Electrical Power System's Shield against complex incidents and extensive cyber and privacy attacks

EnergyShield - PHOENIX - SDN-microSENSE: Workshop

23 July 2020

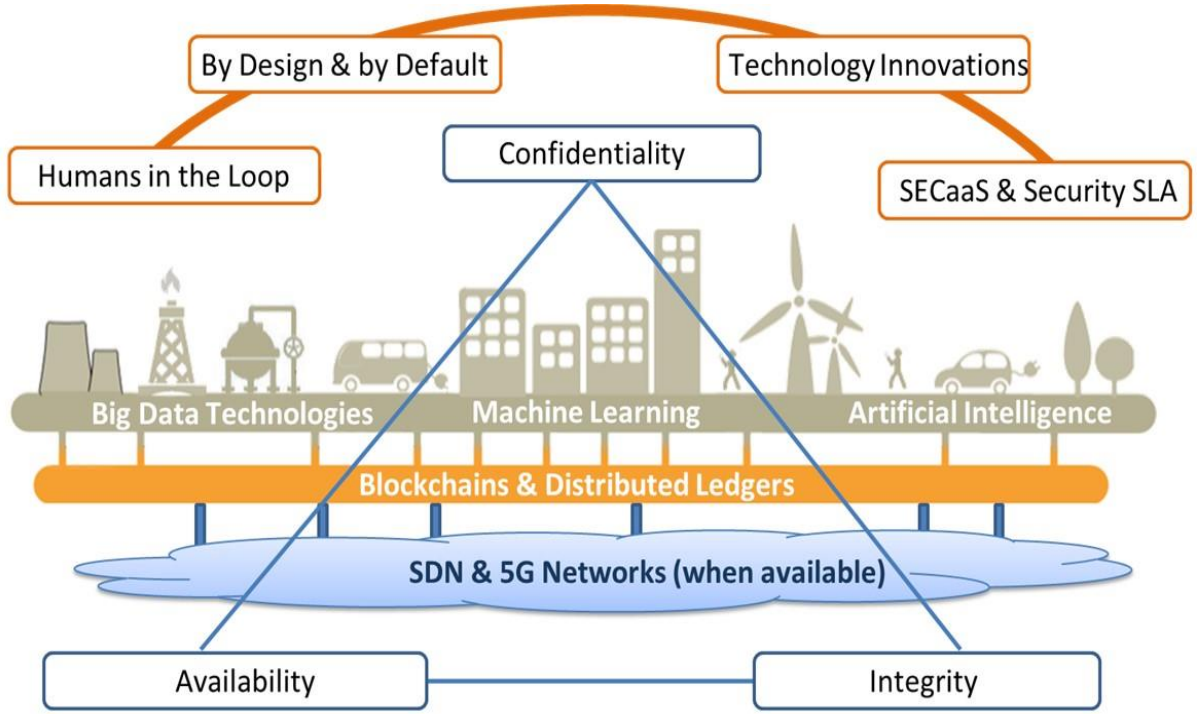
Project Facts and Objectives

- Funding: **EUR 8 million**
- Duration: **36 months (1-Sep-2019 to 30-Aug-2022)**

Strategic Objectives:

Protection of the Electrical Power and Energy System (EPES) via ***prevention***, ***early detection*** and ***fast mitigation*** of cyber-attacks while protecting the data privacy by design and by default.

- Strengthen EPES cybersecurity preparedness
- Coordinate EPES cyber incident discovery, response and recovery
- Accelerate research and innovation in EPES cybersecurity



PHOENIX Key Challenges, Pillars and Technologies

The Consortium: 24 Partners from 11 countries

PHOENIX

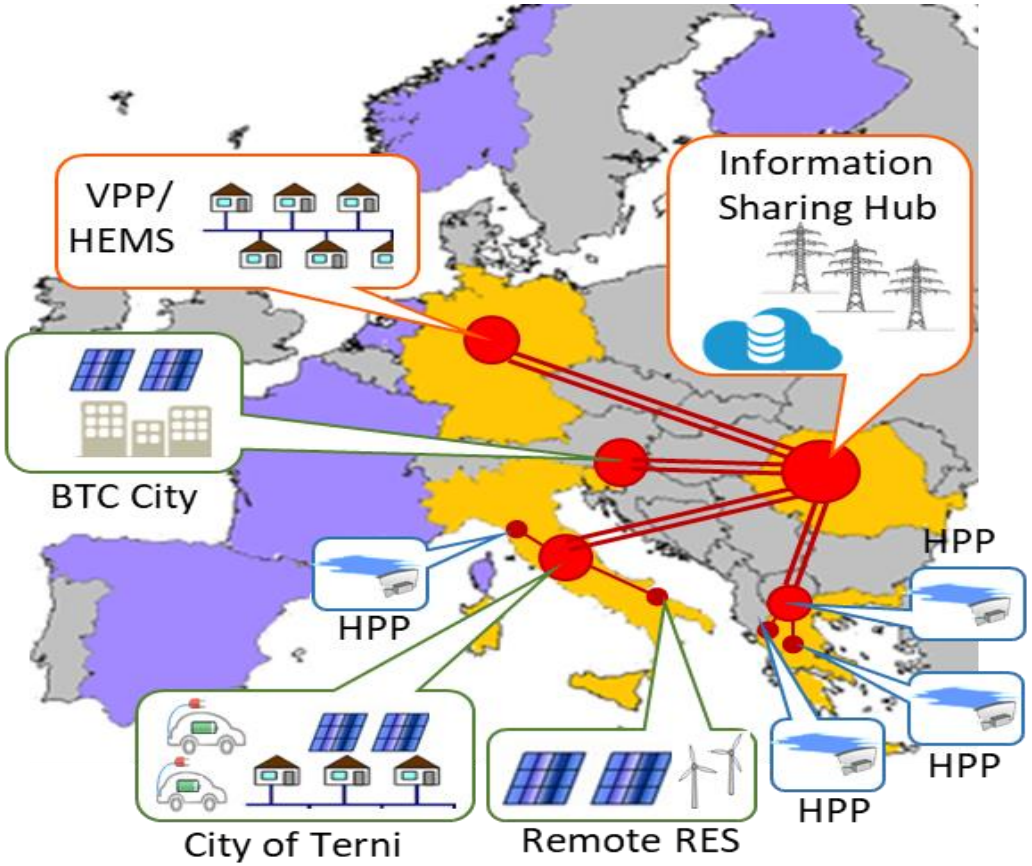
Coordinator

Capgemini

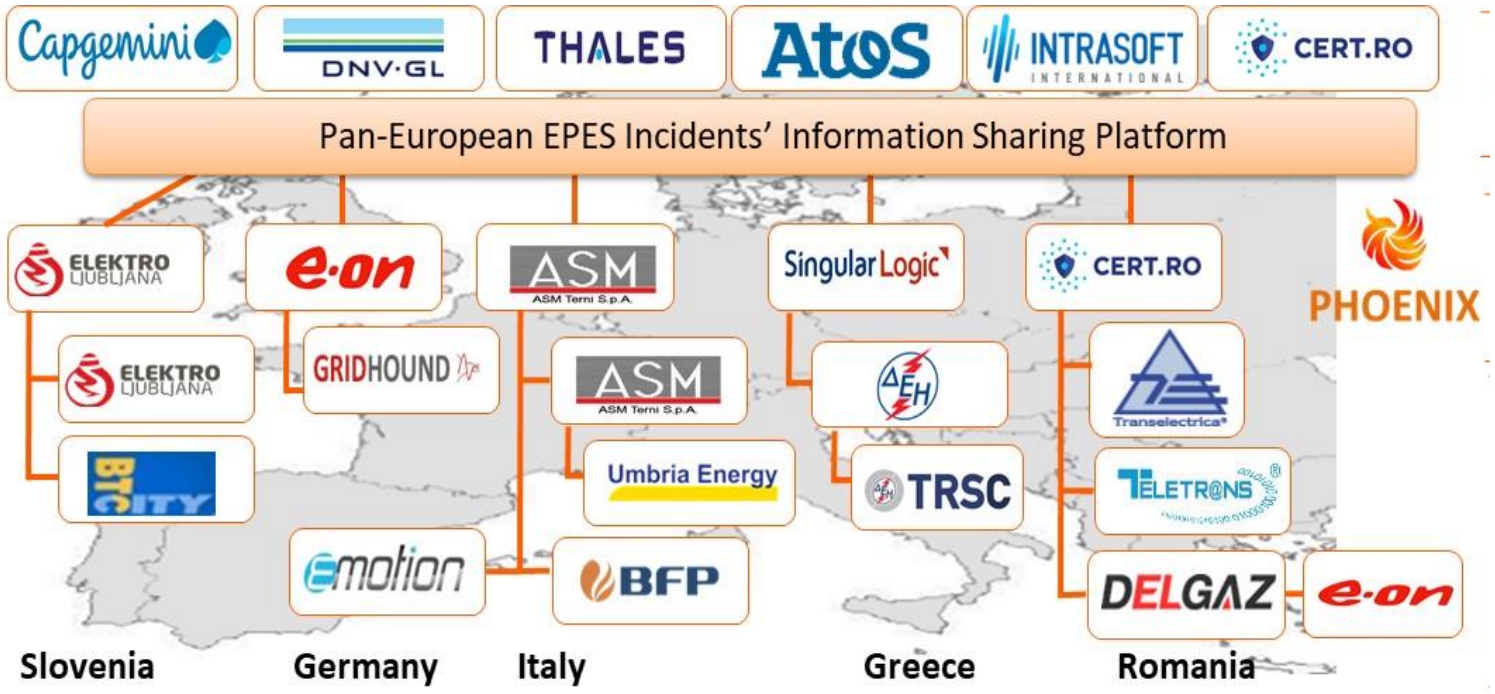
End Users	Industry	SMEs	Research Institutes
ASM Terni S.p.A.	THALES	Cyberethics Lab. Responsible Research & Innovation	A?
BFP	Singular Logic	SYNELIXIS	E.ON Energy Research Center / RWTH AACHEN UNIVERSITY
Emotion	DNV·GL	COMSENSUS	
ELEKTRO LJUBLJANA	INTRASOFT INTERNATIONAL		
BTC CITY	ISKRAEMECO		
DELGAZ grid	Atos		
e·on			
TRSC Testing Research & Standards Center			
CRE Romanian Energy Center			
TELETRANS			
Transelectrica			

PHOENIX Large Scale Pilots (LSPs)

PHOENIX will involve real-world scenarios to validate the effectiveness of PHOENIX across **5 European Large Scale Pilots (LSP)** in Italy, Germany, Slovenia, Greece and Romania involving the complete end-to-end generation, transmission, distribution and prosumption value chain. Beyond the individual LSPs, ***cascading effects even to other critical infrastructures*** will be simulated and ***cross-border security and privacy*** sites will be tested and validated.



PHOENIX Pan-European I2SP Platform



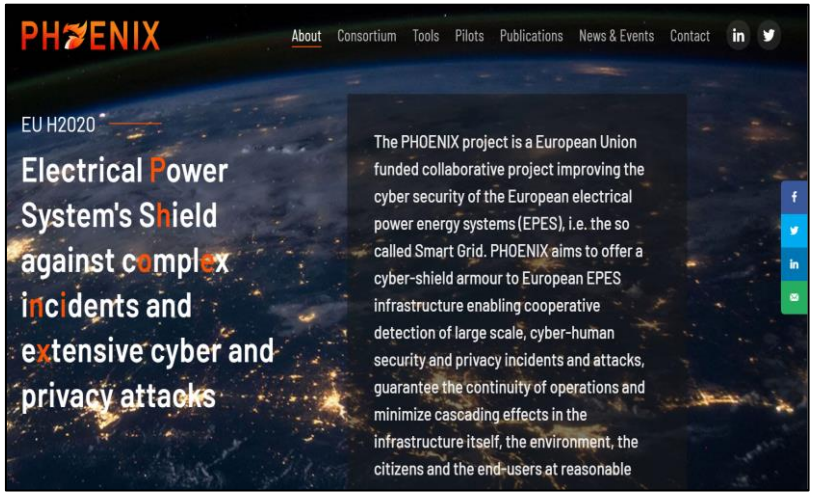
Collect and share incidents' information and trained ML models without the need to share sensitive information across EPES operators and CERTs.

PHOENIX Expected Results

- A holistic EPES security & privacy protection framework, including:
  - 5G/ inter-DLT secure & traceable communications,
  - Situation Awareness, Perception & Comprehension based on privacy-preserving federated ML/zero knowledge verification,
  - Traceable/near real-time synchronized incidents information sharing platform (I2SP),
  - GDPR Privacy Protection Toolkit,
  - Innovative Security & Privacy as a service business model
  - Certification methodology and procedures (targeting **TRL 7-8**)

Project Progress

- **Project Website:** Available at www.phoenix-h2020.eu, the phoenix project website offers project information, news, events information, blogs, publications, newsletters and integration with social media handles
- **Press Release:** Multiple websites have released news on the project. Some of them are:
  - Le Monde Informatique.fr, Nov 27 : Capgemini pilots the european cybersecurity project Phoenix
  - Global Security Mag, Nov 26: Capgemini Coordinates Phoenix cybersecurity project
  - Cercle Finance, Nov 26: Capgemini: coordination of Phoenix cybersecurity project
  - Zone Bourse, Nov 26: Capgemini: coordination of Phoenix cybersecurity project
- **Dissemination Events:** PHOENIX has been presented at multiple events such as CENT-RO, The World Bank, Balkans Digital Highway Workshop, Mediterranean Security Event 2019, European Utility Week 2019, ENISA, EE-ISAC Plenary & Training etc, Analyst and Advisors' day at Capgemini etc



Project Progress

- **Newsletters and Brochure :** Quarterly newsletters with project progress, relevant events and latest blogs are published on the project website. The first project brochure has been designed as well.
- **Social Media:** LinkedIn (www.linkedin.com/company/phoenix-h2020) and Twitter (twitter.com/H2020Phoenix) handles for the project have been set up, and regular project updates are shared on the same

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Electrical Power System's Shield against complex incidents and extensive cyber and privacy attacks

Newsletter no. 2 – December 2019 - January, February 2020.

Description and Benefits

PHOENIX is a Horizon 2020 collaborative project, co-funded by the European Union.

It focuses on the protection of the European end-to-end European Electrical Power Energy systems (EPES) via early detection and fast mitigation of cyber-attacks against their assets and networks from human activities, while protecting the utilities and end-users' privacy from data breaches by design. The consortium is coordinated by Capgemini Technology Systems and brings together 24 partners from 11 EU Countries.

The challenge of the project is to provide a cyber-shield armour to European EPES to survive coordinated, large scale cybersecurity and privacy incidents; guarantee the continuity of operations and minimize cascading effects in the infrastructure itself, the environment and the end-users at reasonable cost.

H2020 PHOENIX Project At a glance

Title: Electrical Power Energy System's (EPES) Shield against complex incidents and extensive cyber and privacy attacks
Type of action: Innovation Action
Topic: SU-DS04-2018-2020 Grant Number: 832989
Total Cost: € 10 999 208,21
EC Contribution: € 7 995 004,25
Start Date: 01/09/2019
End date: 31/08/2022
Duration: 36 months
Project Web Site: www.phoenix-h2020.eu
Key Words: Cybersecurity, Energy, EPES Project
Coordinator: CAPGEMINI

Project Objectives

1. Strengthen EPES cybersecurity preparedness
2. Coordinate cyber-incident discovery, sharing & response
3. Accelerate research & innovation in EPES cybersecurity via DevSecOps and innovative ML-based technologies.

Concept and approach

PHOENIX focuses on the protection of the European EPES via:
(i) Cybersecurity & Data Privacy by design and by innovation, (ii) cross-country Cybersecurity Information Sharing, realising NIS Directive (iii) realistic exploitation, penetration testing and verification/certification methodologies and procedures and (iv) validation in 5 real-life Large-Scale Pilots (LSP) across Europe. To know more about the LSPs, visit PHOENIX Pilot Sites.

PHOENIX NEWSLETTER FEBRUARY 2020

PHOENIX second plenary meeting

The second plenary meeting of PHOENIX was successfully held at INTRASOFT International SA at Athens, Greece on 4th and 5th Feb 2020. The meeting was attended by the consortium partners and the EU Commission Project Officer. The two days saw interesting presentations and discussions about PHOENIX platform architecture, underlying technologies and the upcoming real-life large scale pilots.

During the initial phase of the project, a major effort by the partners has been placed in analyzing comprehensively the cyber threats associated with the European EPES (Electrical Power and Energy System). This work item is close to being completed. Simultaneously, the design of the various parts in the architecture of the PHOENIX platform have been initiated in the associated work packages. However, the intensity of the design efforts will increase significantly in the near future as the project progresses steadily towards its goals.

Presence in Impact Creation Events

Capgemini Analyst and Advisor Day
Capgemini 147, Issy, Paris, December 4, 2019

The PHOENIX project objectives, expected impact and technology were introduced by Dr. Farhan Sahito (Project Coordinator, Capgemini) and Wafa Ben Jaballah (Thales Group) to the attendees of Capgemini annual Analyst and Advisor Day at Capgemini 147, Issy Les Moulineaux, France on 4 Dec 2019. The event was attended by 31 analysts and advisors from 21 different

Secure Societies "Project to Policy" Kick-Off Seminar
Brussels, January 31, 2020

The PHOENIX project was invited to present at the first Secure Societies "project to policy" kick-off seminar organized by REA B4, together with DG CNECT and DG HOME at Brussels on 31 Jan 2020. With an aim to understand the relevant policy drivers and integrate them into the project from the start, Dr. Farhan Sahito presented a view into how PHOENIX will contribute to the implementation of EU policies.

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Privacy and Data Protection, Ethics, Social and Security Framework: the PRESS Analysis

PHOENIX

Ethics Reqs

Dx.x

Privacy Guidelines & Recomms

Dx.x, Dx.x

PRESS Analysis

Data Protection

Ethics and Social

Security

PRESS Framework

- potential concerns
- compliance rules
- governance policies

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DevSecOps

Risk and Impact

PHOENIX Ethics and Data Protection approach: lessons learned

- To tackle potential ethics, data protection, and privacy issues, the Project adopted a combined approach: technical, ethics, and legal experts spoke in the same room. Benefits are various indeed:

  - Combining ethics, legal, and technical requirements, it is possible to draft a very useful checklist for technological implementation;

  - Monitoring and assessment operations can proceed smoothly during the course of the Project following the checklist created.

- More insights on the PRESS Framework and on the approach adopted can be found here.

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Thank You !

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Project Presentation

Elena Sartini

Ethics & Privacy

CyberEthicsLab.
Responsible Research and Innovation

23/07/2020

Topics

- PRESS Analysis Framework
- PHOENIX Ethics and Data Protection approach: lessons learned
- Questions?

PRESS (Privacy and Data Protection, Ethics, Social and Security) Framework Analysis

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Ethics Reqs

Dx.x

Privacy Guidelines & Recomms

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PRESS Analysis

Data Protection

Ethics and Social

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PRESS Framework

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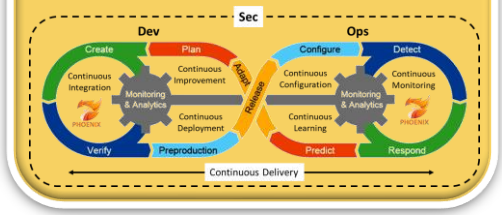
DevSecOps



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- More insights on the PRESS Framework and on the approach adopted can be found on PHOENIX Project Website or CyberEthicsLab. website.

Questions?

Elena Sartini

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CyberEthicsLab.

Responsible Research and Innovation