



Cyber
Security
for Europe
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CyberSec4Europe: CyberSecurity Roadmap

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WP4: Roadmap for CyberSecurity Research

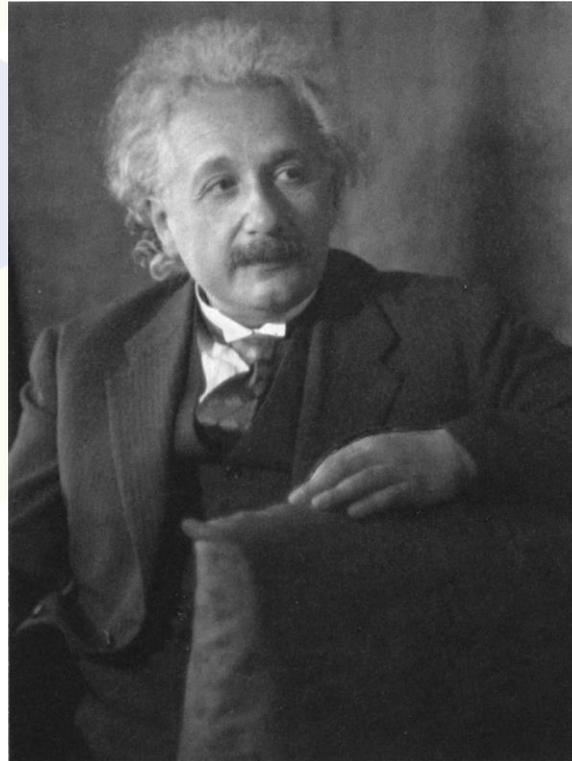
- We define a **Roadmap** for CyberSecurity Research
- What is it?
- **A set of activities** that need to be done in order to address the problem of cybersecurity



Roadmapping: How do you go about it?

*The important thing is **never to stop questioning***

--Albert Einstein



Roadmap? How

- Asked a series of questions:
 - **What** is **at stake**?
 - **What needs to be protected?**
 - What is **expected to go wrong**?
 - What is **the worst thing** that can happen?
 - **Who are the attackers?**
 - What are the research challenges in this area?
 - How do they impact **European Digital Sovereignty**?
 - Which of them need to be addressed in the
 - **Short** term?
 - **Medium** Term?
 - **Long** Term?

What?

Who?

How?

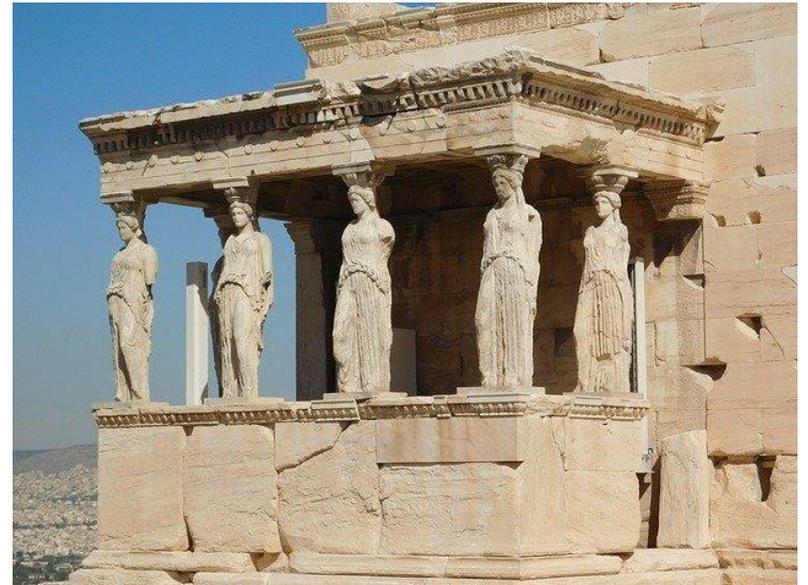
When?



Roadmap: Verticals

We focus Cybersecurity in on **Seven Verticals**:

1. Open Banking
2. Supply Chain
3. Identity Management
4. Incident Reporting
5. Maritime Transport
6. Medical Data Exchange
7. Smart Cities



What's next?

- Collaborate with the rest of the pilots
 - CONCORDIA, ECHO, SPARTA,
 - and ECSO (The European CyberSecurity Organization)
- to define a **common set of Research Priorities**
 - It is almost ready – already sent to JRC
 - to be part of CyberSecurity ATLAS
- to define a **common Roadmap** for cyber security research





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Open Banking: Research Challenges

1. Mapping of **stakeholder interaction** in end-to-end Open Banking processing
2. Setting up and discontinuing **business relationships**
3. Cross-border cooperation under differing legislation and security controls
4. Convenient and compliant **authentication**
5. Real-time **revocation** of right of access
6. Corporate Open Banking security



Supply Chain: Research Challenges

- Detection and management of supply chain security risks
- Security **hardening** of supply chain infrastructures, including cyber and physical systems
- Security and privacy of supply chain information assets and goods
- Management of the **certification** of supply partners
- Mapping of the Challenges to the Big Picture



Privacy and Identity Management: Research Challenges

- System-based **credential hardening**
- Unlinkability and minimal disclosure
- Distributed oblivious identity management
- Privacy preservation in blockchain
- Password-less authentication
- GDPR and eIDAS impact on Identity Management
- Identity Management Solutions for the IoT



Incident Reporting: Research Challenges

- Lack of **harmonization** of procedures
- Facilitate the **collection** and reporting of incident and/or data leaks
- Promote a collaborative approach for sharing incident reports to increase risk quantification, mitigation and thus overall cyber resilience



Maritime Transport: Research Challenges

- Early identification and assessment of **risks**, threats and attack paths for critical maritime systems
- Security **hardening** of maritime infrastructures, including cyber and physical systems
- **Resilience** of critical maritime systems
- Maritime system communication security
- Securing **autonomous** ships



Medical Data Exchange: Research Challenges

- Security and privacy
- Mechanisms for **preserving user data privacy**
- **Trustworthiness** on the data exchange platform
- Accomplish regulation during the data sharing process
- Data exchange platform user experience



Smart Cities: Research Challenges

- **Trusted Digital Platform**
- Cyber threat intelligence and analysis platform
- Cyber competence and awareness program
- Privacy **by design**
- Cyber response and resilience
- End user trusted data management
- Interoperability between legacy and new systems
- Cyber fault/failure detection and prevention
- Logging and monitoring
- Information security and operational security

