

# DATA PRIVACY PROTECTION



# Data Privacy

## Definition

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I can decide:

when I'm disclosing my personal data

to whom I'm disclosing my personal data

how much personal data I'm disclosing



# Data Privacy

## Personal Data

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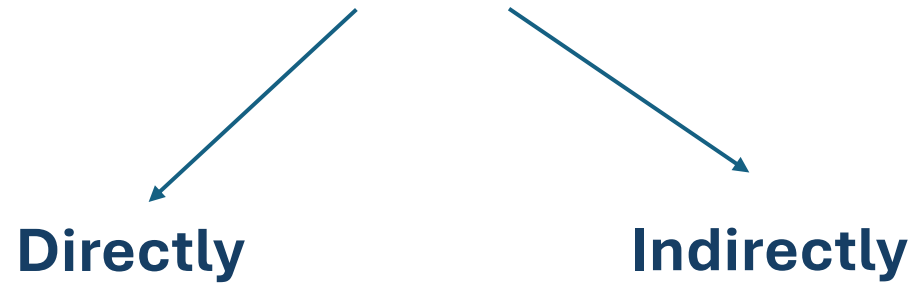
Any information which are related to an identified or identifiable natural person

# Data Privacy

## Personal Data

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Any information which are **related** to an identified or identifiable natural person



# Data Privacy

## Personal Data

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Any information which are related to an identified or identifiable natural person

What is the **Problem**?

# Data Privacy

## Personal Data

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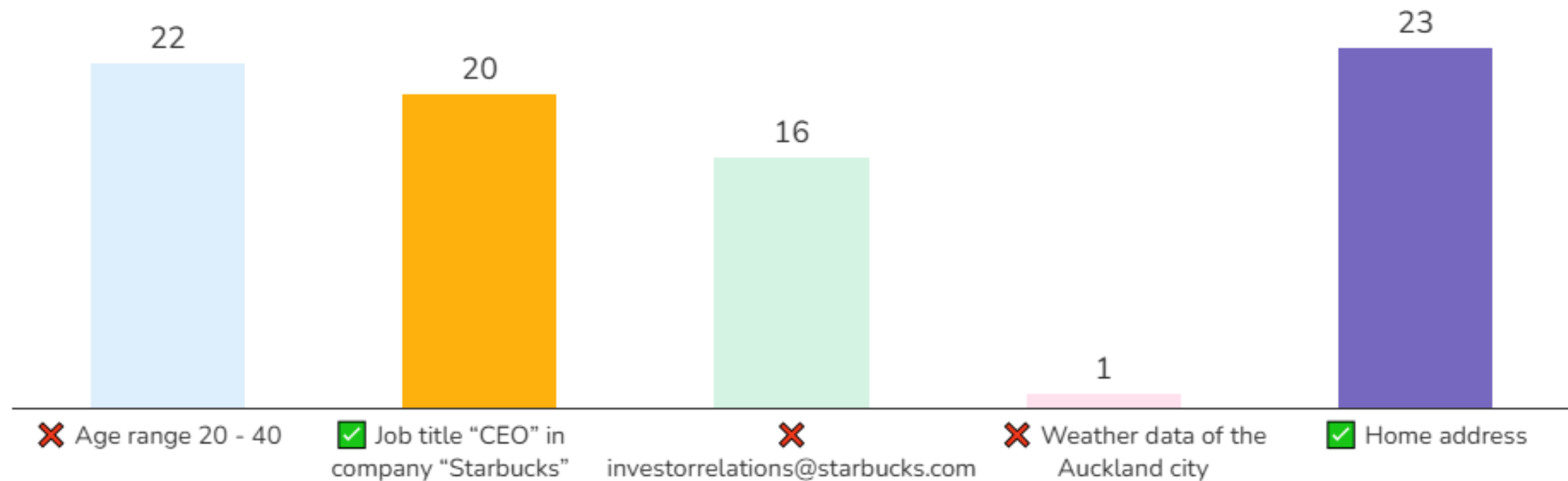
Any information which are related to an identified or identifiable natural person

What is the **Problem**?  Vague

Indirectly telling you to:

Be cautious when you are handling any type of information attached to a living person

# Select the Personal Data



# Data Privacy Protection

Amazing Mind Reader

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[Amazing mind reader reveals his 'gift' - Duval Guillaume](#)



# Exercise

Canvas - Be Mindful.....

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10:00

mins:  secs:  type:



Breaktime for PowerPoint by Flow Simulation Ltd.

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# Data Privacy Protection

## Your Digital Footprint

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The aggregated mass of data about you that is available online

1. What data do you **intentionally** share?
2. What are **hidden data** attached to your intentional data sharing activities (meta data)?
3. What records are collected regarding your **online activities**?
4. How can **other people** contribute to your digital footprint?
5. What **inferences** can be made from putting your data together?



# Data Privacy Protection

## Protection Mechanisms : End-User Perspective

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- It is important to be mindful about your data sharing practices
- Researchers, educators, organisations try to improve awareness, knowledge, behaviour of users

# Data Privacy Protection

## Protection Mechanisms : End-User Perspective

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### What can you do?

- Read the privacy policies
- Use the privacy settings
- Ask to delete your data permanently if you no longer using a service
- Think about what data to share
- What technologies can you use?

VPN

Anonymous web browsers and search engines

Cookie blockers

Incognito mode

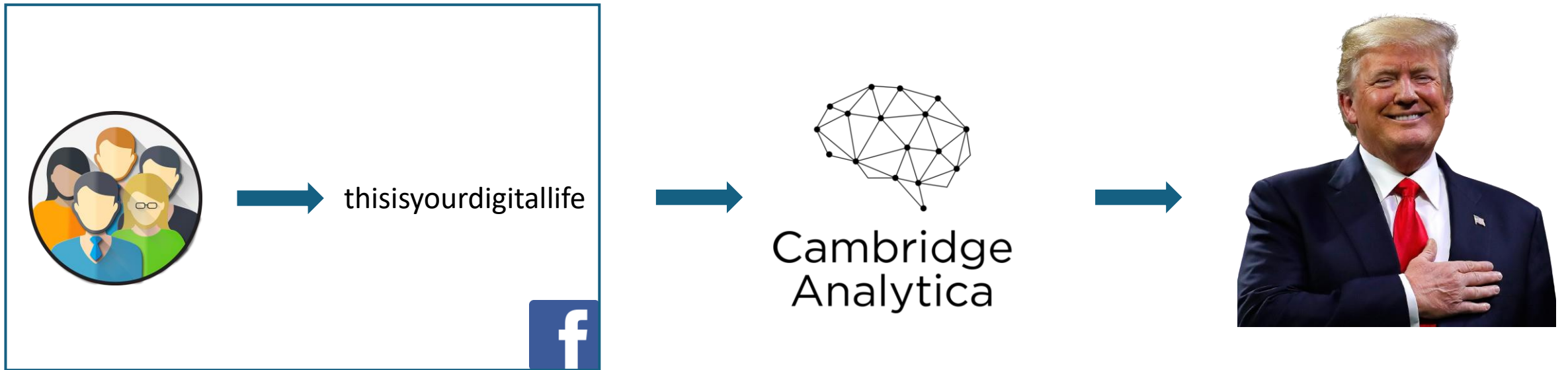
Ad blockers

Is it enough?

# Case Study

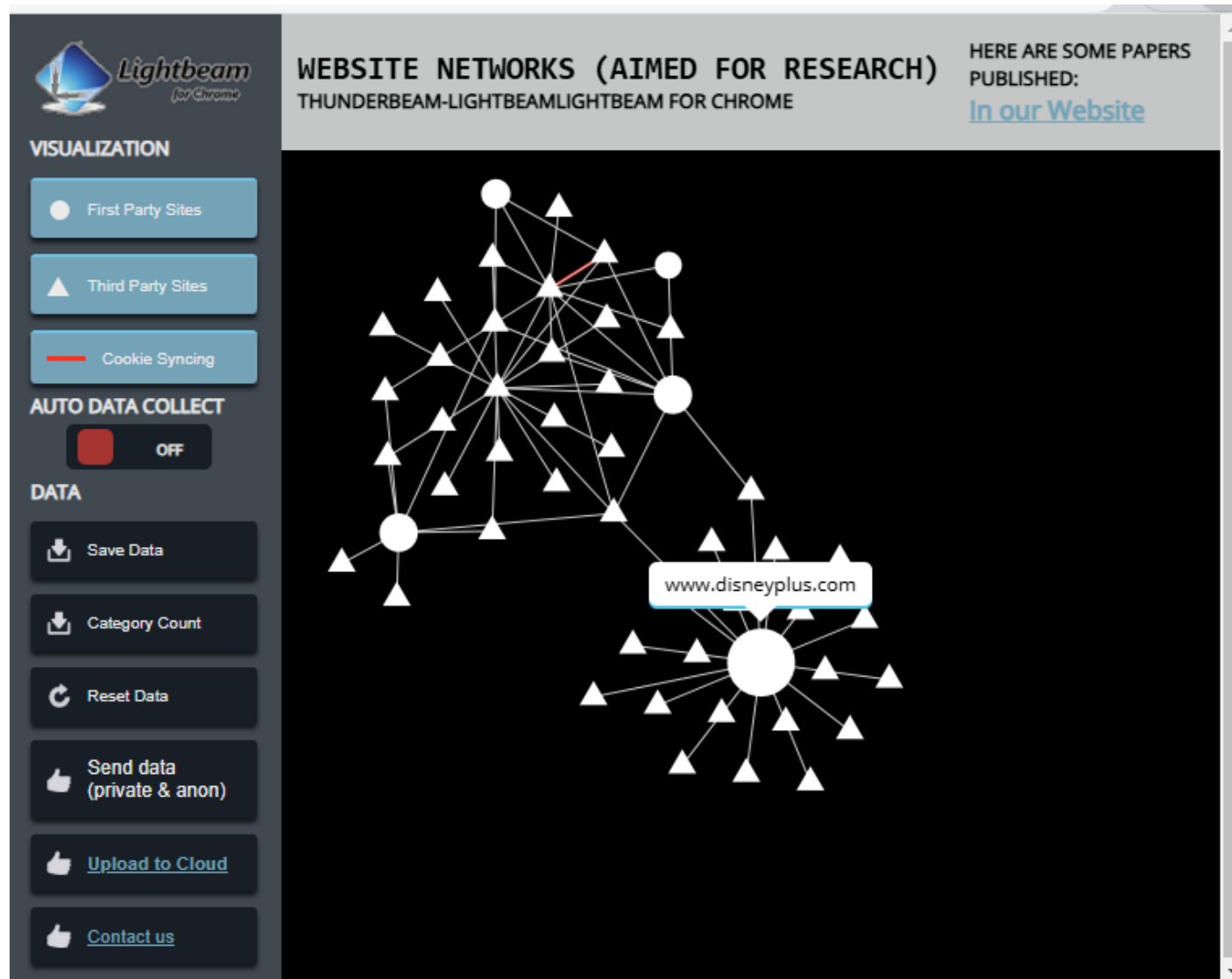
## Facebook Cambridge Analytica

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# Behind the Curtains

How your data is handled by the third-parties



Thunderbeam-Lightbeam for Chrome

# Data Privacy Protection

## End-User Perspective : Is It Enough?

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Can you know what really happens to your data once they are disclosed?

- Services might not use robust data protection mechanisms
- Is security simply enough to protect your privacy in the digital world?
- Dark patterns in software



# Stop sharing data?

# Data Privacy Protection

Data Collection is Important

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- Improve services and products
- Research and innovation
- Forensic analysis
- Rescue missions

# Data Privacy Protection

## Organisational Perspective

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What happens if privacy protection is not considered from the offset of product development?

Can you envision how a business grow over time ?

- Amount of data collected
- Types of data collected
- Dependencies

Is it easy to do changes to an already developed product?

# Data Privacy Protection

## Organisational Perspective : Privacy by Design

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Proposed by Ann Cavoukian

1. Proactive not reactive, preventative not remedial : **Plan it from the start. Don't wait until a privacy breach to happen.**  
What are the advantages of this (other than better privacy)??
2. Privacy as the default : **By default, the products/services should be privacy protective**
3. Privacy embedded into design : **Priorities privacy in the product design. Privacy should be a core element in produce/service design**
4. Full functionality — positive-sum, not zero-sum : **Should not be a trade off for the user. Don't ever trade/exchange privacy for services.**

Example of breaking full functionality:

“Buy our premium” → “You won't see **targeted** ads”

# Data Privacy Protection

## Organisational Perspective : Privacy by Design

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5. End-to-end security — lifecycle protection : **Should be applied to collection, process, share , store...**  
as long as the data exists => during the entire data lifecycle
6. Visibility and transparency : **Communicate about the data handling practices openly to the product/service users**
7. Respect for user privacy — keep it user-centric : **Respect the user's right to privacy, be empathetic.**

Think :

“What will happen to my users if I use their data in this way?”,

“What will my users feel if I use their data in this way?”

# Data Privacy Protection

## Organisational Perspective : Privacy Threat Modelling

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- A systematic way to identify potential threats to personal data
- Helps to understand how vulnerabilities can be exploited
- Before identifying the threats
  - Identify personal data handled by the product or service
  - Understand the flow of the identified data
- After identifying the threats
  - Impact assessment
  - Resolve the threats

# Data Privacy Protection

## Organisational Perspective : LINDDUN Threat Modelling Framework

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**Linking** : Data items and user actions can be linked to **learn more** about the person even if it does identify a person

**Identifying** : **Identity** is revealed through leaks, deduction, inference

**Non-repudiation** : Someone can **attribute a claim to a person**.

<https://linddun.org/threats/>

**Detecting** : Arrive at a **conclusion** about a person through **observation**



**Data disclosure** : **Excessively** collecting, sharing, processing, storing personal data

**Unawareness & Unintervenability** : Insufficient transparency, feedback to the users or less involvement of the **user**

**Non-compliance** : Violation of best practices, standards and regulations

# Exercise

Canvas – Track the Privacy Threats

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10:00

mins:  secs:  type:



Breaktime for PowerPoint by Flow Simulation Ltd.

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# Data Privacy Protection

## Organisational Perspective : Challenges

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- Lack of support from the higher ups
- Lack of technical guidelines for privacy protection
- Lack of resources – money, time, manpower, expert support
- Lack of awareness and knowledge of the employees
- Lack of privacy mindset of the employees

# Data Privacy Protection

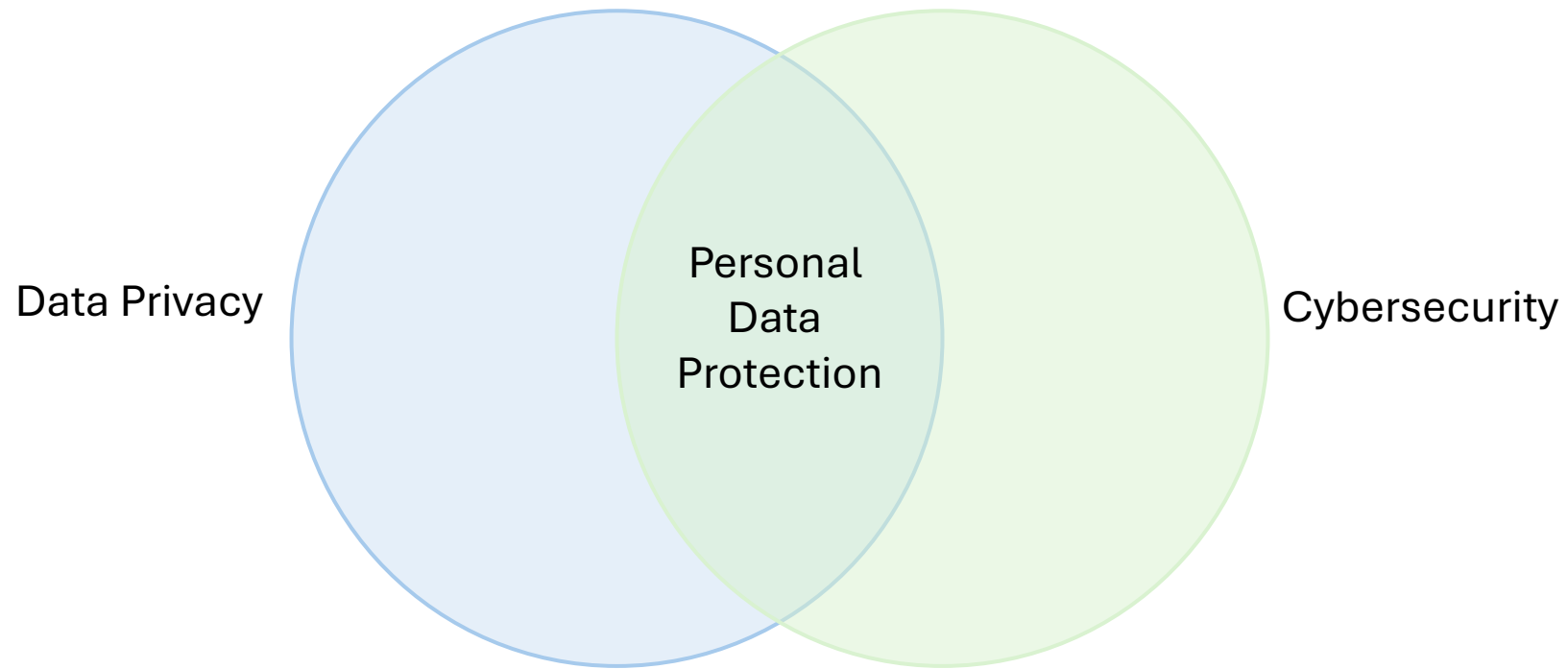
## Organisational Perspective : Solutions

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- Training : Gives employees knowledge and skills about privacy
- Recruit privacy experts – ex: lawyers, chief privacy officers, researchers, developers with good privacy knowledge (privacy champions)
- Give incentives to privacy champions : promotions, salary increments (improves the motivations to protect privacy)
- Enforce policies within the organisation : Govern the privacy practices of the employees
- Standardise privacy : Employees will realise privacy is an important part in product development  
ex: Making privacy requirement gathering compulsory

# Data Privacy & Cybersecurity

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# Summary

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- Understanding personal data
- User perspective of privacy protection
- Organisational perspective of privacy protection
- Organisational challenges in answering privacy consideration

