

# Intelligent Cloud Based Virtual Assistant for Oil and Gas Professionals

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## Abstract

Recent technological disruptions in oil and gas exploration, development, and production have led to new data acquisition, processing, and storage solutions. This includes new sensors and data recording tools that can continuously collect massive amounts of data, which come in different sizes, formats, and structures. Interpreting and integrating this data in smarter and faster ways is key to unlocking new resources, increasing recovery efficiency, and reducing environmental impacts. However, several obstacles conspire to prevent this from happening including the fact that data is often dirty, messy, and unstructured, that data lives in disciplinary silos, that precious information is lost in translation between different systems, that knowledge is often localized and difficult to share, and that most currently used industry tools do not favor collaboration. To address these problems, we developed an intelligent cloud-based virtual assistant designed to connect data to intelligence that enables real-time investigative & multi-disciplinary analysis. The analogy in terms of the way it works is your Google assistant: you can ask it all kinds of questions about the reservoir which could pertain to historical trends, data quality issues, recovery obstacles, and potential solutions or development opportunities to list a few. To address these questions, the assistant finds the relevant data, cleans and formats it as needed, performs data mining to extract hidden information, generates analytics, creates visual representations of the data, and prepares verbal narratives to respond to the user. To enable all of this, the assistant leverages bleeding-edge technologies to perform natural language understanding (NLU), classify the user intent, extract variables or parameters, track the context of the conversation as it evolves, fulfill the

user request, generate natural language, and finally synthesize human sounding speech to respond to the user. As a result of its unique technological capabilities, this oil and gas assistant is able to dramatically increase the productivity of oil and gas professionals using it as it: (1) harnesses the power of the cloud and automation, (2) enables access to clean data anytime/anywhere, (3) connects isolated domains/disciplines, (4) reveals patterns that could not be seen before, and (5) delivers insights supported by a wealth of analytics. Ultimately, these benefits can unlock new production potential, reduce operational and environmental costs, and lead to significant efficiency gains.