



### Workshop interdisciplinaire sur la sécurité globale



Couvent des Jacobins Rennes





## Frédéric Guyomard (EDF)

H2020 European Project Overview



https://praetorian-h2020.eu/

https://www.linkedin.com/company/praetorian-h2020



Protection of Critical Infrastructures from advanced combined cyber and physical threats

# **PRAETORIAN Project Overview and Solutions**

Frédéric Guyomard (EDF) – Project Coordinator



This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under Grant Agreement No 101021274



### RAETORIAN

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# PRAETORIAN AT A GLANCE

- Coordinator: EDF
- 23 partners from 7 EU countries
- 4 pilot sites in 3 EU Member states

Total budget: 9,04 M€ Total funding: 7,58 M€

Start date: 01/06/2021 End date: 30/09/2023



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**PRAETORIAN** strategic goal is to increase the security and resilience of European Cls, facilitating the coordinated protection of interrelated CI against combined physical and cyber threats.



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### **PRAETORIAN Project objectives**

### **Overview**



Evaluate hazards and minimise their level of risk by assessing the vulnerabilities of the targeted sectors and designing appropriate security measures.



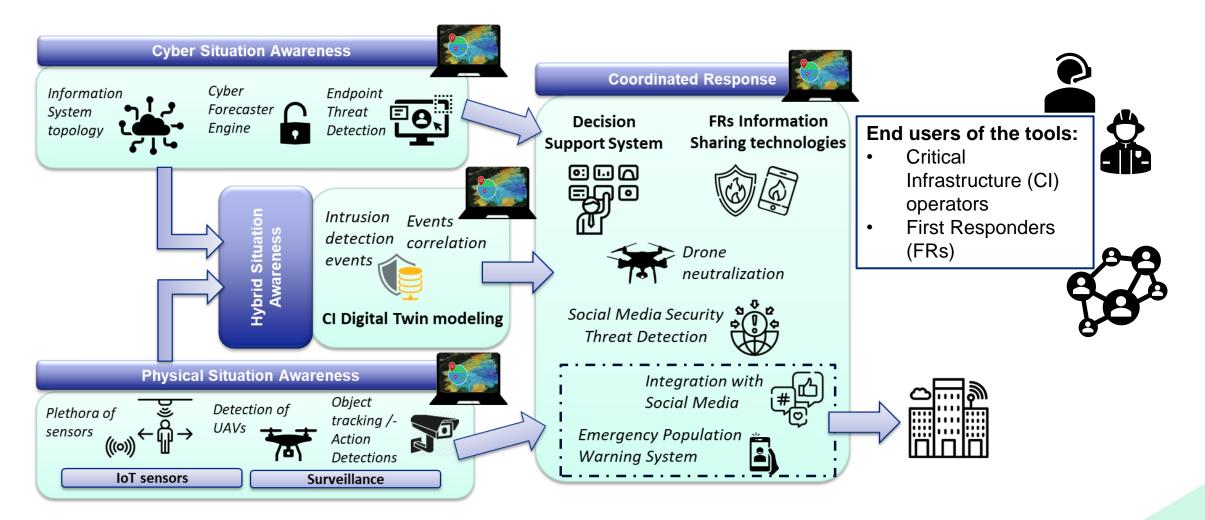


### **Project Coordination – Gantt Chart**

		M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28
WP3	CYBER SITUATION AWARENESS																											$\square$	
Task 3.1	Transitioning risk management from design-time to runtime																												
	Cyber Forecaster Engine																												
Task 3.3	Dedicated Cybersecurity Digital twin																												
Task 3.4	Digital twin Cybersecurity Assessment Lab																												
Task 3.5	Advanced visualization techniques																												
Task 3.6	CSA framework Integration																											$\square$	
WP4	PHYSICAL SITUATION AWARENESS																												
Task 4.1	Physical risks and vulnerabilities analysis																											$\square$	
Task 4.2	Existing systems and sensors modelling																											$\square$	
Task 4.3	Video analytics for intrusion detection and threat identification																												
Task 4.4	Drone detection																												
Task 4.5	PSA application development																												
WP5	HYBRID SITUATION AWARENESS & CASCADING EFFECTS	1																											
Task 5.1	Digital Twin design and implementation	1																										$\square$	
Task 5.2	CSA and PSA fusion with the Digital Twin																											$\square$	
Task 5.3	HSA Fusion Application Development																												
Task 5.4	HSA visualization																											$\square$	
WP6	RESPONSE COORDINATION																												
Task 6.1	Decision Support System and Coordinated Response system																											-+	_
Task 6.2	Innovative Emergency Population Warning Techniques														-													-+	_
Task 6.3	FRs and rescue teams information sharing technologies																											-+	_
Task 6.4	Integration with Social media channels																											-+	_
Task 6.5	Drone neutralization																											-+	_
WP7	INTEGRATION AND VERIFICATION																											-+	_
Task 7.1	Integration, verification and validation plan	1																										-+	_
Task 7.2	Test bed integration, configuration and verification																											$\square$	
Task 7.3	PRAETORIAN integrated system validation															<u> </u>												-+	_
WP8	DEMONSTRATION ACTIVITIES & IMPACT ASSESSMENT																												
Task 8.1	Deployment and demonstration plan														r														
Task 8.2	Demonstration activities																	r	r									$\square$	
Task 8.3	Evaluation and Impact assessment framework																												
Task 8.4	Socio-Economic impact assessment results																											-+	
Task 8.5	Replication to largest audience beyond the project																											$ \rightarrow $	
WP9	ETHICAL, LEGAL & REGULATORY ISSUES																												
Task 9.1	Research Ethics and Privacy Management															_													
Task 9.2	Legal and Ethical Frameworks and Requirements																	_										$ \rightarrow $	
Task 9.3	Policy and regulatory framework Recommendations (large scale dep	lovmer	t)													-												-+	
WP10	DISSEMINATION & EXPLOITATION		,													_													
Task 10.1	Exploitation strategy and IPR																												
Task 10.2	1 55																												
	Security Standards and Certification Mechanisms Activities																												
	Business plan and investment measures																												
	Community Building and Stakeholder Engagement																												
Took TU.J	community building and otakenolder Engagement																												



### Final PRAETORIAN solution



RAETORIAN

**PRAETORIAN Solution** 

PRAETORIAN has developed **four products** to provide a coordinated and effective action towards security threats and attacks







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**PRAETORIAN DASHBOARD** 



#### **Cyber Situation Awareness**

A Cyber Forecaster Engine and a Cyber Digital Twin covering all the defined cyber risks and vulnerabilities and generating the corresponding event alarms

#### **Physical Situation Awareness**

A PSA system integrating all the existing sensors and systems, covering all the defined physical risks and vulnerabilities and generating the corresponding event alarms

#### Hybrid Situation Awareness

An Hybrid Situation Awareness system modelling the Critical Infrastructures, correlating all the cyber and physical events and generating and visualizing threat alarms

#### **Decision Support System**

A Decision Support System providing a holistic dashboard for decision making and integrating all the existing platforms

#### Information sharing with FRs

Techniques for optimal information sharing with FRs and rescue teams

#### Social Media Security Threat Detection

Internation and use of social media for ensuring detecting

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### **PRAETORIAN Solution dashboard**





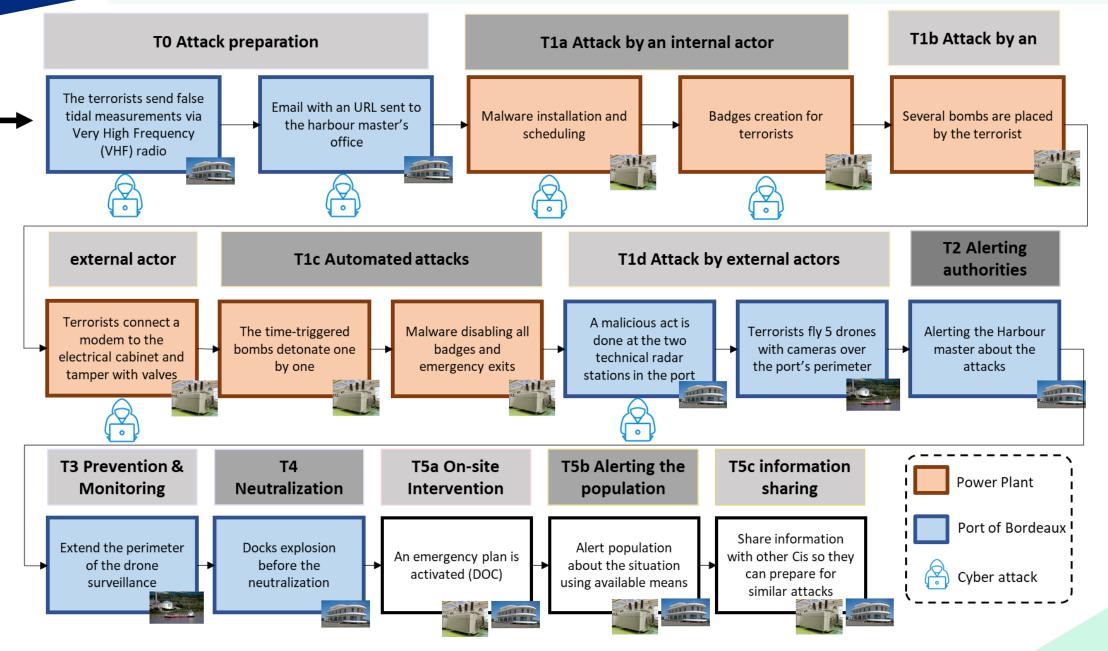








### Attack Scenario – An overview





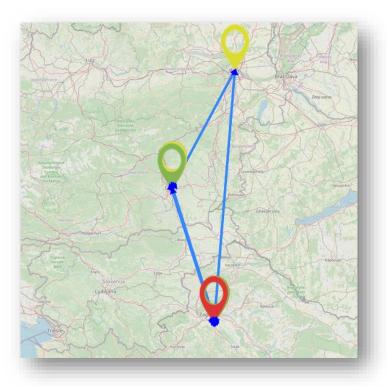
### **Cascading Effects - TPE Simulation**

Threat Propagation Engine (TPE) describes direct and indirect consequences over time

			<< <	2 of 2 🗸	>	»
ime	Entity Name	Event	New State	Because Of	^	<b>a</b>
	Camera in Sally Port	Unallowed Person in the Changing Cabin	4			
	Camera Management System	Person without gear	3	Camera in Sally Port		
	Laboratory Doors	Person without gear	4	Camera in Sally Port		
	Laboratory Manager	Person detected in Sally Port	3	Camera Management System		
		Unouthorized			~	
						Time < 3 >

### One simulation run

Possible cascading effects on the airport due to the attack on the laboratory



After attack simulation



### **CER Directive – Critical Entities Resilience & SRI2**

https://www.consilium.europa.eu/fr/press/press-releases/2022/12/08/eu-resilience-council-adoptsa-directive-to-strengthen-the-resilience-of-critical-entities/

https://digital-strategy.ec.europa.eu/en/policies/nis2-directive

