HUB TECH IA

AI and IAGEN Application Use Case

Training through simulation of critical scenarios in the Industry Oil in Vaca Muerta, Neuquén

Classification of deliverable report 22: Use case: Training through Simulation of Critical Scenarios in the Oil Industry in Vaca Muerta:

Classification 1: By Main Resource

• Selected option: Oil and ÿ Gas (main), Water + energy (secondary).

• Justification:

The report focuses primarily on training through

Simulations to improve safety and efficiency in the exploitation and production of hydrocarbons

(oil and gas). It also considers

explicitly water management within the environmental and operational context,

but from a secondary role with respect to the main resources.

Classification 2: By Activity within Vaca Muerta

• Selected option: Automation and Standardization of Protocols

• Justification:

The document emphasizes the use of Generative Artificial Intelligence (GENA) to automatically

generate customized simulations and specific guides for training personnel in critical situations.

The purpose is to standardize training, ensure an effective response and

homogeneous in the face of emergencies, and continuously improve skills

staff operations.

Classification 3: Type of AI Technology Used

• Main selected option:

    1ÿÿGenerative AI Models,

    3ÿÿNatural Language Processing (NLP) Systems,

    4ÿÿComputer Vision and Image Analysis Systems,

    6ÿÿAI Platforms for Data Integration and Big Data.

• Justification:

    The report explicitly mentions the use of advanced generative AI (IAGEN)
models such as ChatGPT to generate realistic simulations,
personalize educational content and provide feedback
real time. Visual and immersive simulations are also highlighted for
critical scenarios, predictive analysis integrating Big Data to detect
risks early, and advanced natural language processing to
facilitate personalized communication and learning.

Classification 4: By Strategic Impact on the Industry

1. Selected option: AI for Industrial Risk and Safety Management
2. Justification:

    The key strategic objective outlined in the report is the substantial improvement of
occupational safety through advanced training in critical situations.
The strategic application of IAGEN allows to significantly reduce
operational incidents, improve emergency response, strengthen
staff training and minimizing environmental impact. The generation of detailed
virtual scenarios is explicitly mentioned for
training in specific risks such as spills, technical failures and
environmental emergencies.