PROJECT FACTSHEET

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PRECINCT

PRECINCT will develop a framework for better interaction of interdependent critical infrastructures in an urban environment.

Inspiration

EU Critical Infrastructures (CIs) are increasingly at risk from a variety of international attacks (cyber-physical, malware, terrorist driven exploits, etc.) as well as risks from natural hazards (weather, climate).
These hazards are dramatically affecting interconnected infrastructures and are presently exacerbated by cascading effects and threats from pandemics.
Managing the impact of cascading effects arising from the interrelationships between different types of critical infrastructures (e.g. energy, transport, communications) is becoming more and more pertinent and highly challenging in the context of a specific geographical area (district, city or region).

Innovation

The overall project's technical objective is to establish an Ecosystem Platform for connecting stakeholders of interdependent CIs and Emergency Services to collaboratively and efficiently manage security and resilience by sharing:

- Data
- Critical Infrastructure Protection models
- New resilience services

The project will implement Digital Twins and Serious Game approach to identify vulnerabilities and testing/validate new detection and mitigation models and associated services in a real-time real-life context.

The project will demonstrate the concept of Smart Resilient PRECINCT's in 4 Living Labs (Ljubljana, Antwerp, Athens and Bologna). Cascading effects will be considered in Multimodal Transport, Energy, Water and ICT/Telecommunications threat scenarios based on CI interdependencies between these prominent and highly interconnected verticals covering cyber physical and hybrid threat scenarios. The requirements for a collaborative cyber-physical security management approach, including public-private partnerships, will be looked at from a nested-scales approach to achieve harmony between the social organisation and economic development, finding the best balance between the risk, cost, and security & resilience requirements, as well as informing tactical and strategic territory investment options. Furthermore, 3 transferability validation demonstrators (Luxembourg, Dublin and Uruguay) will be developed to transfer insights gained and contribute to the knowledge of packaging outputs for maximum impact and commercialisation potential. In this context, LIST will participate to the development of the architecture of the architecture of the system, as well as to the integration of security models. Also, as part of validation, LIST will lead the Luxembourg transferability validation demonstrator by integrating PRECINCT Digital Twin with the ongoing development of the Luxembourg Nation-Wide Digital Twin, with a focus on Electromobility.

Impact

The project aims to connect private and public CI stakeholders in a geographical area to a common cyber-physical security management approach which will yield a protected territory for citizens and infrastructures, a 'PRECINCT' that can be replicated efficiently for a safer Europe and will deliver:

- A PRECINCT Framework Specification for systematic CIs security and resilience management fulfilling industry requirements.
- A Cross-Facility collaborative cyber-physical Security and Resilience management Infrastructure enabling CI stakeholder communities to create AI-enabled PRECINCT Ecosystems and enhanced resilience support services.
- A vulnerability assessment tool that uses Serious Games to identify potential vulnerabilities to cascading effects and to quantify resilience enhancement measures.
- PRECINCT's Digital Twins to represent the CIs network topology and metadata profiles, applying closed-loop Machine Learning techniques to detect violations and provide optimised response and mitigation measures and automated forensics.
- Smart PRECINCT Ecosystems, deployed in four large-scale Living Labs and Transferability Validation Demonstrators, will provide measurement-based evidence of the targeted advantages and will realize Digital Twins corresponding to the Cis located therein, include active participation of emergency services and city administrations with results feeding back to the Digital Twins developments.

Sustainability related outputs including Capacity Building, Dissemination, Exploitation, Resilience Strategy, Policy/Standardisation recommendations.

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Partners

Inlecom Commercial Pathways Company Limited by Guarantee (IE) , University College Dublin (IE) , AIT Austrian Institute of Technology Gmbh (AT) , Research Driven Solutions Limited (IE) , Barcelona Supercomputing Center - Centro Nacional de Supercomputación (SP) , Akka High Tech (FR) , Montimage Eurl (FR) , Nurogames Gmbh (DE) , Conceptivity Sàrl (CH) , European Materials Research Society - E-MRS (FR) , Fundación Tecnalia Research & Innovation (SP) , Engineering - Ingegneria Informatica Spa (IT) , Confederation of Organisations In Road Transport Enforcement AISBL (BE) , Konnecta Systems Limited (IE) , VLTN Gcv (BE) , Water-Link OV (BE) , Politiezone van Antwerpen (BE) , VIAS Institute (BE) , Kentro Meleton Asfaleias (EL) , Institut za Korporativne Varnostne Studije Ljubljana (SI) , Slovenske Zeleznice Doo (SI) , Prometni Institut Ljubljana Doo (SI) , Javno Podjetje Ljubljanski Potniski Promet D.O.O. (SI) , Telekom Slovenije Dd (SI) , Elektro Ljubljana Podjetje Za distribucijo Elektricne Energije D.D. (SI) , Municipality of Ljubljana (SI) , Ae Syn. - Leitoyrg. Kai Ekmetalleys. Eleytheris Leo. Eleysinas - Stayroy - Aerodromioy Spaton Kai Dytikis Perifer. Leo. Ymitoy Attikes Diadromes (EL) , POLIS – Promotion of Operational Links with Integrated Services, Association Internationale (BE) , Union Internationale des Transports Publics (BE) , Fondazione Istituto Sui Trasporti e la Logistica (IT) , Athens International Airport S.A. (EL) , Attiko Metro Ae (EL) , FSTechnology Spa (IT) , Interuniversitair Micro-Electronica Centrum (BE) , Dun Laoghaire Rathdown County Council (IE) , Lepida Scpa (IT) , Aeroporto Guglielmo Marconi di Bologna Spa (IT) , Katholieke Universiteit Leuven (BE) , Secretaria De Inteligencia Estrategica De Estado - Presidencia De La Republica Oriental Del Uruguay (UY)

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