

# Cogniplant. Cognitive platform to enhance 360° performance and sustainability of the European process industry

**Consorcio:** Ibermatica; Ideko; Aceria de Alava, Ingeteam Power Technology; Savvy Data Systems; i3B; Technische Universitaet Muenchen (AL); Hermes Schleifmittel Ges.m.b.H. (Austria); Software Competence Center Hagenberg GMBH (Austria); Logpickr (Francia); Mr. NeC B.V. (Holanda); STAM SRL (Italia); Fornaci Calce Grigolin SPA (Italia); Core Innovation And Technology (Grecia); Aughinish Alumina LTD (Irlanda)

**Tecnología:** Industria & Consumo; Inteligencia Artificial

## Descripción general:

This project will develop and demonstrate an innovative approach for the advanced digitization and Intelligent management of the process industries.

COGNIPLANT will deliver an integrated kit for the digitalization of the process industries through the development of a Cognition driven monitoring and control platform. The so called Cognitive platform will be validated by the realisation of four large demonstrations which will address the following SPIRE sectors: aluminium refinery, construction components manufacturing (production of lime), chemical sector (production of abrasives) and the metal sector (manufacturer of high tech steel pipes for the energy sector).

- Co-Digitise Layer: Sensing and Data Virtualisation level: Co-Digitise will be the closest layer to the production plant as it will connect the “real world” (e.g. equipment, sensors, etc.) with the “virtual world”. It will enable, on the one side the data acquisition structure needed to collect the required data from the plant operation, and on the other side the data virtualisation layer to structure the information in a common language and structure for its further analysis.

- Co-Analysis Layer: Advanced data analytics level: A holistic methodology will be established for the processing of data of the plants to enable secure and reliable real-time decision support and optimization. Recent advances in the domain of big-data management, process mining and machine learning will be adopted to enable the entire data analysis lifecycle in process industry, from data collection to optimization support.
- Co-Decide layer: Virtual Model and simulation level: The Co-Decide layer will be the interface with their production plants for the decision makers (i.e. Plant managers). It will be an ecosystem capable of detecting deviations, identifying production processes inefficiencies and bottlenecks, providing information on the performance and flexibility of the processes, maintenance, product quality, etc.

**Programa:** H2020-NMBP-SPIRE-2019 (869931)

**Duración:** 42 meses (2020 – 2023)

**Presupuesto global proyecto:** 8.668.726,25 €

**Presupuesto Grupo Ayesa:** 836.250,00 €

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## Role of Ayesa:

Ibermática will lead the project and be responsible for its overall coordination, ensuring that administrative, operational, and data management activities are effectively executed and aligned across all partners.

It will contribute to the definition of requirements for the cognitive plant use cases and will take responsibility for the design of the cognitive architecture, ensuring that the technical capabilities are closely aligned with user needs and business objectives, while also establishing the basis for measuring project impact.

In addition, Ibermática will support the development of the platform's big data infrastructure and focus on the creation of machine learning tools for advanced data processing and analytics.

A central role will also be played in the development of the Co-Decide (Cognitive Plant) layer, including simulation and optimization tools, adaptive planning based on real-time conditions, and the integration of cybersecurity mechanisms to ensure the protection of both data and system operations.

Finally, Ibermática will collaborate closely with industrial partners in the implementation and validation of the developed solutions in real use cases, ensuring their applicability and effectiveness in operational environments.

