1. Entity posing the challenge

BASQUE FOOD CLUSTER: Artomaña Txakolina, Bodegas Itsasmendi, Cafés Baqué, Paturpat, Giraldo Food Group

2. Challenge

How can we provide more intelligent, automatic forecasts of demand in the food processing industry and manage stocks more efficiently?

3. Possible solutions that can be applied

- Artificial intelligence: demand forecasting algorithms.
- Logistics control tower / logistics dashboard.
- Other Track & Trace technologies or logistics traceability.

4. Context

One of the main challenges facing the food processing industry is to **reduce losses related to food waste**. This waste can come about as a result of a **combination of different factors such as the seasonal nature of demand, the purchasing power of retailers** (and its effect on production planning) and the shelf life of products used in production processes, among others.

Along the same lines, the large retailers that these companies supply (supermarkets and other large wholesalers) have their own smart systems for predicting the demand of their end consumers, which they do not share with producers. The **capacity to accurately predict their orders is currently limited**, and these orders **have a significant impact on the production cycles** of the companies facing this challenge. In some cases, this leads to **inaccurate supply forecasts** and the corresponding associated costs.

Against this background, the companies proposing the challenge have **large amounts of historical customer order data** with information related to products, dates, references, etc. that **can be used to obtain valuable information**. In addition, in cases where the end customers are small retailers (Horeca or other channels), companies also have digitalised information in their business management systems.

In this context, and taking the availability of historical order data into account, companies view it as an **opportunity to optimise their stock management and improve their ability to predict demand** as a solution to reduce both food losses and food-related economic losses.

5. Subsidiary challenges and objectives

Therefore, as might be expected, a limited capacity to predict the needs of end customers not only makes it difficult to manage purchases and stock, but also impacts on production and the subsequent logistical deployment when it comes to selling the product, with consequent food waste and other indirect costs associated with this.

Consequently, two types of solutions are being sought:

- **Demand forecasting:** firstly, applying **predictive algorithms based on artificial intelligence**, which relate and structure data from different sources in order to improve inventory management, and allowing demand forecasting to be automated in some way, is considered to be of interest. As a result, companies are also expected to be able to predict the impacts of seasonality, events or global situations on their production to ensure efficient supplies, thereby avoiding penalties for overstocking or stock-outs. In addition, better communication and coordination with customers will lead to considerable cost reductions and improved production planning, thereby avoiding current food waste.
- **Stock management and sales:** meanwhile, as far as delivery and sales (logistics) are concerned, in cases where end customers are small retailers, technologies such as **logistics scorecards, logistics control towers and smart storage solutions** are envisaged to make it possible to manage delivery fleets more efficiently and to generate orders more intelligently (end customer not integrated in the corporate ERP). Technologies are envisioned that are capable of improving how logistics and warehouse operations are managed and that are an improvement over traditional methods, by applying AI from available data and incorporating both external variables and AI-based predictions into the model.