Pitfalls of Security testing

ICS / SCADA / (I)(I)OT

Dieter Sarrazyn
https://secudea.be

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OT Security since 2008

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About Dieter Sarrazyn

IN CERVISIA VERITAS
EST. 2016
BEER ISAC

Reviewing committee IEC 62443

ISASecure Technical committee

Co-chair OT Focus group CyberSec Coalition

#Nuclear
#Energy
#Mining
#Food
#Utilities
#Transport
#Pharma
#Chemical

Pitfall #1 – Lack of planning

- Security testing is almost always an afterthought …
- Almost NEVER included in project planning …
- Sometimes included in project budgets …

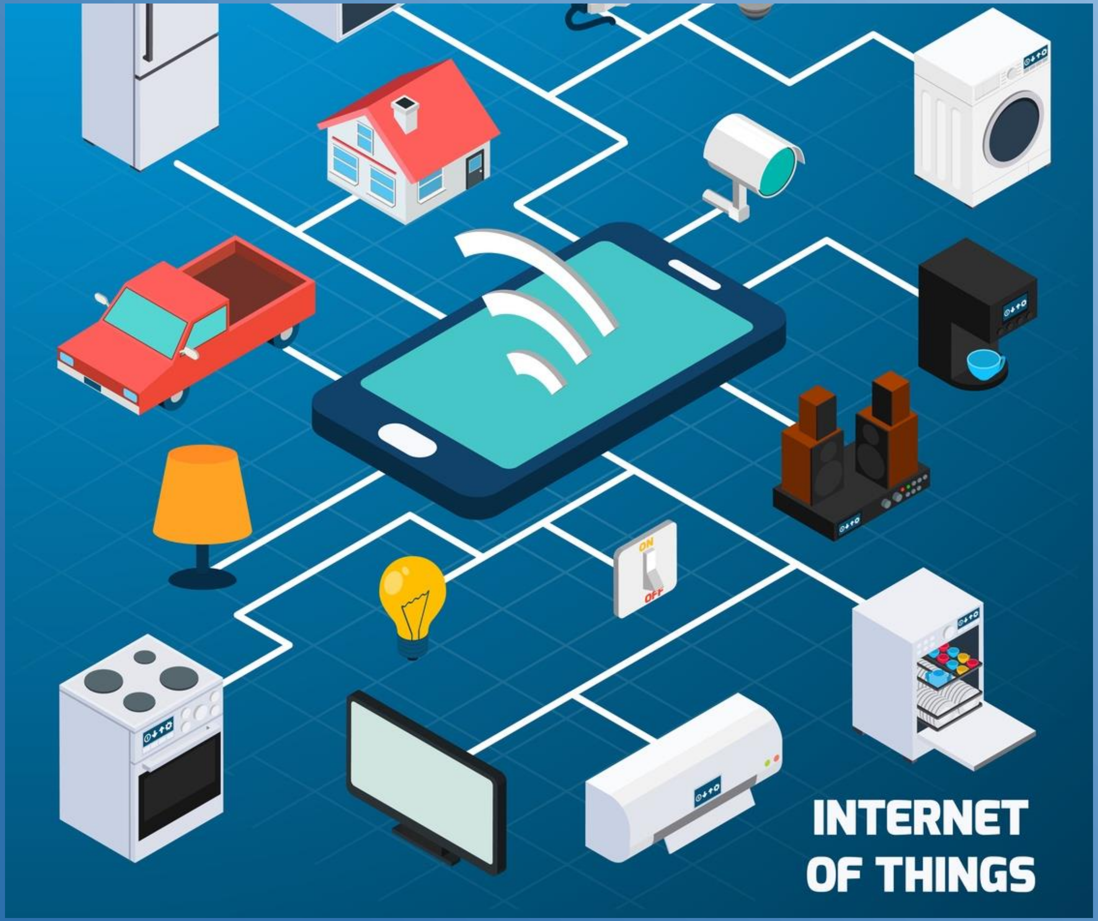
Pitfall #2 – Lack of Sufficient testing time

- Sometimes you don’t need (a lot of) time …
- Sometimes you very much need it …
- Implementation of CRA requirements could increase needed testing time …

Pitfall #3 – Insufficient testing devices

- If you only have a single device to test (play) with … Would you do all tests in your test arsenal ???
- Even DoS attacks that (could) brick the device… ???

- So have multiple test devices at hand !!
- Also important to verify issues



https://www.mistralsolutions.com/blog/iot-testing-processes-building-robust-iot-system/

Pitfall #4 – Lack of Permission

- Important in production environments
- Also sometimes in staging environments
- Have a work permit prior performing tests!!!
  - Testing allowed
  - Testing traced
  - Necessary precautions taken & mentioned

Pitfall #5 – Lack of decent testing checklist

- Include all requirements (CRA, IEC62443 …)
- Security <> Compliancy !!
- So leave room for additional tests/checks

ISTG

IoT Security Testing Guide

Luca Pascal Rotsch
Aaron Guzman

OWASP

Pitfall #6 – Scope creep…

- Don’t just go beyond your scope
- Its not good for you
  - Economically
  - Liability wise

- Either stick to your scope …
- Or stop testing and discuss scope extensions …

How to improve? Security Testing Strategy

- Standardize your approach
  - Add specific tests after requirements analysis & risk assessments
  - Include the full “Device chain”
  - Include the accessibility of the device

- Be ready to include (& educate) vendor/ops/…
  - Their maturity will increase
  - Future projects will be better on security level
  - Future testing will be better planned…

- Security testing should be embedded within current regular project QA processes

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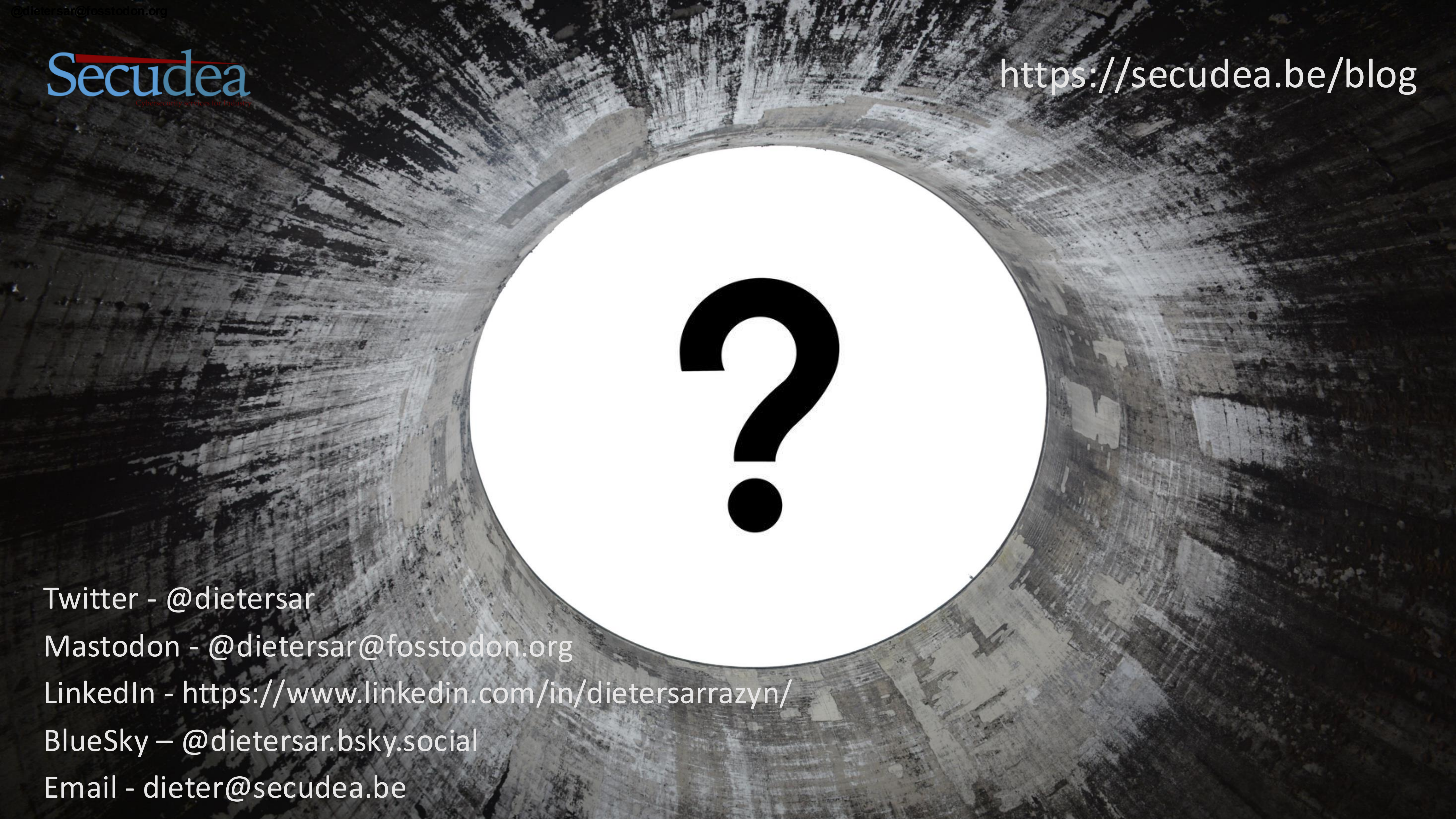

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