Oil Company

AI

**Advantages of AI:**

1. Sensing: Emulate human cognitive abilities, **replace manual works**🡪reduce the labor cost

AI can **emulate human cognitive abilities**, and therefore augment or replace them under the right conditions (machine learning)

For example, sensors embedded in a storage tank may be able to recognize concentrations of different chemical elements stored in the tank. This type of data can then be fed to a **machine learning** model to evaluate the impact of those elements on the health and durability of the tank.

1. Thinking: Recognize patterns and analyze data to provide **insights**🡪

AI tools can not only **analyze and process large data sets faster** than traditional statistical approaches but can also **identify patterns in the data** that would escape human analysts, developing **better insights** faster.

smart assistants with conversational interfaces can use **machine learning and natural language processing** to help enhance the human decision-making process, helping less experienced workers tap into the pooled expertise of an entire industry

1. Acting: Free human up to let them focus on **higher-value activities**🡪innovations

AI can increasingly perform tasks that were previously the exclusive domain of humans, **freeing them up for higher-value activities that leverage empathy and creativity**.  By allowing employees to focus on high value optimization activities, AI creates capacity gains and sets up companies for future growth.

**How AI respond to challenges in oil and gas industry**

1. Challenges in hiring talent

🡪AI can help **automate** mundane and repeatable processes that require limited cognitive attention; which create new opportunities for employees to leverage their creativity and problem-solving skills

🡪AI can **create new jobs**: programmers, data scientists and engineers, which are appealing to younger generations

🡪AI can capture the **knowledge of senior professionals** to support business continuity, **train up** the next generations

🡪AI makes working safer

1. High operation cost (low efficiency): Oil company are traditionally built on tangible assets

🡪**Put data generated by their own assets to work with AI** and use it to improve efficiency. This increased efficiency will translate to greater predictability in exploration, accuracy in drilling and completions, efficiency in production, reliability in maintenance, throughout refining, and optimization in transportation and distribution.

Eg. on-site chatbots can be used to receive unstructured input from operators in the field when performing maintenance work. The chatbots’ AI can then analyze the issues and offer effective solutions based on an archive of expertise and insight. Other AI systems can monitor drilling and pipelines to identify potential issues, automatically shutting down operations ahead of potentially catastrophic — and costly — failures

**Challenges in implementing AI**

1. **Data collection and integration**: local storage of data and long, complex value chains mean individual may lack a holistic view of the data they need to improve their operations. Upstream units need data from midstream and downstream, vice versa.
2. **Employee engagement**:there may be **some reluctance and skepticism** of AI’s potential, **company-wide communications, training and immersion programs** should be implemented to help staff at all levels better understand how AI can help improve individual and collective performance, and how they could interact with AI to improve their overall skillset and work experience