



What do oil and gas executives need to know about AI?

The AI foundation you build today will become your company's legacy. In the energy industry, building that foundation means understanding:

- What AI can do for your company
- What your building blocks are made of
- Who you can trust to help you build a solid foundation for generations to come

What can AI do for you?

Whether or not your company has a solid foundation, AI is coming. 92% of oil and gas companies are already investing in AI or planning to in the next 5 years.¹

AI adoption is no longer an option; it's a competitive requirement for companies!

AI already serves more than 50 uses in the energy industry.² So, where are you most likely to see the best returns on your investments?

Advanced predictability

Forecasting matters to energy companies. AI tools can help you simulate populations, environments, and resources.

- AI tools are used in upstream operations to analyze drill sites based on seismic data, assessing for efficiencies in operations and carbon emissions.
- AI analyzes equipment data to pinpoint potential failures, preventing costly downtime and ensuring smooth operations.
- An AI-based energy demand forecasting application is enabling facility managers to avoid peak charges and time their energy usage more effectively.³

Increased reliability, safety, and security

Dependability is crucial for energy, whether it's the safety of workers, or the flow of power.

- AI is being used to better predict downtime at facilities and pipelines upstream, so shutdowns have less of an impact on workers and the supply chain.⁴
- AI analyzes sensors and video footage to predict hazards, prevent accidents. AI scans video to spot unauthorized personnel in sensitive areas, ensuring only authorized personnel are in zones they are approved to be in, and ensure the well-being of personnel and infrastructure.
- By 2027, IDC predicts 60% of oil and gas majors will use edge computing tools to collect data from real-time video surveillance and analytics to improve site security and safety management.⁵ This data is perfect for predictive AI models.
- With the right mix of public, private, and hybrid AI solutions, data segmentation and isolation can be scaled, controlled, and maintained, for increased security and privacy.

New efficiencies

With greater data management capabilities comes greater visibility into every sector of oil and gas, with greater potential to fine-tune processes.

- AI is also helping with supply chain transparency, process optimization, resource allocation, compliance and regulatory adherence, and the creation of documentation
- AI is helping to detect and solve shrinkage issues, making inventory management much more efficient.
- This transparency extends throughout facilities and stores with smarter controls over lighting, HVAC systems, and refrigeration.
- Microsoft Copilot is bringing generative AI to energy administration by effortlessly kickstarting projects, delivering insights, and summarizing long documents.

Improved customer experiences

All AI-augmented improvements will ultimately lead to better customer experiences, but some can be more direct in their impact.

- Combining behavior and preferences from loyalty programs, in-person transactions, and online transactions can help shape future interactions with personalized promotions, rewards, and videos at the pump.
- AI-based chatbots are creating more personalized, knowledgeable, and empathic customer support – from anywhere at any time, no matter what the demand.

Profitable insights

AI isn't just about controlling costs. In fact, some of the most exciting opportunities generate new streams of revenue.

- Real-time data from traffic and behavioral patterns can help predict demand fluctuations to better manage supply.
- Market trends and customer behavior can reveal new products and services your customers want, new locations to best fit your customer base or skilled workforce, and partnership opportunities you didn't know existed.

But there's a catch.

You're probably not ready.

Getting started with AI is easy. Getting started properly is not.

Even though AI implementation is happening to some degree at most of your competitors, only 6% of global organizations feel they have a robust and responsible AI foundation in place.⁶

Without a solid foundation, allocation strategies are also in disarray. While support services are enjoying the majority of investments, only 18% of energy companies are using emerging AI technology for security – a perilous blind spot.⁷

“Data is the key component to the success of any AI project - as is often said garbage in, garbage out. In other words, an AI model that has poor quality data will produce a poor quality of predictions”

David Ellison, PhD

Chief Data Scientist, Lenovo

What are your building blocks?

Evaluate your AI readiness by examining the five key building blocks of your potential implementation:

1. Use cases and value to the company
2. Amount, type, quality, and sources of the data
3. Scalability and flexibility of the infrastructure
4. People and processes available to the company
5. Data security, privacy, sustainability and ethical mandates are critical. Leverage AI responsibly.

Getting your data house in order is critical. Your AI implementation will only be as robust as the data it uses.

After determining what you have to build with, you can plan for your AI transformation using a few different approaches:⁸

- **Point solutions** are narrow, single-point automation of simple tasks. This is a way to incorporate AI in less resource-intensive and very specific circumstances.
- **Use case-targeted solutions** are process- or problem-focused automation that are moderately resource-intensive and tend to be rolled out from team to team within an organization when successful.
- **Transformative solutions** are holistic changes across an organization, requiring the greatest resources and coordination.

You can't do this alone.

Who can you trust to help? AI experts from trusted technology partners can help you fit the unique pieces of your AI foundation together seamlessly.

How do you know if the expert is right for your company? Refer to this checklist when evaluating your tech partners:

- Do they have a process to evaluate your AI readiness? This can include examining your use cases, data quality, infrastructure scalability, and the people and process available in your organization.
- Do they have a process to implement purpose-built AI, with global partners to make the implementation as custom as necessary?
- Do they have physical locations where they can evaluate solutions, execute proof of concepts (POCs), and optimize configurations?
- Do they have guardrails in place to ensure your AI implementation is used fairly, ethically, and responsibly?
- Do they have solutions and services available to manage resources and address gaps as you implement your AI?
- Do they have partnerships with industry leaders?

AI for All: Lenovo is your trusted partner in AI implementation.

Trust in Lenovo's unmatched world-wide reach, AI expertise, and Energy solutions experience to accelerate your AI implementation.

- **Lenovo Reference Design for Generative AI** delivers a fully integrated Lenovo ThinkSystem solution, purpose-built to implement AI.

- Four **Lenovo AI Discover Labs** help you evaluate solutions, execute proof of concepts (POCs), and optimize configurations for AI solutions.
- Lenovo has an ecosystem of AI partners and an **AI Innovators Program** to vet each company before they become a partner. The AI Innovators Program includes more than 150+ turnkey AI solutions to accelerate development and implementation.
- Lenovo offers **Windows 11 Pro** devices for built-in AI features to strengthen security, simplify workflows, improve communications, and power accessibility.
- The **Lenovo Responsible AI Committee** helps ensure that AI is used fairly, ethically, and responsibly.

AI is an investment in people, processes, and technologies, not a just an off-the-shelf product. AI implementation doesn't have to be daunting, though. Start from a strong foundation with an ecosystem of hardware, software, services, and trusted experts and AI can be an integral part of your company's success for generations to come. At Lenovo, our goal is to provide AI for All. [Click here to find out more.](#)

Sources

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- 6 Accenture, "A new era of generative AI for everyone," May 2023.
- 7 Forbes, "The Promise and Peril of AI in the Energy Sector," June 2023.
- 8 Deloitte, "AI readiness for government," January 2020.