

A FUTURE-PROOF FOUNDATION: BUILDING OIL & GAS SOFTWARE ON A MODERN ENTERPRISE PLATFORM



Oil and gas companies need tools designed for flexibility, scalability, and real-world problem-solving to drive their goal of efficient energy production.

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The energy industry has been hesitant to embrace digital transformation, and for good reason. Oil and gas production is an inherently physical, manual process—it can't be relegated to the cloud. At the same time, these companies are facing challenges that require modern technology solutions. They need tools designed for flexibility, scalability, and real-world problem-solving to drive their goal of efficient energy production.

A unique set of challenges

Every industry has its challenges, but oil and gas companies might be in a league of their own. The already dynamic nature of the industry is intensified due to constant fluctuations in supply and demand that lead to pricing volatility.

Because the oil and gas industry is so heavily tied to geopolitical affairs, supply and demand in certain areas can change in an instant—driving prices up or down accordingly. This, combined with the fact that oil and gas are finite resources, means production companies are always working to expand exploration areas and grow operations.

Mergers and acquisitions are a constant occurrence.

The amount of time and physical space required for the full production process means supply change disruptions are the norm. Heavy compliance burdens weigh on industry leaders, with stringent safety regulations, environmental sustainability mandates, and ever-changing reporting standards keeping companies accountable.

Manual processes and static reporting tools can't keep up. Unfortunately, neither can many of the supposedly modern tech solutions being sold to oil and gas companies today.

92%

of oil and gas
companies intend
on investing in
digital technologies
in 2025.

EY Future of Energy Survey

Failing to meet expectations

Many oil and gas companies that have already adopted new tools aren't satisfied with their experience. Of those companies that have made investments, only 27 percent say technologies such as cloud computing and AI are delivering on their promise¹. Reasons include poor integration and resistance to invest in training.

It's not all bad news for software providers, though. These same companies are still seeking new tech to improve operations.

Many energy companies are finally coming around to new technology, presenting prime opportunity for software developers. However, because many feel they've been burned by their investments so far, vendors don't have the luxury of trial and error when it comes to delivering on expectations. But what exactly are oil and gas companies hoping to accomplish?



Streamlining legacy workflows:

Many industrial processes weren't built with automation in mind. Users need configurable, intuitive automation tools that reduce manual processes and streamline workflows.



Bridging communication gaps:

Miscommunication between teams and employees in the oilfields stems from disconnected tools. Mobile access and IoT integration are key.



Unifying siloed systems:

Data lives everywhere—ERPs, sensors, spreadsheets, hand-written logbooks... Users need a tool that brings it together, cleans it up, and presents it in a way that they can understand.



Preventing maintenance failures:

Downtime is costly. Predictive tools are imperative to prevent expensive equipment malfunctions.



Scaling for growth:

Energy companies are constantly expanding. They need tech that can accommodate new facilities and production sites, integrating with new tech now and into the future.



Closing the skills gap:

Tech is only as good as those who use it. And when an industry is resistant to change, tools must be user-friendly, built with easy onboarding and upskilling in mind.



Maintaining compliance standards:

The oil and gas industry is heavily regulated. Production teams deserve real-time alerts, automated reporting, and built-in audit trails to stay compliant without slowing down operations.

A scalable, dynamic platform is the foundation software vendors need to deliver on these expectations. So, what does that look like?

Predictive maintenance, powered by AI/ML:

- Build systems that detect anomalies, forecast equipment failure, and adapt based on weather or supply chain signals.
- Integrate historical data and real-time inputs to surface insights before users even know they need them.

No-code app development, in plain English:

- Users don't have to wait for IT to build what they need.
- Provide drag-and-drop builders, workflow designers, and templated logic so frontline teams can create their own tools.

Mobile-first access:

- Exploration and extraction aren't done at a desk—mobility is critical.
- Real-time access, optimized for tablets, phones, IoT devices, and offline use.

IoT integration, already incorporated:

- Sensor data that plugs directly into the platform with minimal configuration.
- Real-time monitoring, alters, and visualization that aligns with operations on the ground.

Built-in compliance and security:

- Embed alerts and audit trails that help customers meet industry-specific regulations.
- Stay ahead of changes in policy, giving your customer one less thing to worry about.

Agent-led process automation:

- Eliminate the boring stuff. Automate repetitive tasks like data entry, report generation, and approvals.
- Use AI agents that can reason, learn, and make decisions based on your rules.

Baked-in learning:

- Oil and gas workers aren't looking for flashy, they want smart and straightforward.
- Embedded guides, tips, training prompts, and helpful AI agents support users as they go.

Transforming the energy production process

It's time software vendors focus their attention on the oil and gas sector, designing industry-specific solutions with a low barrier to entry and the ability to scale as production grows. Because now more than ever, companies are willing to invest in the right tech, developed by those who took the time to understand the complexities of the industry.

If you're looking to build oil and gas solutions that will transform the industry, check out the Nextworld Platform.

Schedule a demo today

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