HUB TECH IA

AI and IAGEN Application Use Case

Analysis of Geological and Seismic Data for Area Identification with Shale Gas in Vaca Muerta

Classification of report deliverable 13: "Generative Artificial Intelligence in the Analysis of Geological and Seismic Data for the Identification of Shale-Bearing Areas Gas in Vaca Muerta":

Classification 1: By Main Resource

- Selected option: ÿ Gas (main), Petroleum (secondary).
- Justification:

  This report focuses on the precise identification of potential areas for shale gas production in Vaca Muerta, explicitly highlighting the importance strategic use of natural gas as a primary resource, while oil remains in a secondary role within the general context of the site.

Classification 2: By Activity within Vaca Muerta

- Selected option: Information Management and Decision Making
- Justification:

  The emphasis of the report is on advanced analysis and interpretation. automated geological and seismic data analysis using IAGEN to improve considerably improves the accuracy of strategic decision-making. The goal is optimize the selection of areas for drilling, reduce operating costs, reduce environmental risks, and increase overall operational efficiency through decisions informed by predictive analytics.

Classification 3: Type of AI Technology Used

- Main selected option:

1ÿÿGenerative AI Models,

2ÿÿMachine Learning Algorithms, 4ÿÿComputer

Vision Systems and Image Analysis.

• Justification:

The report specifies the extensive use of advanced generative models such as Generative Adversarial Networks (GANs), Transformers and Diffusion Models for generate realistic synthetic simulations of the subsurface and improve the resolution and quality of seismic data. In addition, the use of algorithms is mentioned deep learning for automatic analysis of complex geological data, essential for the identification of geological traps and prospective formations using advanced computer vision techniques.

Classification 4: By Strategic Impact on the Industry

• Selected option: Strategic Decision Making and Data Analysis

• Justification:

The main impact described in the report is directly related to a substantial improvement in the accuracy and speed of data analysis, which facilitates significantly impact strategic decision-making. The application of IAGEN allows to optimize the location of the wells, increase the success rate in the drilling, reduce operating and environmental costs, and accelerate development general project overview.