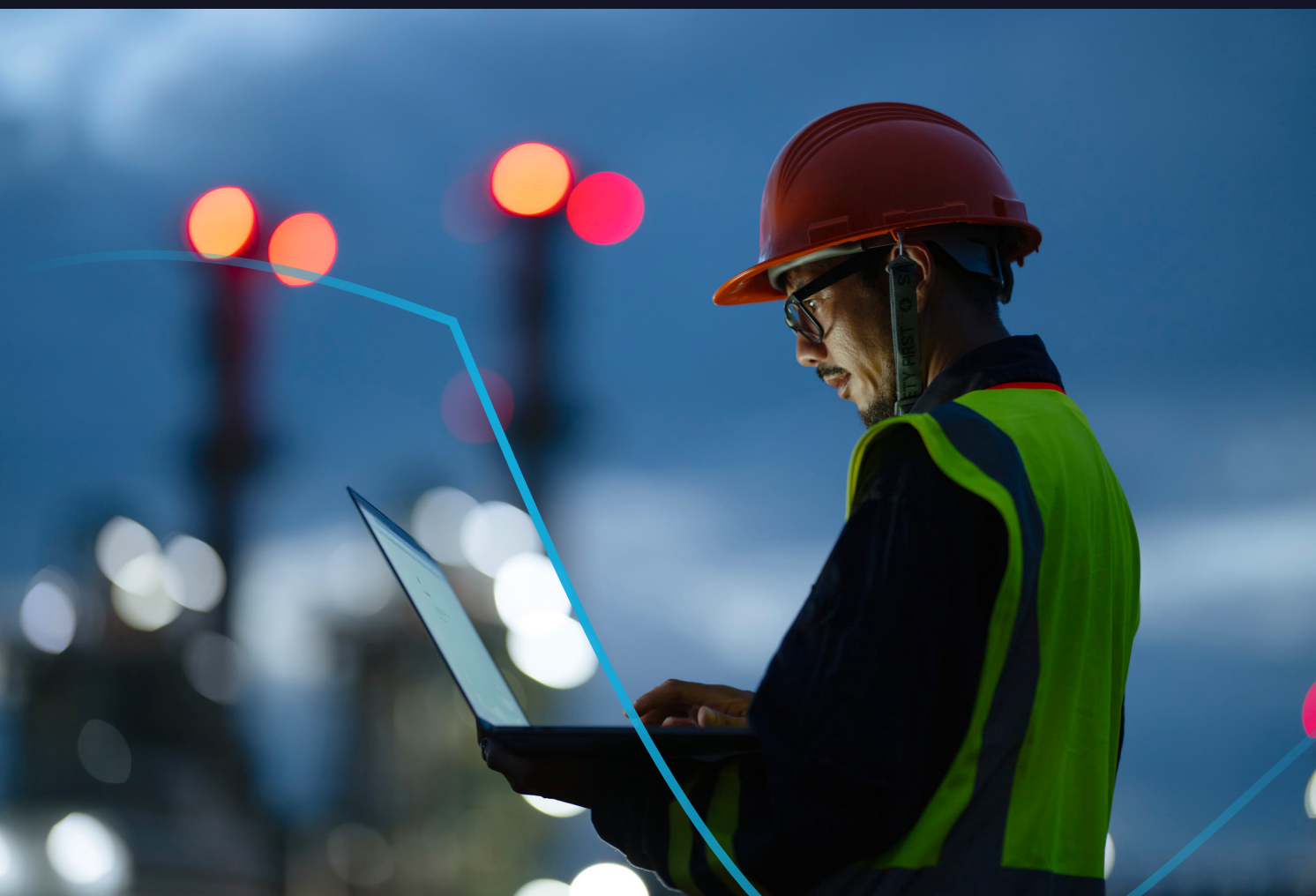


How *agentic* AI reimagines business for oilfield services and equipment

Intelligent agents collect data and take meaningful action – driving business efficiency and environmental responsibility



You walk into your office on a Monday morning. Your AI assistant has already reviewed the weekend activities across all your operations, flagged two safety concerns that field teams are already addressing, created purchase orders for critical spares that await your approval, and optimized equipment mobilization for the week to save \$2.3 million dollars. This is not some far-off promise. It's the future that agentic AI brings – not someday. Today.

Companies providing oilfield services and equipment (OFSE) are feeling pressure from all directions: market cycles are compressing, best practices are changing, and regulatory demands are intensifying. But agentic AI turns these challenges into opportunities to grow. The potential for greater efficiency is deeper than the richest oilwells.

The power of agentic AI

Agentic AI systems can make decisions and take actions independently. AI agents, also called intelligent agents, are characterized by solving complex problems without human intervention. So, if traditional AI is about automation and Gen AI is about generation, agentic AI is about autonomy.

This jump is akin to going from a calculator to a trusted assistant. Traditional AI is like a sophisticated calculator that can process data and give you answers when asked. Agentic AI is like a highly skilled team member who can analyze situations, take initiative, make decisions within set boundaries, and execute tasks within defined parameters.

People often use anthropomorphic language to discuss agentic AI (e.g., thinking, learning, deciding) because it's intuitively helpful and makes complex algorithms, data structures, and so forth easier to understand. But speaking quite literally, an AI agent is a software program or system that can perceive environments, interpret data, and take meaningful actions by:

- Monitoring conditions continuously
- Interpreting complex events using advanced models
- Taking context-sensitive actions (e.g., control changes, human alerts)
- Learning from outcomes to refine future behavior.

AI agents in the oilfields and back offices

This technology has the potential to help OFSE companies optimize many aspects of their operations to become more efficient, profitable, and sustainable. But it's important to remember that – as the DOE points out – the clean-energy transition requires a sizable workforce to construct, maintain, and operate the infrastructure and associated supply chains.

Agentic AI should not replace human workers but instead supplement what they already do – making their actions more effective and impactful. According to a report from the Capgemini Research Institute, 40 percent of organizations tracking the impact of agentic and Gen AI expect to see a positive return on investment in one to three years.

OFSE companies can deploy AI agents across oilfields and throughout back offices to improve operational efficiency, ensure regulatory compliance, and increase profits. Here are a few places agentic AI can have an outsized impact.

Business agility. OFSE companies can weather the ups and downs of a notoriously cyclical industry through continuous adaptation with AI agents. They can respond quickly to market signals to avert risks, control costs during downturns, maximize asset productivity during booms, and ensure consistent performance through knowledge retention and adaptive learning.

Predictive maintenance and field-service dispatch optimization. AI agents can monitor oilfield equipment and products: MWD/LWD tools, pumps, ESPs, etc. With real-time data on all this equipment, AI agents can predict equipment failures and assign technicians to provide service and minimize downtime.

These agents can coordinate crew assignments based on skillset, availability, urgency, etc., and guide workers in the field with troubleshooting support.

Environmental monitoring and emissions compliance. The intelligent agents can monitor emissions and trigger alerts if any leaks or other anomalies are detected. Depending on the severity, AI agents can instruct robots in the field or dispatch human crews to address the problem. This helps optimize energy efficiency and greenhouse gas emissions to create a cleaner world.



They can also compile compliance reports with exceptionally accurate data for regulators. Proactive regulatory compliance can protect the company's reputation as ethical and cooperative while avoiding potential penalties.

Supply chain resilience. Agentic AI systems can analyze various aspects of the supply chain, identify potential disruptions (whether geopolitical, logistical, or weather related), and determine the best alternate routes or suppliers. The AI agent can pass its recommendations along to decision makers with a detailed explanation as to how it arrived at its conclusions.

Invoice-to-cash automation. These programs can perform each step in the accounts receivable process, from billing a customer for goods and services provided, to receiving and validating the payment. This would include creating complicated invoices, addressing potential disputes, and documenting transactions in the company's records.

Payment collection and cash application. AI agents can segment different customers by risk and payment behavior so the company can engage with each appropriately. "Dunning" is a common accounting term for the process of communicating with customers to ensure the collection of an overdue payment. These programs completely handle dunning with personalized messages that are appropriate for reliable, at-risk, and delinquent accounts.

They can also handle the accounts payable process from beginning to end. Using natural language processing for pattern recognition, they can match purchase orders with corresponding invoices, flag any discrepancies, and maintain accurate financial records. Automating large and complex OFSE invoices can accelerate cash flow and improve operational efficiency.

Putting agentic AI into action

With the right agentic AI strategies in place, Capgemini's experts estimate that OFSE providers are likely to achieve the following tangible business benefits:

- **30 percent reduction in downtime** through predictive diagnostics
- **20 to 40 percent faster cash cycles** with invoice-to-cash automation
- **15 percent improvement in operational efficiency** via real-time agent orchestration
- **Higher employee satisfaction** by removing repetitive, manual tasks.

The oil and gas industry is undergoing massive changes: sustainability goals, innovative technologies, consumption trends, consumer demands, and government investments. Each of these presents new challenges and opportunities for OFSE companies. It's time to bring agentic AI into the field.

Reach out to Capgemini today if you would like to learn more about how we can help your business confront these challenges and make the most of agentic AI.

Together, the private and public sectors can build upon the momentum of the other to drive change.

Please contact [Sara Stritharan](#), IT Transformation Director, for more information.



About Capgemini

Capgemini is a global business and technology transformation partner, helping organizations to accelerate their dual transition to a digital and sustainable world, while creating tangible impact for enterprises and society. It is a responsible and diverse group of 340,000 team members in more than 50 countries. With its strong over 55-year heritage, Capgemini is trusted by its clients to unlock the value of technology to address the entire breadth of their business needs. It delivers end-to-end services and solutions leveraging strengths from strategy and design to engineering, all fueled by its market leading capabilities in AI, generative AI, cloud and data, combined with its deep industry expertise and partner ecosystem. The Group reported 2024 global revenues of €22.1 billion.

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