

Data security essentials

INTRODUCTION TO DATA SECURITY



Angeline Corvaglia

Founder & Digital Transformation
Specialist

What is data security?

Safeguarding digital information from unauthorized:

- Access
- Disclosure
- Alteration
- Destruction



Confidentiality, integrity, availability

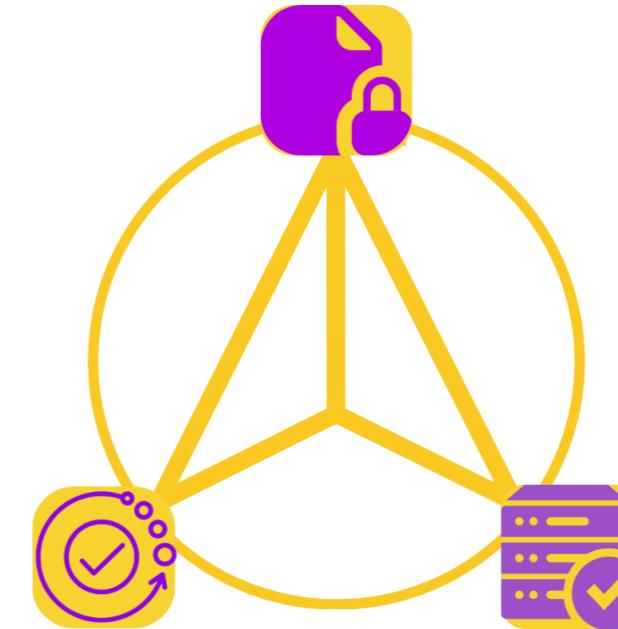
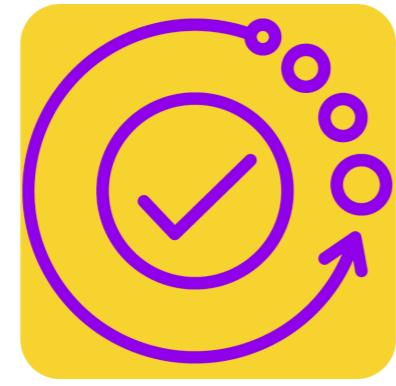
Data confidentiality



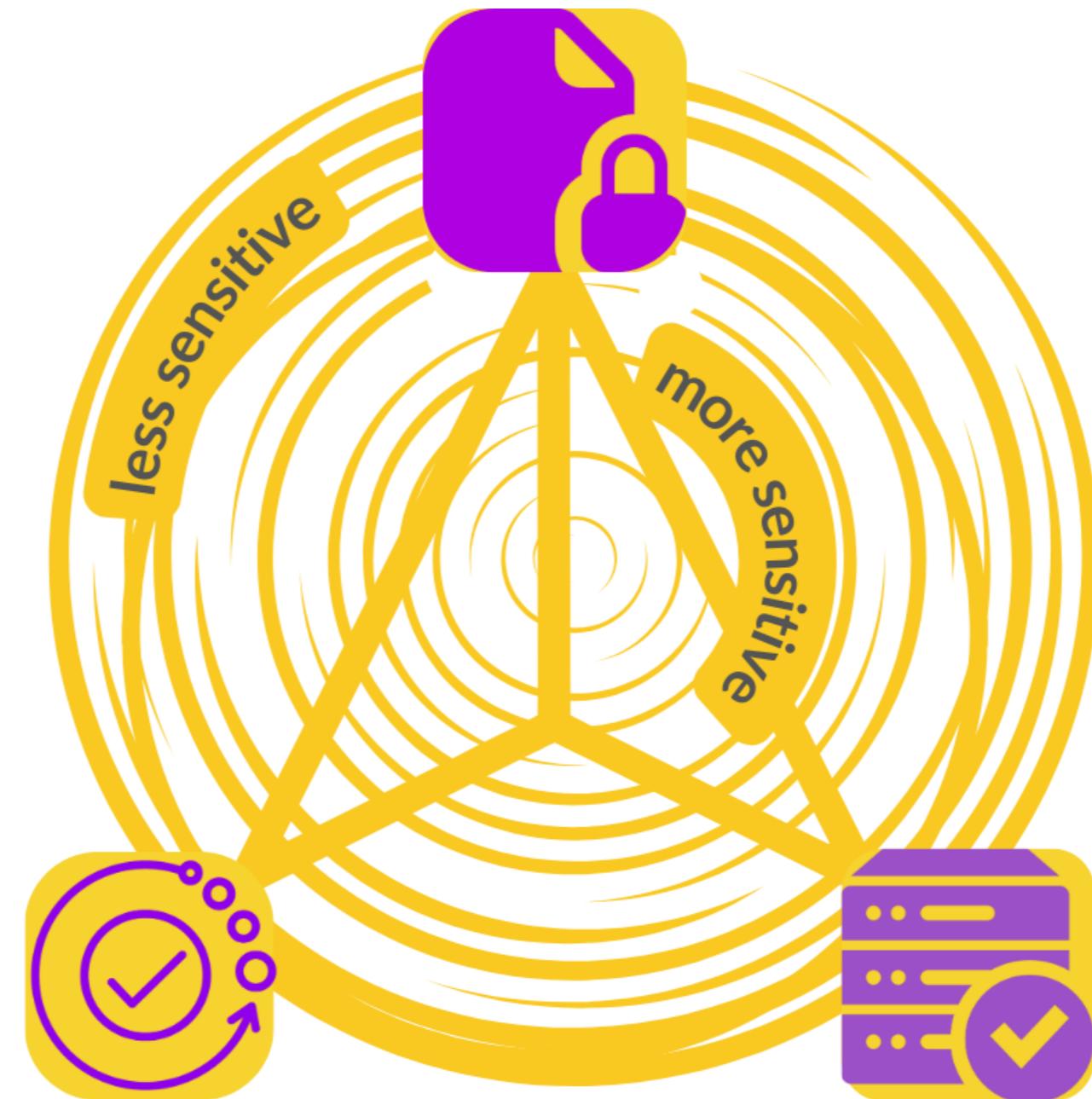
Data integrity



Data availability

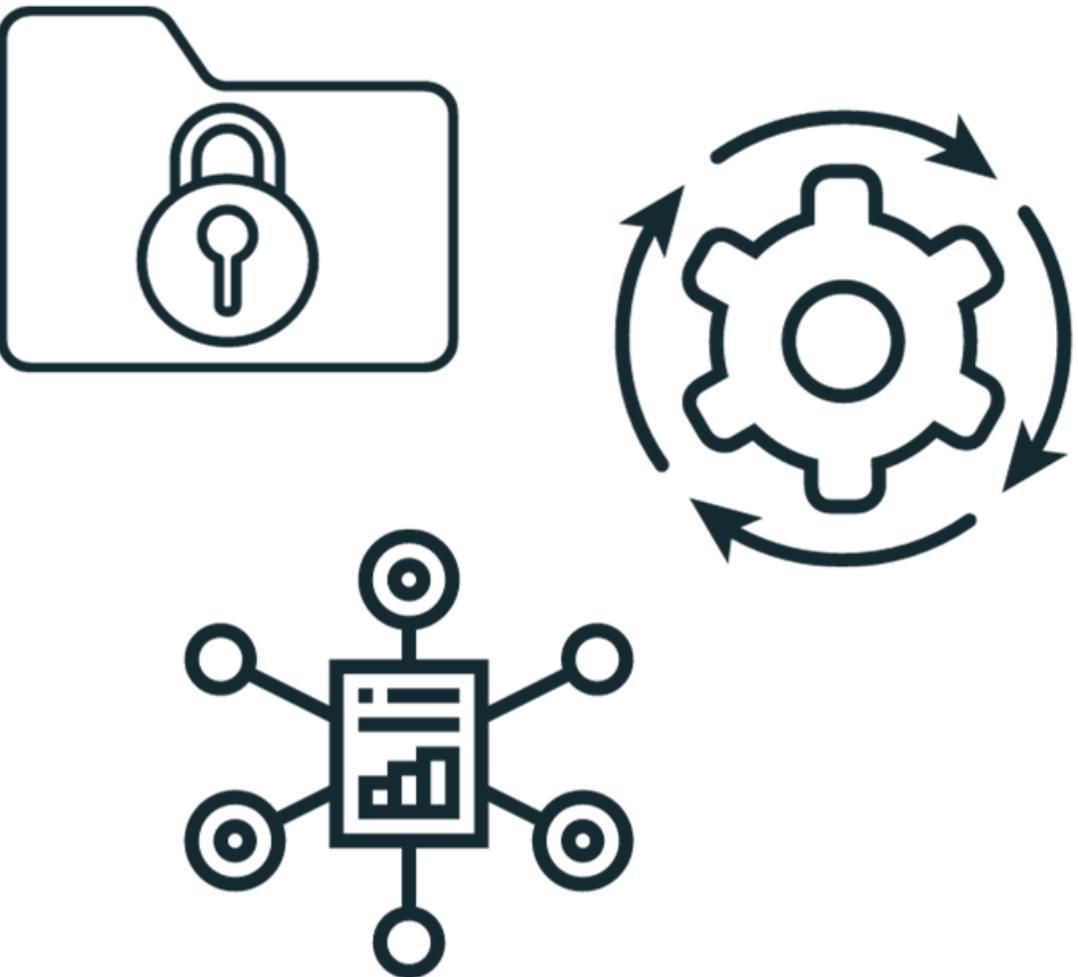


Which data is **sensitive** and warrants **extra protection**?



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



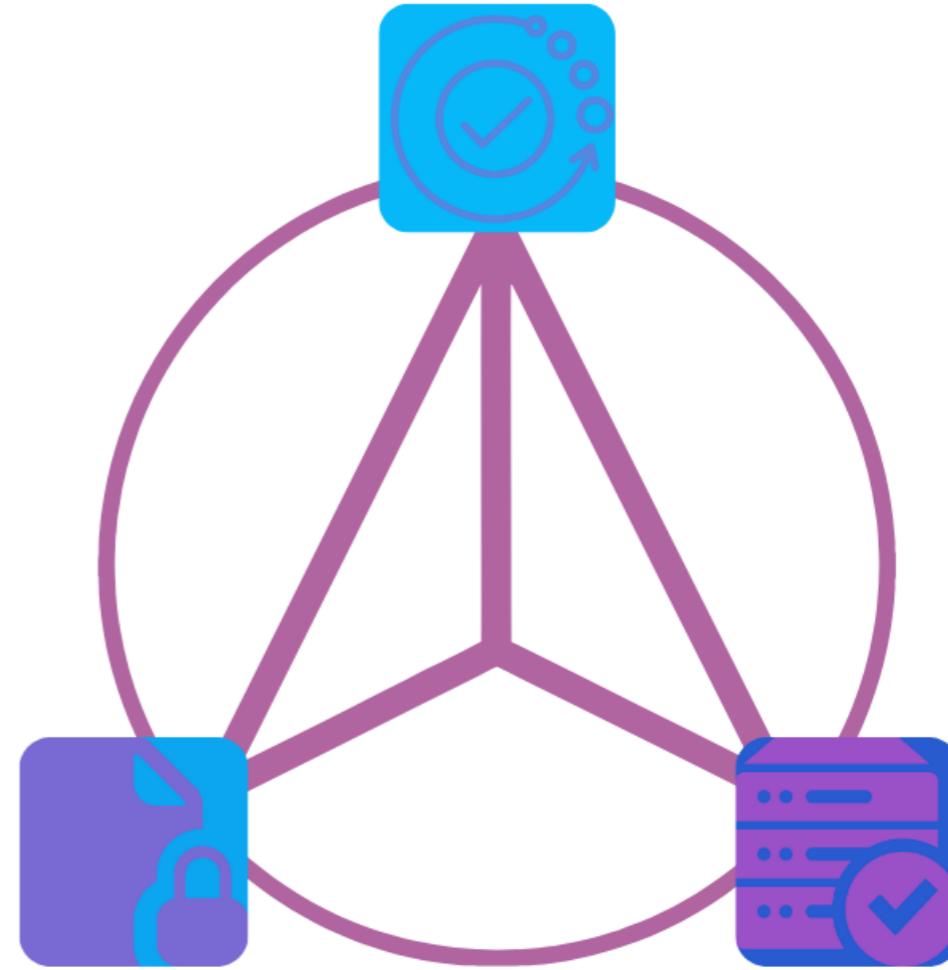
Data security compliance requirements

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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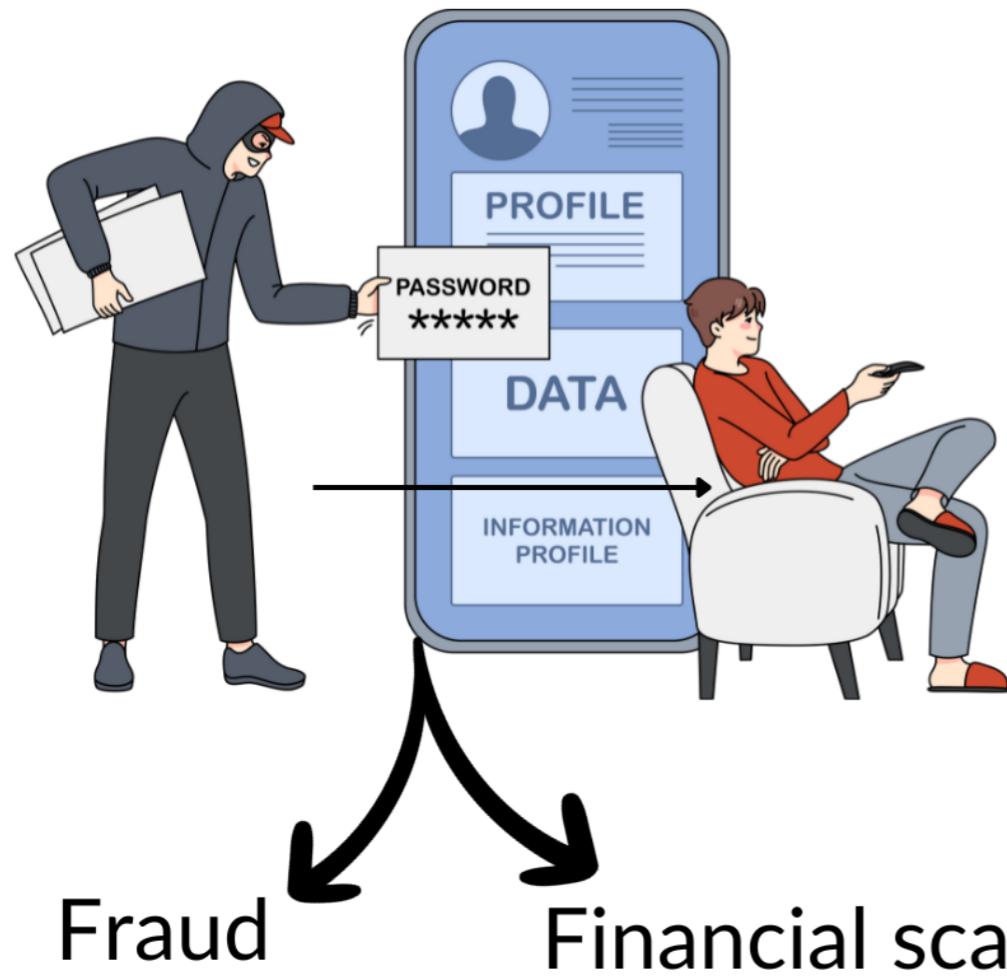
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Personal data and identity theft

The risk of impacts on personal well-being

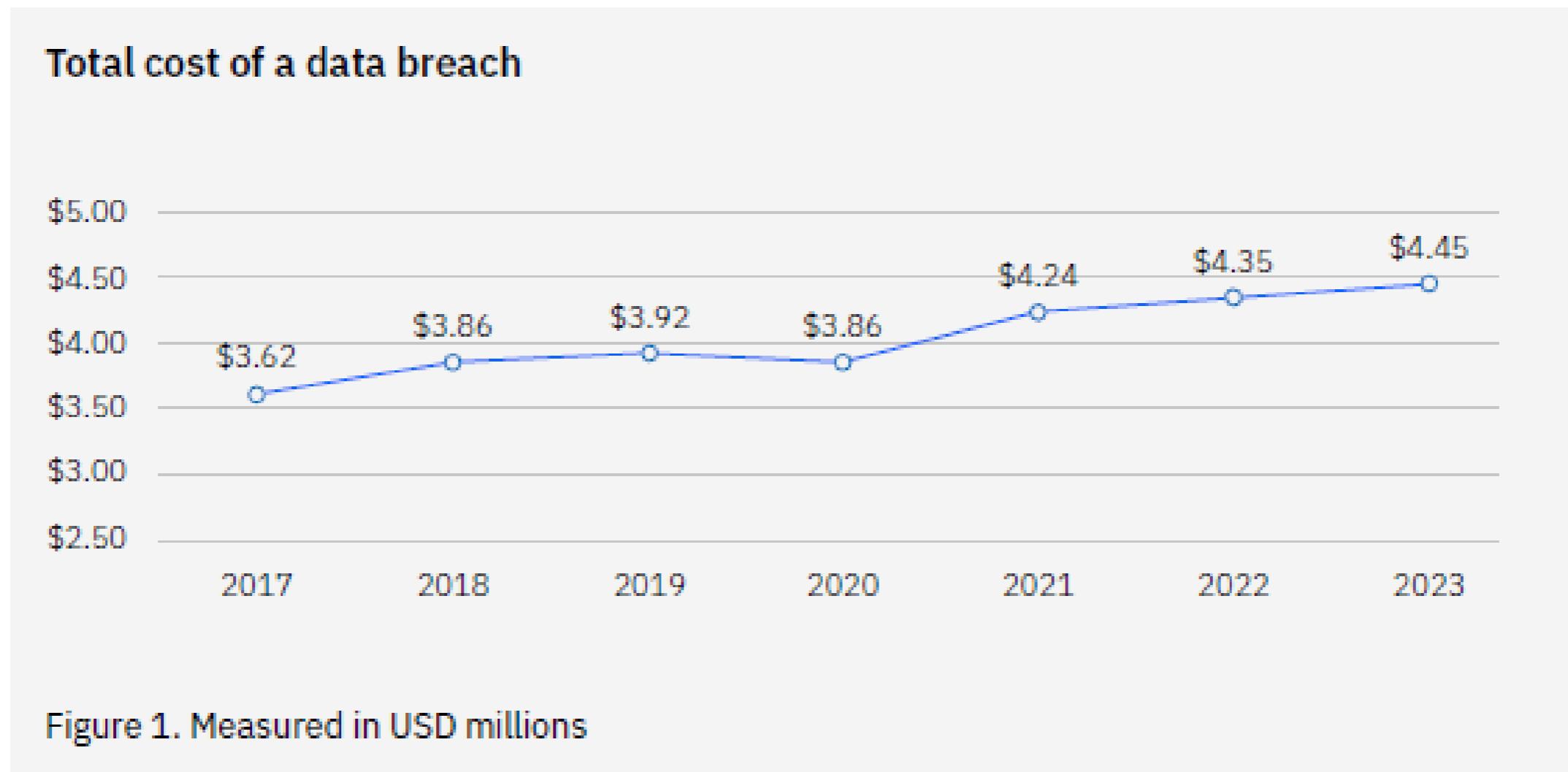
Identity theft is when someone assumes another person's identity to commit a crime



- 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

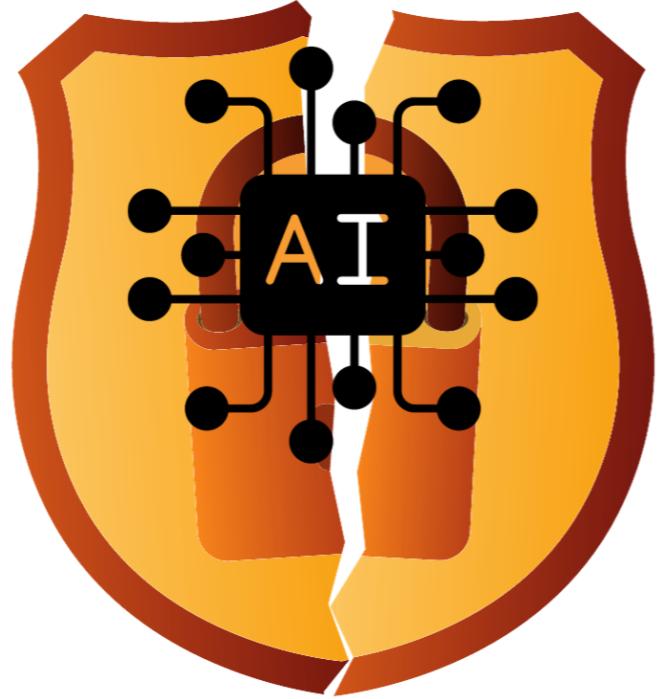
Employees: mishandled the data

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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