

1. Entity posing the challenge

ADEGI: Couth Industrial Marking Systems, Salva Industrial, Korta, Metrología Sariki, Comercial Hostelera Del Norte Equipamientos, Euskabea Electrónica del Urumea

2. Challenge

How can we make machines/components smart in order to develop new advanced data-driven services?

3. Possible solutions that can be applied

- Artificial Intelligence
- Machine learning (deep learning) for predictive maintenance and improved production
- Technologies for carrying out structural analyses/physical interpretations of machines/components

4. Context

Despite the fact that the companies proposing this challenge come from different sectors of activity, they share some common challenges, including the importance of evolving their products (machines and components) towards servitisation by **exploiting data and making intelligent decisions**.

In this sense, these companies are aiming to evolve from a traditional business model based on sales, installation and preventive maintenance of products, to a new one in which they proactively provide **advanced after-sales services**. These services are based on **structuring, correlating and transforming** the data they already collect from their machines into information that can be used to make different decisions.

Whatever the case, it is important to know that **Salva Industrial** (ovens) and **Couth Industrial Marking Systems** (industrial traceability systems) are equipment manufacturers, **Euskabea** provides electrical solutions, **Korta** is a component manufacturer (high-precision ball screws), while **Metrología Sariki** (metrological equipment) and **Comercial Hostelera del Norte** (integral catering installations) design and create engineering projects, and distribute equipment with considerable knowledge of how machinery and installations work.

In this context, in order to create intelligence based on the data already extracted, companies mainly encounter technical difficulties in automatically correlating the causes and effects of the production processes of the machines on the products they manufacture.

5. Subsidiary challenges and objectives

The companies proposing the challenge believe that they have a wide range of options for improving their machines, and the production lines in which they are installed, by using AI and machine learning to increase productivity, reduce costs and gain efficiency by analysing the data generated. Along these lines, we hope that startups will help companies make alternative data structures (correlations) based on their use:

1. **Production-related decision-making** through advanced monitoring and visualisation of data and machine intelligence for:
 - Adjusting production by creating optimal usage patterns.
 - Improving efficiency by reducing non-quality costs.
 - Adjusting and reducing energy consumption in production.
2. Providing new functions and services such as **predictive maintenance**. In this sense, there is a challenge to enable machines to learn from real-world incidents (unexpected stoppages, urgent orders, staff shortages, etc.), and to identify non-quality patterns, thereby identifying the main causes of machine/component problems and increasing agility and speed in providing (digital) response and maintenance services.

In this regard, we believe that the following technologies would be appropriate:

- In the case of machines, data analytics and artificial intelligence for processing and finding various patterns (rejects, consumption, carbon footprint, report automation).
- And in the case of components, technologies for carrying out structural analyses that can combine the acquisition of real operating data with their interpretation by means of physical-virtual models.