Project Title	PANTHEON : COMMUNITY-BASED SMART CITY DIGITAL TWIN PLATFORM FOR OPTIMISED DRM OPERATIONS AND ENHANCED COMMUNITY DISASTER RESILIENCE (HTTPS://PANTHEON-PROJECT.EU/)							
Epsilon	**Country**	**Contract value (€)**	**% carried out by Epsilon**	**No of staff provided**	**Client**	**Origin of funding**	**Date (start/end)**	**Consortium Members**
PANTHEON	Malta	5,025,078.75	8% 365.000	10	European Commission	European Commission Horizon	01/01/2023 31/12/2025	17 Partners

Description of the project

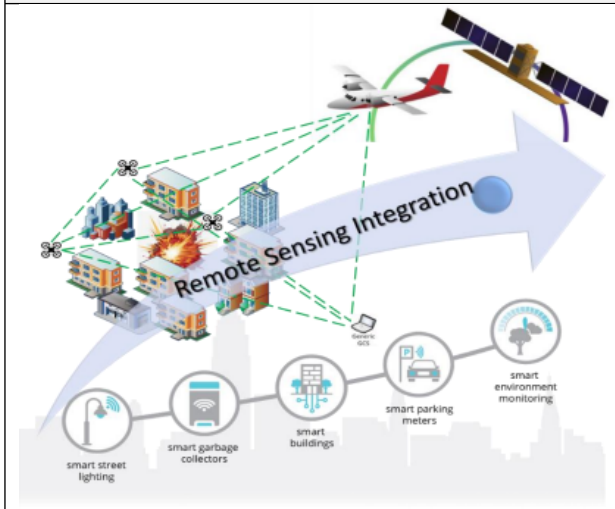

Figure 1. Remote Sensing Integration

The **PANTHEON** project aims to design and develop a **Community-Based Digital Ecosystem for Disaster Resilience**, utilizing **Smart City Digital Twin (SCDT) technology**. The project integrates **new and emerging technologies** to enhance **risk assessment, vulnerability reduction, and disaster resilience** at the community level.

By leveraging **IoT, multi-source data (satellite, UAVs, in-situ sensors, and social networks), and AI-powered decision support**, PANTHEON enhances **situational awareness, preparedness, and response capabilities**. The platform will provide:

- **A Smart City Digital Twin Environment** for simulation, training, and evaluation.
- **An Early Detection & Situational Awareness System** for complex disaster scenarios.
- **A Collaborative Sensing Network**, combining Earth observation, UAV swarms, and AI-driven analytics.
- **A Multi-Hazard Risk and Resilience Framework**, integrating climate scenarios and impact assessments.

PANTHEON fosters cross-border **cooperation in disaster risk management (DRM)**, supporting **civil protection authorities, emergency responders, and policy makers** in **reducing disaster costs** and **enhancing preparedness strategies**.

PANTHEON Objectives are:

- Develop a **Smart City Digital Twin (SCDT)** for urban multi-hazard disaster assessments.
- Enhance **real-time risk analysis** using AI, Earth Observation data, and UAV-assisted operations.
- Support **decision-makers, civil protection agencies, and first responders** with **intelligent planning tools**.
- Improve **data integration and interoperability** across multiple sources for comprehensive disaster management.
- Facilitate **cross-border collaboration and knowledge-sharing** to strengthen community resilience.

Services provided

For WP1: Project Coordination & Management

- Provided technical and financial coordination support.
- Contributed to project risk and impact assessment frameworks.

For WP2: Disaster Risk Assessment & Modelling

- Developed geospatial datasets for disaster risk zones and vulnerability mapping.
- Integrated **Copernicus satellite data** and **multi-source hazard models**.

For WP3: Decision Support & Situational Awareness

- Designed an **AI-based early warning system** for real-time risk monitoring.
- Implemented **GIS-based emergency planning tools** to assist decision-makers.

For WP4: UAV & Earth Observation Data Integration

- Developed **UAV-assisted disaster response models** for rapid impact assessment.
- Created a **multi-layer GIS module** for urban disaster simulations.

For WP5: Digital Twin & Simulation Framework

- Built **a dynamic simulation platform** for community-scale disaster training.
- Developed **a cyber-secured interactive IT environment** for emergency response planning.

For WP6: Policy Development & Stakeholder Engagement

- Supported the formulation of **policy recommendations for climate resilience**.
- Conducted capacity-building workshops for **civil protection authorities**.