



## 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 12: "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:

The report focuses specifically on the identification and exploration of areas with potential for shale gas in Vaca Muerta. While Vaca Muerta is also known for its shale oil production, the clear focus of the document is on gas, highlighting the techniques and technologies used to detect geological formations suitable for this resource.

Classification 2: By Activity within Vaca Muerta

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

The objective of the report is the significant improvement in the accuracy of the analysis and interpretation of geological and seismic data using IAGEN, facilitating better-informed strategic decisions. The Optimization in the identification of prospective areas, reducing costs operational and environmental risks through analysis-based decisions advanced predictive.

Classification 3: Type of AI Technology Used

- Main selected option:

1. Generative AI Models,

2. Machine Learning Algorithms,

4. Computer Vision Systems and Image Analysis.

- Justification:

The document details the use of advanced generative AI technologies such as Generative Adversarial Networks (GANs) and Transformers to generate synthetic geological models and improve the interpretation of seismic data.

It also mentions advanced machine learning algorithms (Deep Learning) applied to the analysis and recognition of seismic patterns, crucial to identify geological structures associated with shale gas. The vision Artificial intelligence and image analysis are central components for interpreting complex seismic data.

#### Classification 4: By Strategic Impact on the Industry

- Selected option: Strategic Decision Making and Data Analysis

- Justification:

The report highlights IAGEN's strategic capacity to improve the precision in reserve identification, optimizing well location, reduce operating and environmental costs, and significantly accelerate the exploration process. This translates directly into better decisions operational, financial and strategic within the oil and gas industry in Vaca Muerta.