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Impact of Big Data in Oil and Gas Industry

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What is Big Data?

Any data that is characterized by 5 Vs like Volumes, Velocity, Variety, Value and Veracity can be classified as Big Data. They may exist in various forms like structured, semi-structured or unstructured. Depending on the need any oil and gas data could be a big data.

Why Big Data?

Aren't we struggling to manage and extract value from the growing volume and variety of data and need to unify information across federated sources? The data has always been the backbone of decision making process. Business thrives or dies on quality of decisions made at various level in any industry. Decisions, be it of investment, technical, human and social, market, efficiency, productivity or safety, need to be well informed, sound and equally important is timely decisions.

For Oil and Gas firms understanding, leveraging and unleashing the power of data and the information derived will help to

- Remain competitive throughout planning, exploration, production and field development
- Maximize production with regard to maintenance and forecasting
- Reduce time to first oil/gas, lower operating costs and improve the productivity of assets across the life cycle
- Ensuring the seamless, automated availability of right information to the workforce at right time

So with Big data we can - Reduce costs, Improve decision making and operational performance, Achieve greater efficiencies in Business processes, Gain new insights, by combining and analysing data types in different ways and Develop new business models with increased market

presence and revenue. As a result we can say Big Data is equal to Big Return on Investment (ROI)

Big Data Examples of Oil & Gas Industry

Seismic, logs, surveying and real-time measurements data can form the big data examples. The different data formats like DLIS, LIS, SEGx, Videos, Docs, PDFs, XLS, CSV, graphics, OGP Px, XML, RDBMS etc are present. The intelligent wells or intelligent producing fields like real time drilling data continuously feed our systems along with sensor or telemetric data at many places. While we are acquiring this data we also need to organize analyse and decide the actions on such data.

Industry Challenges w.r.t Big Data

- Reservoir Characterization
 - Exponential size increase in traditional data types – seismic logs
 - Management of exploding interpretation and simulation models
 - Need to Integrate Real time data into earth model won rig and in office
- Drilling
 - Risks to personnel and public need to be reduced
 - Need to automate real-time decision making
 - Need to unlock value in real time data archive after the drilling phase is over
- Production
 - Detect well problems before they become serious – slugging, WAG gas break through
 - Rapid optimization for maximizing the output



- Data Management
 - Astronomical data volumes needing Big data techniques
 - Data size preventing Real time and after-the-fact analysis
 - Preserving Real time data

Through this key note address we will try to see the impact of Big Data in improving exploration and production efficiency through harmonized data and improve the business performance.