



# PREDICTIVE ANALYTICS

## Lifting the Veil on Energy Inefficiency

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**A**S THE WORLD'S BIGGEST OIL companies, including the UAE's ADNOC and Saudi Aramco, ramp up investments in new production capacity amid \$60/bl oil prices, they are eagerly eyeing new digital tools that could deliver millions of dollars in savings. Enter predictive analytics – the closest an industry beset by uncertainty and technical complexity can get to a crystal ball.

Already, more than half (57) of the world's 100 largest oil and gas firms – several in the Middle East – are already using or have plans to use predictive analytics, according to LR's latest Technology Radar Special Report, titled 'Predictive Analytics in Oil and Gas: The future in focus'. The report was launched in Abu Dhabi on the eve of ADIPEC 2018.

One tool alone, machine learning and predicting failures has, for example, been found to generate savings of many hundreds of thousands of dollars per drill rig and

**57**

More than half of the world's 100 largest oil and gas firms are using, or have plans to use, predictive analytics. For example, integrated oil majors, such as Shell, Chevron and ConocoPhillips and field service companies, such as Schlumberger and Halliburton, are applying predictive analytics across their global value chains.

multiple millions on gas pipelines in the eastern US. Giving predictive analytics a cold shoulder would be a costly mistake for Middle Eastern oil, especially when you consider there are 160 offshore rigs alone operating across the Gulf.

This advanced form of analytics expands on the digital journey established by artificial intelligence (AI), big data and others. It promotes visibility – the bedrock of reliability and efficiency in global energy security. How to glimpse into the future – i.e. leveraging predictive analytics – will be at the top of the digital agenda of boardroom conversations in the Middle East in 2019.

Sweet spots abound. Within the top 100 companies, evidence of predictive adoption is most extensive upstream, in oil-field equipment and services, exploration and production.

The largest firms, mainly integrated oil and gas companies appear to have advanced

**“Digital tools have been shedding light on the dark corners of operational inefficiency for years. Now, predictive analytics means switching on more lights than ever.”**

furthest. Midstream and downstream can also significantly benefit in the Middle East, especially since the region took the aged refining reins from Europe to establish one of the world’s most sophisticated and flexible hubs.

Imagine the enormous impact on profit and loss accounts, balance sheets and competitiveness if predictive analytics can be properly applied to the large number of refineries around the region and to the raft of new facilities being planned and soon to come on line. This has durable value, as the International Energy Agency (IEA) expects the region to have the world’s biggest growth in refining capacity up to 2023.

Over the next five years, this cutting edge digital tool can bolster production while streamlining costs and cutting risks. That’s a very good deal for those willing to grab the opportunity.



**40%**  
Of these 57 companies, 34 are using or have plans to use predictive analytics. Nearly half (40%) still need to catch up.

**\$325,000**  
Companies using predictive analytics are benefiting from a \$325,000 saving per rig by using machine learning to predict drill-bit locations.

**\$7m**  
Predictive analytics are saving companies \$7 million on gas pipelines in the eastern US through predicting failures.

**DIGGING FOR DIAMONDS**

‘Data diamonds’ are key to unlocking the most valuable insights via predictive analytics. The global data sphere will grow to 163 zettabytes (ZB) by 2025, which is a trillion gigabytes and a staggering ten times the 16.1ZB of data generated in 2016, according to the International Data Corporation (IDC).

As data volumes surge, tools like predictive analytics will enable companies to focus on the quality of information rather than an overload. Quality over quantity will prevail! The more data intelligently gathered, the more it is analyzed, the more lessons are learned, and the more efficiencies and visibility will be achieved.

This intelligence will be a much-needed release valve in what is an increasingly intense pressure cooker in the Middle East and beyond. Energy stakeholders face tall orders on every front. Energy consumption in the Middle East alone is expected to rise by 54% up to 2040, according to BP Outlook, while the near-30% gain that the United Nations (UN) expects in the global population by 2050 is also echoed in most Gulf countries.

Demanding environmental regulations spawned by the Paris Agreement and cross border geopolitical tensions that hinder collaborations are also ramping up the ante. The pressure cooker cannot afford to blow.

Smart and swift solutions that maximize the clout of the digital revolution are the safest answer in an industry renowned

**“Predictive analytics provide a much-needed release valve in what is an increasingly intense pressure cooker – one that we can’t afford to blow.”**

for its myriad of unknowns. The OPEC+ agreement (the deal between OPEC and non-OPEC members to manage output), the US’ sanctions on Iran, trade wars and environmental regulations like the International Maritime Organization’s (IMO) sulfur cap of 0.5% on bunker fuel from 2020 are all potential triggers for volatility in the Middle East’s oil market.

The multi-billion-dollar savings identified in LR’s Technology Radar special report have the power to help stabilize Middle Eastern oil stakeholders’ balance sheets and spur much-needed research and development

**1.2%**  
Just 5 of the 425 patent applications relating to predictive analytics filed around the world between 2012 and mid-2018 are specific to oil and gas – an unnerving 1.2%.

**\$50bn**  
The use of predictive tools is most advanced in companies earning annual revenues of \$50 billion or more, as well as those with the highest market capitalization levels.

(R&D) to commercialize digital innovations. The latter is especially relevant to many Gulf nations’ Visions to become knowledge-based economies; the UAE included.

Primary players from energy companies, technology firms and government to academia and financial institutions (FI) must lower the brick walls that crimp the flow of knowledge sharing. This is not new territory for Middle Eastern oil stakeholders; their track record since the sharp decline in oil prices in 2014 for sharing knowledge and embracing digital disruption stands them in good stead.

Predictive analytics are essentially a highly intelligent heads up that enables proactive action to be taken affordably and efficiently, saving millions of dollars and potentially even lives. While Middle Eastern oil stakeholders’ digital tools have been shedding light on the dark corners of operational inefficiency for years, predictive analytics gives them a very powerful spotlight to see every detail. They must be patient and persevere; the 20/20 vision will be worth it. □