400m Monthly active users are employing Meta's AI assistant, according to a report by The Information

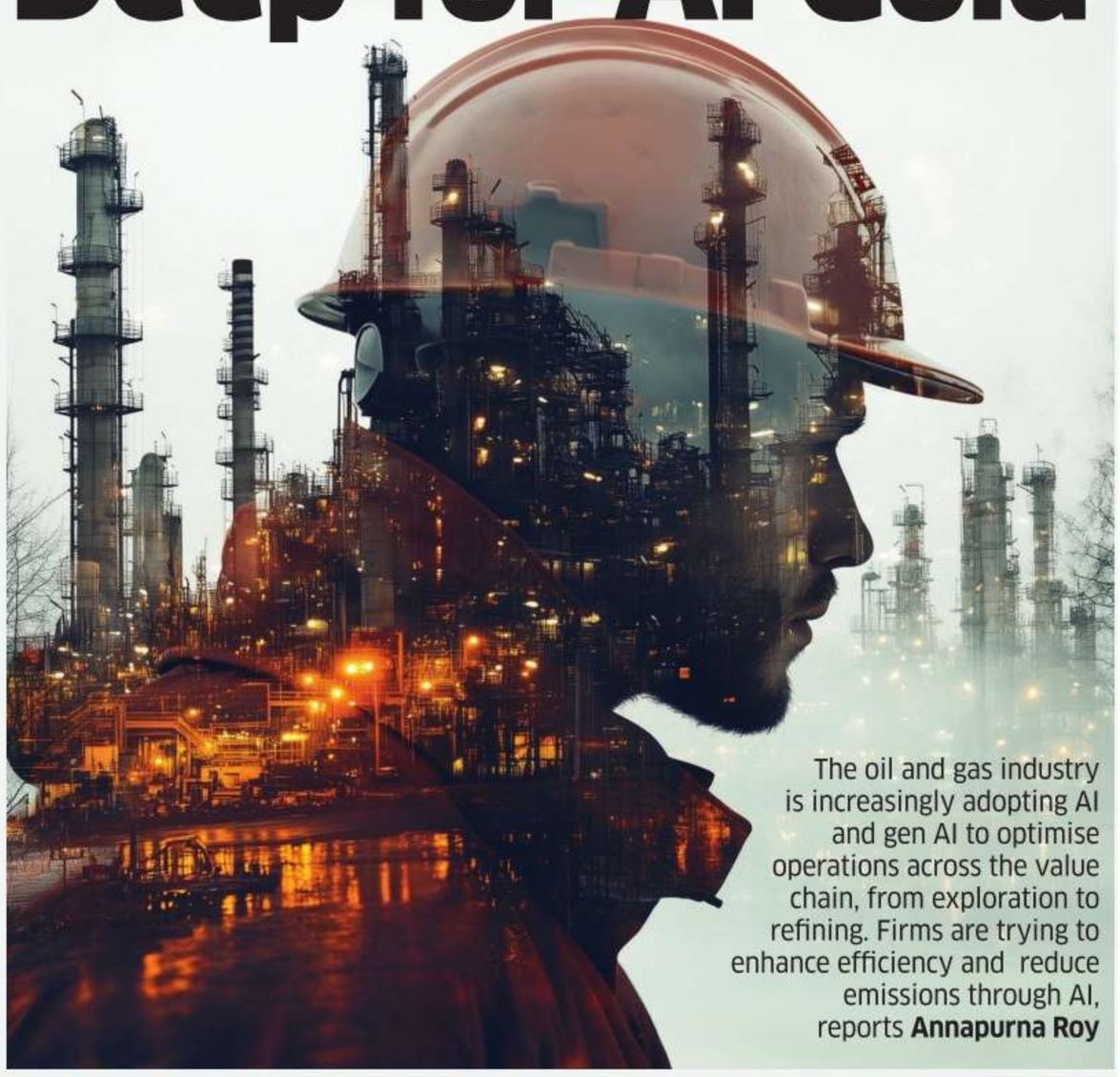
"I SEE A RISE IN EMBRACING NON-ENGLISH LANGUAGES AS AN ENTRY POINT INTO THE WORLD OF CODING... YOU'RE JUST GOING TO ASK AI IN THE LANGUAGE OF YOUR COMFORT"

THOMAS DOHMKE, CEO, GITHUB

"Countries are subsidising their regional data centres to build AI infrastructure. They recognise that their knowledge and data is also a natural and national resource"

← **JENSEN HUANG,** CEO, NVIDIA

Oil & Gas Cos Dig Deep for AI Gold



The oil and gas industry is increasingly adopting AI and gen AI to optimise operations across the value chain, from exploration to refining. Firms are trying to enhance efficiency and reduce emissions through AI, reports **Annapurna Roy**

Traditionally viewed as an engineering-focused industry, the oil and gas sector is increasingly adopting AI and generative AI (GenAI) to optimise operations and drive efficiency through real-time data and insights. From upstream exploration and production to midstream storage and downstream refining and distribution, AI tools are being integrated across the value chain, signalling a notable shift in an industry long dominated by a traditional engineering mindset.

Companies are leveraging AI for a variety of applications, including pinpointing exploration sites, subsurface engineering via seismic data interpretation, reservoir modeling, fluid flow prediction, and optimising drilling extraction rates. AI is also enhancing operational efficiency in crude trading, and the technology is playing a crucial role in smart logistics control for supply chain management, predictive maintenance of key assets like turbines, pumps, and pipelines, and refining process optimisation to boost efficiency and safety.

Cairn, the oil and gas arm of Vedanta, for instance, is making use of AI-powered process digital twins of gas and offshore facilities, leading to about 30% reduction in flaring and 18% fuel gas optimisation, the company told ET.

It has deployed AI and machine learning (ML) to reduce the down-time of machinery such as hydraulic rod pumps and to keep up oil production volumes. Data from Internet of Things (IoT) and sensors are analysed with AI/ML to determine the likelihood of such machines failing, while real-time insights and smart alarms help in alerting.

"These machines are in oilfields in, for instance, remote parts of Rajasthan. If they fail, it takes significant time for a person to travel and make it right, and there would be a significant decline in volume," explained Sandeep Gupta, chief digital and information officer, Cairn Oil and Gas.

The company has built an AI model using historical procurement and consumption data to forecast the optimal future quantity of spare parts procurement needs, minimising existing spare parts, reducing non-moving inventory and overall working capital. At one field site, savings of about $1.5 million could directly be attributable to this solution, Gupta said.

"The biggest problem the oil and gas industry faces is emissions. It is under tremendous pressure to change its portfolio, but even if they cannot change it completely, doing it as efficiently as possible to minimise emissions will be quite significant," Anish De, global head - energy, natural resources & chemicals, at KPMG, told ET.

AI, with its data analytics insights and actionability, will play a major role in enabling hyper-efficiency. And if companies do it right, this will also have a positive bottom line impact, De said.

"You're seeing massive efficiencies, particularly in the upstream segment, much of it because of new technologies like AI, and in areas where there's a net saving," De explained. For instance, if heat loss in a petrochemical plant can be brought down by even 2%, that has a significant positive impact on the bottom line. In another instance, Indian Oil Corporation (IOC), is using GenAI for project delay compendium analysis, using historical learnings from large projects over the last two decades. It also has GenAI solutions to query legal compendiums, a chatbot for human resource functions, and customer sentiment analysis and visualisation.

For the international trade department, which carries out negotiations to import oil, GenAI helps with email summarisation and price discovery.

Manish Grover, executive director (strategic IS & IS), refineries HQ, at Indian Oil Corporation, said, "We have AI initiatives towards yield optimisation and maximisation. AI can tell us what is required to be produced—if there is X rate in the market, then which is the yield which will give me the maximum profit at that point of time."

An AI-powered integrated planning tool for supply chain management has helped to improve crude oil evaluation, short- and long-term planning, and business decision-making, Grover said, adding that 85-90% of the crude is imported--the largest capital expenditure for the company—and evaluation in an efficient manner is vital. AI is also being used to monitor and optimise IOC's shipping processes and avoid possible damages.

"Whenever data is being created, we are using the power of AI to give us more insights and decision-making tools," Grover said. "Over the last five years, OT (operational technology) and IT have been integrated to enable this."

For energy efficiency improvements, IOC has rolled out captive power plant dashboard and optimisation at their refineries, along with energy management systems installed for end-to-end utilities and supply-side optimisation through consumption monitoring and data of supply side utility costs.

"Ultimately, when I'm investing crores in projects and they don't come in time, I'm losing money, I'm losing productivity out there," Grover said. "All these solutions together let me monitor my projects better, maybe take those preventive steps so that the projects are coming on time."

The global AI in oil and gas market is expected to grow by 16.17% by 2028, of which the Asia-Pacific region will contribute 38%, according to data from Teamlease Digital. India will contribute more than 50% to the Apac share.

"The sector being a continuous process sector, live monitoring and control take priority, leading to emerging technologies taking centre stage to reduce process time and error rates," said Munira Loliwala, vice president - strategy and growth, at Teamlease Digital.

With AI, organisations are able to see a 20% improvement in operational costs and an approximately 40% increase in data accuracy, according to Loliwala. The sector is also seeing upwards of 50% improvement in creating a paperless environment.

AI also assists refinery companies in meeting crucial quality standards. By predicting potential deviations in product quality before they occur, production specialists can proactively make adjustments to reduce waste and ensure consistent production reliability and environmental sustainability, said Loliwala.

Improvements in efficiency for the green line also make strategic business sense, said experts. Tech giant Accenture estimates that AI and GenAI can help drive 1-2.5% improvement in topline, 2-3% reduction in cost and 3-6% reduction in capital spend across the value chain. "Emerging product substitutes, increasing regulatory and environmental requirements, new entrants from the diversified ecosystem and changing consumer preferences are necessitating the need for a radical change," said Hari Shankaranarayanan, managing director and lead - energy, Accenture in India.

Experts said GenAI bots have significant application in corporate functions—which are very large in oil and gas companies—across management of personnel, basic claims related matters, or legal matters. GenAI can act as "non-human eyes" for contract monitoring and reporting, said Deepak Mahurkar, partner, PWC. He said reducing manual interventions in processes and bringing in agility is a priority for companies across sub-surface, above surface, transportation, retail, gas, liquefaction, and others.

"Business expansion and increasing revenue through lateral expansion, forward and backward integrations--this is an aspiration of oil and gas companies," Mahurkar said.

For instance, oil tankers today are highly sensorised and AI helps detect and flag any anomalies in transportation. The technology can process data for as many as 50,000 trucks every second.

AI helps tailor customer experiences, as proximity sensors at retail outlets can alert fuel stations of nearby customers and registered customers can be flashed advertisements or fuel rates, Mahurkar said.

While use cases are still emerging, companies are seriously weighing options and are ready to spend money to develop them, Mahurkar said.

Most organisations are investing nearly 20% of their budget in AI development, according to Teamlease Digital's Loliwala, which enables them to digitally transform their business.

Top roles expected to create demand in 2024 in the oil and gas industry	Experience Range (years)	Open Demand by FY 2025
Data Scientist & Engineering	5 - 12	55%
AI Solution Architects	8+	47%
Geoscientists & Reservoir Engineers with AI Skills	5 - 10	22%
AI Ethicists and Policy Analysts	7+	15%
AI Project Managers	9+	15%
AI Consultants and Advisors	10 - 12+	27%

SOURCE: TEAMLEASE DIGITAL

THE GOOD

↑ India Third in AI
A report from the Australian Strategic Policy Institute says that when it comes to various segments of AI, India ranks third, just behind the US and China. It noted that India is lagging behind when it comes to standout research performers.

↑ AI Clears Clot
An AI device called the 'Penumbra Flash 12 F Catheter' was used to clear out a blood clot in a patient at Medanta Hospital in Haryana's Gurugram, which according to doctors makes the hospital the first in the country to use the technology.

THE BAD

↓ AI in the Dock
Top AI companies have been hit by copyright claims alleging aggressive scraping of data from the internet. The problem of scraping data has been exacerbated by startups hitting a wall on free information that can be sourced from web.

↓ AI Rigs Reviews
Fake AI-generated reviews that give apps five stars have begun flooding mobile as well as smart TV app stores, according to a report from DoubleVerify. The report says reviews allow low quality apps to rank higher in searches.

THE UGLY

↓ AI Shocker for Cos
High pay expectations are causing a slowdown in hiring of AI talent in India, particularly for 132 Indian firms in sectors like tech, manufacturing and finance, according to a survey by Deel. Survey also reported a rise in requests for payments in US dollars for contract workers.

Govts Say 'Aye' to Sovereign AI

India has launched a ₹10,000-crore AI Mission, an initiative aimed at developing domestic AI infrastructure and fuelling industry growth. The mission, which could soon take shape, kicked off with a tender for graphics processing units (GPUs), released last month. A pre-bid meeting hosted by the IT ministry saw participation from heavyweights like Nvidia, Intel, AMD, Qualcomm, Microsoft Azure, AWS, Google Cloud, and Palo Alto Networks. Generative AI (GenAI) is reshaping global economies, with nations scrambling to leverage this transformative technology for economic and productivity gains. This has spurred the rise of 'sovereign AI', a concept that underscores a nation's ability to develop artificial intelligence (AI) using its own infrastructure, training and research. **ET's Kumari Rajlakshmi Singh & Dia Rekhi** take a look at how countries around the world are investing in AI to build sovereign capabilities.

United States

The US has a plan in place to form the US National AI R&D Strategic Plan. Updated in 2023, it outlines the federal government's roadmap for AI R&D

$3.3 billion Govt's spending on AI and ML in FY23

- **Up from $1.38 billion spent in 2018: Stanford University report**
- **This reflects a 140% increase over this period**

$75 billion - US Federal IT Budget proposed for 2025

European Union

The EU announced a national plan for AI investment called the 'AI Innovation Strategy'. It includes a public and private investment package of around **€4 billion through 2027**

It intends to create 'AI Factories' across the EU

The EU has enacted the AI Act to establish a comprehensive legal framework for AI

United Kingdom

Cambridge University, Intel and Dell collaborated to build Dawn, the UK's fastest AI-capable supercomputer

The UK unveiled plans to spend over **$125 million** on research and training related to AI

The govt said it will launch nine new AI research hubs across the UK

China

Chinese government VC funds invested in 9,623 unique firms in the AI space via 20,000 transactions over 2000-2023, totalling **$184 billion:** National Bureau of Economic Research

117 – GenAI products approved by China's Cyberspace Administration as of March 2024

At least, **262 startups** are competing to bring out GenAI products in China

Canada

The country's Budget 2024 announced **$2.4 billion** over five years to launch a new AI Compute Access Fund and a Canadian AI Sovereign Compute Strategy

This will provide Canadian AI firms with the tools needed to be competitive in a rapidly advancing global landscape

The Budget also proposed **$50 million** to create an AI Safety Institute of Canada

South Korea

The South Korean government plans to invest **$6.94 billion** in AI by 2027

This will help the country retain an edge in the semiconductor industry and develop AI chips

Middle East

Saudi Arabia's sovereign wealth fund is in talks with top Silicon Valley VCs to create a **$40 billion** fund for AI startups

$2.5 billion – Incentives announced by Qatar to help grow AI, tech and innovation

Japan

The Japanese government has allocated approximately **$740 million** to subsidise the AI computing industry

It is collaborating with Nvidia to upskill its workforce, support Japanese language model development and expand AI adoption for natural disaster response

UAE's G42 has secured a **$1.5 billion** investment from Microsoft

Dubai approved the appointment of 22 chief AI officers to key government departments to drive a high-tech vision for the future

Source: ET Research

OpenAI Eyeing $100b Valuation

ChatGPT-maker OpenAI is looking to raise funds reportedly at a valuation of $100 billion. According to the Wall Street Journal, Apple and Nvidia are in talks to participate in the funding round. OpenAI is currently valued at $86 billion. According to the report, Thrive Capital is leading the round and is likely to put in $1 billion. Existing investor Microsoft is likely to participate as well. This comes at a time when concerns are raised about the lack of returns on investments, and that OpenAI is set to burn $5 billion on AI training and staffing in 2024.

Nvidia's Record $30b Revenues Fail to Wow Traders

Nvidia reported record revenues of $30 billion for the quarter ending July 28, more than the analysts' estimate of $28.7 billion in revenue for the time period. However, the firm's stock price declined by 6% after the results announcement. The BBC, quoting equity analyst Matt Britzman, reported that markets expect the estimates to be shattered and the results though beat estimates have left markets disappointed. Nvidia is one of the largest beneficiaries of the AI boom, and is likely to enjoy the momentum a little longer.

Google Lets its AI Depict People Again

Google will allow Gemini users to generate pictures again. The featurewas rolled back earlier this year after it inaccurately generated historical images such as those of racially diverse Nazis.Imagen 3, the image generation feature, will be first made available for Gemini Advanced, Business and Enterprise users in the coming days, starting with English for prompts. This competes with OpenAI's Sora, Stable Diffusion and X's Grok. Many recently raised concerns about the lack of content moderation in the latter.

NueTRENDS

Himanshi Lohchab writes how home-grown behemoth Reliance Jio's latest AI strategy could disrupt the dominance of global tech giants like Google, AWS and Apple

After expat Indians inundated Silicon Valley boardrooms, Indian tech entrepreneurs are bringing the fight home with businesses disrupting market dynamics of the global giants. Market experts are predicting a big disruption - this time in the Artificial Intelligence (AI) space. India's largest telecom company led by tycoon Mukesh Ambani, Reliance Jio announced a host of AI offerings which could give established players a tough competition.

Reliance is transforming itself into a deep tech company, chairman Mukesh Ambani said last week as he termed AI as a transformative event in the evolution of the human race. Ambani said the ongoing tech-driven transformation of Reliance will propel the company into a new orbit of hyper-growth and multiply its value for years to come.

Reliance is known to have shaken India's telecommunications sector, the over-the-top (OTT) space, and almost every segment it targeted with its compelling and attractively priced offerings. But, with AI, cutting prices is not the only strategy that could determine success, experts said. The 'when' and 'how' of implementing Jio's AI vision needs to be watched, they added.

FREE CLOUD

Reliance Jio's 100GB free cloud storage offer could challenge Google One and Apple's iCloud's dominance among Android and Apple phone users in India, something which Dropbox and Microsoft's OneDrive haven't been able to do as yet, experts said.

The competition could also nudge existing players to cut their pricing - Google One (100GB at ₹130), iCloud (50GB at ₹75).

"Jio has brought a very lucrative proposition for an average phone user in India who struggles to upgrade memory because of paid storage," said Neil Shah, founding partner of technology consulting firm Counterpoint Research. "But, bundling of products and services with the OS ecosystem is a key challenge here." For instance, WhatsApp and a majority of apps' data is currently backed up in iCloud and Google One because most smartphones in India run on either Google's Android or Apple iOS. Jio will need partnerships with app providers to unbundle them from Android and iOS.

Call records of 480 million users would be the most authentic source of speech data in almost all Indian languages

Jio's strategy however goes beyond data storage. Adoption of Jio Cloud will enable the company to get access to humongous user data – a key need for training Jio's AI models.

The company was not immediately available for comment.

TRAINING AI MODELS

Back in 2022, Google started pouring big dollars into project Vaani, aimed at collecting speech data of underrepresented Indian languages to train Indic AI models. It has so far collected a database of over 14,000 hours of speech across 58 languages from 80,000 speakers in 80 districts. Similarly, startup Karya has generated work opportunities for thousands of workers from India's hinterland to collect speech data. Jio is set to achieve that for free with the new call recording and transcription feature. "Call records of 480 million users would be the most authentic source of speech data in almost all Indian languages and dialects," said Sameer Dhanrajani, CEO of AI advisory firms AIQRATE and 3AI. "I believe Jio will do that in a privacy-preserving manner with subscriber consent. But the fact that vast Indic datasets can be created without the need to discover them from various districts is a pretty impressive approach."

AI-READY DATA CENTRE

The company has also announced plans to build a Gigawatt (GW) scale AI-ready data centre in Jamnagar, Gujarat, which will be run on 100% renewable energy. To contextualise the scale, this project could single-handedly subsume 195 data centres present in India which today have a combined capacity of 1GW. But the project could entail investments up to ₹25,000 crore and may need another three years to go live, unless the company has already started work, experts said.

Besides, running AI data centres on renewable energy wouldn't be easy as AI servers consume 4-5 times more power and cooling. Out of India's entire DC power consumption, only 20% is green energy. Companies like Nxtra, CtrlS, ST Telemedia have set a target to achieve net zero by 2031. Reliance will also need to make strategic partnerships with global AI leaders such as OpenAI, Meta and Google to host their models and compete with hyperscalers like AWS, Azure and Google Cloud. Whether Jio will place itself as an infrastructure provider or a managed cloud service is not very evident at the moment.

"Reliance's announcement of such an initiative will hopefully make the inferencing and training of AI models affordable" said Rajiv Ranjan, associate director, cloud & AI at research firm IDC India. Besides competitive price, Jio will also need to match tools, security systems and integration capabilities offered with the hyperscalers. Reliance's entry as a cloud player augurs well for enterprises looking to diversify in multi-cloud environments at a time when global hyperscale prices have stagnated.

"The Indian public cloud market will reach $26.1 billion in 2027, growing at a five-year CAGR of 28.5%. Like their global peers, Indian IT leaders are evaluating decision criteria to distribute workloads across multiple cloud providers," said Anushree Verma, director analyst, emerging technologies and trends, Gartner. And having a desi alternative to global giants will surely help!