HUB TECH IA

AI and IAGEN Application Use Case

Predictive Performance Analysis for Performance Prediction of Wells

Classification of Deliverable Report 38: "Predictive Performance Analysis for the Well Performance Prediction:

Classification 1: By Main Resource

- Selected option: Oil (main), Gas (secondary), Water + energy (complementary).
- Justification:

  The focus of the report is on predicting the performance of wells in Vaca Muerta, mainly aimed at optimizing the production of oil, with mention of gas as a secondary component. The use of energy and IoT sensors is presented as a support infrastructure for the operations, but not as the axis of analysis.

Classification 2: By Activity within Vaca Muerta

- Selected option: Optimization of Production Processes
- Justification:

  The central objective of the report is the optimization of well performance Using AI and predictive analytics to reduce downtime, anticipate failures, improve production, and increase efficiency. Models are applied advanced predictive analytics on time series and operational data for directly optimize the production process.

Classification 3: Type of AI Technology Used

- Main selected option:

  1ÿÿGenerative AI Models,

  2ÿÿMachine Learning Algorithms, 6ÿÿAI

  Platforms for Data Integration and Big Data, 5ÿÿAI Systems

  Based on Intelligent Agents, 3ÿÿNatural Language

  Processing (NLP) (secondarily).

- Justification:

  The report includes a complete agentic architecture for predictive analytics, based on IoT sensors, neural networks (RNN, LSTM, GRU), tree decision (Random Forest, GBDT), SVMs and platforms such as Teradata, SAS, Alteryx, etc. Also referred to as software with capabilities of natural language and simulation.

Classification 4: By Strategic Impact on the Industry

- Selected option: AI for Production and Quality Optimization Infrastructure
- Justification:

  The impact of predictive analytics described in the report includes reduced downtime (30-50%), increased production (up to 25%), improvements in safety, predictive maintenance and overall operational efficiency. These benefits have a direct impact on the productivity of the infrastructure and energy production of Vaca Muerta.