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# Privacy in Web Applications

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# OWASP top 10 security risks


Credits: neoscopeit.com

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# Sensitive data exposure

Examples of sensitive data

- Banking information: account numbers, credit card numbers
- Health information
- Personal information: social security number, date of birth, address, …
- User account/passwords


Credits: creativebloq.com

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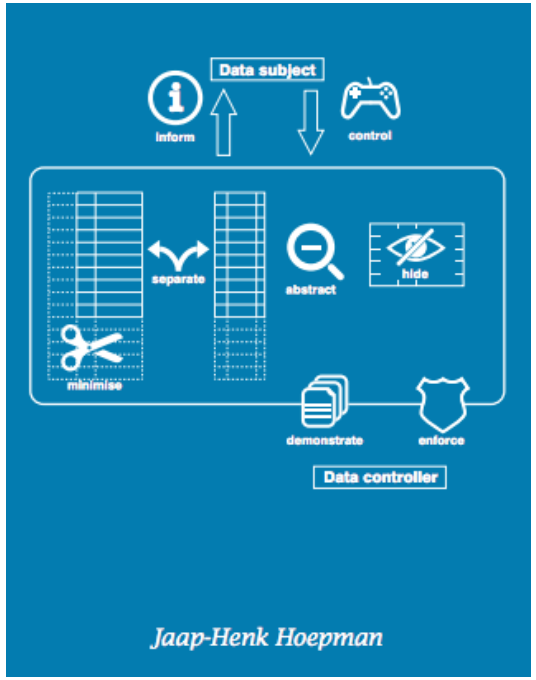
# GDPR

What is the General Data Protection Regulation (GDPR)?


Credits: snel.com

# Privacy design strategies

- There are many available strategies / guidelines
- Hoepman's eight privacy design strategies




Privacy Design Strategies (The Little Blue Book) by Hoepman, 2020
https://www.cs.ru.nl/~jhh/publications/pds-booklet.pdf

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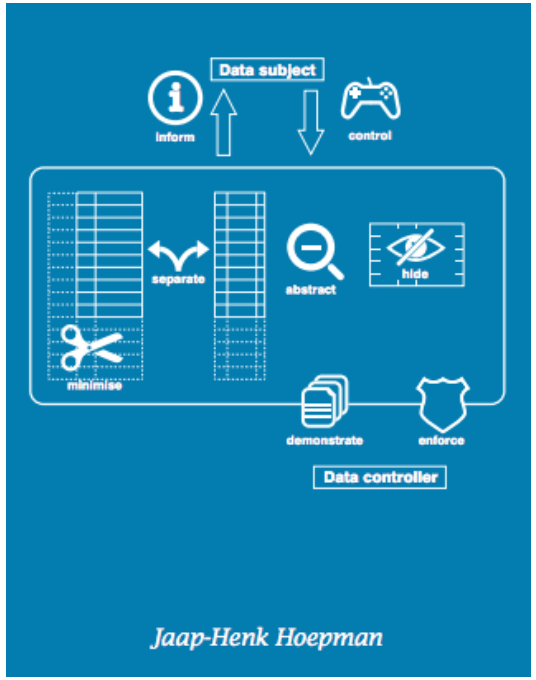
# Privacy design strategies

- There are many available strategies / guidelines
- Hoepman's eight privacy design strategies
  1. Minimise
  2. Separate
  3. Abstract
  4. Hide
  5. Inform
  6. Control
  7. Enforce
  8. Demonstrate

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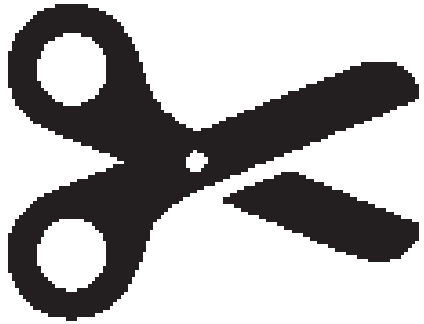
# 1. Minimise

- Limit as much as possible the processing of personal data.
- Nothing can go wrong with data you do not collect; they cannot be abused, misused, or get leaked accidentally



- Tactics:
  - Select
  - Exclude
  - Strip
  - Destroy

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# 2. Separate

- (Logically or physically) separate the processing of personal data as much as possible.
- This makes it harder to combine or correlate data.

- Tactics:
  - Isolate
  - Distribute

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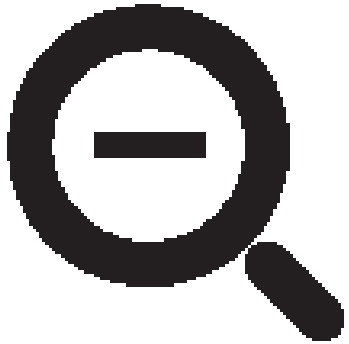
# 3. Abstract

- Limit as much as possible the detail in which personal data is processed.
- The less detailed a personal data item is, the lower the privacy risk is.



- Tactics:
  - Summarise
  - Group
  - Perturb

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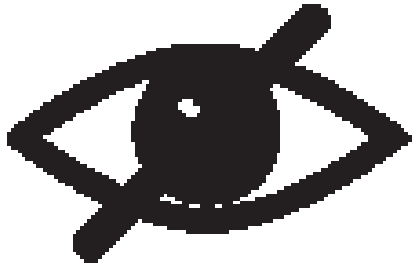
# 4. Hide

- Protect personal data, or make it unlinkable or unobservable.
- Make sure it does not become public or known.



- Tactics:
  - Restrict
  - Obfuscate
  - Dissociate
  - Mix

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# 5. Inform

- Inform users about the processing of their personal data in a timely and adequate manner.
- Transparency about which personal data is being processed, how they are processed and for which purpose, is an essential for better privacy protection.

- Tactics:
  - Supply
  - Explain
  - Notify

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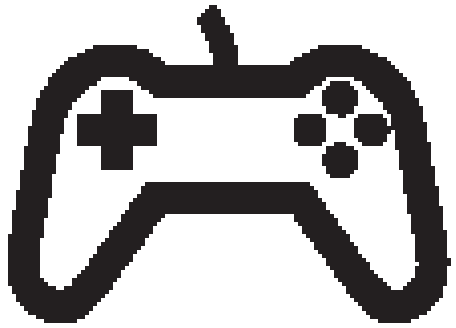
# 6. Control

- Provide users adequate control over the processing of their personal data.
- Users want to have control and have a say in how their personal data is processed and shared.



- Tactics:
  - Consent
  - Choose
  - Update
  - Retract

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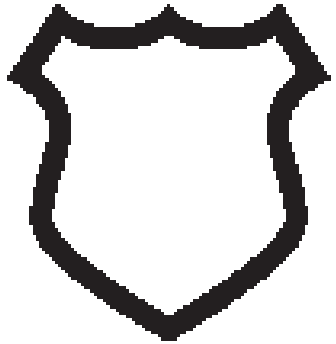
# 7. Enforce

- Commit to processing personal data in a privacy-friendly way, and adequately enforce this.
- Privacy should be part of the organisational culture and be propagated by higher management.



- Tactics:
  - Create
  - Maintain
  - Uphold

# 8. Demonstrate

- Demonstrate you are processing personal data in a privacy-friendly way
- This strategy addresses the new requirement that organisations need to demonstrate compliance to privacy regulations.

- Tactics:
  - Record
  - Audit
  - Report

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# Thank you!

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