Iraya Energies case study

Iraya Energies uses Microsoft Azure Synapse Analytics and Azure Machine Learning to uncover subsurface geology and geophysics data

Mountains of unstructured data hiding useful information

Oil and gas companies work with large amounts of unstructured data, and they need to be able to organize it, search it, and extract knowledge from it.

A data and AI solution using Microsoft Azure services

Powered by Microsoft Azure, the ElasticDocs Intuitive Knowledge Container from Iraya Energies ingests data and applies machine learning techniques.

Quickly carving out key insights with machine learning tools

Now geoscientists and engineers can process unstructured data up to 40 times faster than manual ingestion, rapidly unlocking valuable insights.

Microsoft
Partner
Network

Using Microsoft Azure to serve the data needs of the energy industry

Headquartered in Kuala Lumpur, Malaysia, with offices in Singapore, the Philippines, Denmark, Norway, and the United States, Iraya Energies employs a talented mix of data scientists, geoscientists, and engineers. The tech startup became a Microsoft partner in December 2018 and has utilized Microsoft Azure for a few years. ElasticDocs Intuitive Knowledge Container, the company's flagship product, is a cloud-enabled web solution that organizes, structures, and accesses unstructured data for the energy industry. It's available in a [Software-as-a-Service](#) model through the Microsoft Azure Marketplace.

Iraya Energies implemented ElasticDocs on Azure to access graphics processing capabilities for machine learning training and inference for experimentations. ElasticDocs employs Azure Synapse Analytics and Azure Machine Learning resources. Azure Synapse Analytics lets users query data at scale using either serverless on-demand or provisioned resources, and Azure Machine Learning accelerates the creation and deployment of machine learning models.

How ElasticDocs uncovers valuable subsurface geology and geophysics data

Oil and gas companies use subsurface geology and geophysics data to decide whether to hold or release acreage, position exploration oil wells, and decide on development or relinquishment strategies for existing fields. But because most of this data is unstructured, little of it is used. ElasticDocs makes it possible for geoscientists and engineers to locate information in unstructured data, retrieve it, and do further processing to aggregate it, thereby extracting relevant insights.

Digitized unstructured data is ingested through a pipeline with workflows using machine learning techniques, such as natural language processing or deep convolutional neural networks, to provide a structured dataset. Algorithms identify blocks/segments within a document and supervised machine learning classifies the segments as text or non-text. Optical character recognition is applied to the text segments to convert them into editable text. In a separate data pipeline, the non-text components, such as images and tables, are tagged and classified using convolutional neural networks.

With ElasticDocs, data can immediately be identified, located, and retrieved through a text and image search. In this efficient data management system, geoscientists and engineers can perform an intelligent full-text search of the text corpus and images with a link to the original data point (such as a report). Images can be structured for better comparison, and tables can be converted to .csv files for easy data retrieval and full search capabilities in English. And through the scalable infrastructure of Azure, ElasticDocs can effortlessly expand to meet the needs of thousands of users, satisfying clients' swiftly changing requirements.

"Microsoft Azure has provided scalability for Iraya Energies, eliminating the need for costly hardware investments, and instant scalability for the number of end-user licenses required by our customers."

- Nina Marie Hernandez, CEO, Iraya Energies