Engineering encryption for privacy in practice:

Experiences on the ground: opportunities and pitfalls

IPEN Webinar 2020
Is Encryption the solution to data protection?

“Teamwork” is the real solution!
What goes often wrong? 1/2

- Backups are forgotten
- Poor Access Control / SSO / MFA
- Unclear on/off boarding process
- Insufficient vendor assessment process
- Cloud encryption
- Lack of compliance perspective
- Insufficient awareness
What goes often wrong? 2/2

- Poor key management: back ups, restoring process
- Lack of monitoring: algorithms, key size, protocols
  - Legacy systems: may be incompatible with features surrounding access, or encryption methods. UPDATE!
  - Legacy protocols: when to stop supporting them (access logs in traffic can be important!: protocol version, cyphers, IP, user agent...)
But all these bad practices can actually also help you to achieve complete encryption of all your systems!
But all these bad practices can actually also help you to achieve complete encryption of all your systems!
Encryption deserves more attention!
(SSL/TLS is not enough!)
Ideal Situation: Encryption program or policy part of the Enterprise Risk Management and Data Governance
Recommendations and opportunities 1/8

Find what data you have!

art.30 GDPR
Recommendations and opportunities 2/8

Data Classification

Risk-based approach

DLP*

Data discovery

*Data Loss Prevention
Recommendations and opportunities 3/8

Where is my data?

- Asset management
- Infrastructure overview
- Third party/ SaaS
Data must be protected throughout its lifecycle. It is important to consider the state of the data you are trying to protect:

- **Data in motion**: being transmitted over a network
- **Data at rest**: in your storage or on devices
- **Data in use**: in the process of being generated, updated, erased, or viewed.
Access Control

- How do you identify, authenticate and authorise your users / employees?
- Roles and responsibilities
- Awareness
Recommendations and opportunities 6/8

What do we need to encrypt and how?

- How do we encrypt the data? check compliance!
- Select a method / tool - data life cycle
- User friendly approach / costs
- Implement key management process/tool

Risk-based approach
Establishing a retention period can help when selecting the right encryption algorithm.
Establish clear rules/processes and train your employees in data protection!

- How to protect and share data and keys
- Access Control rules & responsibilities
Conclusion

Encryption
Privacy Engineering Netherlands
Meetup Group