processing of personal data to carry out the survey, even though you retain overall control of the data because you commission the research and determines the purpose the data will be used for.

Adapted from: https://ico.org.uk/

Examples

A private company provides software to process the daily employee attendance records of your company. Using the software, the private company gives attendance reports to you on a weekly basis.

What is the relationship?

Examples

The private company's sole purpose in processing the attendance data is to provide this service to your company. Your company sets the purpose - to assess attendance. The private company has no need to retain the data after it has produced the report. It does not determine the purposes of the processing; it merely provides the processing service. This private company is likely to be your processor and your company the controller.

https://ico.org.uk/

Examples

Your company contracts a mail delivery service to deliver orders to clients such as books. The clients can use a website to check the status of their order and track its delivery.

What is the relationship?

Examples

Your company will be the controller for any personal data inside the package. The delivery company will not be a controller or a processor for any personal data contained inside the package, as it has no control over or access to that data.

However, the delivery company will be processing some personal data (eg the client's name and address) in order to deliver the books and provide the tracking service.

Whether it is a controller or a processor for the tracking element of the service will depend on who makes the decisions.

If your company makes the final decision on the tracking service to be provided and the delivery company merely follows your instructions, then your company will be the controller and the delivery company is likely to be a processor.

But if the delivery company independently decides on the tracking service provided to the clients without the school's sign-off, it will be a controller.

Adapted from: https://ico.org.uk

21 ACADEMY

Undergraduate Diploma

Data Protection Officer

the processing is carried out by a public authority or body, except for courts acting in their judicial capacity;

Data Protection Officer

the core activities of the controller or the processor consist of processing operations which, by virtue of their nature, their scope and/or their purposes, require regular and systematic monitoring of data subjects on a large scale;

Data Protection Officer

the core activities of the controller or the processor consist of processing on a large scale of special categories of data pursuant to Article 9 or personal data relating to criminal convictions and offences referred to in Article 10.

Data Protection Officer

Tasks

to **inform** and **advise** the controller or the processor and the employees who carry out processing **of their obligations** pursuant to this Regulation and to other Union or Member State data protection provisions;

Data Protection Officer

Tasks

to **monitor compliance** with this Regulation, with other Union or Member State data protection provisions and with the policies of the controller or processor in relation to the protection of personal data, including the **assignment of responsibilities**, **awareness-raising** and **training** of staff involved in processing operations, and the related audits;

Data Protection Officer

Tasks

to provide **advice** where requested as regards the **data protection impact assessment** and monitor its performance pursuant to Article 35;

to **cooperate** with the **supervisory authority**;

Managing Data and its Implications

Lecture Title: General Data Protection Regulation

Lecturer: Angelito Sciberras

Date: 28 February 2026

Undergraduate Diploma