RESISTO

RESIlience enhancement and risk control platform
for communication infraSTructure Operators

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RESISTO Project and Architecture

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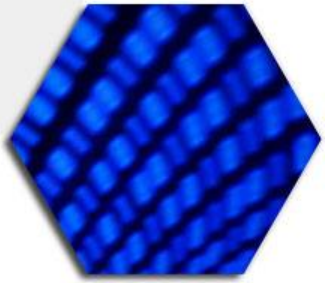
ΟΤΕ
ΟΜΙΛΟΣ ΕΤΑΙΡΕΙΩΝ



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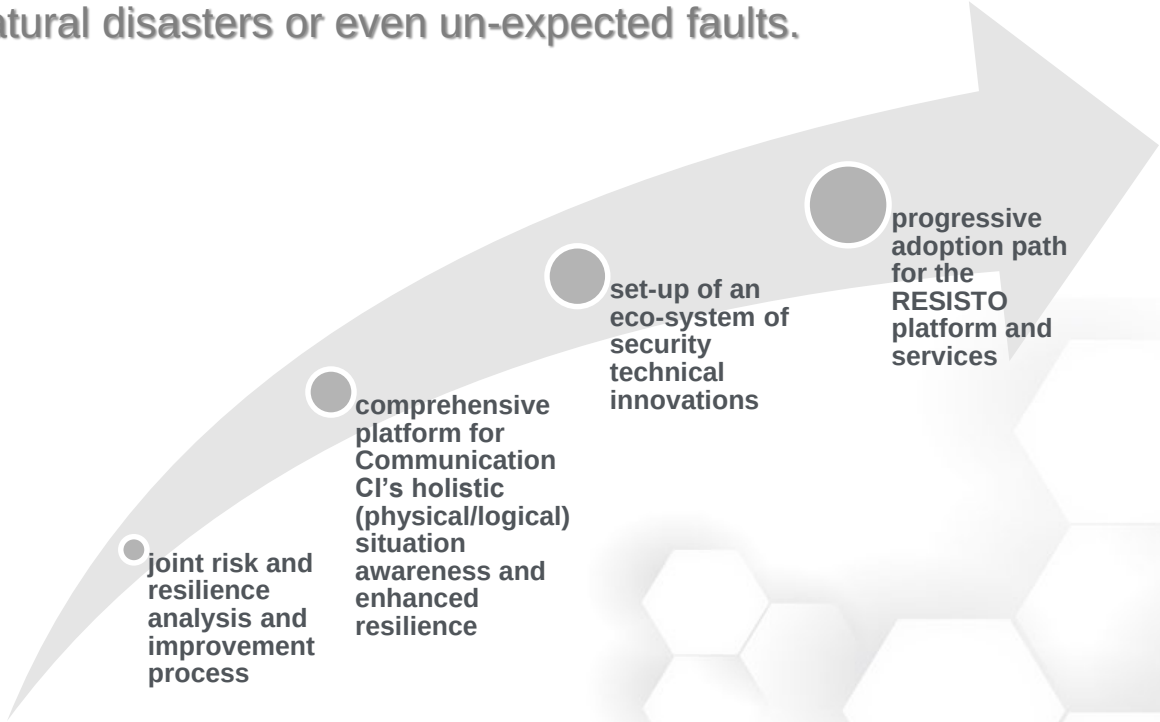
RESIST

RESIlience enhancement and risk control platform for communication infraSTructure Operators

OTE GROUP OF COMPANIES

- ***3 years*** (*May 2018-April 21*)
- **Topic(s): CIP-01-2016-2017 – *Prevention, detection, response and mitigation of the combination of physical and cyber threats to the critical infrastructure of Europe***
- ***10M€ cost (8M€ funding)***
- ***17 partners*** (2 Large Enterprises, 6 Telco operators, 5 RTOs/Universities, 4 SMEs)
- ***Validation across 3 Verticals*:**
  - *current,*
  - *future and*
  - *interdependent comms infrastructures*

- ***MAIN RESISTO's OBJECTIVE***
  - *is to **IMPROVE RISK CONTROL AND RESILIENCE** of modern Communication CIs, **AGAINST a wide variety of CYBER-PHYSICAL THREATS**, being those malicious attacks, natural disasters or even un-expected faults.*



Detailed objectives

1. **Help managers of Communication CIs to guarantee improved business and asset continuity, by delivering an INNOVATIVE PLATFORM for OPTIMIZED DECISION SUPPORT in the face of physical, cyber and combined cyber-physical threats** *taking account of critical schemes of infrastructure, functions and services and possible (cascading) event trajectories*

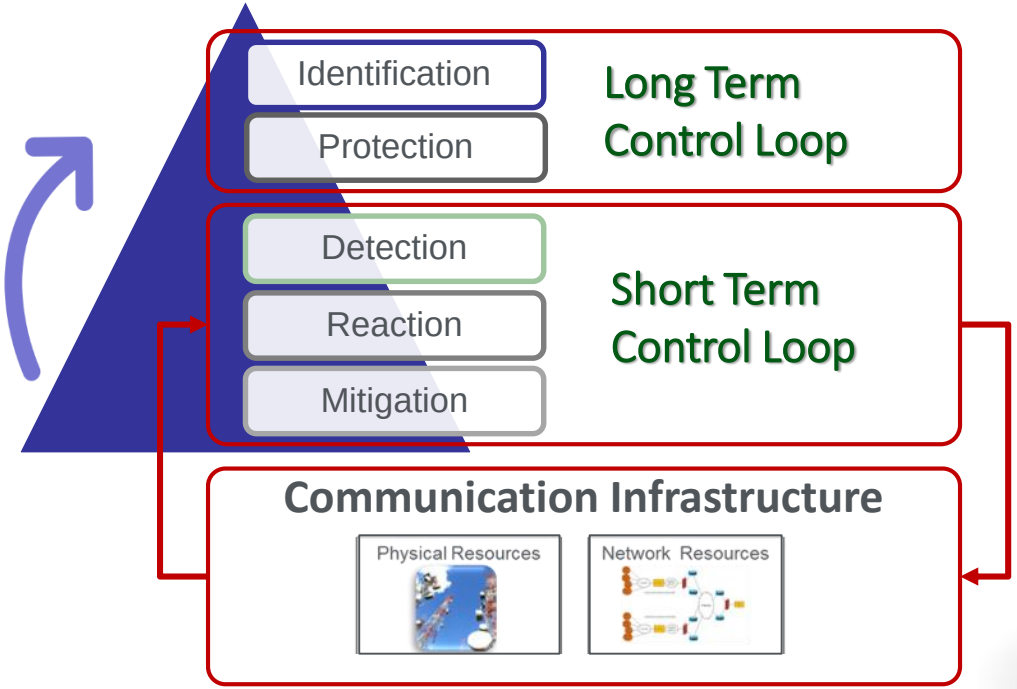
2. **Develop an INTEGRATED RISK AND RESILIENCE ANALYSIS AND MANAGEMENT TOOL for improved preparedness and prevention in the communication domain** *that takes account of cyber and/or physical threats and disruptions jointly at the level of telecommunication service functions and performance functions, including systemic security management*

3. **Provide, experiment and assess a suite of innovative cyber/physical security solutions for prevention/protection, detection and reaction** *that can deliver unprecedented cost-effective performances in a holistic technology framework*

4. **Support a progressive adoption path for the RESISTO platform and services through extensive validation in relevant use cases for Communication Infrastructure protection** *directly involving relevant Communication CI operators, arising awareness and promoting a joint approach to resilience*

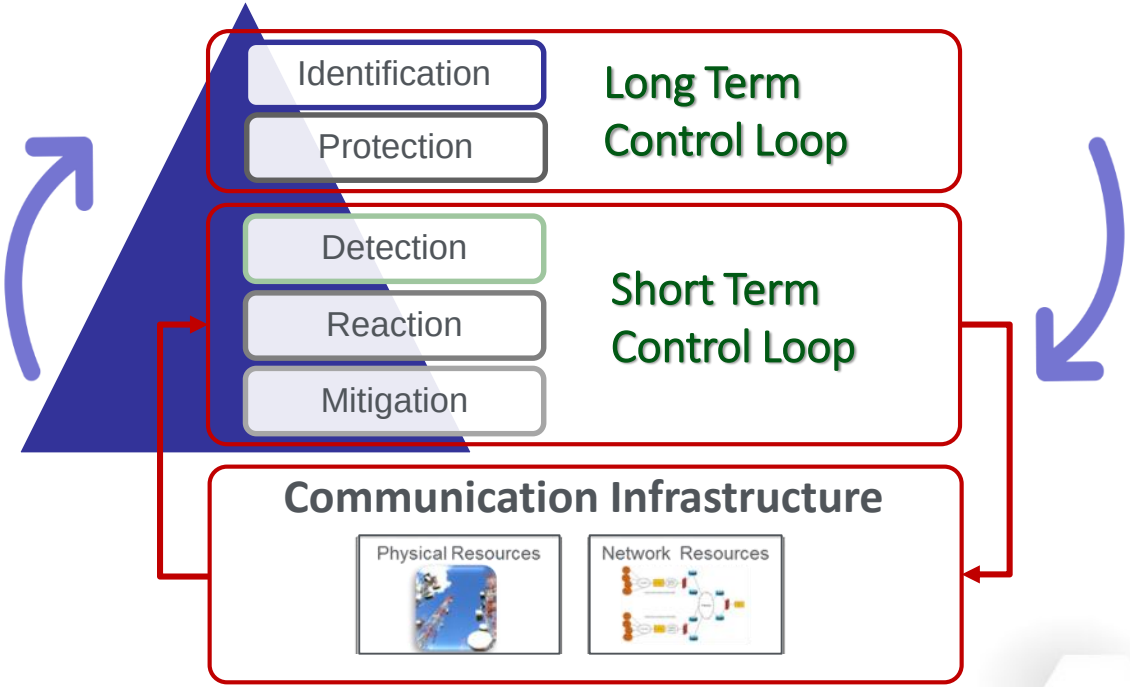
5. **Contribute to the European Programme for Critical Infrastructure Protection and, *in particular,* to the objectives of the Cybersecurity Strategy of the European Union,** *providing suitable inputs also to the Cybersecurity PPP*

Main functional concepts



- **The Long Term Control Loop (LTCL) is based on the *Risk and resilience assessment analysis.***
- For each loop cycle **a set of Resilience Indicators (RIs)**, *relevant to critical threat event typologies*, **are estimated and stored in a Knowledge Base (KB).**
- **LTCL is performed on a periodic basis** *(annually, quarterly or even monthly)* **or when particular events take place.**

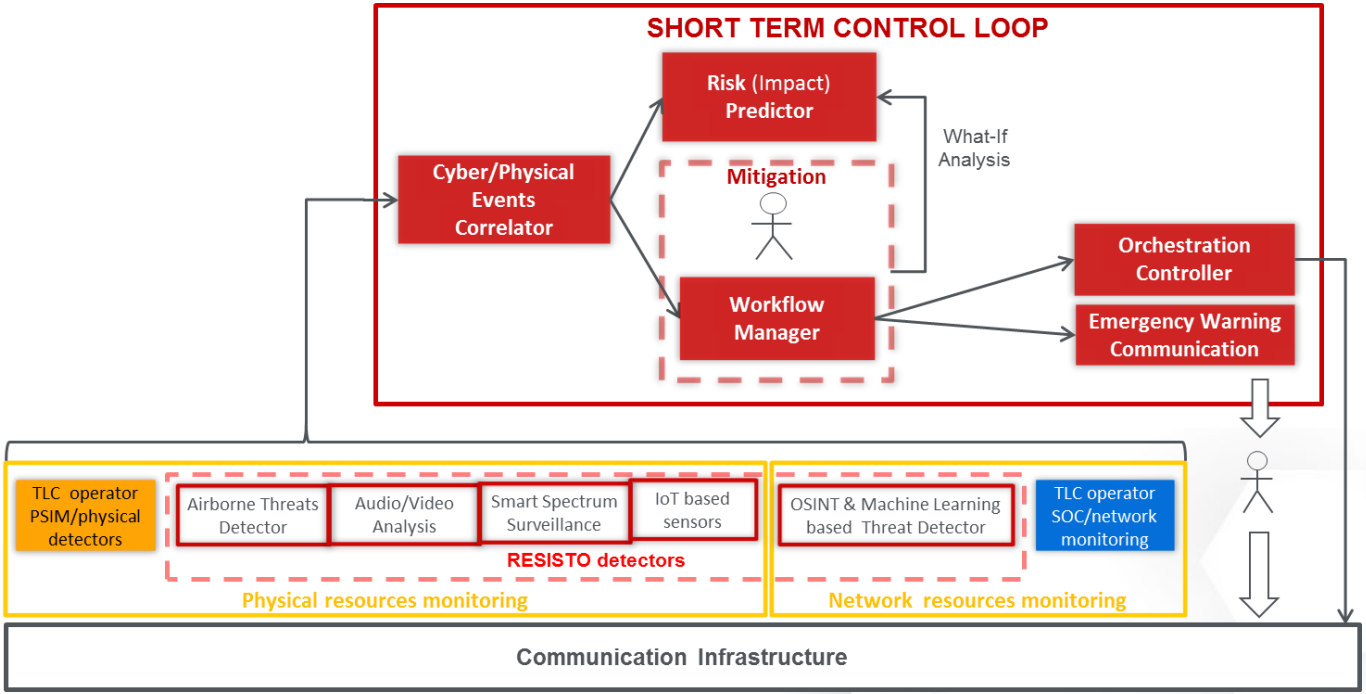
Main functional concepts



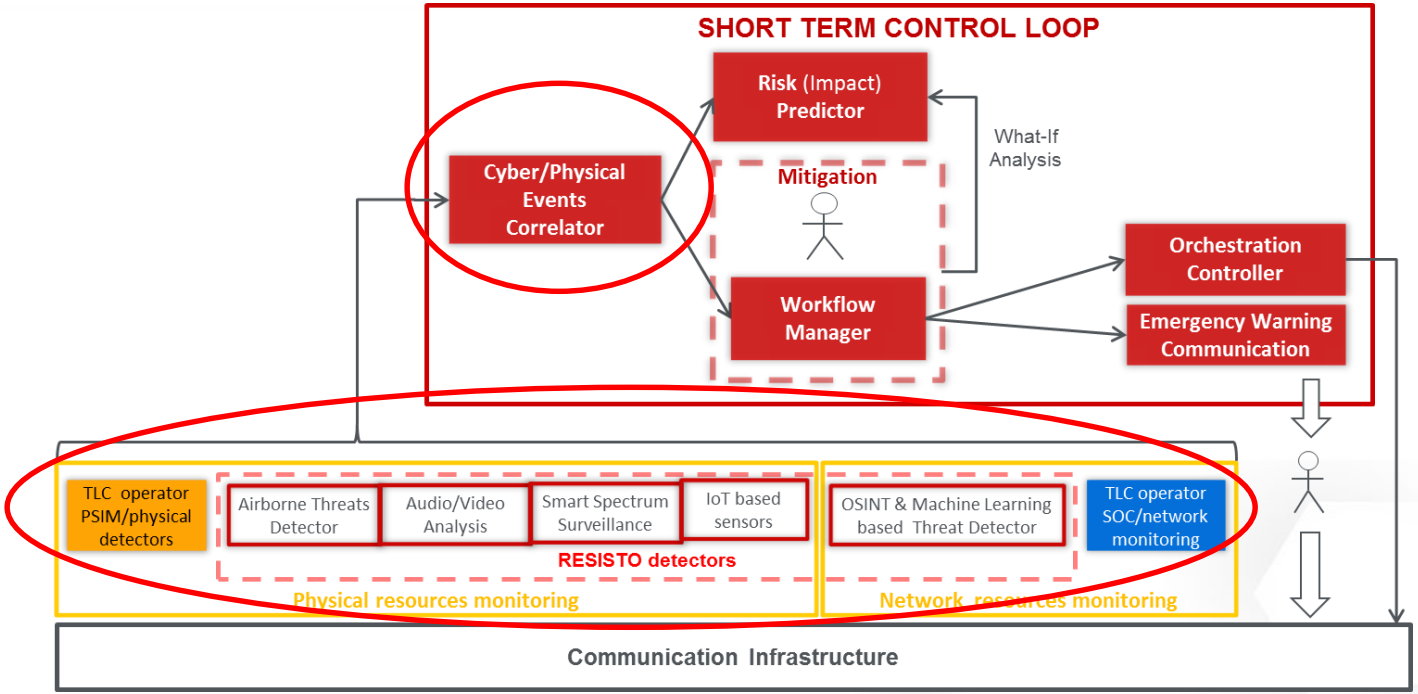
- **The Short Term Control Loop (STCL) reacts in real time to detected cyber/physical attacks and events,** *that may impact the operational life of the system.*
- It **enhances situation awareness** and **provides operators with a Decision Support System cockpit** *able to implement the best reactions.*

Long Term Control Loop

Short Term Control Loop



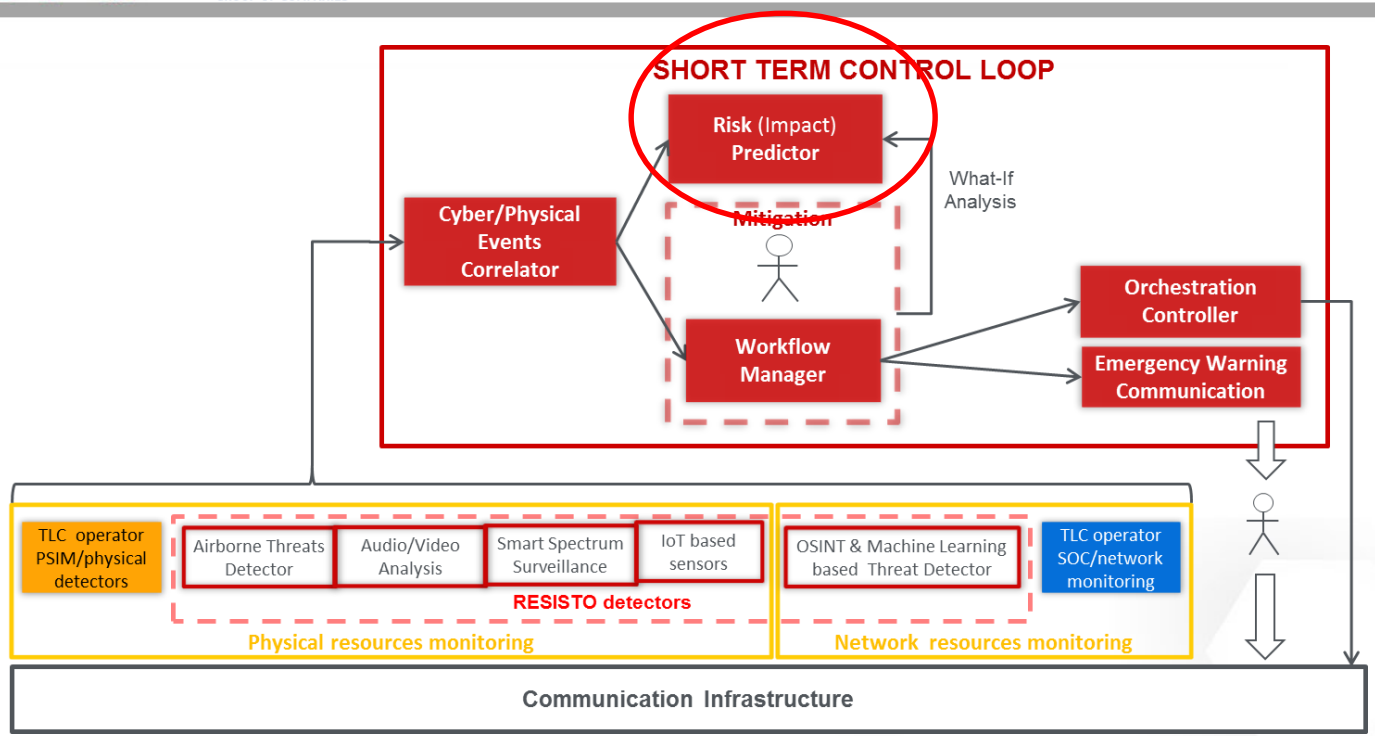
Short Term Control Loop



The Short Term Control Loop:

- **monitors the physical and cyber security status of the infrastructures**, *correlating the physical and cyber domain events and network monitoring data to detect anomalies and provide early warnings on security attacks by detecting threats in advance.*

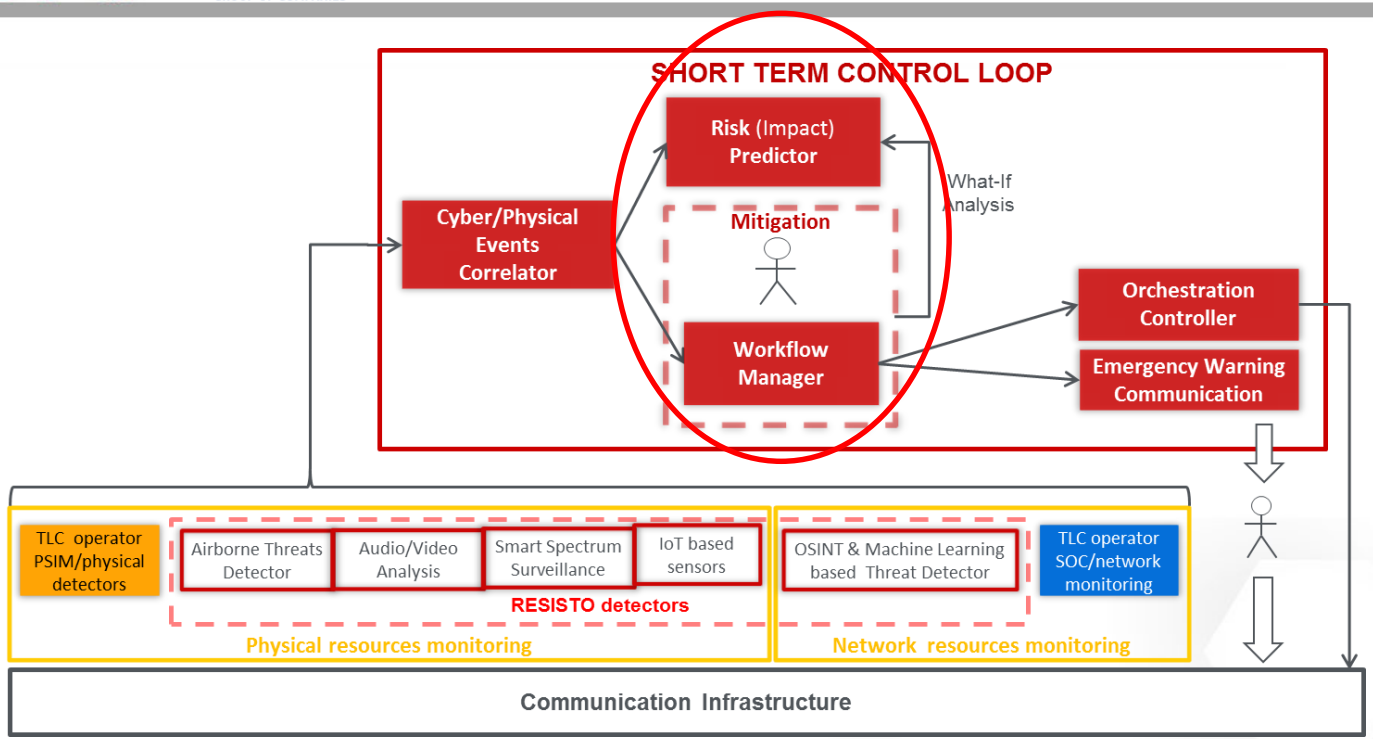
Short Term Control Loop



*The **Short Term Control Loop:***

- **evaluates the attack impact** with *respect to performance degradation of detected anomalies and security attacks on the communication CI, and interlinked CIs if known, based on the cascading effect*

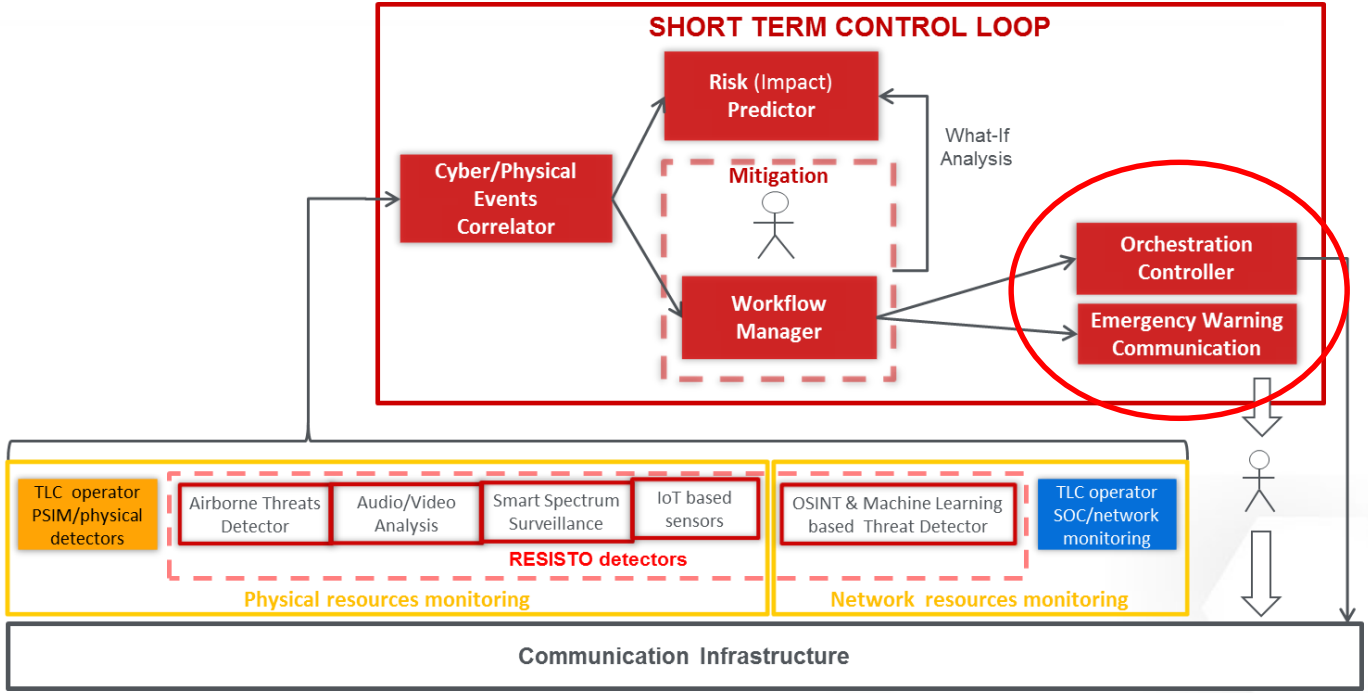
Short Term Control Loop



*The **Short Term Control Loop:***

- **supports decision making,** *by providing a qualitative and quantitative "What-If" analysis tool in order to evaluate the most resilient communication CI reconfiguration.*

Short Term Control Loop



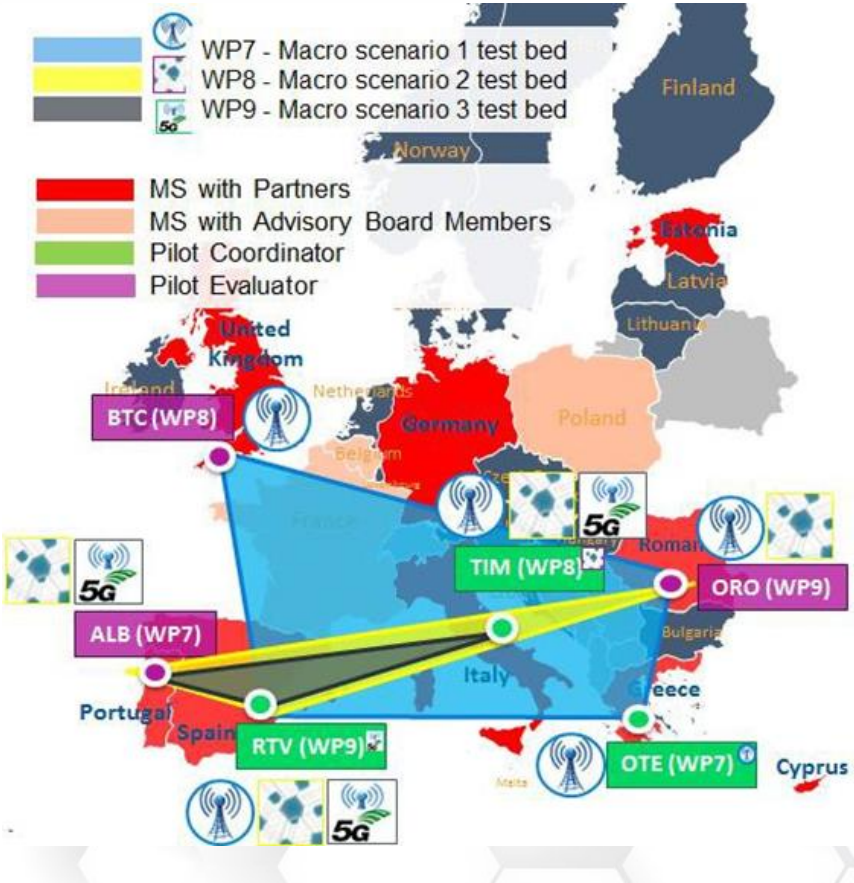
*The **Short Term Control Loop**:*

- **drives reaction and mitigation by means of action workflows** (*composed of directives to intervention teams, physical protection devices activation*) **and, *mainly*, of orchestrated Communication Network reconfiguration and protection function activation.**

RESISTO Validation Framework

- ***An extended validation is envisioned through a variety of operational Use Case pilots formed in sets configurations in terms of context, organization and impact, altogether consisting the RESISTO overall Validation Framework.***

- **Three (3) (Macro)-Scenarios**, *each one involving a set of related Use Cases to prove the RESISTO concept:*
  - ***Protection*** *of the* ***Current*** *existing* ***Telecommunication Critical Infrastructures***
  - *Their* ***interdependencies*** ***as providers of*** *essential* ***communication services to other*** *interlinked* ***CIs*** *and related cascade effects in the vicinity.*
  - *Their* ***evolution*** ***towards*** *the future* ***5G networks*** *and the emerging IoT world.*



Thank you for your Attention!!!!

For more info:

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