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SOTER

Human Factors Based Non-Tech Risk Mitigation in Finance

Online Training Workshop on Finance Sector Security

Eva-Maria Griesbacher (Uni Graz) / Martin Griesbacher (RISE)

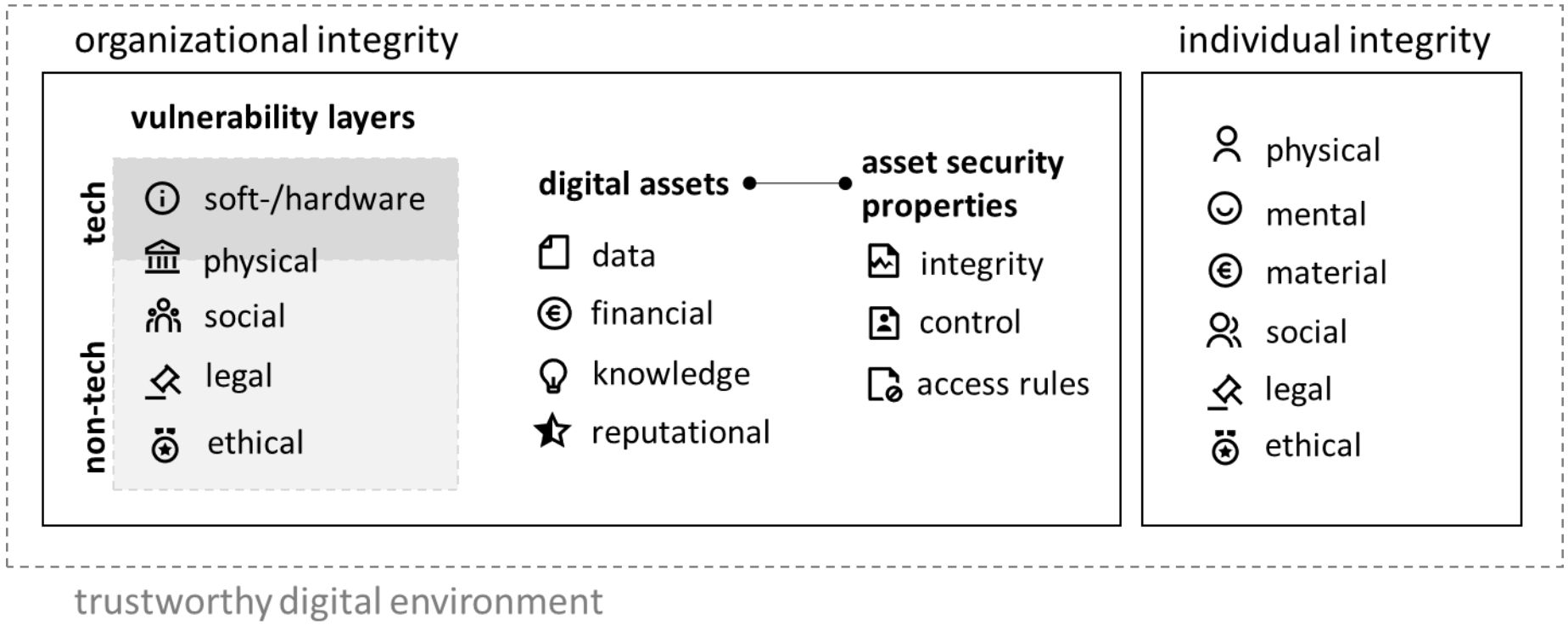
January 14th 2021

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 833923

Context

- Horizon 2020 project SOTER (IA) „Cybersecurity Optimisation and Training for Enhanced Resilience in Finance“
- Two key objectives
  - Technological: digital onboarding process
  - „Non-technological“: Cybersecurity Competence Training
    PIs: **Eva-Maria Griesbacher**, **Paul Rabel** (Uni Graz); **Robin Renwick** (Trilaterial Research Ireland); **Martin Griesbacher** (RISE)
- Partners:

Localisation of human factor based Cybersecurity Risks (HFCR)



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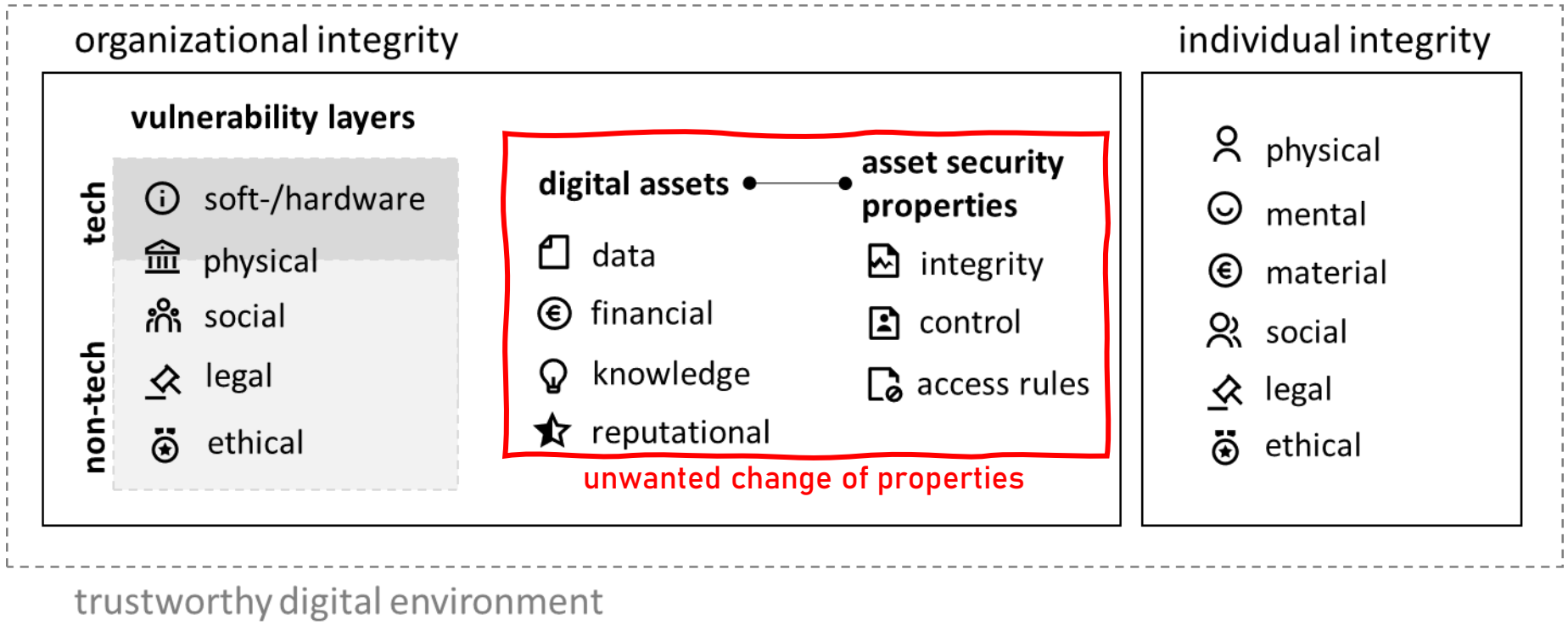

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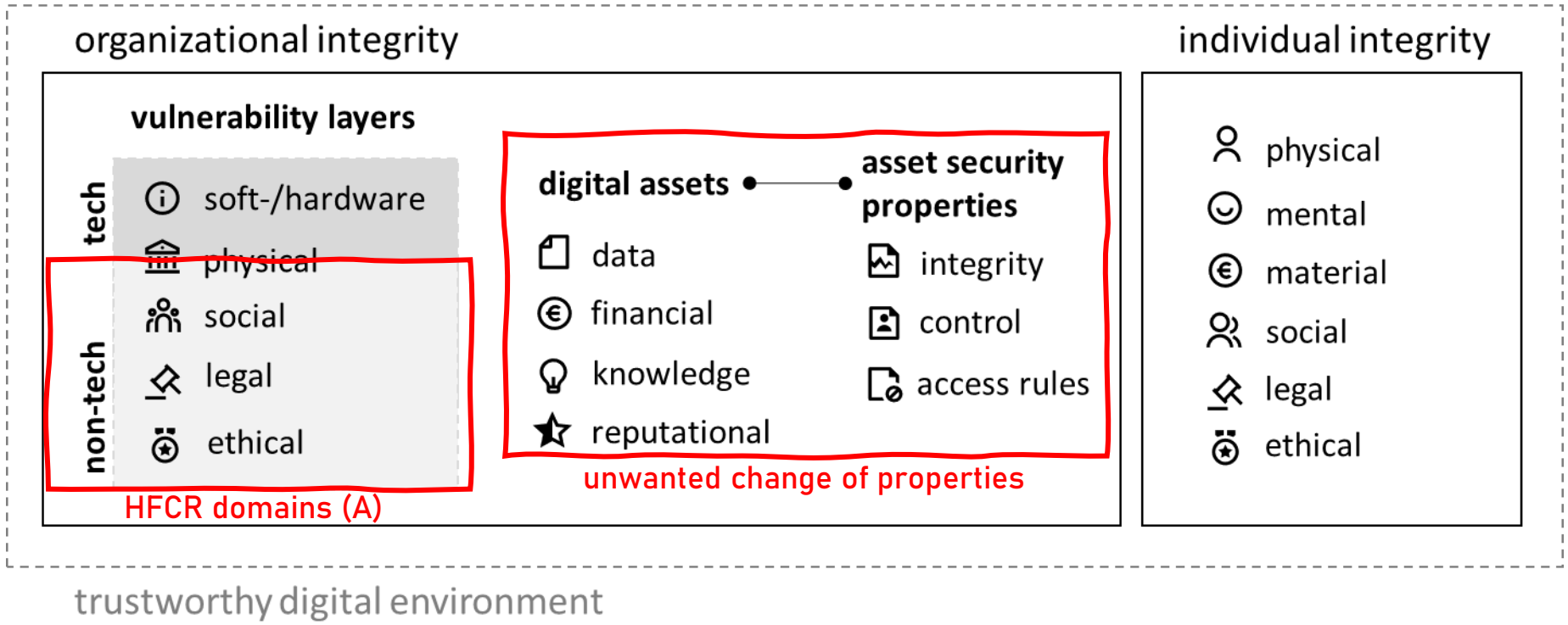

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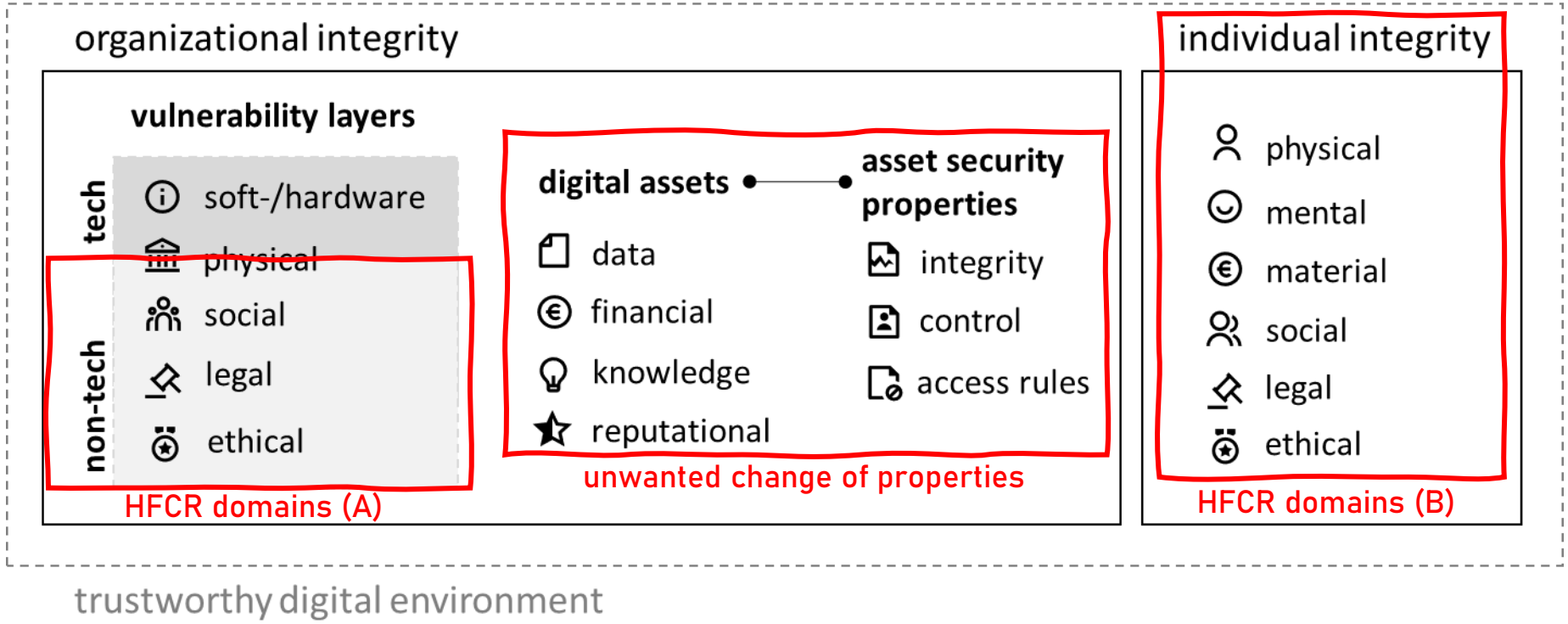
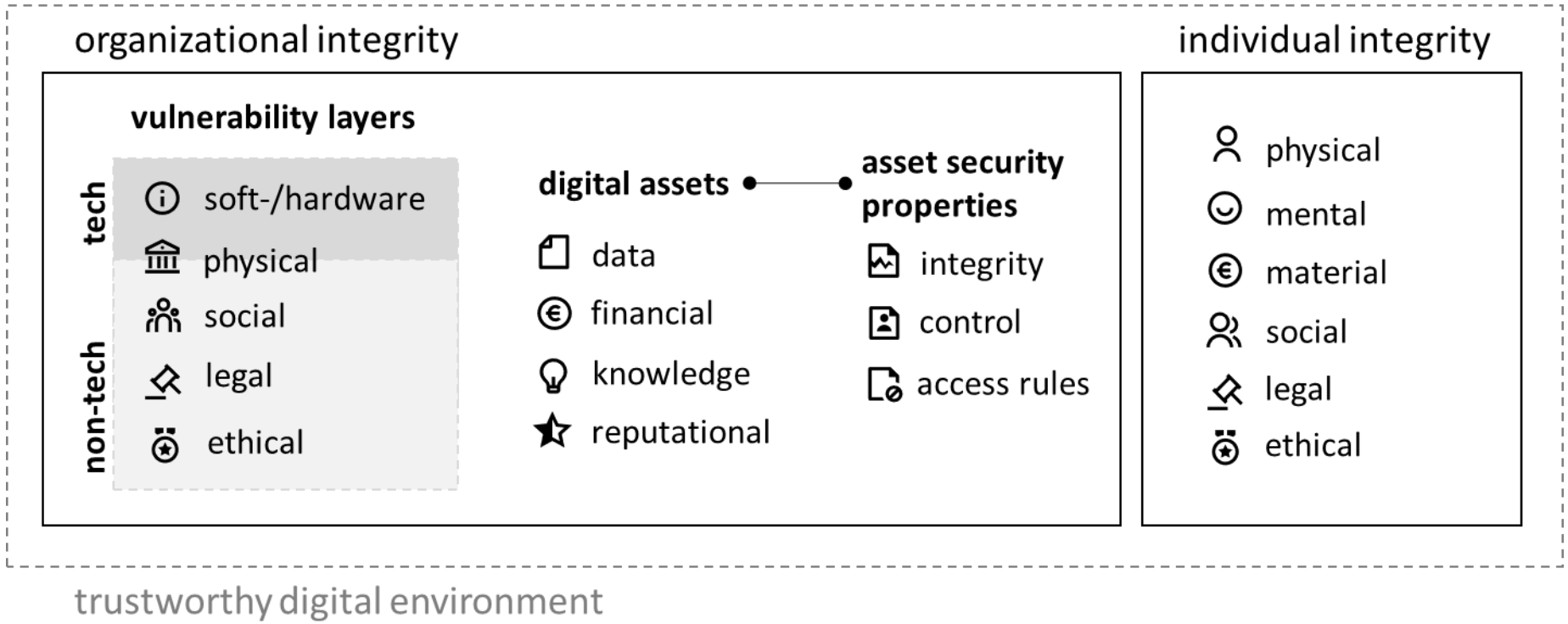


HFCR mitigation strategies

naive optimism “strategy” vs. control regime strategy?



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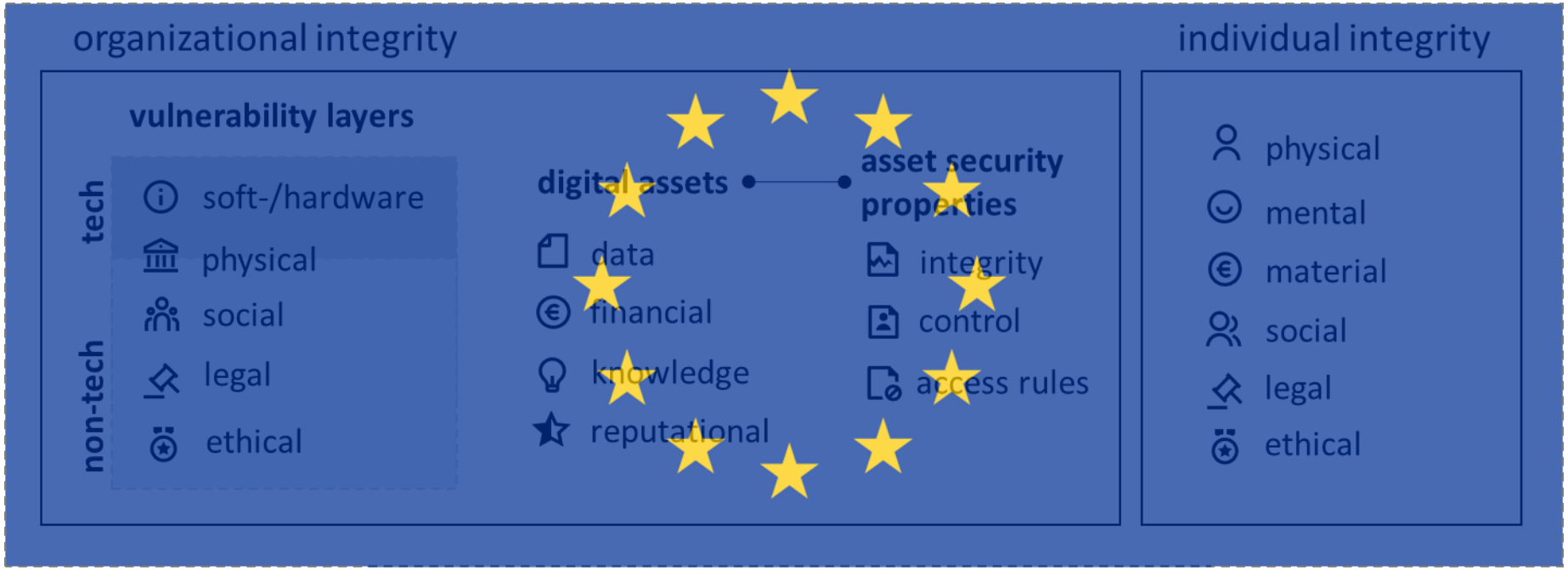
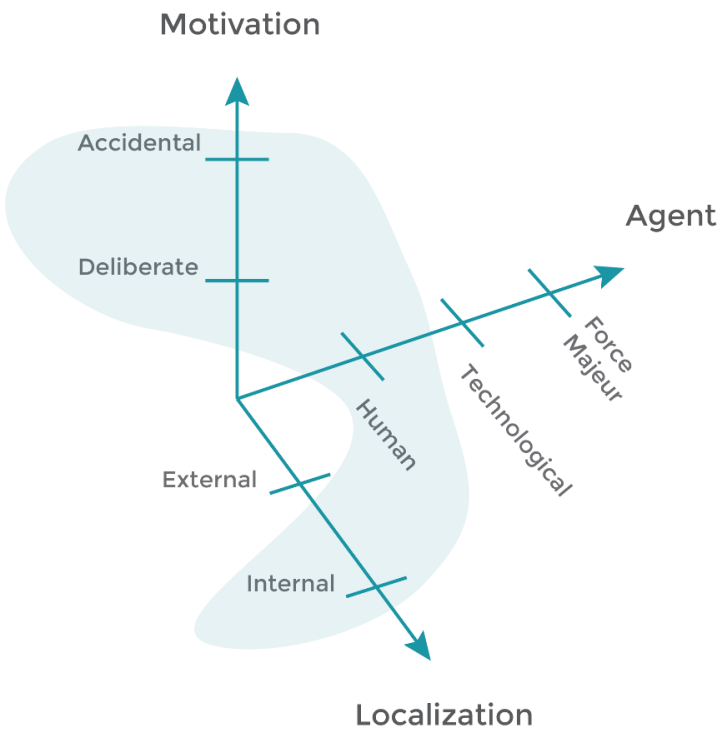


→ trustworthy digital environment strategy!

HFCR basics (organizational perspective)



Source: Mapping of human behaviour related threats and mitigation measures (I), SOTER D2.1
Figure 2. Threat Dimensions in the context of SOTER (adapted from Ruf et al. 2008, p.2) by Robin Renwick

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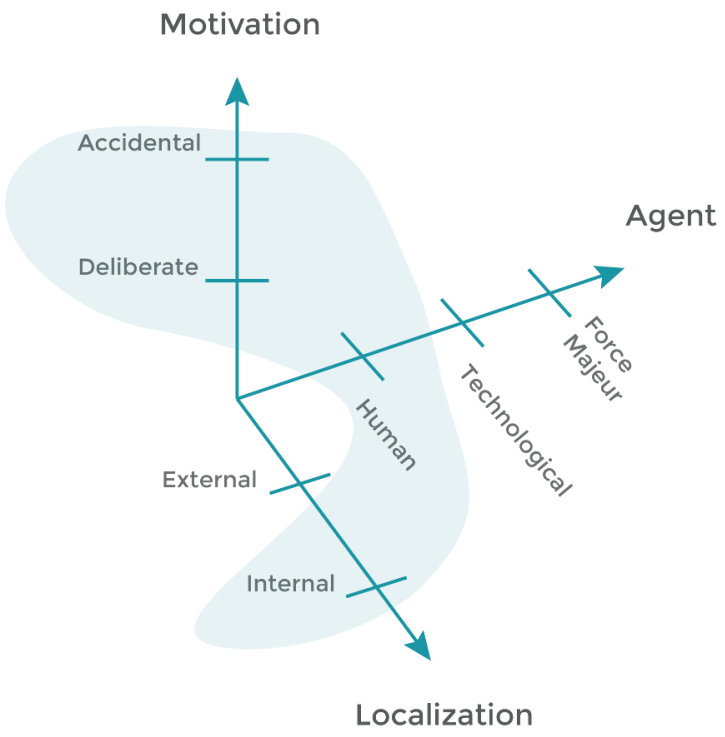

e.g.

- the incompetent employee
- the careless employee
- the stressed employee
- the disgruntled employee
- the greedy employee
- the compromised employee

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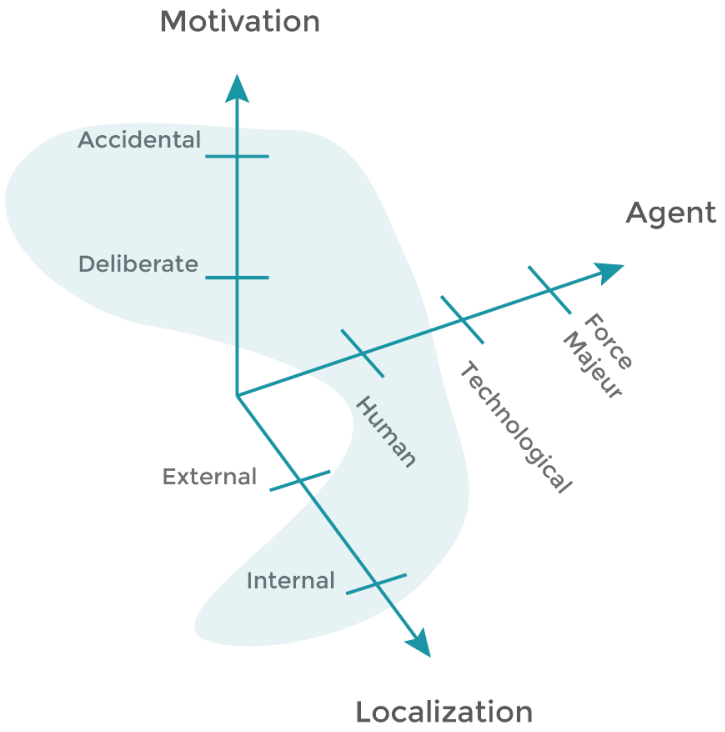

e.g.
- the incompetent employee
- the careless employee
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SOTER HFCR Areas of Concern

1.Human error
- a. Lack of compliance
- b. Negligence
- c. Malpractice

2.Malicious insiders

Actions intended to harm the organisation

3.Legal & ethical threats
- a. Regulation (e.g. GDPR) related incidents
- b. Disinformation
- c. Public perception of organization

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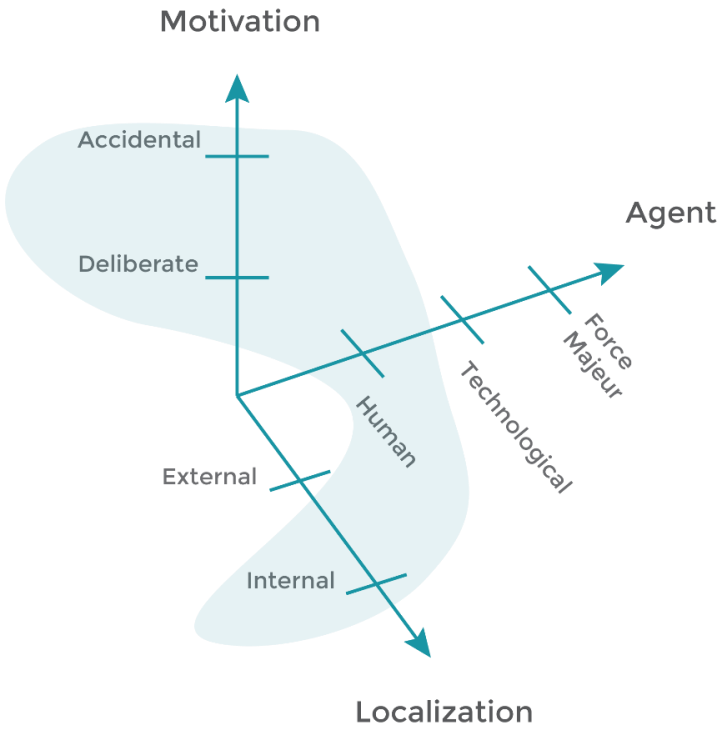

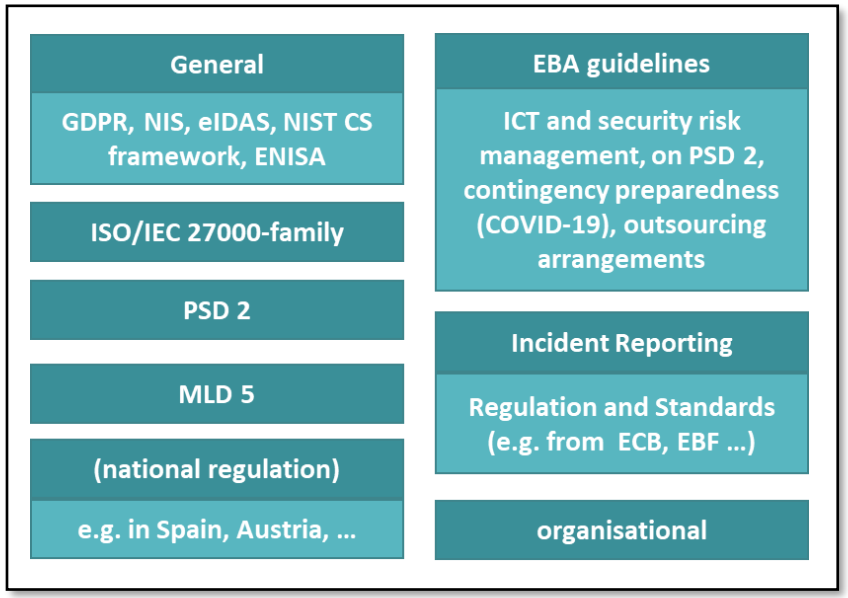

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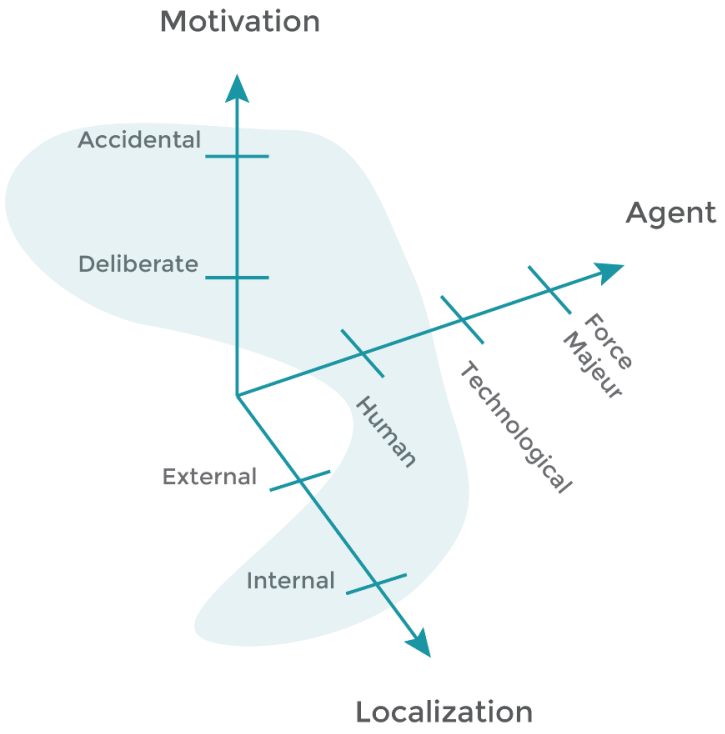

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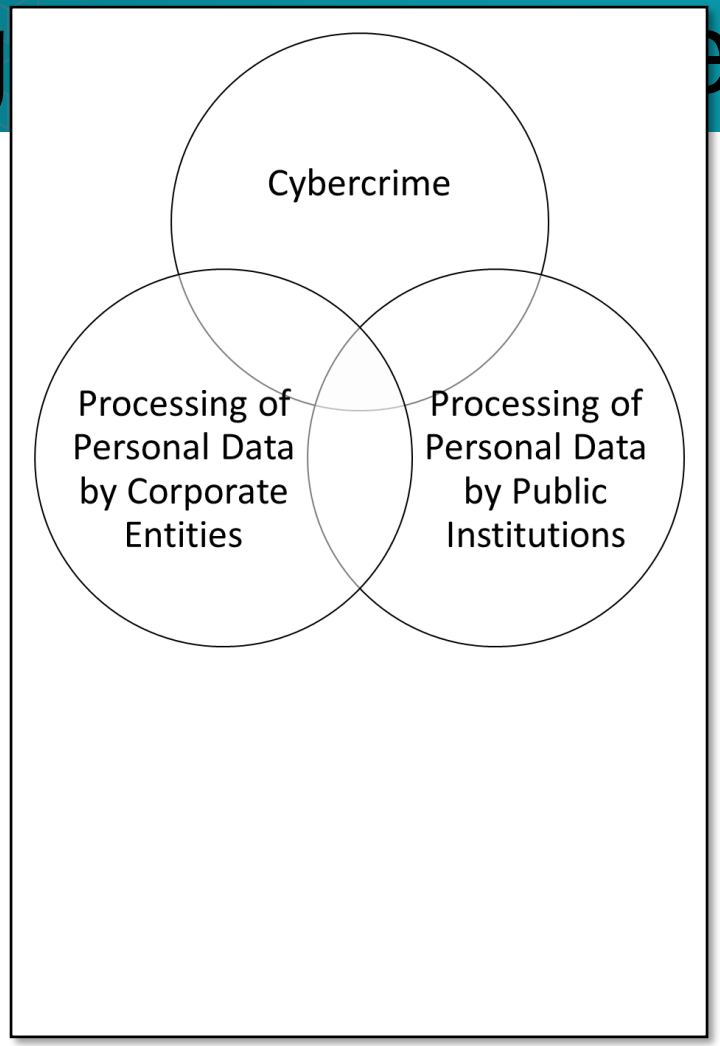

Source: TRUESSEC.eu, D3.1 (EC H2020 CONTRACT: 731711)

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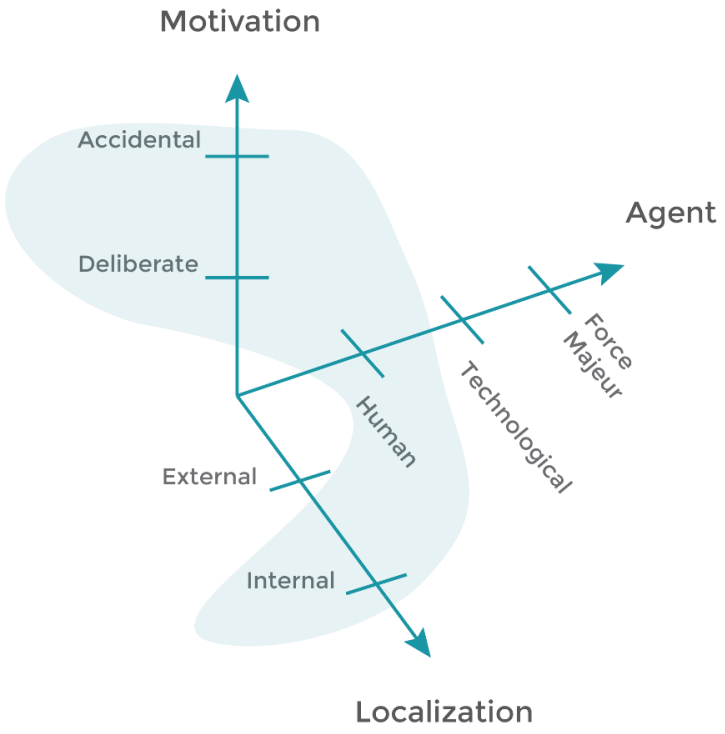

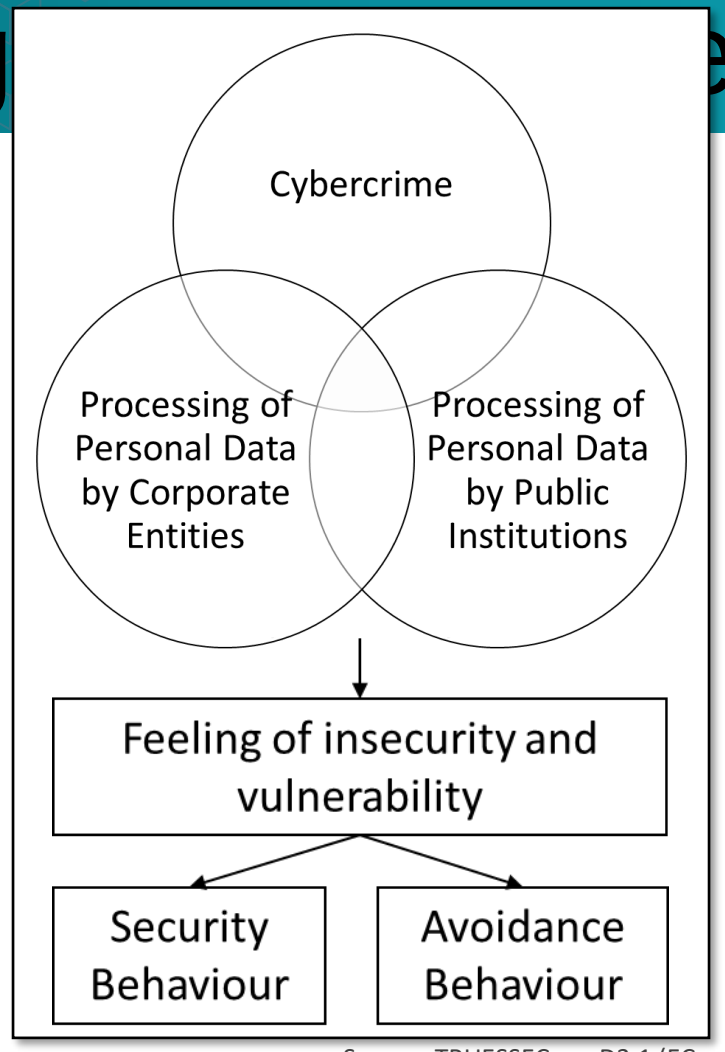

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The Search for HFCR

ENISA Top Threats 2020-01 to 2020-06

1. Malware
2. Web-based attacks
3. **Phishing**
4. Web application attacks
5. Spam
6. DDoS
7. Identity theft
8. Data breach
9. **Insider threat**
10. Botnets
11. Physical manipulation, damage, theft and loss
12. **Information leakage**
13. Ransomware
14. Cyberespionage
15. Cryptojacking

ENISA Attack vectors

- **Attack the human element**
- Web and browser based attack vectors
- Internet exposed assets
- Exploitation of vulnerabilities/ misconfigurations and cryptographic/ network/security protocol flaws
- Supply-chain attacks
- Network propagation/lateral movement
- Active network attacks
- Privilege or user credentials misuse/escalation
- Fileless or memory-based attacks
- **Misinformation/disinformation**

Common Attack Pattern Enumeration and Classification (CAPEC, selected)

- Parameter injection
- Pharming
- Phishing
- Fake the source of data
- Principal Spoof
- Establish rogue location
- Clickjacking
- Malicious software download/update
- Pretexting
- Influence Perception
- Target Influence via Framing
- Influence via Incentives
- Obstruction (Physical Security)

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   Actions intended to harm the organisation

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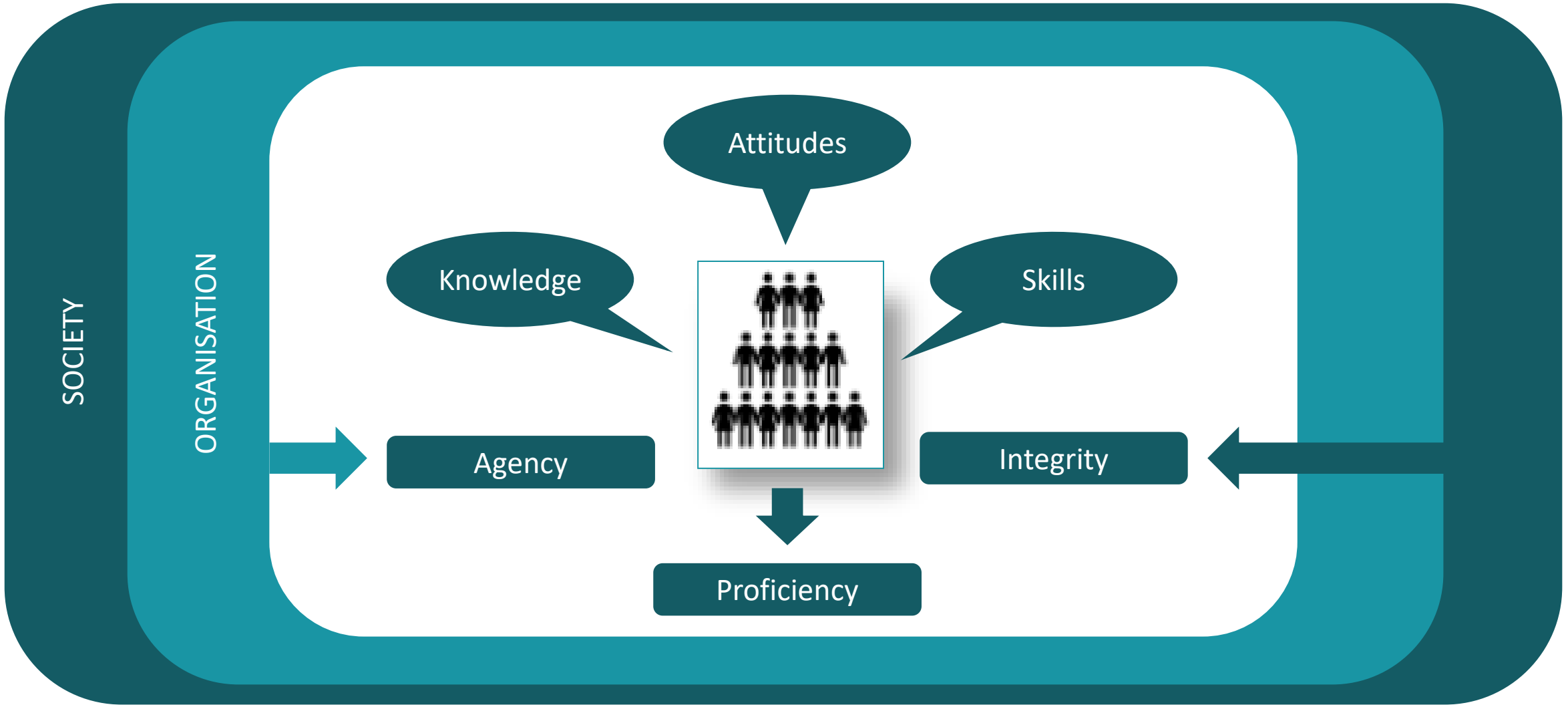
Sources:
ENISA threat taxonomy 2016, ENISA attack vector taxonomy 2016, ENISA List of top 15 threats 2020-01 to 2020-04; CAPEC (https://capec.mitre.org) , soterproject.eu

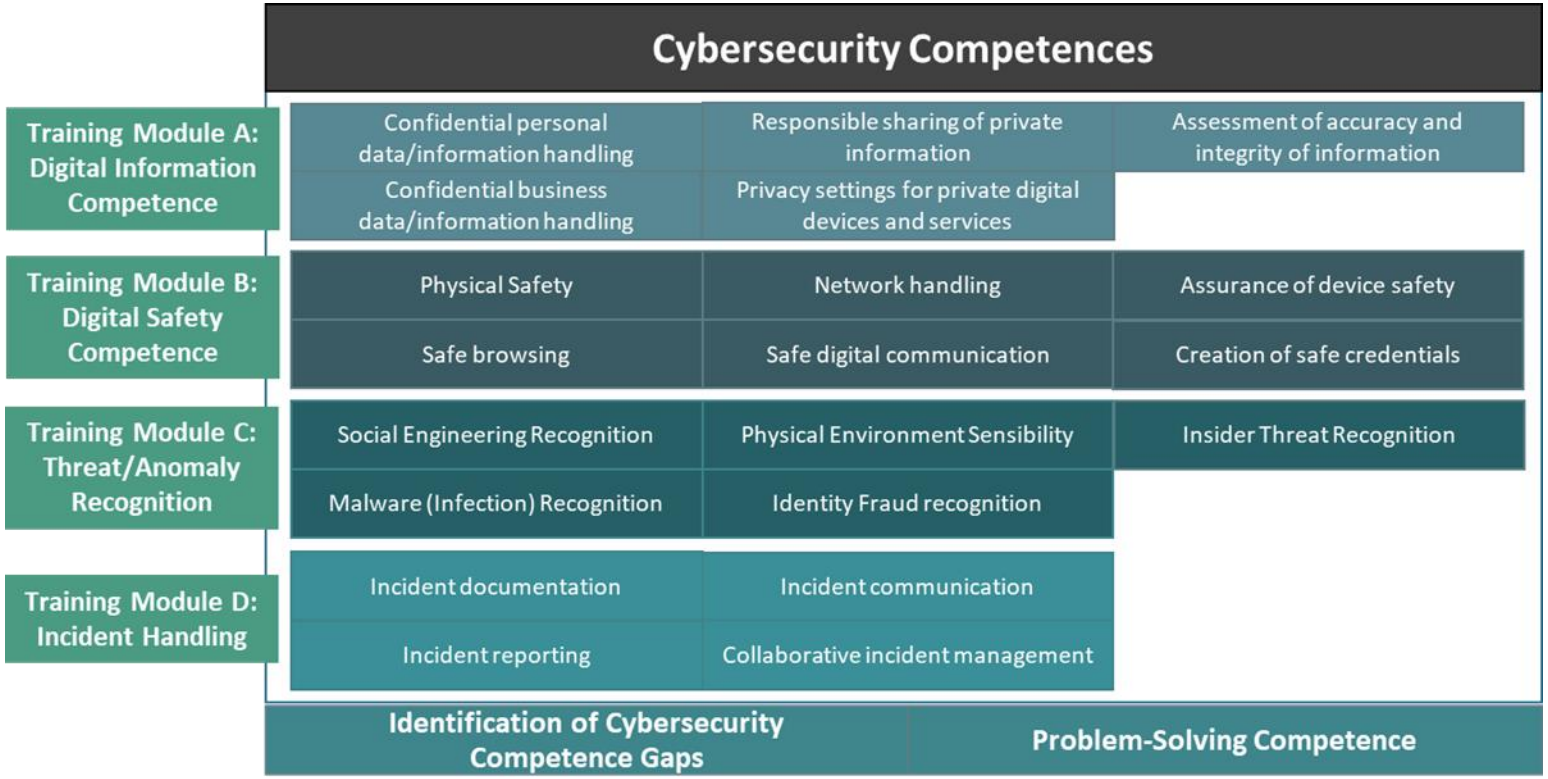
Mitigation through Competence Training



Mitigation through Competence Training

*Cybersecurity competence comprises the **capability**, **willingness, motivation** and **agency** of people to **solve cybersecurity problems individually or in cooperation with others** based on their **knowledge**, **skills** and **proficiency** in a form and way that organisational integrity as well as **physical, mental, material, social, ethical and legal integrity** of the individuals involved is **measurably** safeguarded.*

SOTER Cybersecurity Competence Catalogue



Mitigate Human Error Risk

Identify:

- What to train
- Who to train
- How to train

1.Human error → **Training of employees**

a. Lack of compliance
b. Negligence
c. Malpractice

2.Malicious insiders → **Training on management level**

Actions intended to harm the organisation

3.Legal & ethical threats → **Training on management level**

a. Regulation (e.g. GDPR) related incidents
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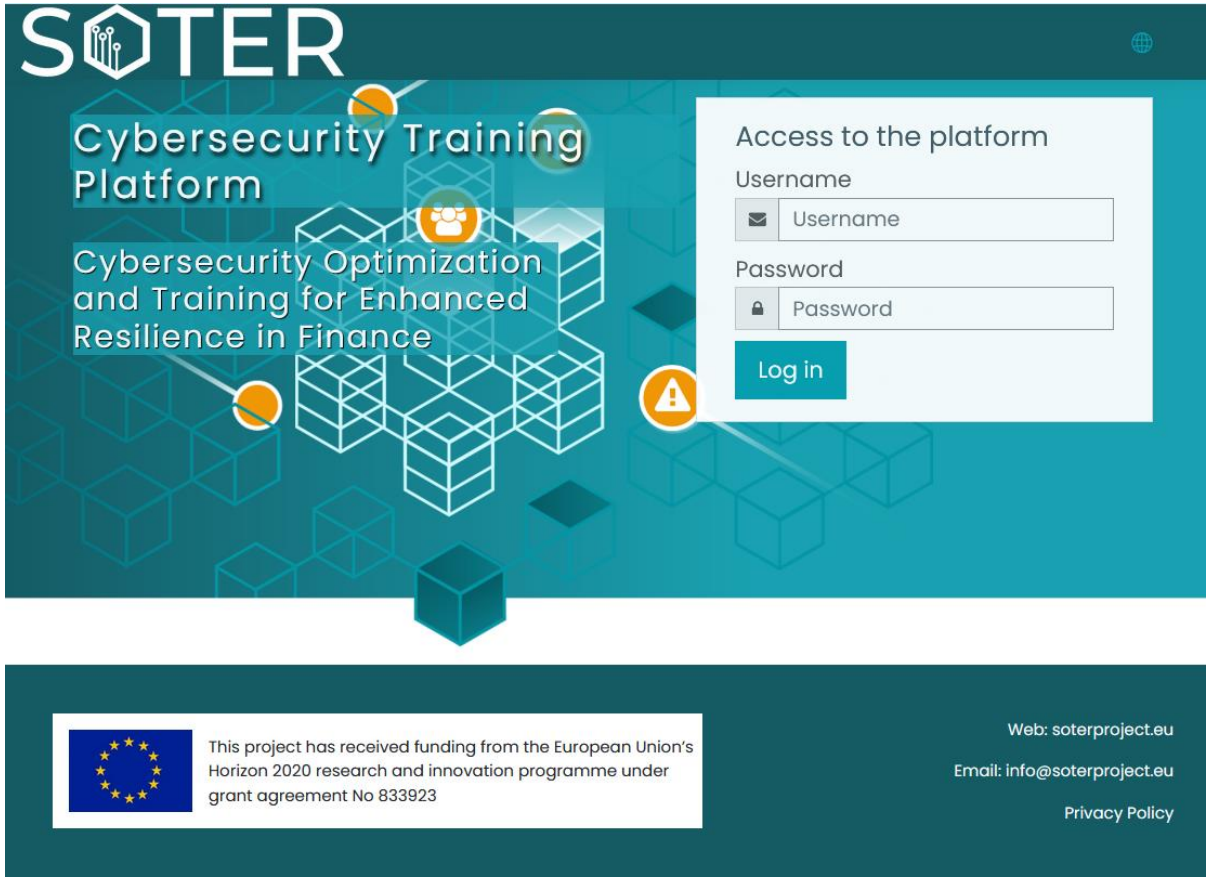
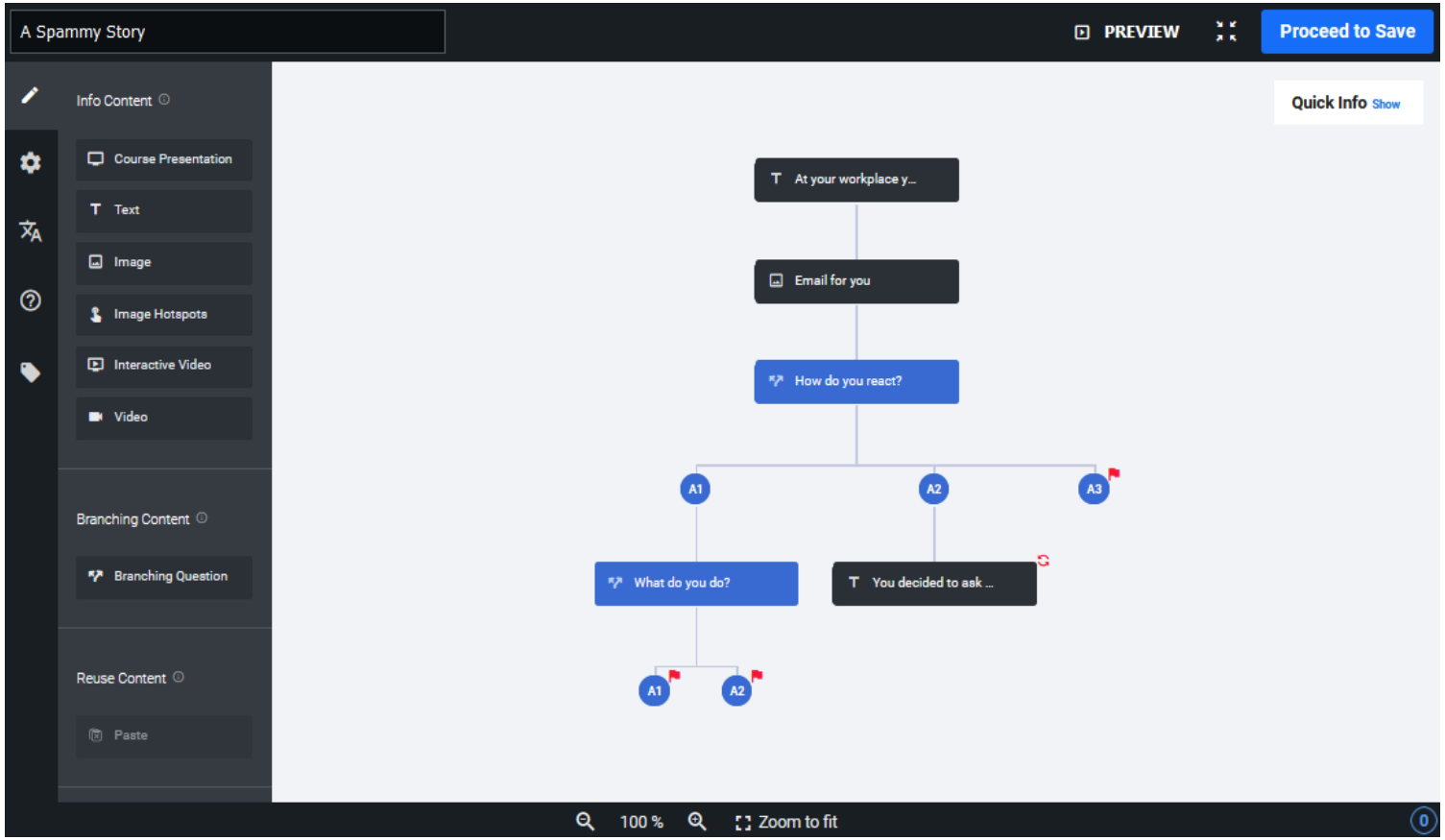
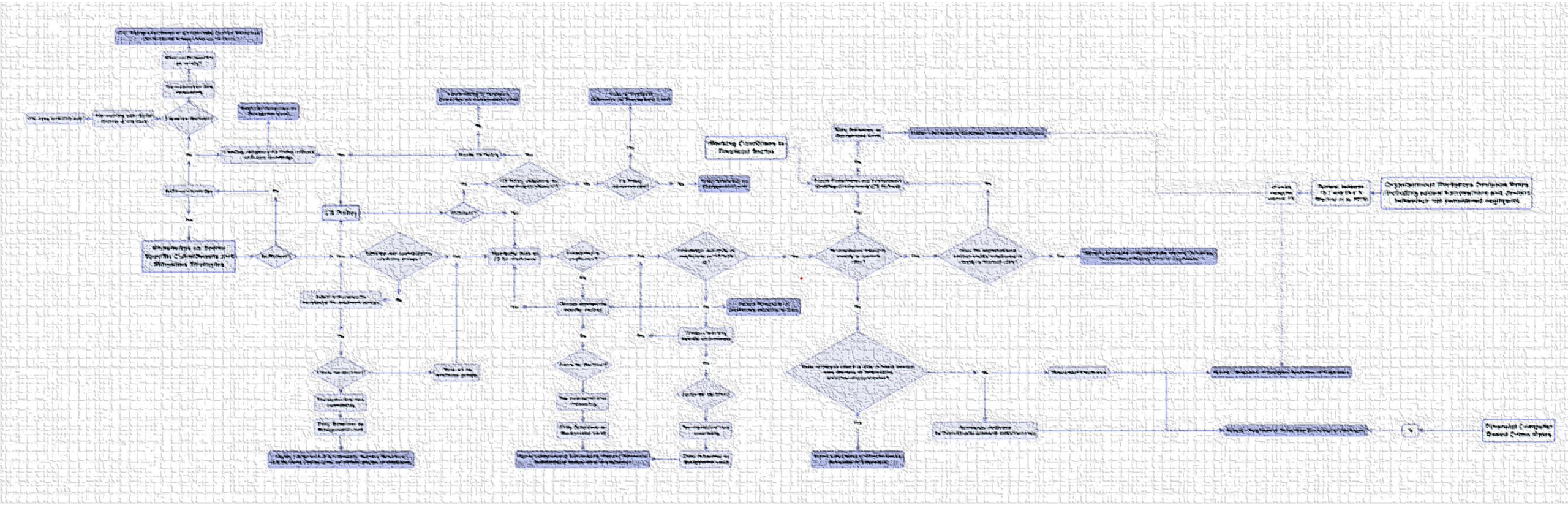
SOTER
Cybersecurity Training Platform



H5P Branching Scenario Editor for CSCT Storyline Elements



The HFCR Mitigation Flowchart



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Questions?

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