Seeing the Unseen: Geospatial Data and Digital Twins

You cannot manage what you cannot measure—and in disasters, you cannot manage what you cannot **map**. Geospatial data is the foundation of the PANTHEON project's approach to risk management, providing the spatial context needed for every decision.

Beyond Simple Maps

Modern geospatial data goes far beyond 2D street maps. It involves a rich layering of information that creates a comprehensive view of the environment:

- **Spatial Data:** The precise location of critical assets like schools, hospitals, and bridges.
- **Attribute Data:** Detailed characteristics, such as the age of buildings or the materials used in their construction.
- **Temporal Data:** Tracking how the landscape changes over time, which is crucial for monitoring floodwaters or fire spread.

From Satellites to Drones

We are currently witnessing a revolution in data acquisition. While satellite constellations (like the Copernicus Sentinels) provide the big picture view, Unmanned Aerial Vehicles (UAVs) are providing hyper-local, high-resolution 3D models of damage minutes after an event.

The Impact

By feeding this geospatial data into a **Smart City Digital Twin**, city planners can simulate disasters before they happen (Risk Assessment) and guide rescue teams precisely when they do happen (Response). This shift from reactive mapping to proactive modeling is a game-changer for urban resilience.