BCG

Executive Perspectives

AI Reshapes O&G Winners

Oil & Gas

August 2025

Introduction

We meet often with CEOs to discuss AI – a topic that is both captivating *and* rapidly changing. After working with over 2,000 clients in the past 2+ years, we are sharing our most recent learnings in a new series designed to help CEOs navigate AI. With most sectors going through major shifts, the focus in 2025 is on how to leverage predictive, generative, and agentic AI to fully transform organizations and create new sources of competitive advantage.

In this edition, we discuss the future of Oil & Gas, and the role AI will play in turbocharging growth. We address key questions on the minds of executives:

- How can I leverage AI to win with the new economic equation?
- What does an AI-first enterprise look like?
- What are sector leaders doing differently, and how are they using AI solutions to accelerate their transformation?
- How do I get this right…and scale for full value?

This document is a guide for Oil & Gas executives to cut through the hype around AI and understand what creates value now and in the future.

In this BCG Executive Perspective, we articulate the vision and value of the future of Oil & Gas with AI

Executive summary | AI reshapes O&G winners

WHY
now is the right time to act

- O&G companies are facing **transformational challenges**
- Technological progress has already made **AI and agents critical building blocks** for O&G companies to win in this new industry context
- For **O&G pioneers**, AI is already reshaping the operations and cost structure (e.g. smarter maintenance, lower downtime, autonomous robotics in harsh environments, AI-based modeling for subsurface)
- AI has the potential to transform O&G profitability (**+30-70% EBIT increase** in the next 5 years)

WHAT
an AI-first organization looks like

- O&G AI-pioneers invest across all three strategic plays to deliver value and gain competitive edge in their upstream and downstream businesses…
  - **Deploy**: support adoption of GenAI tools and foster productivity
  - **Reshape**: redesign E2E workflows and processes to reimagine functions
  - **Invent**: build and innovate new business models and products to drive growth
- … while transforming their operating model from AI-enabled, where people are the core drivers and use digital tools incrementally, to **integrated AI**, where AI agents are the core drivers and employ human oversight to close gaps

HOW
to start the journey to transform into an AI-first org

E2E transformation can start with a series of actions:

- Secure **executive sponsorship** and align AI initiatives with real business challenges owned by business leaders
- Upgrade **data** and **platform infrastructure** to support seamless, scalable AI across operations
- **Upskill** key roles, embed AI literacy, and drive adoption through proactive **change management**
- Prove **early value** with focused AI deployments that build momentum for broader adoption
- **Allocate funding** early to scale successful AI use cases

Source: BCG analysis

Oil & gas companies face transformational business challenges

1

Navigate through growing business complexity

O&G companies face rising complexity – increasing regulations, volatile commodity prices, carbon/climate commitments, challenging supply chains, technology evolution, and stakeholder demands

2

Transform their business portfolios

Energy transition is creating de-averaged impact across legacy portfolios; companies need to reposition traditional portfolios for long-term success while pursuing new opportunities in lower carbon businesses

3

Allocate smarter capital

Growing challenge is driving value creation from investments with vastly different risk-return profiles, increased uncertainty, and low carbon businesses demanding capital

4

Streamline costs and drive-up cash flow generation

O&G companies need to maximize their businesses' CFFO to address shareholder demands while financing their transformational investment needs

5

Restore investor trust

Skeptical investors want proof of returns and future relevance, as low valuations reflect doubt

Technology progress has already made GenAI and agents critical business blocks for O&G companies to win in new industry context

Tame complexity through real-time intelligence

AI enables **dynamic sensing** and **forecasting** across volatile markets and regulatory changes, supporting **faster** and **more accurate decisions**

Optimize capital and portfolio decisions

AI agents help **screen, prioritize,** and **optimize capital investments** and portfolio moves, maximizing asset performance and **unlocking value**

Unlock new revenue streams

AI unlocks **new revenue streams** by enabling **predictive** and personalized services, **dynamic** pricing, and **data-driven** monetization models

Boost margins and cash flow, reduce carbon emissions at scale

AI agents work alongside business teams to **automate workflows** and **optimize operations,** lowering OpEx and significantly increasing cash flow

Prove impact to restore investor trust

AI enables **measurable operational gains, transparency in decision making,** and agility to future-proof business models, building investor trust

Source: BCG analysis

For O&G pioneers, AI is already reshaping operations and costs

Real-world examples

Smarter maintenance, lower downtime

Reactive response to failures leads to downtime of…

~27

days per year

AI enables proactive maintenance, reducing downtime to…

~6

days per year

AI-optimized operations execution

Frequent deviations in execution causes losses of…

~$50M

per year

AI-driven real-time guidance and optimized operational stability reduce losses to…

~$10M

per year[1]

Autonomous robotics in harsh environments

Remote-controlled robots from the surface cost…

~$1.2M

per day

AI robot is designed to carry out tasks autonomously, with a cost of…

~$0.2M

per day

AI-based modeling for subsurface

Processing 3D seismic data to find drillable prospects takes…

~12

months

AI helps complete the seismic interpretation process in as little as…

~2

weeks

AI agents will accelerate impact, moving from *recommending* to *doing* – they continuously learn, act, and adapt in ways that improve cost, uptime, margin, and speed of execution

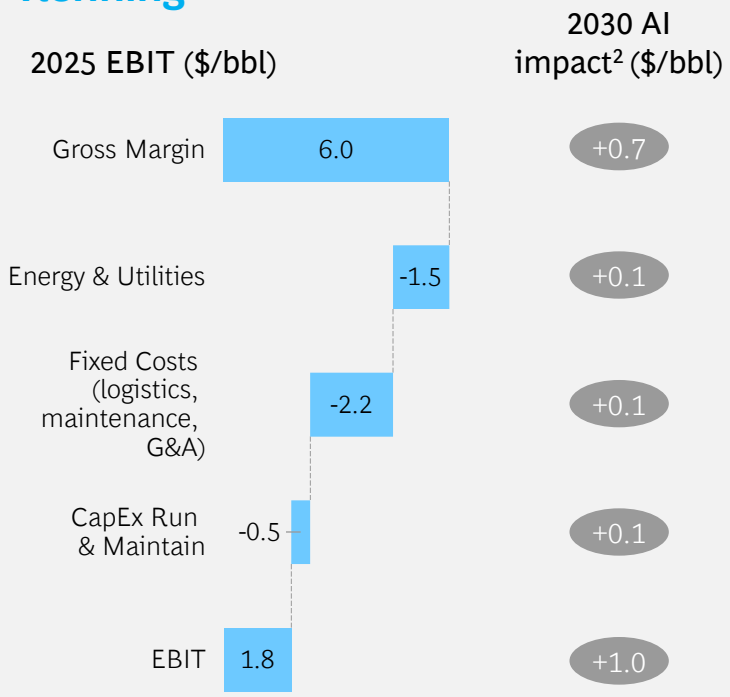
1. 30% emissions reduction

AI has strong value creation potential across the O&G value chain

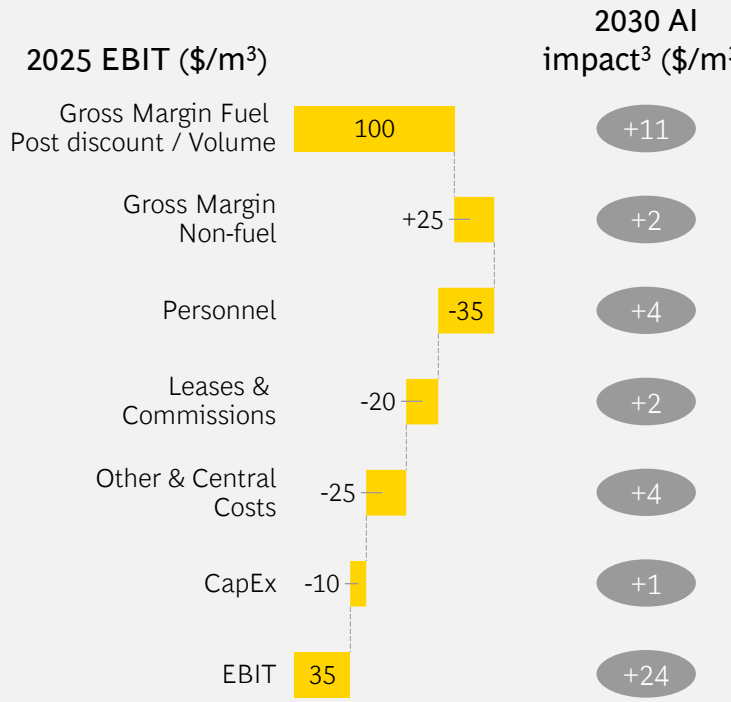
Illustrative

Upstream

Refining



Fuel retail



Potential 5-year AI impact as % of 2025 EBIT

+~30% | **+~50%** | **+~70%**

1. Examples of AI-levers in Upstream: Revenue / Volume (AI maximization of production and output quality in real time (e.g., choke tuning, lift parameters. production target distribution across wells to meet constraints)); OpEx (e.g. E2E support of the maintenance process incl. optimal maintenance schedules generation, execution co-pilot on parts tracking, auto-filled reports, interventions guidance, anomaly detection, etc.); G&A (e.g., GenAI contracts review and compliance, automated processing of billing and invoicing to minimize leakage); CapEx / exploration (e.g. AI recommendations on optimal geosteering and drilling parameters; well events prediction; GenAI-driven analysis of subsurface data at scale)
2. Examples of AI-levers in Refining: Gross Margin (e.g. AI-driven real-time prescriptive input of optimal operating points , maximizing throughputs and yields value and optimal scheduling plan generation with AI algorithms); Energy & Utilities (e.g., Real-time utility network monitoring and optimization to minimize energy and H2 costs); Maintenance (e.g., LLM based agents to support maintenance operators in end-to-end execution including work order generation, image-based unit diagnostics, repair instructions and log and report automation); CapEx Run & Maintain (e.g. capital deployment optimization based on risk-based optimization of project selection supported by AI algorithms)
3. Examples of AI-levers in Fuel retail: Revenue / Volume fuel (e.g., integrated pricing and personalization for both B2C and fleets, value-driven network optimization); Revenue /volume non-fuel (e.g., Pricing and assortment optimization. AI-enabled new services launch); Personnel: (e.g., real-time optimized resourcing of SS operations); Leases and commissions: (e.g., GenAI contracts review and compliance, Optimization marginal fuel sales by service station); CapEx Run & Maintain (e.g., Network optimization)

While O&G business leaders acknowledge the transformational power of AI, the scaling of AI faces real challenges

Broad recognition of the need to leverage AI to win…

Aramco

"New digital technologies such as generative AI and the industrial Internet of Things are expected to transform not only how we work, but also our commercial environment."

ADNOC

"AI is one of the most important economic and social game changers of our era, and it can play a crucial role in accelerating a just, orderly, and equitable energy transition."

Repsol

"Artificial intelligence [plays an essential role in] improving competitiveness and helping transform the industrial ecosystem."

TotalEnergies

"Generative AI will provide [employees] the simplification and autonomy they need to put their skills and creativity even further at the service of our company."

… but facing challenges to scale AI in O&G organizations

ExxonMobil

"Companies' siloed structure and lack of standard processes make it hard to implement any single type of unified technology."

Shell

"[The potential of AI] tends to be underleveraged in large corporates, just because we're not digital natives. You've got a huge legacy of analogue things you've got to catch up on."

SLB

"If a technology doesn't work 'perfectly out of the box,' [people] often turn into naysayers."

Source: Company Reports; Constellation Research Inc.; Rigzone; JPT; BCG analysis

O&G AI-pioneers invest across all three strategic plays to deliver value and gain competitive edge

x% % of O&G companies with initiatives in each stage

According to BCG studies, companies that create the most value with AI focus **80% of their investment on reshape and invent** in a few core processes

DEPLOY

72%

Support adoption of GenAI tools and foster productivity

Examples of DEPLOY

- AI-powered assistants that help field engineers troubleshoot equipment in real-time
- Automated report generation
- Smart email and calendar management for operations teams
- Invoice reconciliation automation

RESHAPE

47%

Redesign E2E workflows and processes to reimagine functions

Examples of RESHAPE

- Autonomous scheduling of refinery maintenance and turnarounds
- Digitized and automated industrial inspections in refining and upstream
- Support to trading operations across the whole trading life cycle

INVENT

22%

Build and innovate new business models and products to drive growth

Examples of INVENT

- Personalized AI agents that help retail energy clients optimize consumption
- AI tool that supports real-time adjustment of prices based on customer behavior and context
- AI system that proposes new exploration targets using basin analogs and constraints

End-to-end transformation across all three plays

Combine multiple AI initiatives for an end-to-end transformation

Scale from functional transformation to company-wide transformation

Source: BCG analysis

DEPLOY | Unlock 10-15% productivity improvement and prepare the organization for broader AI change

What is DEPLOY?

Target immediate value in operations (reduce downtime, improve planning, etc.), laying the foundation for broader AI transformation

60%

of companies employing GenAI solutions have **DEPLOY plays in motion**

DEPLOY tools in the market

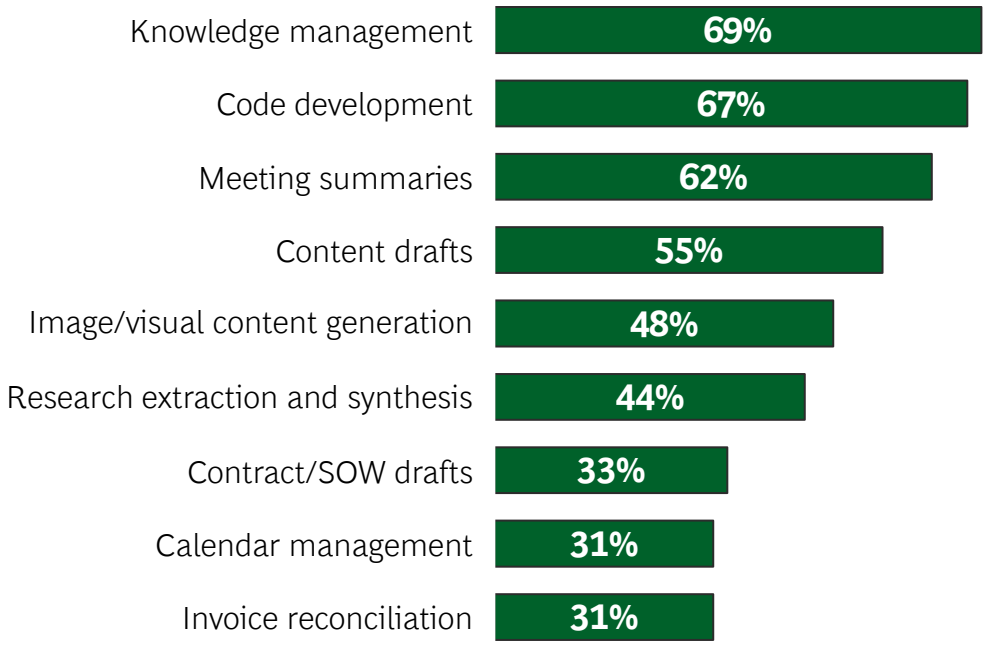
Shell Spark	ChatGPT Enterprise
AkerBP Cognite	Slb Delfi

Illustrative, non-exhaustive

How are companies using it?

Tech is being deployed across various workflows and everyday tasks, with a few standing out as the most common

Q: *How is your company deploying GenAI in everyday tasks today? (N=188)*



10-15%

productivity and cost savings in core O&G workflows

"Leveraging the latest developments in AI-powered workplace solutions offers the opportunity for BP to transform how work gets done"

- EVP of Innovation & Engineering at a leading O&G company

Sources: JPT; Cognite; Microsoft; Slb; BP; BCG Deploy, Reshape, Invent Survey 2023; BCG experience

RESHAPE | AI is transforming core processes along the O&G value chain: Upstream

Upstream

	FROM…	TO…
Planning and scheduling	• **Manual** scenario **evaluation** based on **fixed inputs** Limited and **siloed optimization** across disciplines	• Simulation of **millions of planning scenarios** • **AI-optimized** field development plans
Subsurface analysis	• **Manual** seismic **interpretation** and **pattern detection** • **Delayed understanding** of reservoir behavior	• AI-driven data processing and insights extraction through **automated pattern detection** (e.g., characteristics, drilling risks, exploration success)
Drilling and completions	• **Human-driven decision making** with limited real-time data integration • **Minimal automation** in drilling execution	• **Real-time** well **analysis** and **optimization** using sensor data (e.g., geosteering) • **Autonomous** E2E rigs with human oversight
Production management	• **Static** well **parameters** and periodic **human adjustments** • Focus on short-term production	• **Real-time optimization** of processing, gathering, choke, backpressure, and even downhole parameters • **Closed-loop control** to maximize EUR, not just near-term output
Operations and maintenance	• **Manual planning** of work orders and resource coordination • **Fragmented execution** and documentation	• AI-generated **optimal** E2E **maintenance schedules** • Agentic **support for execution** (e.g., parts tracking, auto-filled reports, guidance, anomaly detection)
Supply chain and logistics	• **Isolated decision** points and static procurement timelines • **Inefficient coordination** across upstream ops	• Full **AI forecasting of supply chain needs** • Real-time and AI-simulated scenarios to drive **optimal material** and **logistical supply chain**

Source: BCG analysis

Case study | AI is accelerating Oil & Gas companies' Scope 1 and 2 emissions reduction delivery (Methane.AI platform)

Approach

Baseline: Use AI-driven, tools (OGI[1], Drones + CH4 sensors, etc) to set emission baseline & reduction targets (OGMP 2.0 methodology)

Pilot Measurements: Use AI-powered, multi-source tools with real-time data and predictive modeling to estimate equipment-specific emissions.

Digital Solution: Implement an on-premise, data-agnostic platform for emission volume calculation, forecasting, reporting, and coordinating leak detection and repair activities

~30%

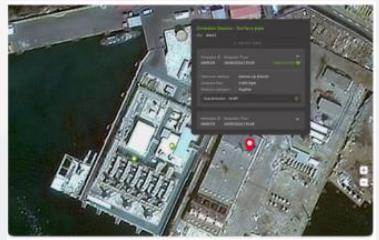
emissions reduction impact and ~$20M value expected from abatement program

~100 mln M^3 Natural gas abated from ~hundreds of emission sources

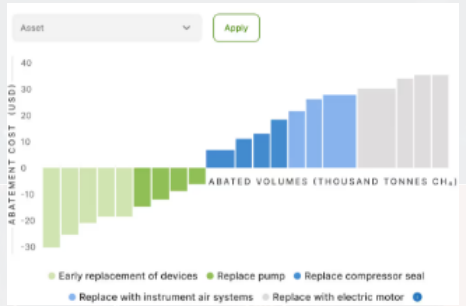
>700 Emission sources identified, measured, and digitized through measurement campaigns

>8000 Inventory of potential sources of emission assessed

Create Geo localized initiatives with CAPEX and abatement costs



Forecasting chart & abatement curve considering all initiatives



SOCAR BCG BOSTON CONSULTING GROUP Caspian AI Institute

1. Optical Gas Imaging

Case study | A lean transformation program enabled operational excellence and uplift in annual value

Approach

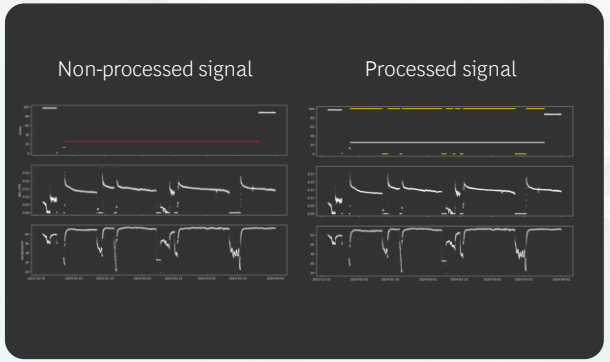
- Historical analysis to identify optimization levers
- Live test-runs during stable periods to validate change
- KPI creation (e.g., TVP, GHV, cricondentherm) for operator guidance
- Digital integration into PI asset framework and PI vision tools

$25-50M

per year value uplift

- +2-4% annual condensate production increase vs. 2023 baseline
- Real-time control panel with indications on how to optimize the condensate
- Operator upskilling and digital capability building

Optimizes condensate recovery in a ~40MMscm/d gas processing plant



Leverages advanced analytics and AI algorithms

Case study | A real-time prescriptive tool provides drilling field personnel with continuous AI guidance

Instructions' compliance from rig

RT sensor data from rig

Architecture and models

Customized screen

1

The office sets up the AI system and configures key technical inputs

2

- Rig sensor data is contextualized with planning information, DDRs, and any third-party software available
- AI adaptive models are executed and retrained in RT

Superior analytical performance with high adaptability

Real-time AI and physical models for one truth recommendations

Bespoke solution, not a black box

Fully tailored to client rules, org, and data

3

The **tool** assists at all moments by sending a recommendation of optimal parameters and time targets for each field activity

Simplified information

Easy-to-use interface showing only relevant data – no field engineer needed to interpret complex inputs

4

Field personnel follow recommendations, saving minutes from each activity

They also send any feedback as part of the continuous improvement process

End-to-end process taking < 5s to allow for immediate action from the field

Existing platform with total rig integration

10-20%

Capex reduction potential

Focus on optimizing ILT (invisible lost time)

ILT represents +35% of the drilling time

Real-time prescriptive solution that connecting to any field service software

RESHAPE | AI is transforming core processes along the O&G value chain: Refining and Petrochemicals

Refining and Petrochemicals

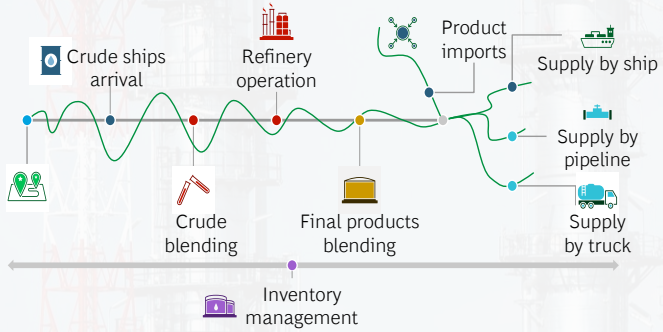
	FROM…	TO…
Planning and scheduling	• Deterministic LP models with manual adjustments • Fixed schedules with limited flexibility	• Stochastic and nonlinear planning models, increasing operating feasibility and profitability • Autonomous scheduling from millions of scenarios
Production operations	• Operators manually adjusting setpoints based on experience • Limited use of APCs and real-time optimization	• Closed-loop autonomous operations • AI continuously updating setpoints to optimize performance and adapt based on plant response
Maintenance and reliability	• Technician-led diagnostics with smart monitoring tools • Repairs driven by alerts and experience	• E2E maintenance workflows run by AI agents: diagnose root causes, guide repairs, automate documentation, accelerate new material discovery, etc.
Supply chain and logistics	• E2E visibility systems with dashboards for human-led decision making	• Real-time AI-driven digital twin for risk assessment, scenario simulation, and E2E decision optimization
Commercial and trading	• Commercial and pricing teams supported by analytics and dashboards • Expert traders relying on data and experience	• AI-recommended E2E pricing and actions tailored to customer segments to maximize margins • Trading agentic AI to support arbitrage and automate deal execution
Turnarounds and HSE	• Turnaround planning via project tools and expert intuition • HSE led by protocols and onsite teams	• AI-powered turnaround orchestration with digital twins and dynamic reforecasting • AI agents providing real-time risk assessment and task guidance to improve safety

Source: BCG analysis

Case study | AI-powered integrated scheduling optimization maximizes integrated margin by evaluating millions of scenarios

Approach

Detailed digital twin of the refinery and logistics



AI optimization engine

AI heuristic optimization models (genetic algorithms, algorithm parallelization, multi-start) to define economically optimal schedules guiding operations to the minute

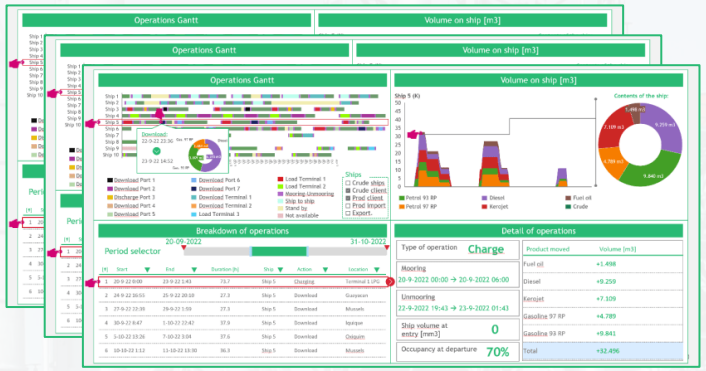
0.2–0.4

$/ bbl

Refining margin gains thanks to optimal scheduling and plan adherence

- Reduced demurrage cost
- Improved yields and giveaways
- Maximized opportunity crudes
- Inventory optimization
- Increased throughputs

Generates complete and optimized monthly E2E schedules integrating the whole value chain



Explores and evaluates millions of plausible scenarios in minutes

RESHAPE | AI is transforming core processes along the O&G value chain: Retail

Retail

	FROM…	TO…
Network and channel management	• Static or reactive network planning • Limited use of competitor and market data	• Dynamic network optimization based on proactive management of inter-relations • Demand forecasting for future formats and channel innovations (EV hubs, c-stores)
Product distribution and logistics	• Reactive responses to operational deviations • Low accuracy in demand forecasting	• Proactive risk management through alerts • Optimized E2E fuel and product distribution (primary and secondary logistics)
Pricing and commercial strategy	• Heavy reliance on franchisees setting their own prices • Pricing decisions made without real-time data visibility	• AI agents that continuously learn from outcomes and adjust pricing strategies to increase margins • Predictive models that forecast demand, elasticity, and traffic, to enable real-time price adjustments
Customer experience and loyalty	• Limited differentiation and personalization for customers • Pricing that is static and not responsive to customer context	• Customer segmentation, targeted promotions, and dynamic rewards pricings • AI-guided sales support and autonomous agents enabling 24/7 personalized customer engagement
Retail operations and performance	• Decisions made using aggregated, not real-time data • Sales teams that lack foresight due to absence of proactive alerts	• Decision making improved through access to high-frequency and granular data • Frontline teams benefiting from systematized data capture and robust recommendations

Source: BCG analysis

Case study | Turbocharge scalable growth with AI at its core

Energy buddy

Current AI horizon

Next GenAI horizons

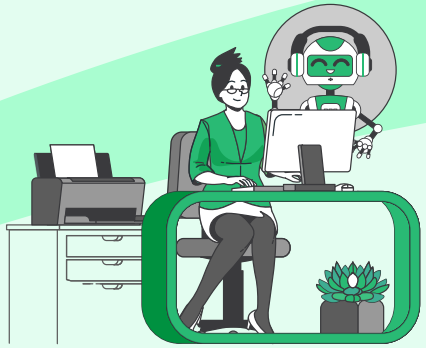
Traditional selling > Augmented selling + Assisted selling + Autonomous selling

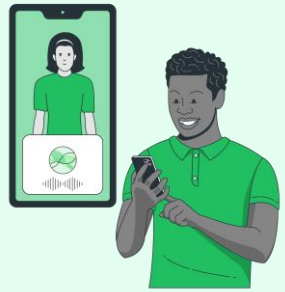
Entirely seller-driven

Insight and productivity

Real-time assisted selling

Digital sales avatar





Seller-driven, inconsistent conversations, based on the seller's individual experience and initiative

Sales agents supported by AI-generated scripts with personalized counterarguments for specific target groups

Real-time guidance, counterarguments, and product recommendations to sellers during customer interactions

Agents enabling auto-prospect, nurture demand, 24x7 engagement, involving humans as needed

AI-driven results seen so far:

+26% sales per hour in B2C channels

8% service to sales hit-rate (never sold before)

+100% additional sales

INVENT | True AI-enabled innovation can unlock new revenue growth

New customer interfaces

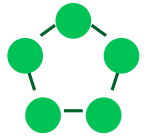
AI that drives **seamless engagement**, service **automation**, and inclusive **digital experiences**

88% of companies prioritize new customer value propositions
52% of companies target new customer segments

New products and services

AI harnessed to **launch new capabilities, faster** and more **relevant** to **end users**

64% of companies are building AI-native products and services to drive growth



New business models

AI that **coordinates platforms** to connect partners, enable **new pricing** and **serving models**, etc.

46% of companies are developing new pricing/cost structures

Examples

A leading O&G company deployed a virtual assistant for digital and voice channels to automate complex contract journeys, resolve real-time inquiries, and personalize product offers

An integrated O&G firm developed a route planner that leverages GenAI to offer personalized itineraries with EV recharge and dining reservations

An O&G company offers a digitized car wash experience, allowing automated service selection and customized options including a flat fee, as well as personalized rewards based on their energy plan

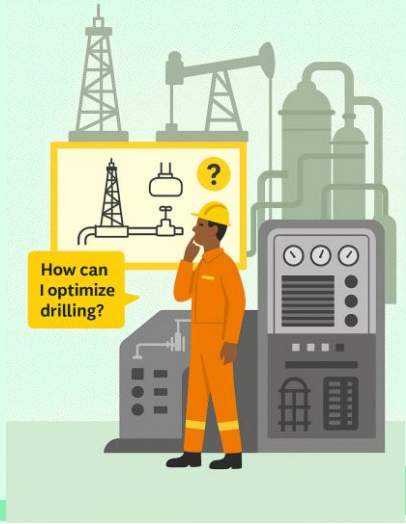
Source: El Economista; BCG Deploy, Reshape, Invent Survey

INVENT | Virtual AI will allow E&P operations to be ran by autonomous systems, completely redefining operating and business models

Current AI horizon → **Next AI horizons**

Assistant systems

Assistant behaves as a thought partner with large knowledge base

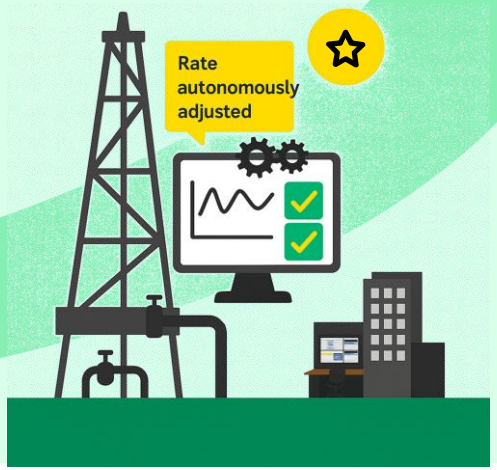


Recommendation systems

Recommendation engine provides engineers with optimal decision

Autonomous systems

Systems autonomously monitor performance and adjust optimal settings



Use case example

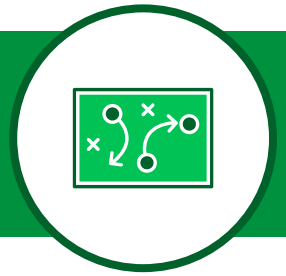
- Real-time well and pad performance monitoring and anomaly detection system
- Pattern-based analysis of subsurface modeling and trajectory design to support drilling planning
- Agentic assistant for field staff with troubleshooting and best practices guidance

- AI guidance on optimal choke settings to balance drawdown and reservoir performance
- Recommendation engine on optimal drilling parameters and well issue prediction to maximize performance
- AI identification of high-impact candidates and optimal timing for workover interventions

- Automatic choke tuning and lift parameters to maximize output
- Autonomous drilling with real-time, closed-loop optimization of parameters and trajectory, based on real-time well data
- Automated production target distribution across wells to meet offtake constraints

Human-driven → **AI-driven**

Four foundations to turn AI ambition into scalable transformation, ensuring that use cases deliver value across the company



Operating-model transformation

Redesign core processes around AI agents to drive decisions and value creation, with people providing oversight

Enterprise enablers

Close execution gaps by aligning leadership, scaling across value chains, modernizing platforms, and managing change

Tech role evolution

Shift from owning and building to enabling secure, scalable platforms so BUs can lead AI use case deployment

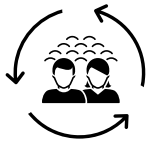
Talent and roles redesign

Redefine roles and reskill the workforce for a future where AI augments expertise and automates the toil work

Operating model | Capturing the full transformation potential of AI requires challenging existing operating models, even for digitally savvy O&G orgs

Digitally enhanced op model | AI as an ENABLER

People are the core drivers, with digital tools including AI used incrementally to boost efficiency



Core processes built around people

\+

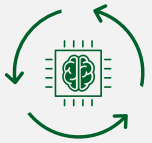
Supplemented by digital tools incl. AI

Key characteristics

- **Function-led workflows** with digital support
- Governance via **reporting and analytics** with undefined, ad hoc, or **static AI policy** and risk management
- **Static roles** enhanced by digital tools
- Culture focused on **efficiency gains**
- **Business relying** on IT-owned **digital enablers**

AI-first op model | INTEGRATED AI

AI agents are the core drivers, with human oversight to close gaps



Core processes built around AI agents

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Supplemented by people

Key characteristics

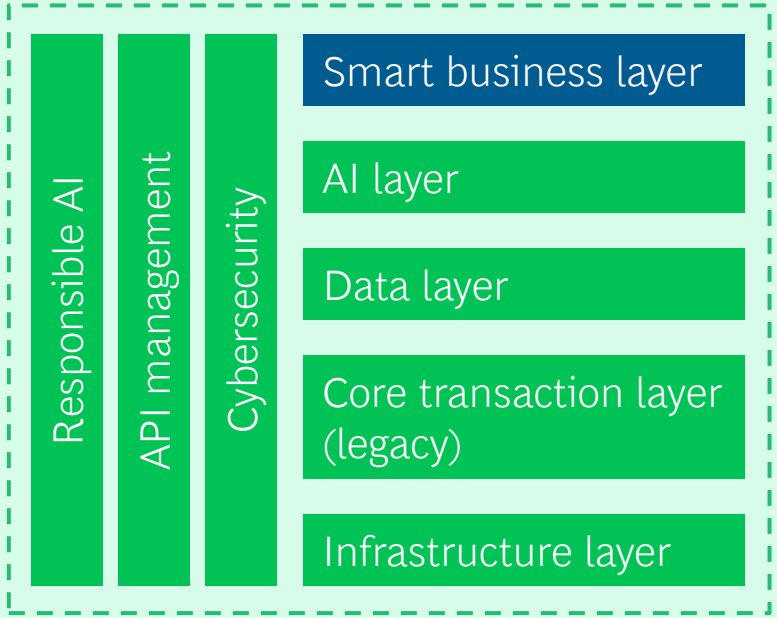
- **Flattened hierarchies** with AI agents executing AI-led decisions and acting in the real world
- Real-time governance backed by **executive alignment,** embedded AI policy, and **responsible AI guardrails**
- Skills, roles, and responsibilities **reshaped around AI agents**
- AI-embracing culture built on **trust, speed, and adaptability**
- **Business-owned tech and scalable** tech infrastructure

Enablers | Investing in enterprise foundations is also critical for scaling AI

	Current state	Actions to address gaps
1 **Short-term leadership focus**	“How can I build trust, governance, and cultural readiness when fear of AI still outweighs perceived benefits?"	• Establish long-term AI strategy with clear KPIs, accountability, and cross-functional ownership • Promote culture of experimentation to reduce AI fear
2 **Scaling AI across the value chain**	“How do I scale AI from PoC to fully integrated solutions with limited resources and alignment challenges?”	• Prioritize scalable use cases that integrate into E2E workflows • Build platforms that enable replication across assets, not isolated pilots
3 **Managing adoption and change**	“How do I drive adoption, ensuring engagement from operators, engineers, and leadership across functions?”	• Track productivity, quality, and satisfaction gains to demonstrate impact and build trust across the workforce • Upskill frontline teams and invest in leaders as AI ambassadors
4 **Data and legacy system limitations**	“How do I embed AI into existing workflows when data is outdated or siloed?"	• Use a data mesh with abstraction layers to enable incremental AI adoption across legacy systems • Prioritize integration by use case value and scale as needed
5 **Business-first mindset**	“How do I identify where AI can unlock new opportunities?"	• Rethink E2E workflows to unlock new AI-enabled opportunities • Start from real business challenges, not from the tech

Tech | The tech function must shift from owner/operator to enabler of business-led AI innovation

AI-first tech architecture



Tech teams should offer **modular platforms**, low-/no-code tools, and **secure environments** that allow **BUs** to **build**, configure, and supervise their **own AI agents** and apps while **avoiding shadow AI usage**

BUs should take **ownership of AI use cases** E2E (**training, monitoring, and scaling**), empowered by tech-provided tools and training to ensure safe, scalable development

Tech will keep a **secure, scalable base architecture** for BUs to use, while supporting **integration** with **third-party tools and LLMs**, enabling cost-performance optimization via a curated AI model garden

Companies should **avoid cost growth** by **automating** internal **processes**, **transforming themselves**, and **rationalizing providers**, to ensure that increased usage doesn't drive uncontrolled spending

Companies must **choose tech partners wisely** and avoid lock-in, by designing for **flexibility and interoperability**, as the AI landscape is still immature and talent is scarce

Talent | GenAI is reshaping the talent strategy

Skills required across the org are evolving…

Leadership

- Adopt a **strategic mindset** to deploy GenAI
- Lead change and embed a **culture of innovation**
- Govern responsible and **ethical** use of AI

Customer-facing teams

- **Communicate clearly** and **empathetically** in AI-supported environments
- **Build trust** in real-time decisions with AI insights
- **Use AI** in daily decisions
- **Collaborate** across silos
- **Adapt** to evolving roles and responsibilities
- **Manage** 3rd-party suppliers

All roles require **foundational AI fluency** to stay relevant

Cross-functional teams

Leaders need foundational knowledge of GenAI to lead and form real partnerships with tech, digital teams

…making executive action urgent

Leadership must…

- **Redesign roles around AI use** – shift from fixed task lists to dynamic roles that evolve with AI capabilities
- **Set clear AI adoption expectations** and promote those thriving in AI augmented roles
- **Don't underestimate the importance of training** – commit investment, time, and leadership support
- **Track the value you are generating** with AI improvements in productivity, quality, and employee satisfaction
- **Experiment with agents** to accelerate the experience curve, tracking impact and potential risks via A/B testing

Leadership sets the tone for how fast and how fully teams adapt

Source: Job postings data from Lightcast, BCG analysis

Talent | GenAI will increase productivity as roles are redefined and workforce is reskilled

Impact

By 2030, only 34% of tasks will be done exclusively by humans

Routine and rule-based tasks will see a large decline due to GenAI automatization

GenAI can empower less specialized employees to perform more “expert” tasks

Challenges

41% Of companies plan to **reduce staff** as their skills become less relevant

63% Of employers say **skills gaps** are the biggest barrier to transformation

46% Of companies **cite culture and resistance to change** as a barrier

Opportunities

Reinvention through reskilling

- **85%** of firms plan to upskill employees
- **51%** of companies plan to transition staff from declining to growing roles

Redesign of work itself

- AI and big data and tech literacy are among the fastest-growing skills

Business model transformation

- 49% of employers plan to reorient their business in response to AI

Source: Job postings data from Lightcast, BCG analysis

Journey | Becoming an AI-first O&G company requires a holistic and well-paced transformation strategy

Phase 1 — Prioritized opportunity

1-2 months

- **Map starting points on** foundations and gaps, and prioritize key focus areas
- Define **North Star vision**
- Establish value-driven **governance**
- Identify quick-win use cases where AI solutions can be **"DEPLOYED"** to increase productivity

Phase 2 — Focused acceleration

4-6 months

- Pilot and prove value on first use cases in **"RESHAPE"**
- Address foundational gaps and **outline people, ops, and tech roadmap**
- **Upskill** leadership, define shape of the org and talent

Phase 3 — Lighthouse scale-up

6-18 months

- E2E transformation of prioritized scope
- Launch and scale **"INVENT"** concepts to market
- Scale tech, data, and capabilities foundations; conduct **large-scale upskilling and change management**

Phase 4 — Expansion and scaling

Long-term focus

- Execute **operational transformation** at scale, launch next wave of opportunities
- Continuously **scale and upgrade** foundations and workforce

Ongoing

Underpin the transformation journey with increasing investments in enterprise foundations including core tech and data, people, and responsible AI

Source: BCG analysis

Getting started | The future is being claimed: partner smart and move fast, or fall behind

Lead with a clear vision and roadmap	Frame AI as a business enabler, and define a bold but phased roadmap toward AI-first maturity
Build a business-led AI agenda	Focus AI on solving real operational and financial pain points, owned by business leaders
Strengthen data and tech backbone	Undergo use-case-based data enhancement and platforms upgrade to ensure data flows seamlessly across businesses
Equip your workforce for the shift	Upskill critical roles, build AI literacy, and enable teams for change to fill AI talent gaps and drive adoption to enable your scaling solutions
Deploy fast, show impact	Start with quick wins that prove value and build momentum for broader adoption
Create space to scale	Reinvest early into scaling AI and funding foundational enablers

For further reading | Recent BCG publications on Oil & Gas

How Oil & Gas Leaders Can Cut Emissions and Lower Cost

How to Navigate Turbulence in Cyclical Sectors

Optimizing Production for Energy Profit and Security

Future for Refiners is Dictated by Costs and Margins

AI Adoption in Energy Should Focus on Agility

Annual Oil & Gas Benchmarking Study

For additional information and updates, please visit our BCG on Energy LinkedIn page

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