



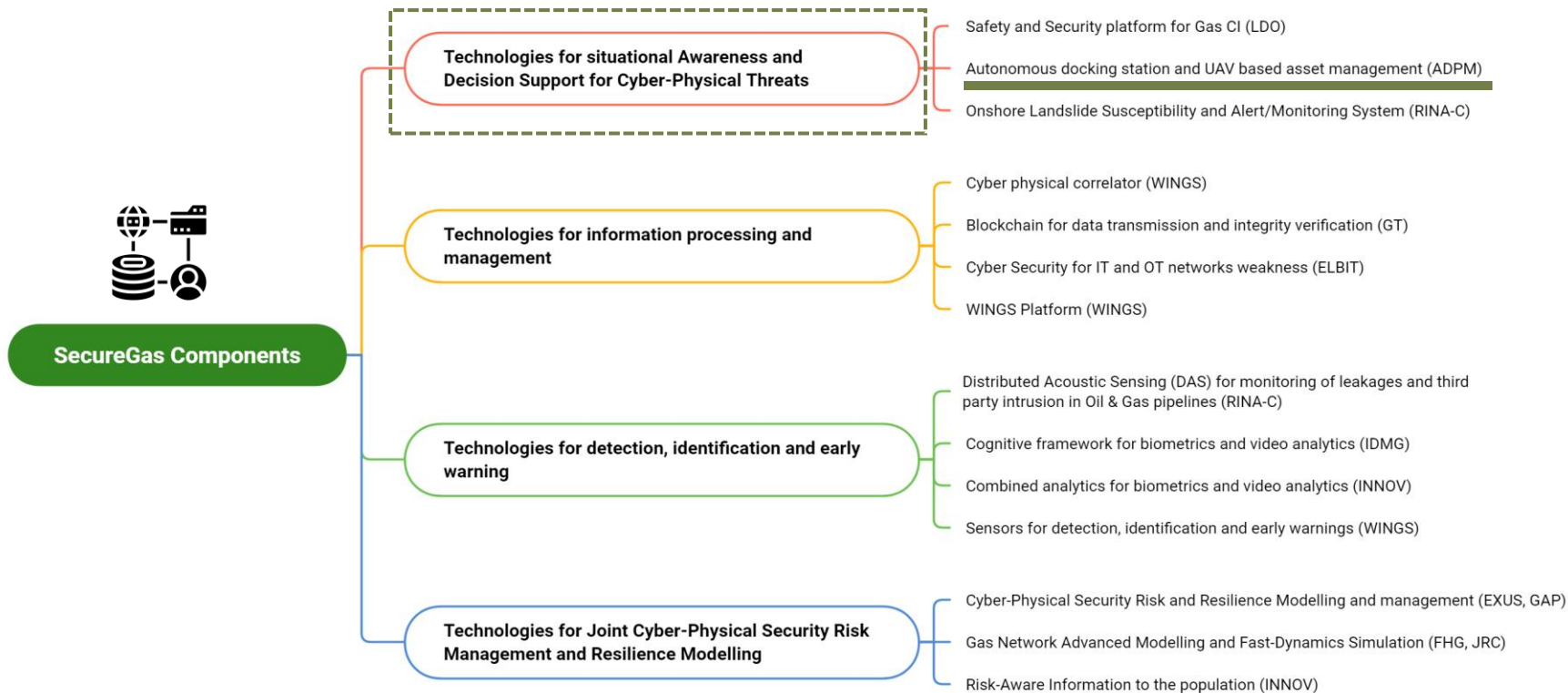
# SecureGas

Securing the European Gas Network



SecureGas project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 833017

# SecureGas extended components



# Autonomous docking station and UAV based asset management

## DESCRIPTION

**The proposed component covers the need to significantly reduce the effort and costs of UAV surveillance by resorting to electrical fast-recharging ultra-lightweight UAVs.**

Due to almost zero damage potential, high reliability by predictive maintenance and advanced geo-fencing allowing even for unattended surveillance in well-defined areas, less investment and significantly reduced running costs, it leverages UAV surveillance services unmatched by traditional heavy (ca. 10 kg) systems that allow only for man-in the loop solutions.

**It is realized with enhanced air traffic management based on a distributed architecture and IoT technologies.** The hardware will be tropicalized, and mechanics improved, ensuring the operational capability also in hostile environments.

A dedicated UAV operation capability identifies and generates user-defined alerts and captures aerial imagery and stream live video to be integrated in the S&S. The result is composed by **a ground station for UAV**, named **hangar**, that can be installed at the customer's premises (e.g. plant, gas pipelines).

The system allows the hangar to work remotely with the aim to make surveys for change detection or to allow the UAV to leave the hangar automatically in case of alerts coming from sensors or cameras. In addition, the UAV can take off on demand from a remote-control unit following commands in real time.

# Autonomous docking station and UAV based asset management

## DESCRIPTION

The **hangar is composed** by different technologies, such as IoT sensors and systems to elaborate data. Once the UAV comes back to the hangar, it recharges batteries and data are shared to a central cloud.

The UAV used belongs to the C1 class that allows an heavier weight (800-900 grams); in this way, communication technologies can be integrated on board, such as sensors, the companion computer that is an elaboration system able to help the flight system making data computing on board.

**On board of the drone a black box will be installed** in order to be able to provide additional functionalities.

- It allows elaborating data on board of the drones also in those regions where there is not internet connection, thanks to the direct connection to the satellite system.
- The black box will contain also sensors for the air quality detection, apart from those for temperature, humidity and pressure detection.

# Autonomous docking station and UAV based asset management

## BENEFITS



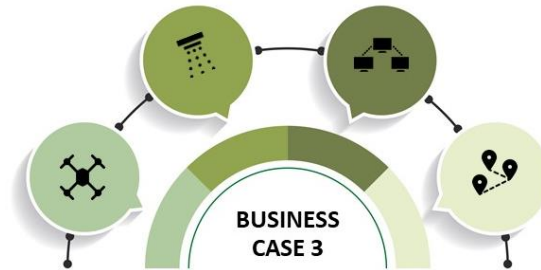
The **MAIN INNOVATIVE ELEMENTS** are:

- **To have a control and management system of distributed inoffensive UAVs fleets** using also IoT technology, with a low environmental impact (docking station of reduced size and power consumption) and very high level of operational safety (operational risks close to zero);
- complete autonomous unattended and safe operations for selected areas steered within S&S;
- **low-cost transfer of high-quality imagery, multiple sensor data and flight information** to S&S allowing assessment and analysis.

# Autonomous docking station and UAV based asset management

## APPLICATION CASE

- **Business Case 3**



## TARGETS

- **Target End Users:**
  - 1) Oil&Gas, Energy, Telcos
  - 2) General asset monitoring
  - 3) Corporate protection
  - 4) Meteorological agencies (sensors on the black box)
- **Target Assets:** Companies owning assets to be constantly and automatically (no man in the middle) monitored (OIL&GAS, energy, Telcos). ADPM project results may be also applied to security and surveillance tasks.



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