FORESIGHT

Advanced cyber-security simulation platform for preparedness training in Aviation, Naval and Power-grid environments

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FORESIGHT Overview

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This project has received funding from European Union's Horizon 2020 research and innovation program under grand agreement No. 833673

General Information

FORESIGHT: General Information

Project Coordinator: European Dynamics S.A. (ED), Luxembourg

Start Date: 01/09/2019

Duration: 36 months

Type of Action: Innovation Action (IA)

Overall budget: € 7,342,523.75

Consortium: 21 partners (5 research, 5 academic, 10 industry, 1 government agency)

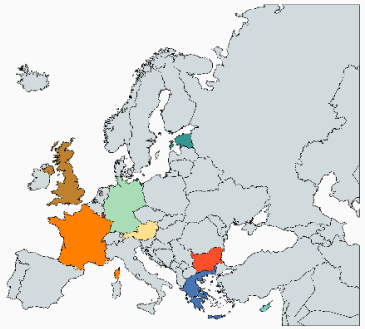

Figure 1: FORESIGHT partners

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Consortium

FORESIGHT: Consortium

Industry

- ED
- CRI
- INC
- CCS
- CYB
- AIA
- THALES
- IEIT
- ESO
- CEZ

Research

- KEMEA
- CERTH
- CENTRIC
- M&S
- BDI

Academic

- UOP
- UAD
- CSCAN
- OUC
- EN

Government Agency

- CERT-BG

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FORESIGHT for Digital Security

FORESIGHT for Digital Security

The FORESIGHT project aims to develop a **federated cyber-range solution** in order to **enhance the preparedness of cyber-security professionals at all levels** by delivering a **realistic training and simulation platform** that brings together unique cyber-security aspects from the aviation, power grid and naval ecosystems.

FORESIGHT main objectives:

- Federation: (current future) cyberranges and training environments, cross-domain scenarios
- Dynamic scenarios based on identified/forecast threats using online sources (Surface/Dark Web)
- Advanced, constantly updated risk analysis and econometric models
- Innovative training curricula (linked to professional certification programs)
- Enhance the preparedness of cyber-security professionals at all levels

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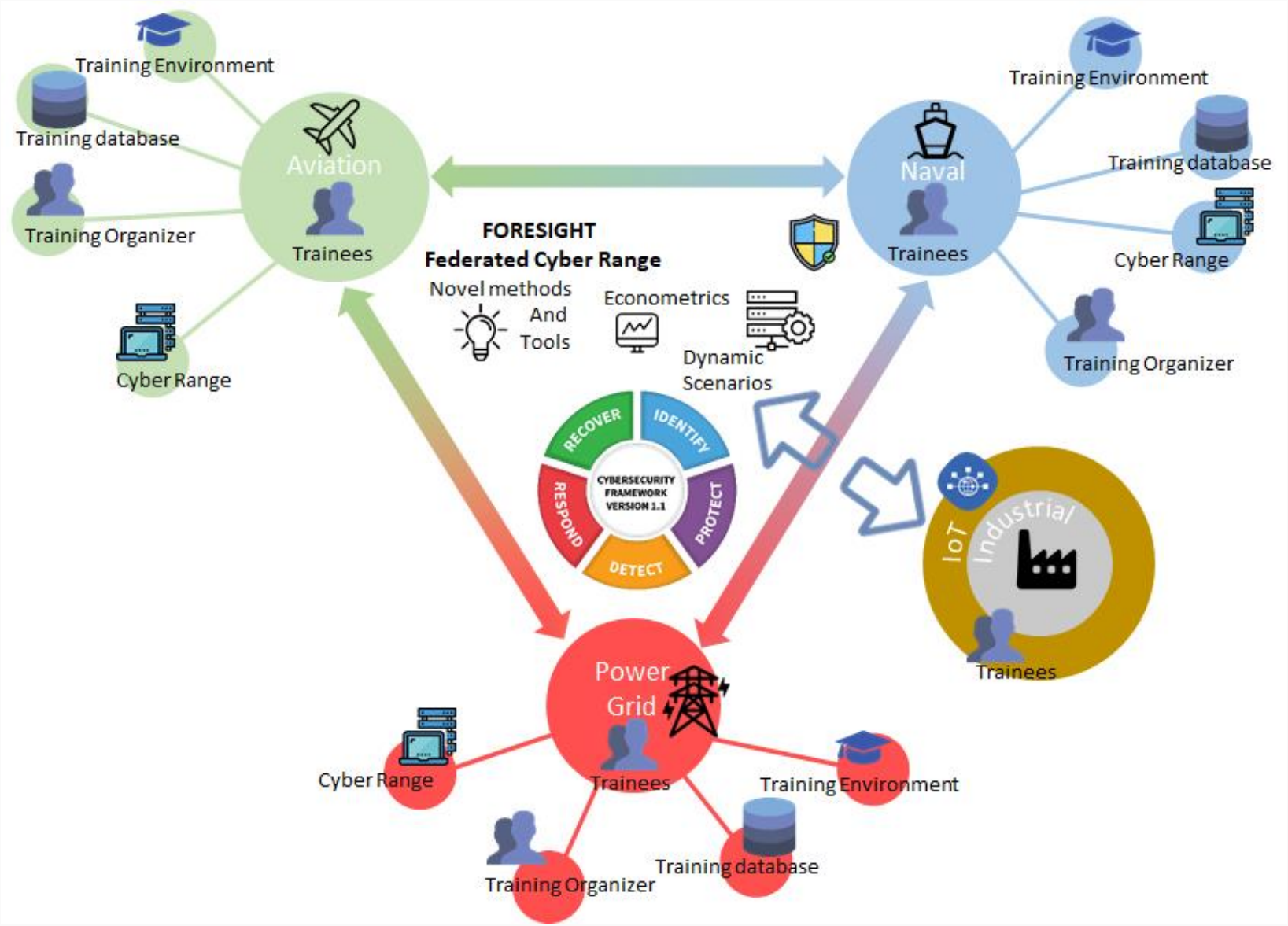
Concept

FORESIGHT: Concept



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Pilot Use Cases (PUCs)

FORESIGHT Pilot Use Cases (PUCs)

PUCs

1. **Aviation**: Simulation of network and the critical IT services (hardware components and virtual machines)
2. **Naval**: simulate different functionalities of a boat.
3. **Power grid**: simulate the office and grid infrastructure.
4. **Hybrid domain**: includes physical and virtualised machines, industrial IoT devices
    - SCADA controlled general, physical PLCs, etc.

Scenarios

- Detection and Prevention of Cyber Attacks
- Network monitoring and management
- Cyber-attack countermeasures and automation of cyber-attack responses
- Situational awareness and control
- Analysis of economic impact of cyber incidents
- Teamwork: delegation, dividing and assigning roles, leadership

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Work Packages

FORESIGHT Work Packages

No	Title	Lead	Person months	Start month	End month
1	Project management and coordination	ED	21	1	36
2	FORSIGHT Architecture and user requirements	AU	67	1	30
3	Ethical, legal and societal aspects	CRI	34	1	36
4	FORESIGHT training methodology	CSCAN	110	1	36
5	Cyber-security risks and econometrics	INCITES	54	1	24
6	Training program #1: Aviation	CCS	58	2	24
7	Training program #2: Power Grid	CYB	89	2	24
8	Training program #3: Naval	EN	48	2	24
9	FORESIGHT toolkit development	UOP	96	8	24
10	FORESIGHT platform federation and testing	OUC	82	6	35
11	Pilot implementation and evaluation	KEMEA	97	1	36
12	Impact sustainability	M&S	68	1	36

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Innovation

FORESIGHT Innovation I

WP4: FORESIGHT training methodology

- Understanding training needs
- Identify training and learning objectives
- Innovative Curricula for training and evaluation
- Certification program

WP5: Cyber-security economic models

- Threat forecasting
- Econometric models for economic assessment of cyber-attack
- Risk analysis and assessment

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FORESIGHT Innovation II

WP6,7,8: Training programs (Aviation, Power grid, Naval)

- Infrastructure modeling and simulation
- Training use cases
- Forensics evidence collection and analysis
- Develop detection methods for cyber-attacks
- Optimise cyber-defence strategies

WP9: FORESIGHT toolkit development

- Gamification
- Cyber-security Visualisation module
- Training evaluation module
- Information gathering and sharing module
- Dynamic scenario generation module
- Middleware ecosystem/suite for collaboration

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Exploitation & Dissemination

FORESIGHT Exploitation & Dissemination

Exploitation

- Commercialise the tool itself or provide it as a service
- Provide consultancy services using the FORESIGHT experience
  - Risk assessment and the economic impact of cyber-attacks
- Target: European and National public authorities as well as private companies
- Patent innovative outcomes of the project

Dissemination

- FORESIGHT's Website and social media accounts
- Liaisons with relevant universities, national, European and global RD projects
- In house presentations to industrial partners and interested parties
- Public open days across Europe
- Scientific and academic communities: journals, conferences, cybersecurity scientific society meetings, Open Access documents

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Impact & Benefits

FORESIGHT Impact & Benefits

- Improve preparedness, detection and mitigation of cyberattacks
- Enhance cyber resilience of ICT systems
- Improve risk analysis models
  - Appropriate econometric models for cyber incidents
  - Improved knowledge on security investments
- Increase collaboration between Cyber Ranges and European-wide initiatives

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Thank you