## 1. Entity posing the challenge

- **Glual Group**

## 2. Challenge statemento

**Traceability of the finished product to increase the quality of the after-sales service (Aftermarket) and increase Maintenance sales.**

## 3. General context

GLUAL is a company with its own ENGINEERING department that specialises in automating industrial processes, specifically hydraulic and electronic systems. With over 300 professionals, its objective is to satisfy its customers by integrating the best turnkey solutions.

It has a strong presence in the Industrial and Renewable Energy sectors which it serves from its production and/or commercial facilities in Germany, Bulgaria, Morocco, India, China, USA and Brazil.

Its main divisions are:

- Design and manufacture of hydraulic groups.
- Design and manufacture of hydraulic cylinders, hydraulic distributors, piston accumulators.
- Design and manufacture of electronic hardware and software (electrical panels, PLCs).
- Sale of hydraulic and electronic components.
- After-sales services: fine tuning, maintenance, repairs.

The challenge proposed is located within the last division, “After-sales services: fine tuning, maintenance, repairs”, and is as follows:

**Traceability of the finished product to increase the quality of the after-sales service (Aftermarket) and increase Maintenance sales.**

## 4. The Challenge

### 1. Description of the challenge:

Glual's Aftermarket service works with the aim of extending the life of its machinery, developing customised solutions for this purpose.

This machinery is located all over the world, and as such Glual has a significant international deployment to provide the Aftermarket services correctly.

The problem arises when Glual's hydraulic systems are incorporated into a machine (manufactured by a Glual customer), which in turn is delivered to a third party (the end customer). At this point, Glual loses the traceability of its hydraulic system, and thus loses the opportunity to offer its Aftermarket services to this customer, who is often unaware that the hydraulic equipment has been developed by Glual.

Obtaining data generated by machines/products located in end customer facilities is one of the great challenges facing Industry 4.0. Most companies, such as the Glual Group, have been including all kinds of sensors in their products for some time now, which allow all kinds of product monitoring parameters to be collected. As such, the company has some experience in this area, but the problem is that once installed in the customer's facility, it is not easy to access the data. It is sometimes even impossible to access the data, and the opportunity to carry out predictive maintenance tasks is lost.

For example, in the case of Hydraulic sensors which are installed in third-party equipment (the end customer), access to the customer's PLCs is often not provided. As a result, this Challenge does not have the "ambition" of being able to have a real-time connection with the equipment. However, it would be very useful to be able to identify where the equipment is located/installed, and to know the end customer where it is installed, if possible.

Therefore, the Challenge is focussed on identifying and implementing technological solutions that help to obtain this data, even if and when the end customer does not provide access to the PLCs. Specifically, this Challenge aims to:

- Determine where the product is installed.
- Determine who the end customer where the product is installed is.

## 2. Main impacts

The ability to have information on where the product is installed and who the end customer is will allow Glual to provide added value to the customer. It could ensure that the hydraulic equipment is working correctly based on its intended use and the design parameters. Possible maintenance problems could also be anticipated, even sending any spare parts required.

Thanks to this Challenge, we would also achieve:

- Access to the end customer.
- An increase in Maintenance Service Quality, extending the useful life of the equipment.
- An increase in turnover from the Aftermarket division.

### 3. Main questions to be solved

- Can we know where the product is located, or at least the destination where it is commissioned?
- Can we integrate a simple and cost-effective solution that can be used for all the company's products, taking into account that some are small and some are large?
- Can sensor solutions provide the desired information described in the Challenge?
- Can a solution to this Challenge be considered for the existing equipment already installed? Or would it be restricted to new equipment only?

### 4. Technical characteristics of the challenge

- Sensors applied to Data capture (IoT).
- Data collection design.
- Data Processing and Traceability (Cloud Technologies + Big Data).