Veriday

Digital Transformation in
Oil & Gas

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The oil and gas industry is digitizing and digitally transforming. Oil and gas industry experts say their priorities are to focus on Industrial IoT, big data, and artificial intelligence.

The oil and gas industry comes with very specific digitization and digital transformation challenges, among others depending on the process and operation. In the digitalization initiatives of the industry, the Industrial Internet of Things, big data, and artificial intelligence play a major role.

In the rise of **industry 4.0**, we hear the word digital transformation quite often. At its core, Digital Transformation (DX) is a grand term encompassing many types of data sources, connections, and analytics in support of cultural and work process redesign. All the while, the cost of sensors and other sources of IIOT go down, the number of these sources and connections will continue to grow.

Many organizations have ideas on how DX projects can benefit them (from big data projects to data analytics to know more about their organization), many are unsure how to begin because there are so many variables and options spanning large numbers of assets, geographical locations and technologies. The potential value is visible, but there is not a clear one-size-fits-all method of determining the path to success.

Following a relatively conservative approach emphasizing practicality and fiscal viability will ensure successful DX implementations. The main advantages of IIoT solutions in upstream operations are the low cost of supply, increased production, and higher safety.

The oil and gas industry started its digital revolution a decade or so ago. This first revolution is now known as digital oilfields or some variant of it. To a large degree, it entailed digitization and some effort towards digitalization. The benefits gained from digitization and digitalization have not been significant though. An example: the industry is implementing integrated reservoir management but if you look under the hood, the integration is still narrowly focused in a siloed environment and tightly controlled.

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When we talk about digital transformation, one needs to remember it is about the breakdown of silos, both cultural and technical, so we can transform the way we do business in day to day life.

Oil and gas industries need to leverage digital technologies at a much faster pace, with an agile and adaptable mindset. The business strategy around digital transformation should include a component of innovation, talent, and real transformation of the industry. The sector can certainly learn from the approach that we have developed at Veriday.

Main areas of technological investments in oil and gas in the Next 5 years

- Predictive Analytics to help forecast demand smart analytics at the edge, based on Big Data and data science
- Wireless technologies, Fieldbus technologies, open system, yet secured technologies.
- We are looking at edge computing with edge IoT gateways and
- Smart sensors, machine learning and analytics, Image recognition,

- Wearable technology,
- Augmented reality and virtual reality solutions. additive printing.
- IoT sensors with a sensor-to-sensor communications network
- Wearable Devices
- Predictive maintenance solutions utilizing sensor streaming data in conjunction with machine learning and artificial intelligence.

The top five challenges, In Oil & Gas :

1. readiness of IoT devices for the oil and gas environment which can range from rather friendly to extremely hard environments
2. the lack of standardization in how these IoT devices generate and share data
3. the lack of mature integrated data and information management platforms like the DecisionSpace™ platform;
4. the lack of skilled talent
5. leadership with regards to the adoption and deployment of IIoT.

The market will be decelerating at at CAGR of over

15%

Incremental Growth

$3.8bn

2018   **2023**

The year-over-year growth rate for 2019 is estimated at

20.11%

The market is FRAGMENTED with quite a few palyers occupying the market share
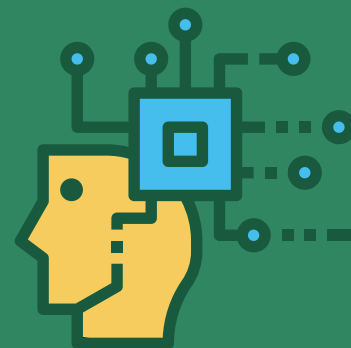
32%

of the growth will come from North America

one of the key trends for this market will be the use of BIG DATA BY AI & ML

The high volumes of data generated in the industry, require artificial intelligence and machine learning tools, which are also significant contributors to the growth of the global big data market in the oil and gas industry.

It's clear that edge computing also plays an increasingly important role in oil and gas since the industry, by definition, already 'lives' on the edge with often hard to reach assets and operations.

With the push to enhance production, avoid production disruption and thus predict failure of equipment, and the role of environmental information in forecasting future production volumes, AI, ML, and big data have a further significant role to play in oil and gas.

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