

Data security essentials

INTRODUCTION TO DATA SECURITY



Angeline Corvaglia

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What is data security?

Safeguarding digital information from unauthorized:

- Access
- Disclosure
- Alteration
- Destruction



Confidentiality, integrity, availability

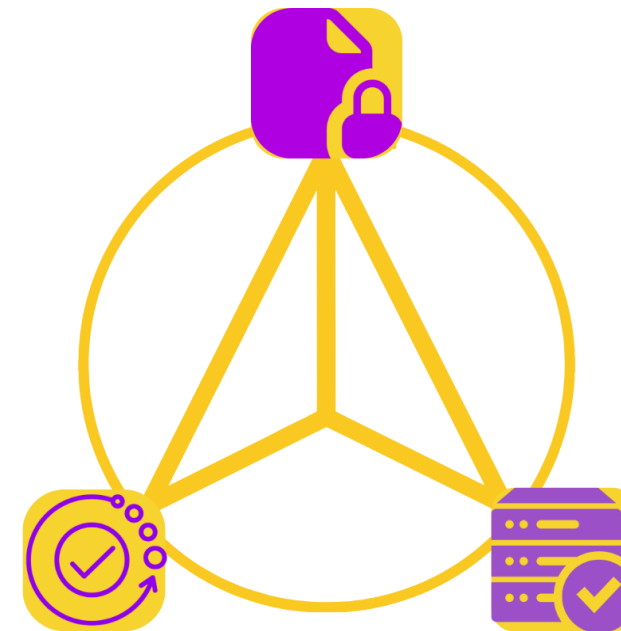
Data confidentiality



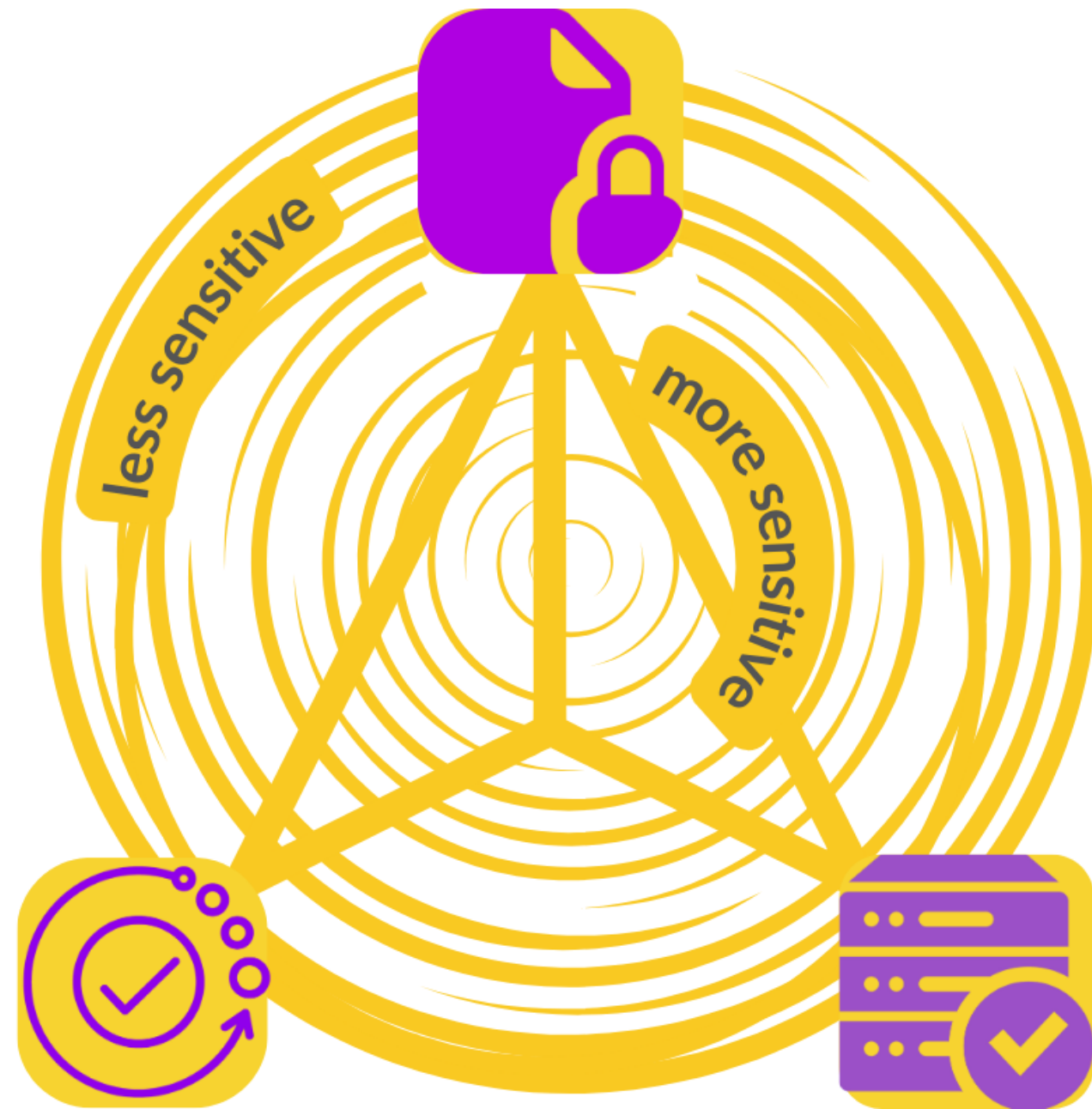
Data integrity



Data availability

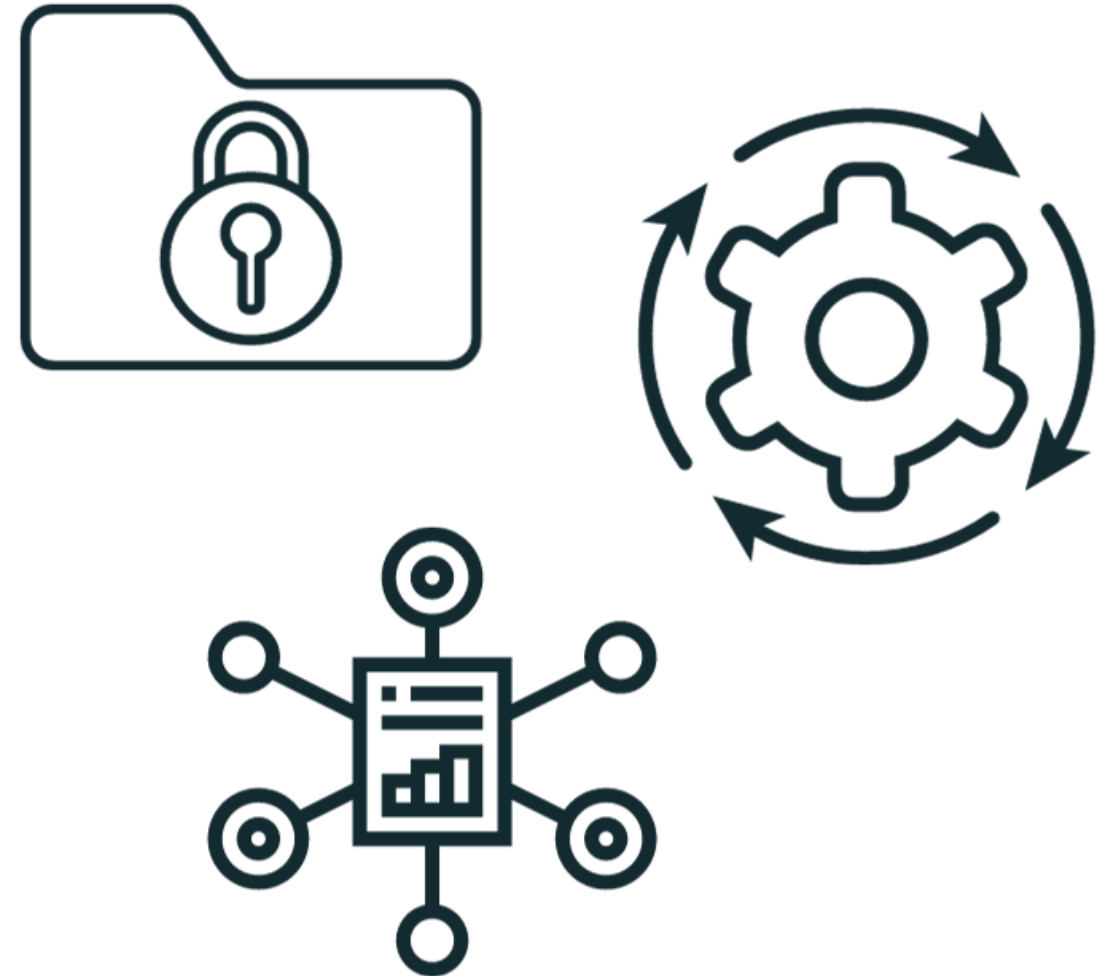


Which data is **sensitive** and warrants **extra protection**?



Other elements of data security

- Operational models
- Regulatory compliance
- **Strategies** for data protection
- **Mindset**
- Proactive **communication**
- Company **culture** that values protection



Data security is an ever-changing realm



- New **cyber threats**
- Sophisticated ways to **exploit human error**
- Refined abilities to **bypass security controls**

Current threats

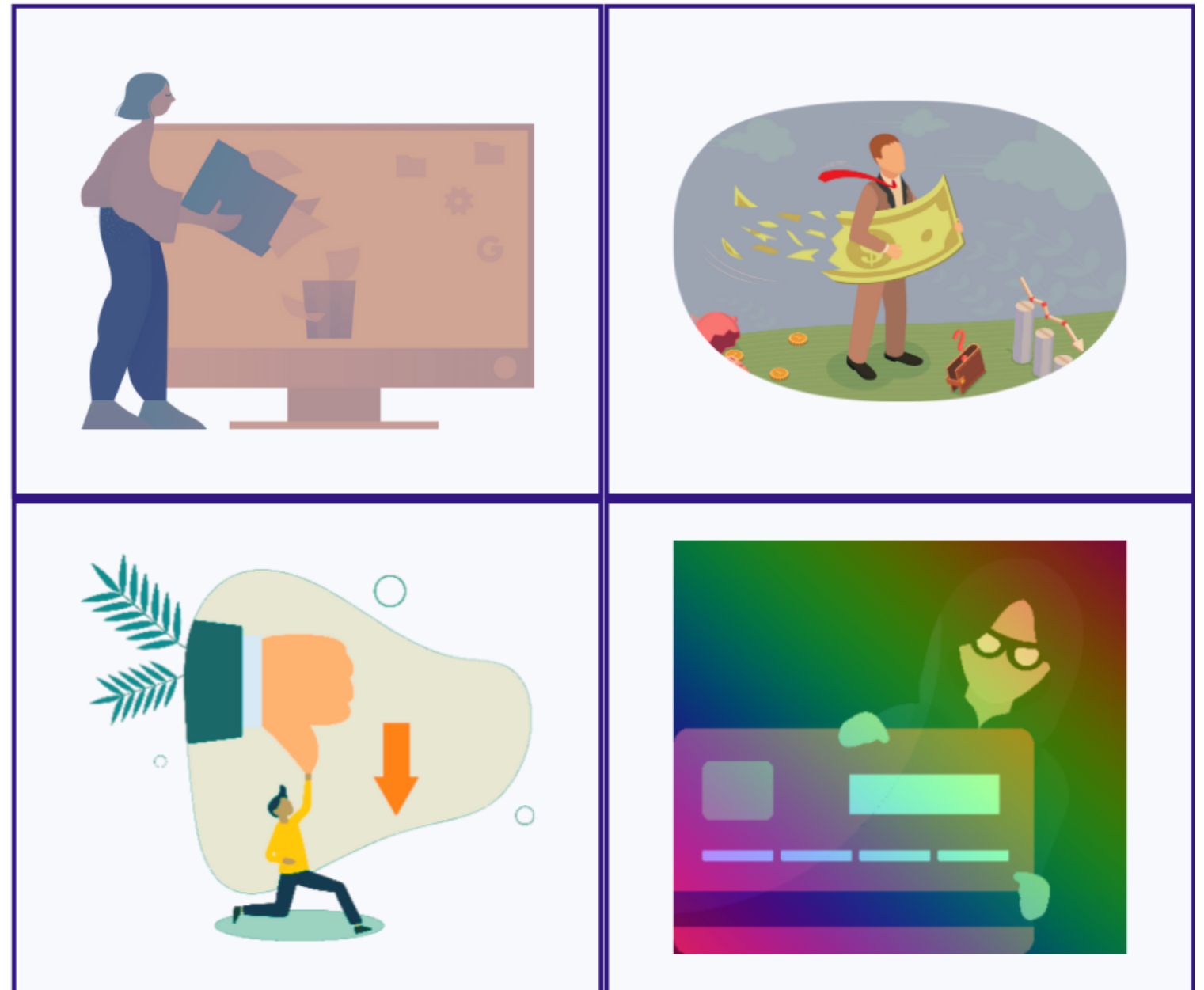


Lessons learned



Real-life data breaches

- Dallas Police Department
- DailyQuiz
- Yahoo
- Equifax



Risks when leveraging AI

Wiz Research



Microsoft



It's all about the people

In each case, people involved could have **done better** to protect the company.

Critical factors in keeping data safe:

- Education
- Awareness



Let's practice!

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Staying one step ahead by understanding compliance

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Legal vs mandatory regulatory requirements

Legal requirements

- Mandated by law



Mandatory regulatory requirements

- Set by regulatory bodies



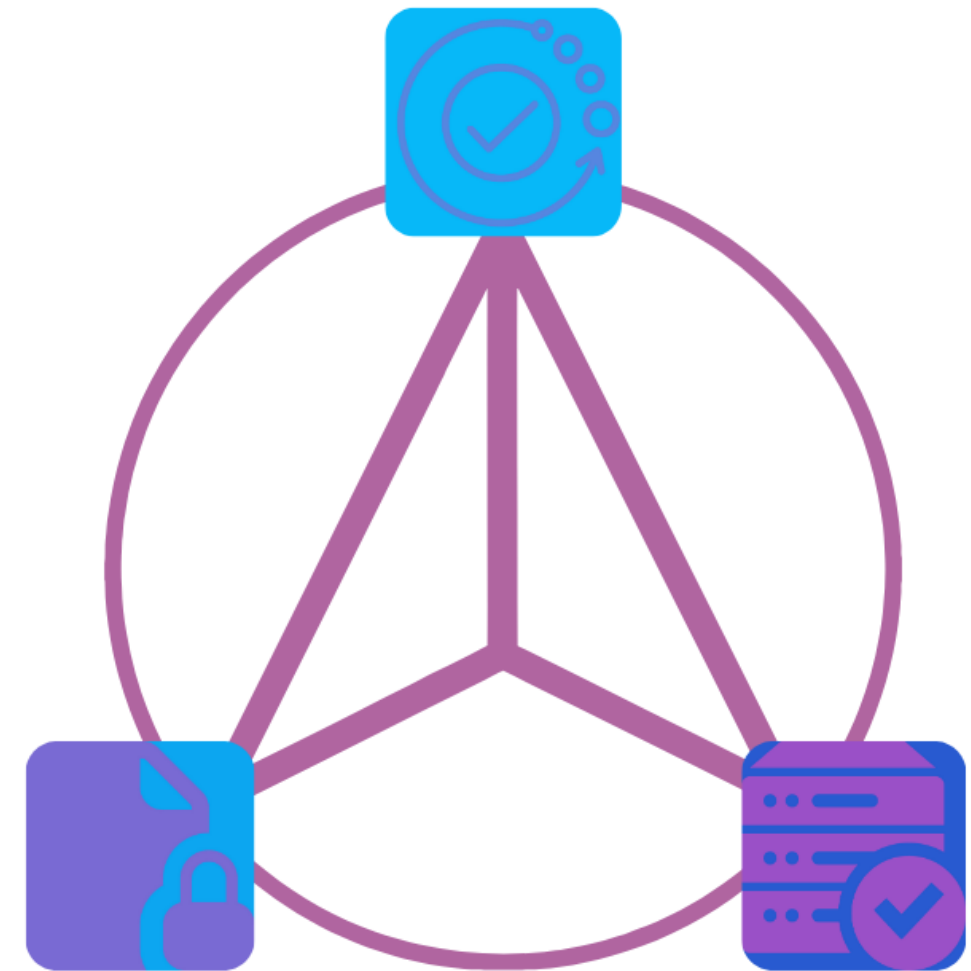
Data security compliance requirements

Safeguard people's **personal information**

Ensure that organizations **handle data responsibly**

Group them based on their focus

- Data **collection and processing**
- Data **subject rights**
- Data **protection**



Data collection and processing



- **Data minimization:** collecting the minimum data for a specific purpose
- **Purpose limitation:** using data only for the purpose it was collected

Data subject rights



- Right to access data a company has about them
- Right to erase personal data from company databases

Data protection



- Data breach notification
- Encryption (scrambling) of sensitive data

General Data Protection Regulation (GDPR)

Protect EU citizens' personal data

Extensive rights over personal data

- Access
- Rectify
- Erase
- Restrict or contest processing



Sarbanes-Oxley Act (SOX)



Prevent **financial fraud** and improve corporate **accountability**

Internal controls over financial reporting

- Accurate
- Reliable
- Tested regularly
- Evaluated regularly

Cybersecurity Information Sharing Act (CISA Act)



Companies sharing information with the government

- In good faith
- Protected from liability
- **Collaboration** between private and public

Organizations and individuals worldwide have become **more aware of cybersecurity**

Staying one step ahead in data security means knowing the law



Generally, it depends on the

- Nature of the data you handle
- Where your customers are located
- What industry you are in

Keep up to date

Here are some tips for proactive action:

- Check the **websites** of relevant **industry associations**
- Follow **news sources**
- Attend data security **conferences** and **webinars**



Let's practice!

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The risks of not securing data

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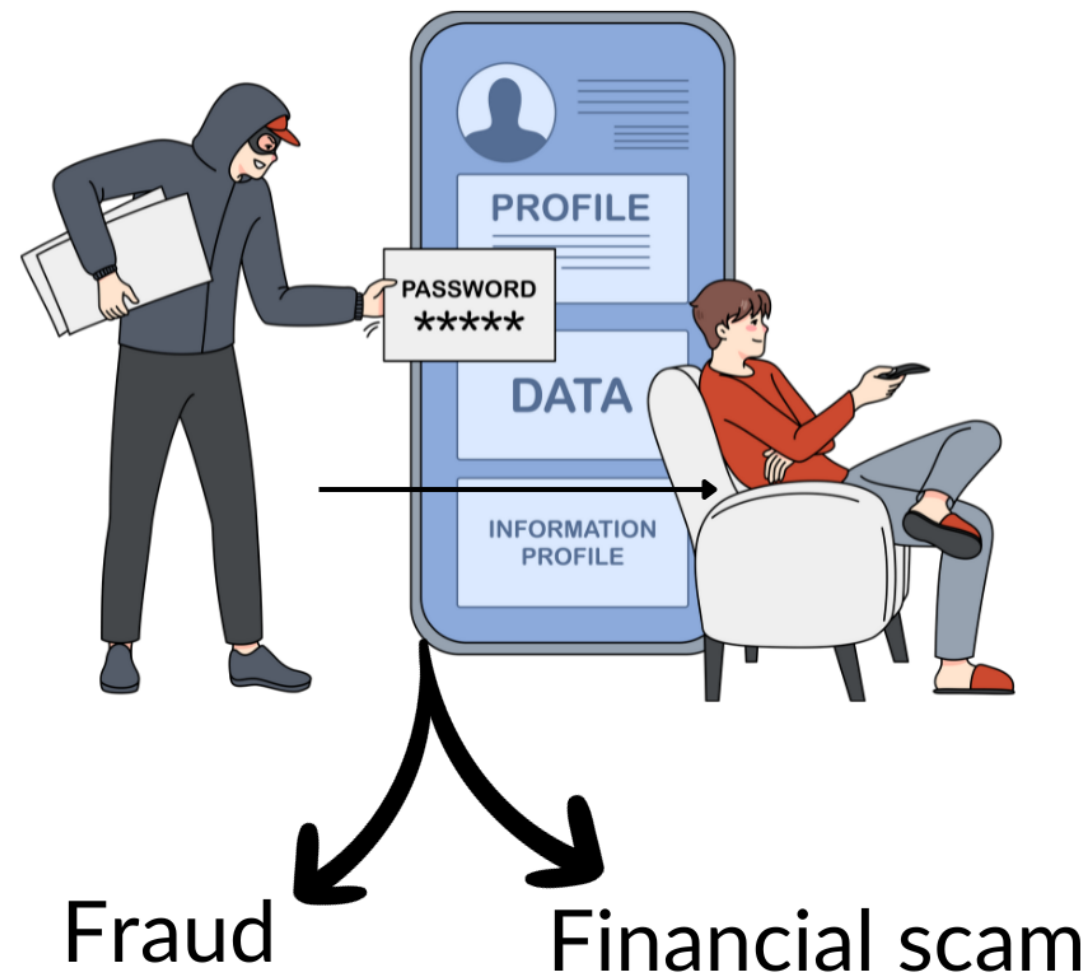
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Personal data and identity theft

The risk of impacts on personal well-being

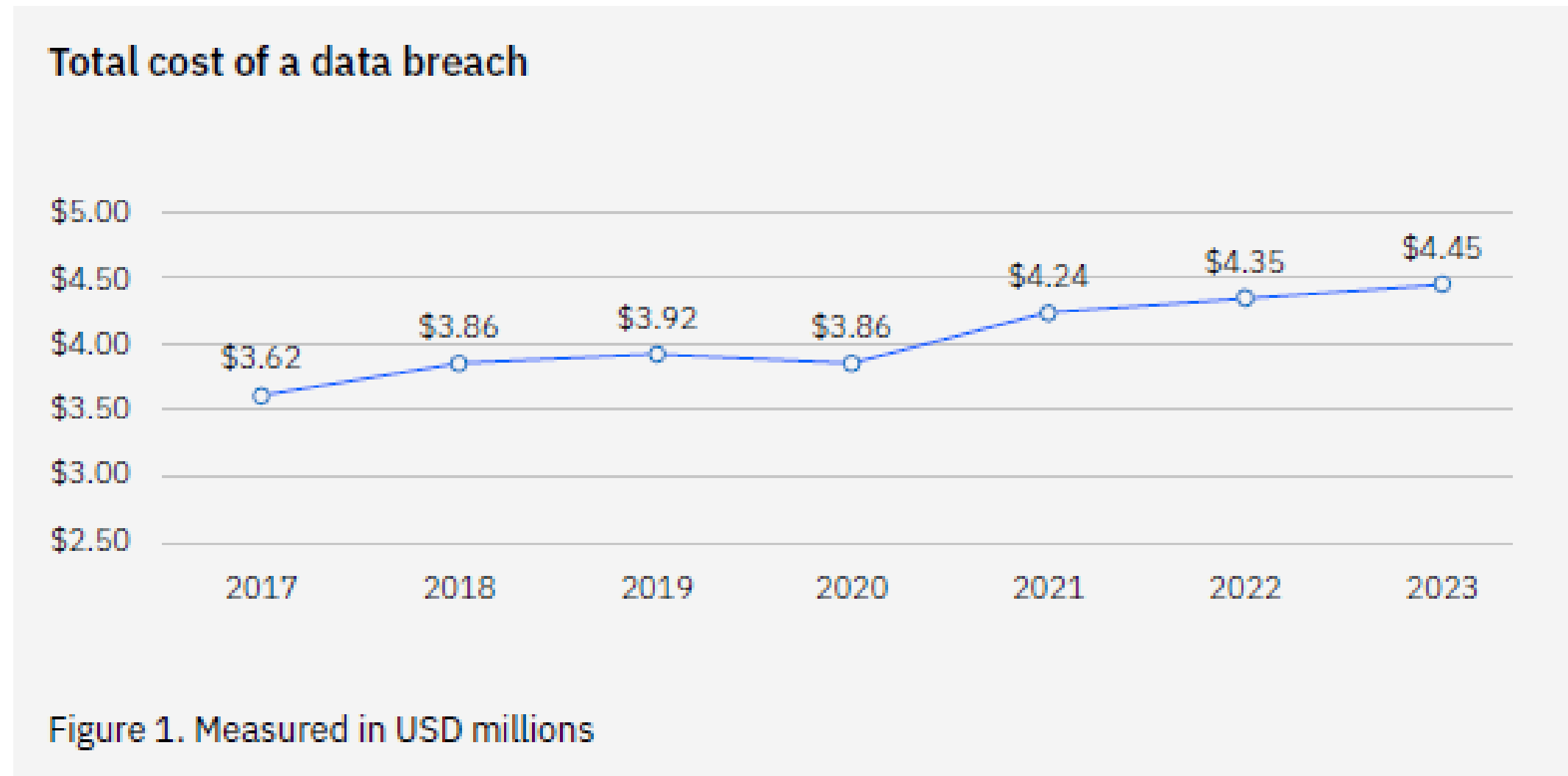
Identity theft is when someone assumes another person's identity to commit a crime

- Damage credit history
- Immense emotional toll



IBM data breach report costs

- including direct and indirect expenses such as investigation, remediation, legal fees, and lost business



¹ <https://www.ibm.com/reports/data-breach>

Legal consequences



Legal action:

- Regulators
- Individuals

This can lead to:

- Penalties
- Sanctions
- Loss of business license
- Criminal charges

Reputational damage

- Lost business
- Boycotts
- Decline in brand value



The Equifax Breach Is a Reputational Crisis that Will Linger

Blog Post 12 Jun, 2019

¹ <https://www.reptrak.com/>

Broader impact on society

Undermining trust in digital technologies

Spotlight on Policy > Tech and Regulation > Cybersecurity | 9 August 2023

Hacking democracy: How cyber attacks are undermining trust in voting

Confidence in political systems is being challenged by evolving digital threats.

¹ <https://www.newstatesman.com/>

Consequences for jobs

FORBES > LEADERSHIP > LEADERSHIP STRATEGY

25% Of Workers Lost Their Jobs In The Past 12 Months After Making Cybersecurity Mistakes: Report

Top executives: leadership failures

IT security professionals: inadequate security measures

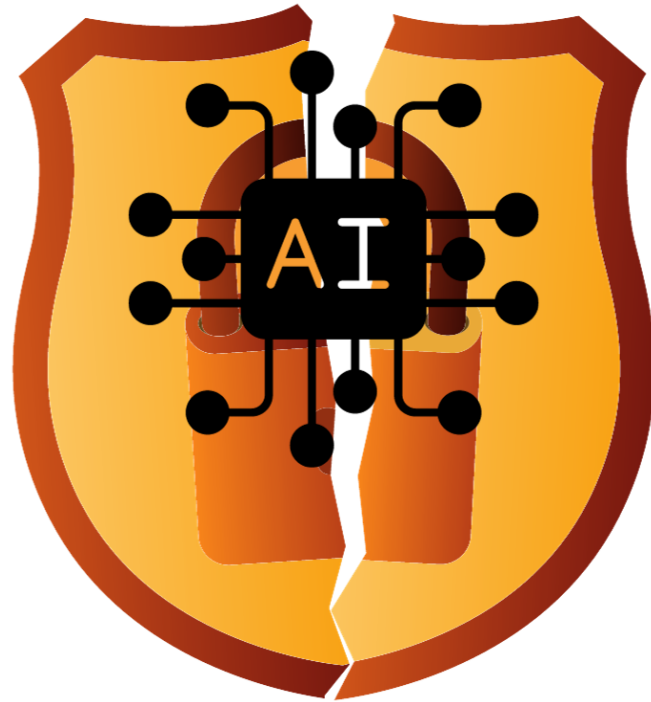
Employees: mishandled the data

Breaches are a combined result of failed leadership, processes, and human error

¹ <https://www.forbes.com>

Impact of generative AI

New risks: created data



Not easy to distinguish between genuine and fake information

New opportunities: enhance data security



- Detecting anomalies
- Identifying suspicious patterns of data
- Attracting and isolating cyber attacks

A data defender knows both how valuable and risky data is



Let's practice!

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