COGNIPLANT
COGNITIVE PLATFORM TO ENHANCE 360° PERFORMANCE AND SUSTAINABILITY OF THE EUROPEAN PROCESS INDUSTRY

Our challenge

Shortage in raw materials, increased energy prices and environmental constraints **require the EU process industry to improve its performance and flexibility,** and therefore increase efficiency; in this situation there are unexploited opportunities for digitising a large range of enterprises of very different size in the process industry.

COGNIPLANT solution

COGNIPLANT project will demonstrate an innovative approach for the advanced digitisation and intelligent management of the process industries. **A novel vision to data monitoring and analysis** will be developed, that will make the most of the latest developments on advanced analytics and cognitive reasoning, coupled with a **disruptive use of the digital twin concept to improve production plants' operation performance.**
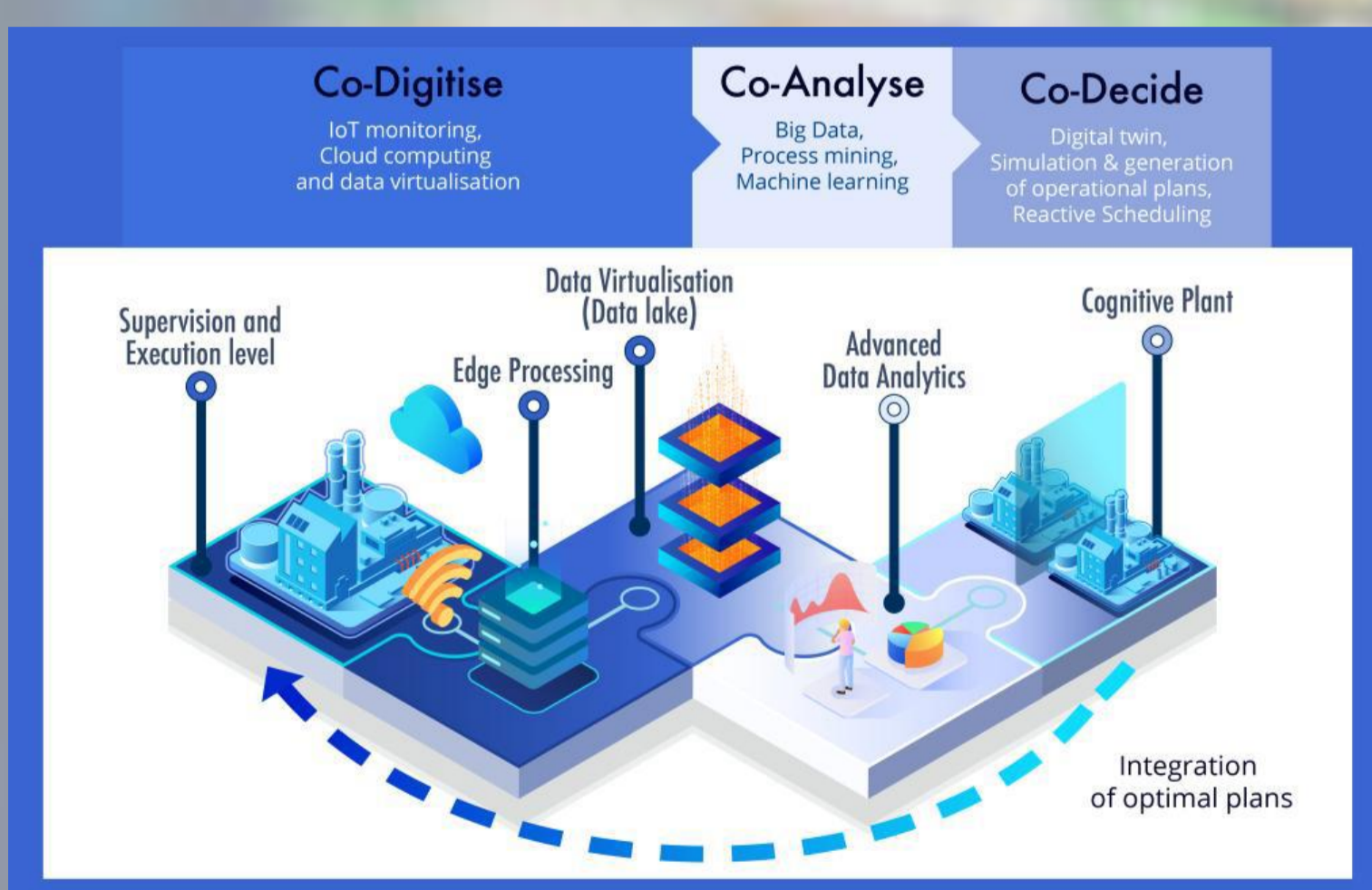
14 Partners

from

Countries 8

Additional countries involved in COGNIPLANT:
NL, FR, DE, GR

Industrial use cases (demos) distribution per country:
ES, IE, IT, AT

Construction sector	Italy
Grigolin	
Chemical sector	Austria
HELMES	
Mining sector	Ireland
RUSAL	
Metal sector	Spain
TUBACEX	

The COGNIPLANT solution will provide a **hierarchical monitoring and supervisory** control that will give a comprehensive vision of the plants' production performance as well as the energy and resource consumption. **Advanced data analytics will be applied to extract valuable information from the data collected** about the processes and their effect on the production plant's overall performance enabling to design and simulate operation plans in digital twin models based on the conclusions. As a result, **optimal operation plans will be obtained** that will improve the performance of those cognitive production plants.

Co-Digitise
IoT monitoring, Cloud computing and data virtualisation

Co-Analyse
Big Data, Process mining, Machine learning

Co-Decide
Digital twin, Simulation & generation of operational plans, Reactive Scheduling

Supervision and Execution level

Data Virtualisation (Data lake)

Edge Processing

Advanced Data Analytics

Cognitive Plant

Integration of optimal plans

4 Pilots

The COGNIPLANT concept will be implemented by **four end-users from four different SPIRE industries:**
- chemical industry in Austria
- alumina refinery in Ireland
- lime manufacturing industry in Italy
- metal industry in Spain.

3 Layers

"Co-Digitise": collect and structure the data from the different sensors and equipment for its further analysis.
"Co-Analyse": data processing, application of advanced methods of process mining, big data, data mining, etc.
"Co-Decide": digital twin, decision making, generation of operational plans, prescriptive general and edge processing.