CHALLENGE 1

1. Entity posing the challenge

ACLIMA: Agrupalab, AAC-Acústica, Sercontrol

2. Challenge

How can we optimise data capture, and improve the management of the data extracted from third-party sensors?

3. Possible solutions that can be applied

o   Sensor-related services -Internet of Things: design of networks and/or printed circuit boards, improvement of consumption and wireless communications, middleware etc.

o   IoT management platforms for storing, analysing and visualising data obtained from monitoring equipment.

4. Context

The environmental industry or eco-industry has undergone a real digital revolution in recent years, and this includes the companies that make up the **environmental monitoring value chain**. **AAC (noise), Sercontrol (air quality) and Agrupalab (water and soil)** are all companies with extensive knowledge and experience in activities related to improving the environment. Their main activity involves measuring and interpreting data on environmental quality using specialist measurement methods and devices, which could be classified in some cases as classical or traditional.

These methodologies are being relegated to the sidelines as new models and tools linked to digitalisation appear, and new players are entering the market who are positioning themselves in the monitoring market despite their lack of proven technical experience. Consequently, faced with these new competitors, companies in this value chain have already begun to integrate new measurement tools (mainly **IoT and sensor monitoring platforms**) so as to develop new services to improve their competitiveness.

In this sense, these companies must deal with **several factors that limit the implementation of these new technologies**, mainly determined by the **technical limitations of the sensor itself** (e.g. problems of a permanent power supply for sensors, speed and cadence in communicating the data) as well as the **conditions set by the manufacturer** (such as the use of the cloud, software or the supplier's monitoring platform so as to be able to deploy and use the sensor).

In this context, companies see an **opportunity to be able to analyse, control and manage the data obtained from the various third-party pieces of equipment used in their organisations autonomously or in-house**, so as to not only optimise the quality of the information reported by the equipment, but also to protect their data and technical expertise from potential future competitors.

5. Subsidiary challenges and objectives

In view of the above, the main challenge these companies face is related to optimising the capture, communication and hosting of the data they obtain through third-party sensors.

1. **IoT – Hardware.** As far as this is concerned, a priori, the companies proposing the challenge do not envisage the creation of their own hardware and/or sensors, which means that projects related to improving current equipment are envisaged:

   - Design and/or improvement of the programming of the IoT or printed circuits by optimising parameters such as autonomy (low consumption and hibernation capacity), coverage (greater ranges, lower consumption and connectivity costs) and data transmission speed.
   - Improvement in wireless connectivity.
   - Consultancy support for studying and searching for innovative solutions in the use and application of these sensors and/or the design of monitoring strategies.

2. **As far as data storage, management and visualisation (IoT platform) are concerned**, the creation of software (digital management platform) for managing sensor networks is envisaged, which will make it possible to share information in real time, to store data in its own cloud and, in the future, to design predictive models based on analysing and processing historical data collected in order to generate early warnings and other functions.