Assessment of users' IT security awareness in light of the GDPR

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The Secudit system as an example

Apple watch saved Alberta man's life, makes international headlines

'I bought the watch two weeks before the heart attack, so it was the right time'

By Wallis Snowdon, CBC News Posted: Mar 17, 2016 8:21 AM MT | Last Updated: Mar 17, 2016 1:22 PM MT

Dennis Anselmo, a watch fanatic, shows off his life-saving Apple watch. (CBC)

Listen

Smart watch alerts user to impending heart attack 5:36

A Morinville, Alta., contractor who says his life was saved by a smartwatch, is making headlines the world over.

Dennis Anselmo says the high-tech gadget warned him of an impending heart attack.

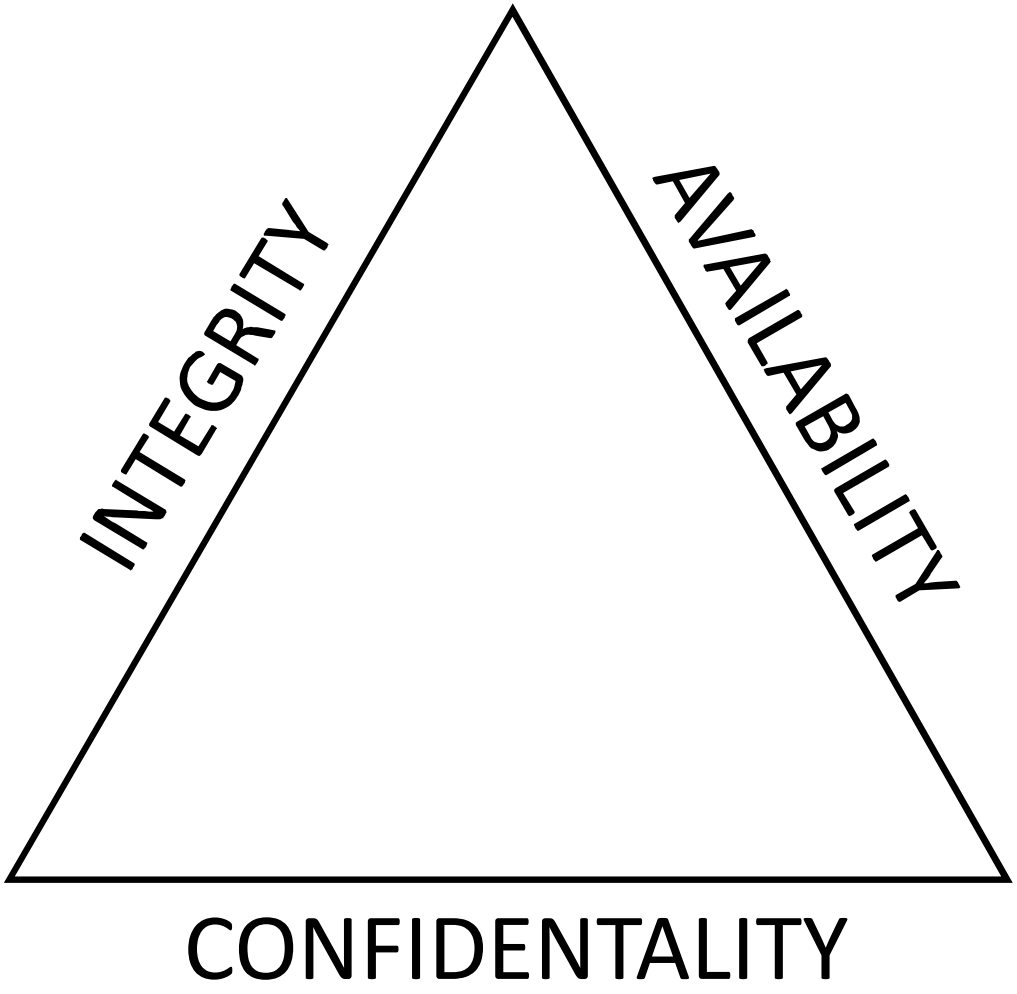
Now, six months since he was released from hospital, dozens of news outlets, including **The Sun** and **The Daily Mirror** in Great Britain, have picked up his story as an example of the merits of wearable technology

Weather

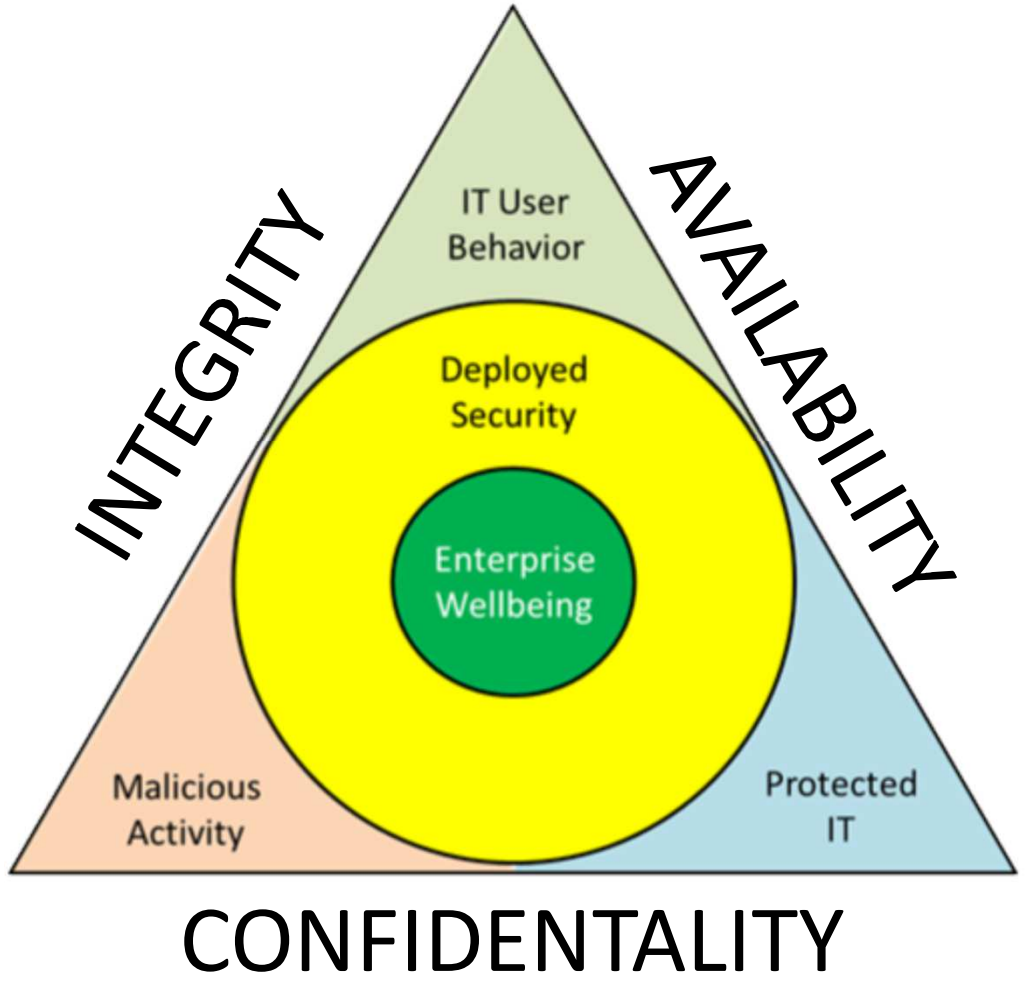
Wednesday	Thursday	Friday	Saturday
1°C	-2°C	-2°C	-3°C

Sunday

The CIA model



Our IT Security model



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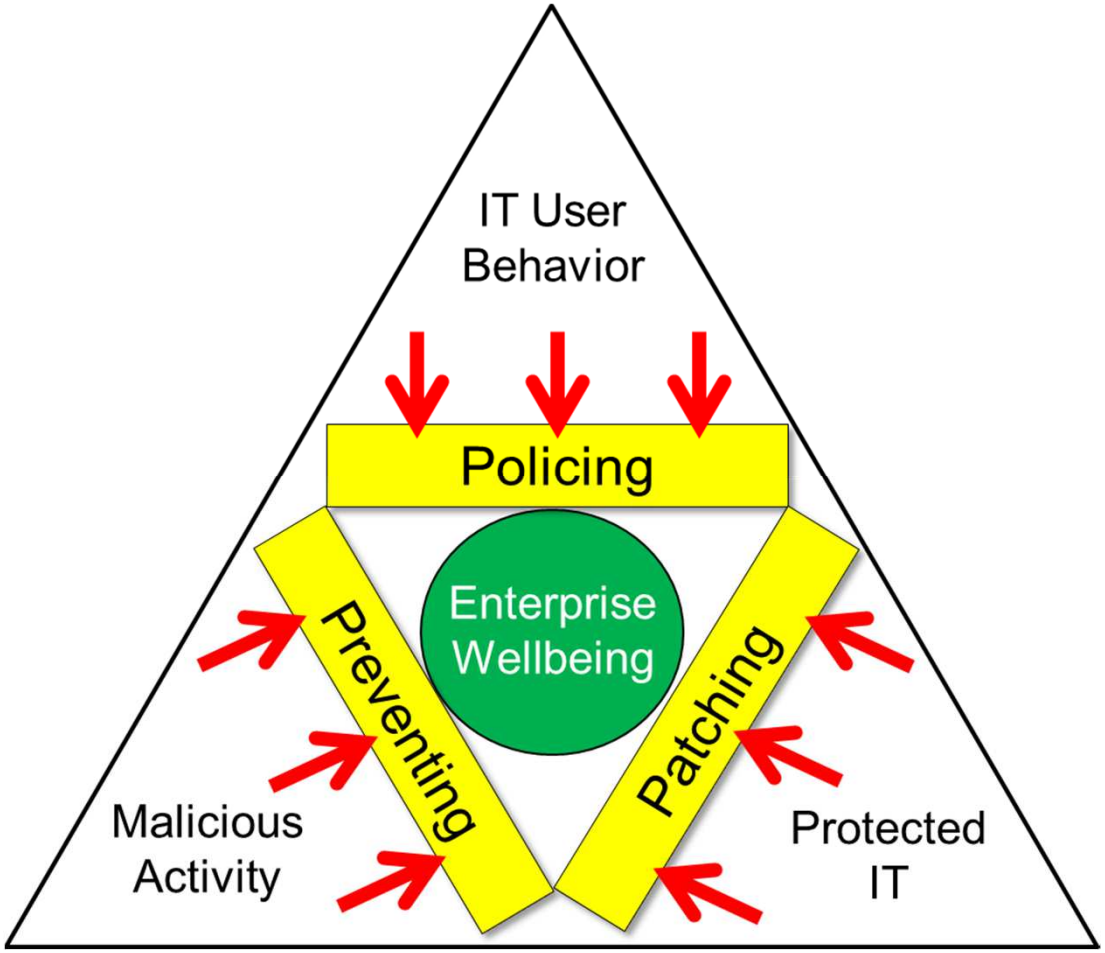
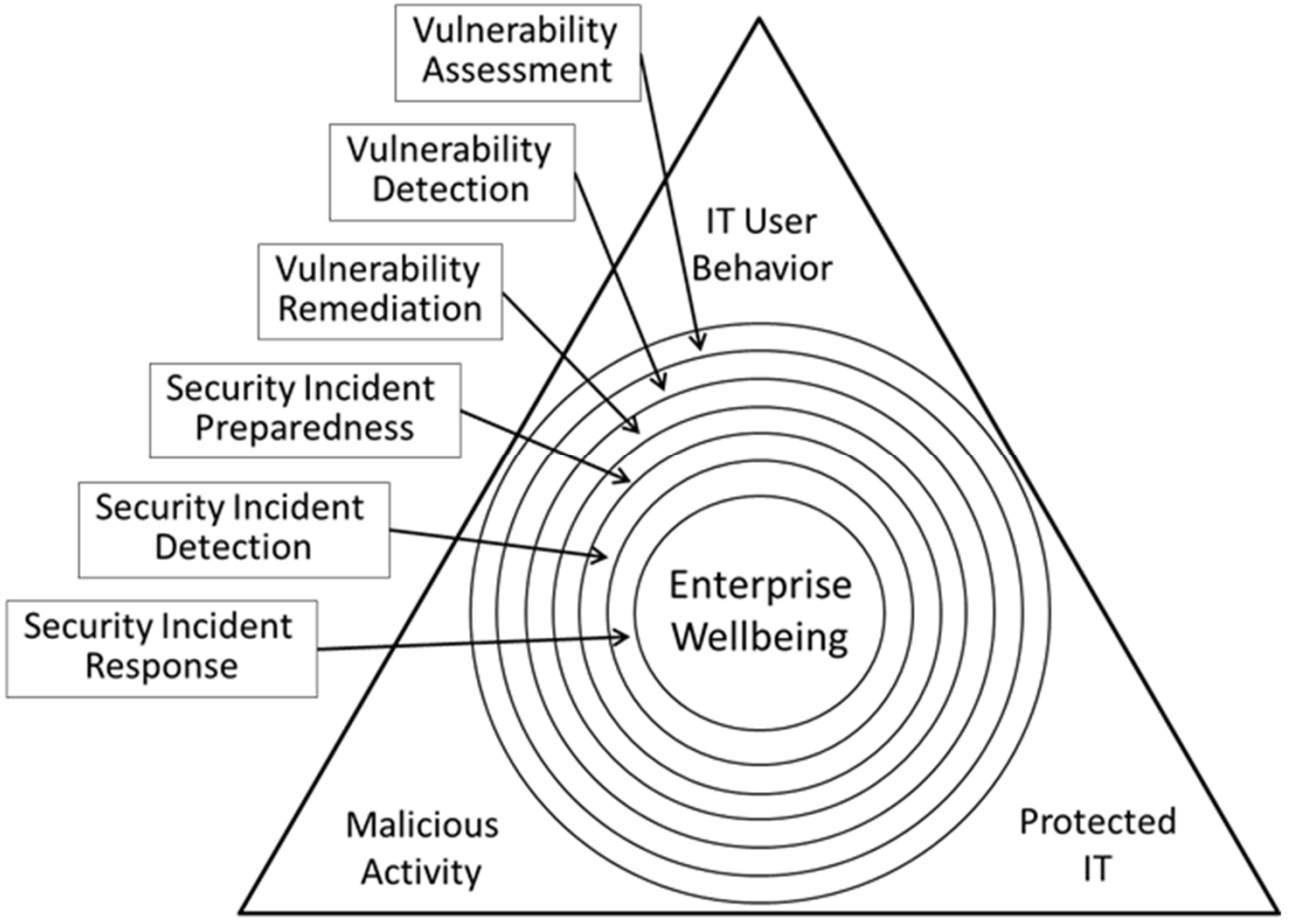
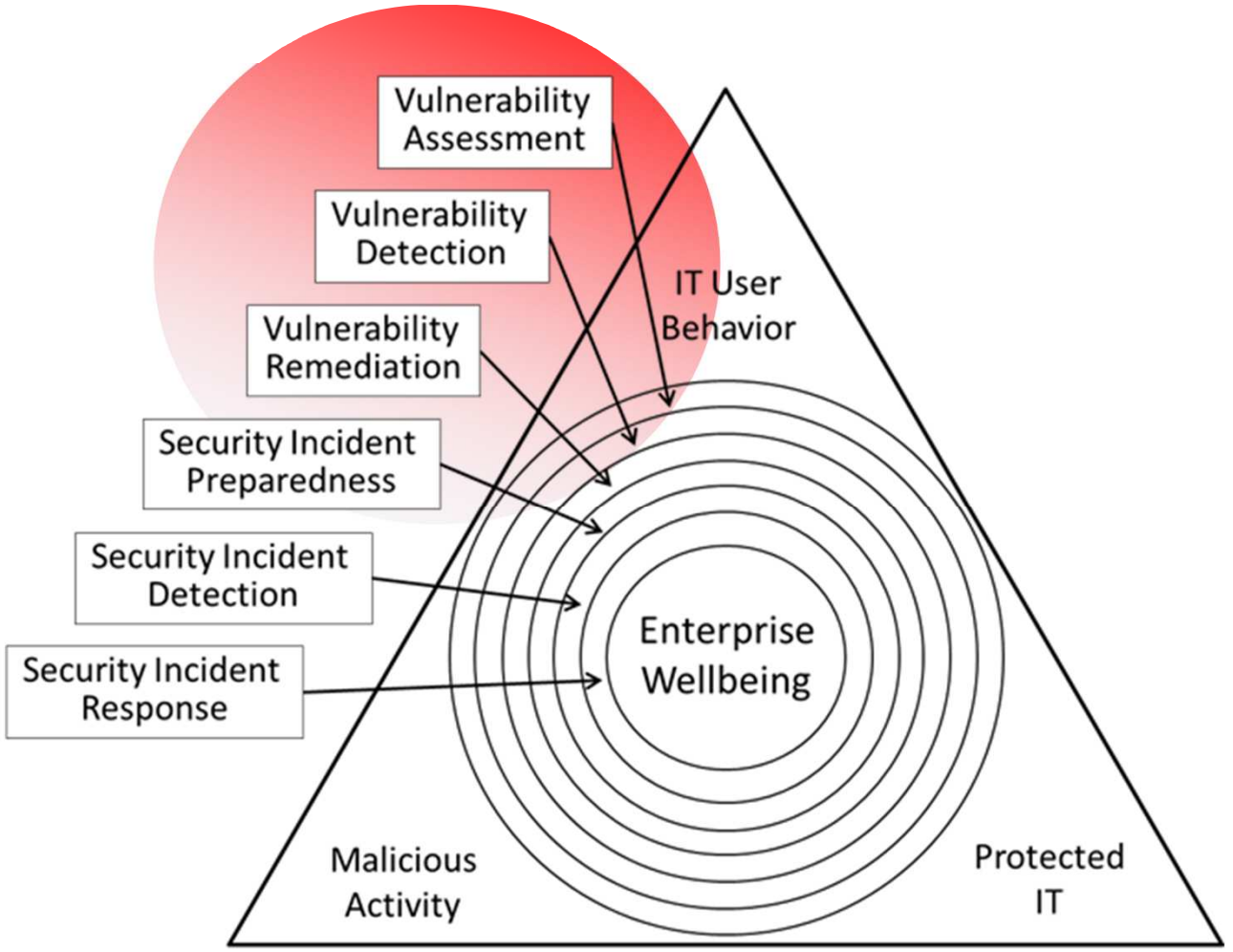


Vulnerability assessment within the context of overall cybersecurity



Vulnerability assessment within the context of overall cybersecurity



Triunal Model of Cybersecurity Vulnerability

Three contributing sources, or triunes:

- malicious activity
- protected IT
- facilitating adverse user behavior

Estimating the vulnerability level

The vulnerability level of the infrastructure is defined as **a probability of at least one threat** is able to be executed on **at least one device** used by **the given users** in the infrastructure.

Mathematical background

K. Hadarics, K. Győrffy, B. Nagy, L. Bognár, A. Arrott, F. Leitold:
Mathematical Model of Distributed Vulnerability Assessment

9th International Scientific Conference, Security and Protection of Information, 2017, Brno, Czech Republic

F. Leitold , A. Arrott, K. Hadarics:
Quantifying cyber-threat vulnerability by combining threat intelligence, IT infrastructure weakness, and user susceptibility

24th Annual EICAR Conference, Nuremberg, Germany, 2016

more information: www.secudit.com

$$p_s(l) = 1 - \prod_{\text{for all } t,u \text{ and } i} (1 - p_{user}(t,u) \cdot p_{device}(t,i) \cdot p_{prev}(t,l))^{k(t,u)}$$

How can we use this calculation?

- customized metrics
- identify dangerous users' behavior
- identify vulnerable IT elements
- estimate different contributions
  - users' groups
  - devices' groups
  - threat types
- "what if" estimations

How the Secudit system is affected by the GDPR?

Legal aspects of personal data processing under GDPR

- World Economic Forum (2011):

  „Personal data will be the new "oil" – a valuable resource of the 21st century. It will emerge as a new asset class touching all aspects of society. (…) personal data represents a post-industrial opportunity."

- Legal uncertainty, costs and administrative burden
- Development of privacy-invasive tools
- Public distrust in emerging technologies

GDPR

ACCOUNTABILITY
(demonstrate compliance)

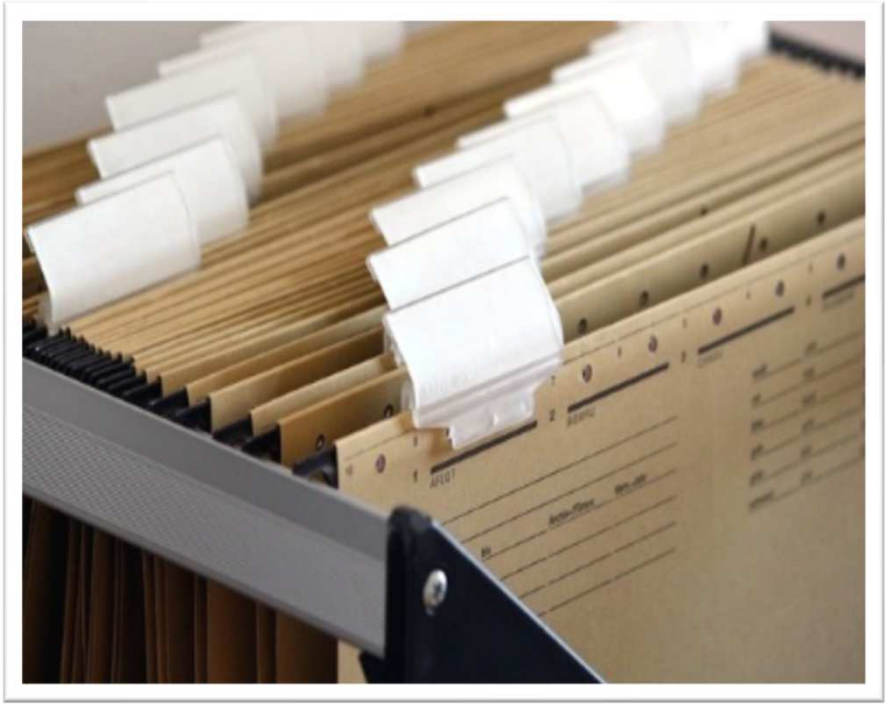
- lawfulness, fairness and transparency
- data minimisation
- purpose limitation
- appropriate security
- Shocking sanctions – 2 years of transition period

➢ Directly applicable

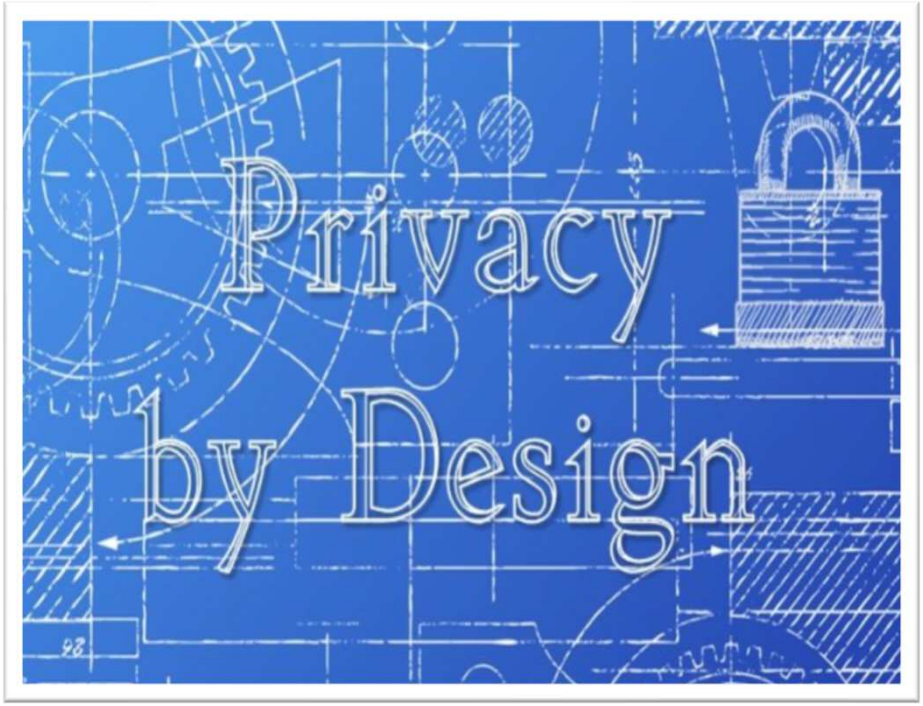
➢ Wide scope

How to get ready?

Awareness

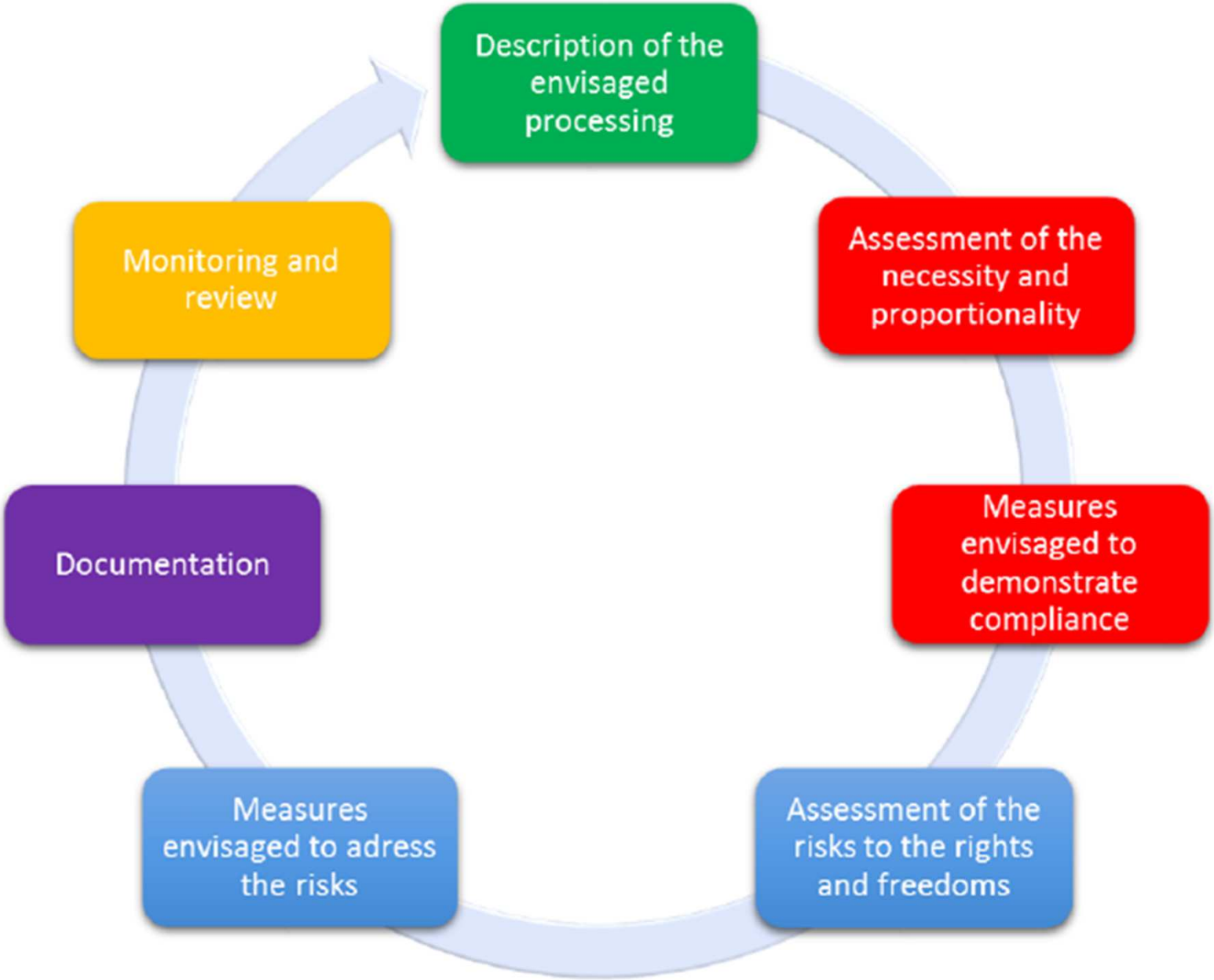


Data Protection by Design and by Default

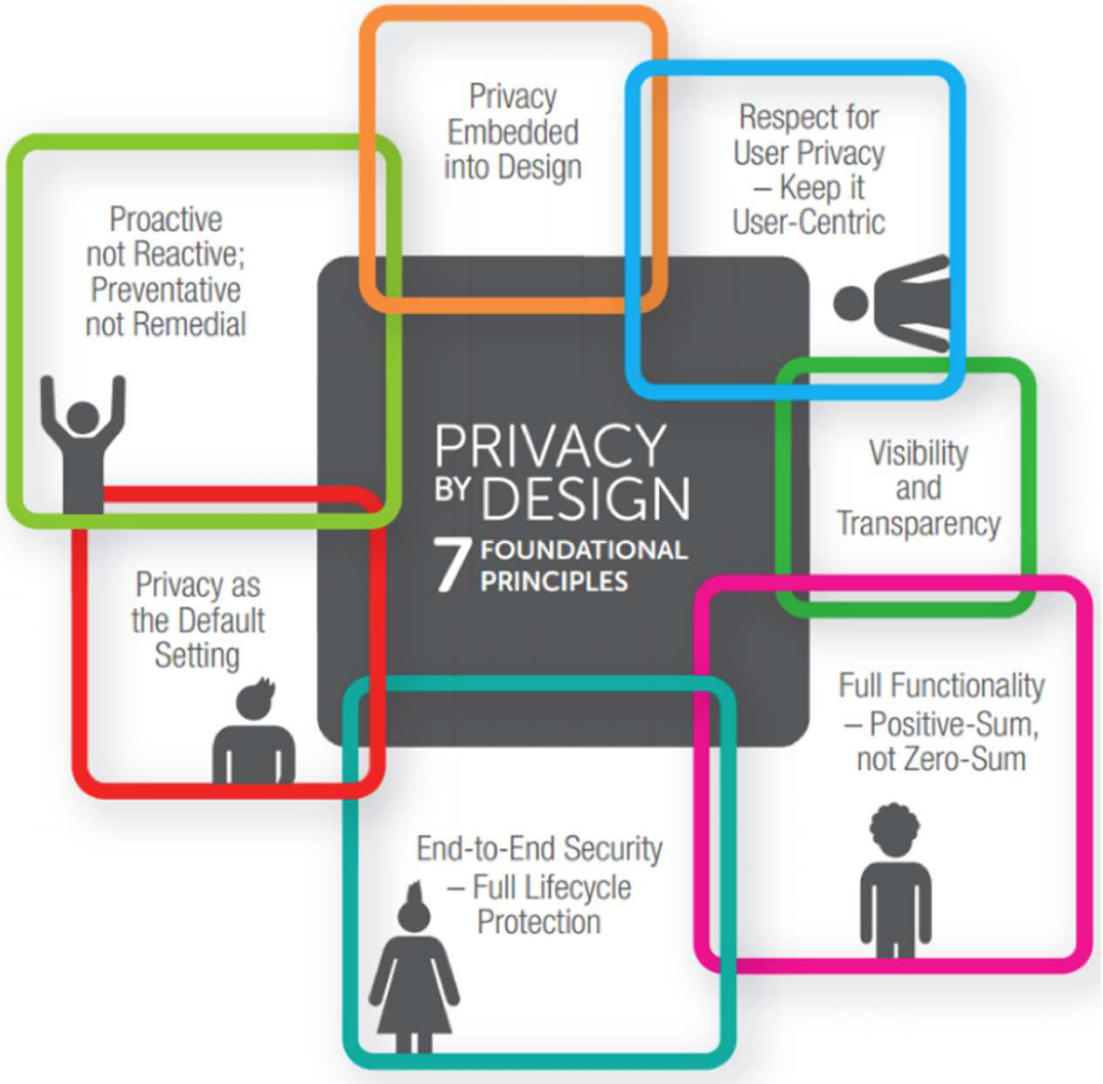


Awareness (planning and documenting)

1. **Create a road map (PDCA)**
2. **Inventory**
3. **Risk assessment framework**
4. **Data security and breach notifications**
5. **Rights of data subjects**
6. **Policies, DPO and trainings**
7. **Third-party and customer contracts**


Description of the envisaged processing
Assessment of the necessity and proportionality
Measures envisaged to demonstrate compliance
Assessment of the risks to the rights and freedoms
Measures envisaged to adress the risks
Documentation
Monitoring and review

Data Protection by Design



- Art. 25

  (…) the controller shall, both at the time of the determination of the means for processing and at the time of the processing itself, implement appropriate technical and organisational measures (…) which are designed to implement data-protection principles

- Goods or services
- Risk based – impact assessment
- Privacy engineering

What can we do?

What can we do?

Perform a lot of paper works required by the GDPR

… see above

+ create document samples for the users

Data protection by design

- decrease the amount of personal data
- limit the time for store the data
- provide possibility to check personal data for skateholders

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- email attachments
- executed programs/opened files

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Two information sources:

- email attachments
- executed programs/opened files

For this purpose we do NOT need the email or the attachment itself, we need only the hashes of the attachments and the executed programs/opened files.