

# TESTUDO

AUTONOMOUS SWARM OF HETEROGENEOUS RESOURCES  
IN INFRASTRUCTURE PROTECTION VIA THREAT PREDICTION AND PREVENTION

[/TESTUDOPROJECT](#)

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## NOVEL DATA-DRIVEN AND PROCESS-ORIENTED SURVEILLANCE AND INTELLIGENCE PLATFORM FOR INCREASED AUTONOMY AND IMPROVED SITUATION AWARENESS IN CRITICAL INFRASTRUCTURES

### Innovative Autonomous Platforms

- Unmanned ground and aerial vehicles
- Individual fixed sensors

### Autonomous Response and Cognitive Intelligence

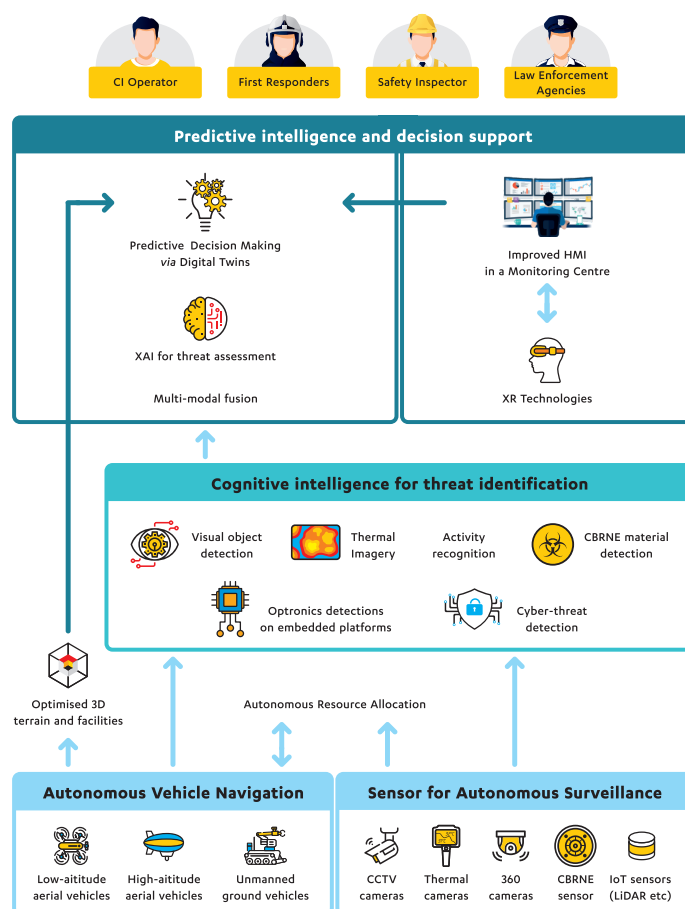
- Optimal resource allocation
- Threat identification by processing optronics data
- Edge computing for limited connected unmanned vehicles
- CBRN materials identification
- Autonomous response on cyber-attack identifications

### Improved HMI for critical infrastructure surveillance

- Optimized 3D terrain and infrastructure mapping
- Fusion schemes of numerous modalities
- Threat assessment via XAI technologies
- Predictive intelligence and improved HMI via Digital Twins
- Virtual decision-making tool

### Short and long-term deployment for large-scale and cross-sectorial trials

### TESTUDO ARCHITECTURE



#### Use Case #1: Disruptive online events in water reservoirs

Cyber-threat detection – incident evolution visualisation based on the operator's decisions



#### Use Case #3: Synchronized attack on water treatment facilities

UAVs and UGVs for area patrolling - threat detection, assessment and visualisation



#### Use Case #2: Chemical fire in tunnel provoked by an electric vehicle

Mobile sensors for threat detection - situation awareness supported by Digital Twins, XR and HMI technologies

### TESTUDO PARTNERS



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