

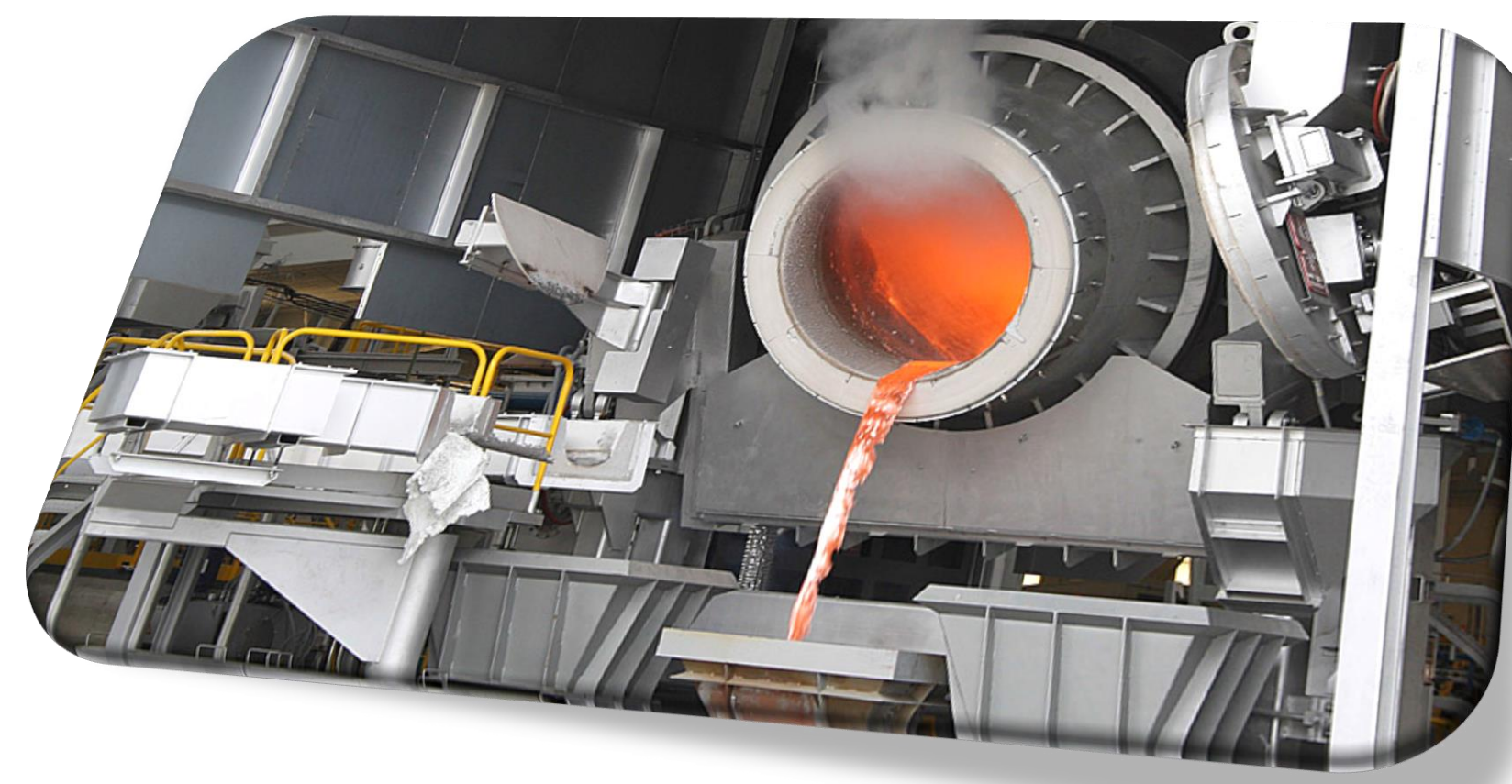


MANUFACTURING SME AND CHALLENGE

GHI → Design & Manufacture of: Industrial furnaces, Turnkey plants, SAT and Digitization and consulting 4.0 services.

Challenge → To obtain an energy efficient smart connected tilting rotatory furnace with:

- A high-speed edge-powered furnace control
- Big data simulation-based predictive framework
- Prescriptive Energy Management Module



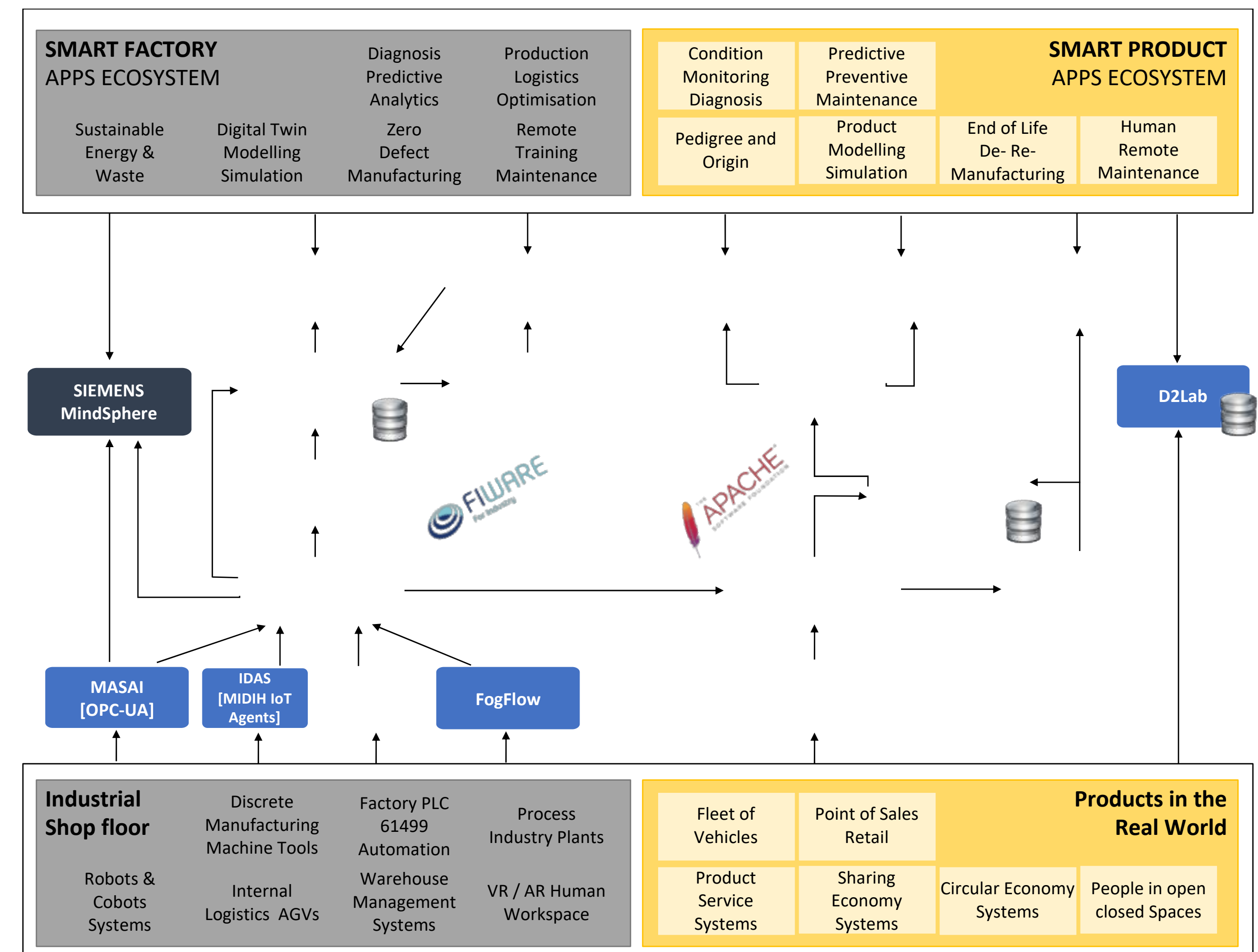
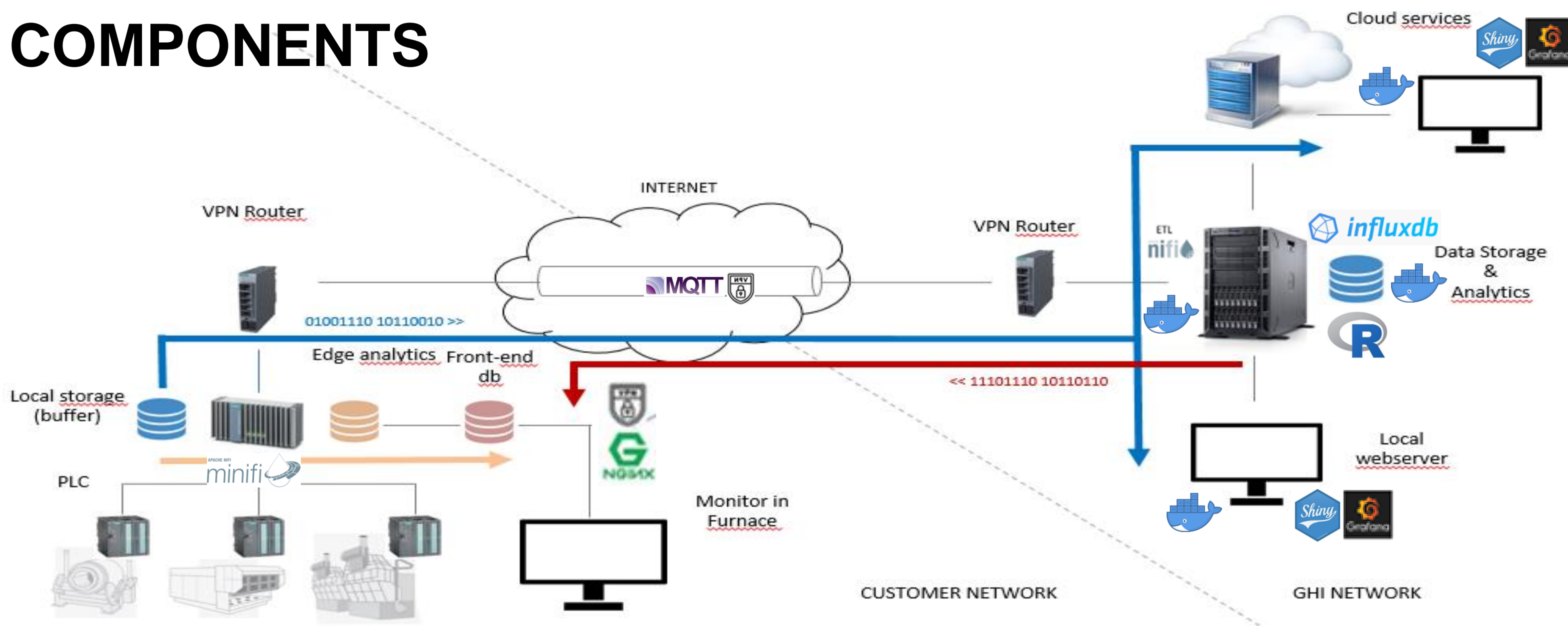
Please, highlight in black the country where your company is located



To solve:

- Lose of competitiveness due to high operation costs
- Correlation between parameters that influence operation.

SOLUTION: ARCHITECTURE AND COMPONENTS



ENERSAL experiment incorporates the following components:

- **Minifi** with MQTT installed on the IoT Gateway to send the data to the server.
- **Nifi** for the ETL process, transform and store data in the data warehouse.
- **Influxdb** as a data warehouse, especially suited to deal with time series.
- **Grafana** to query/visualize/alert on & understand metrics based on TS data.
- **nGINX** as a lightweight reverse web/proxy server.

BENEFITS AND LESSON LEARNT

ID	BUSINESS Indicators	DESCRIPTION	Current value	Future expected value
1	Energy Consumption and reduction of CO ₂ emissions.	Reduce energy consumption due to the improvements developed.	11%	10%
2	Increase productivity	Fusion Tons increase due to reduction of waste times.	10%	10%
3	Operation costs	Reduction on operation costs due to energy efficiency and the support in decision making for production.	6%	5%

➤ Three most important **lessons learnt**:

- Improved communication between the different equipment for the agglutination of all the information in a centralized database.
- Improved interpretation of each of the variables that affect the process and how to perform its pre-processing.
- Improved knowledge of the productive, optimized using data analysis.

OUTLOOK

- **New Business opportunity:** these new services developed origins a new way of marketing and exploit GHI products.
- **Improved Competitiveness:** these services provide a high added value to GHIs products.
- **Access to new Markets:** Asian and Indian Market.

