

Upstream Oil & Gas Data Life Cycle Management



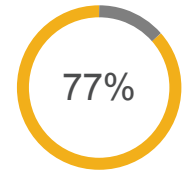
Transforming Oil & Gas Exploration and Production

The Oil & Gas industry has been working with petabytes of diverse data since the early 1980s. Scientific, engineering, financial, and economic data all play an important role in the Exploration & Production (E&P) life cycle. Although Oil & Gas development projects may often run over decades, information generated ten, twenty, or even forty years ago still provides significant value that can influence how contemporary field assets are best developed and optimized for decades to come.

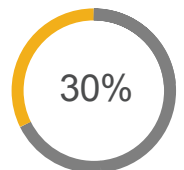
At the same time, faster and more economical computing power, together with transformative analytics—including predictive analytics and artificial intelligence (AI) techniques such as machine learning and deep learning—promise to deliver actionable, game-changing insights. To fully leverage this new era of value extraction, three key challenges must be met:

- 1. Increasing data availability:** The sheer quantity of amassed data means that a significant amount of data gets archived to tape. However, if powerful computing and transformative analytics are to be leveraged in an agile ecosystem, this data needs to be migrated to online storage. The combination of low-cost, online-archiving techniques combined with the enhanced business value of data are leading many companies to make the necessary move by migrating their legacy data archives to online repositories.
- 2. Eliminating data silos:** In the search for economically exploitable hydrocarbon deposits, disaggregated data sets may impede the development of business-innovating insights. Effective application of advanced analytics requires that data silos be consolidated and exposed through a common set of APIs and data schemas and protected with a robust set of quality, provenance, and security processes.
- 3. Reducing time to insight and execution:** As Oil & Gas companies utilize new data science and analytics, rapid, on-demand access to the right information is key to generating highly targeted and effective insights. Being able to locate, process, and archive related groups of information based on a set of project criteria or business context is crucial. If the correct data cannot be provisioned in a timely manner, adverse effects on operational efficiency and workforce safety can potentially arise.

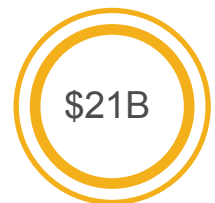
1. <https://www.veolia.com/en/newsroom/press-day-2018/how-do-we-meet-30-percent-higher-energy-demand-2040>
 2. <https://oilvoice.com/Opinion/25835/Oil-And-Gas-Analytics-Market-to-see-20-growth-to-hit-US21-Billion-by-2024>



of global energy will still be supplied by fossil fuels in 2040.¹



growth in demand for energy is anticipated between 2017 and 2040.¹



is the estimated size of the Oil & Gas analytics industry by 2024, driven primarily by low crude oil prices and “high cost investment” in exploration and production.²

Tackling these challenges in a holistic way is proving beneficial for the Oil & Gas industry.

Across the globe, Dell Technologies provides technology solutions that innovate your upstream data life cycle management process with a proven, integrated approach. This involves an intelligently tiered approach to data storage transformation and a uniform nomenclature to promote easy and fast access to information. Not only does this strategy greatly enhance current exploration and production activities, but it also enables new workstreams that advance operational efficiencies. Additionally, this approach entrenches and improves the collaborative culture between the geoscience, engineering, business, and IT communities.

Consolidated Data Systems for Oil & Gas

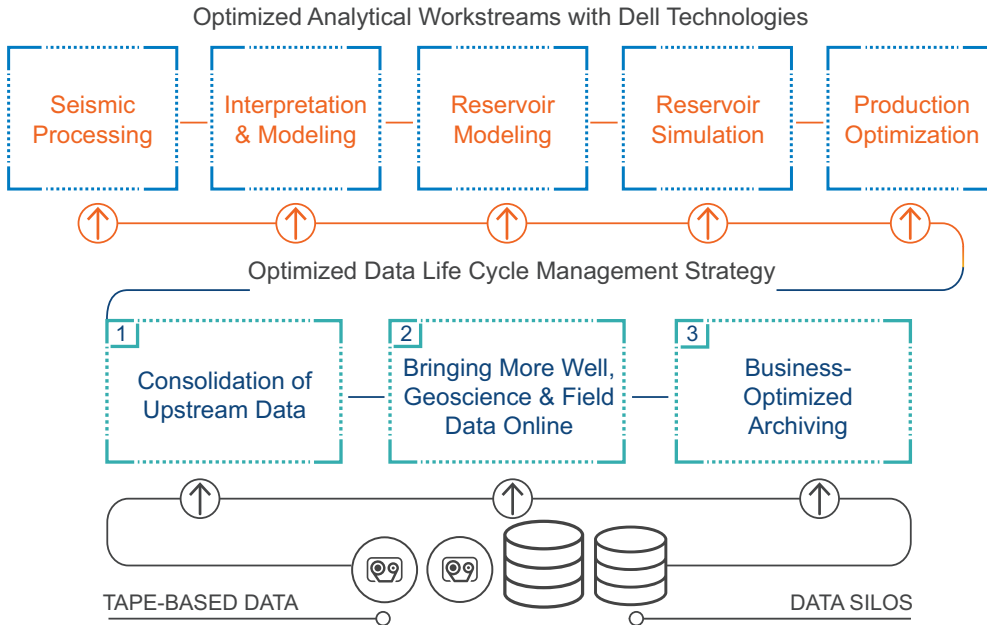
Dell Technologies provides significant benefits for exploration and production by unifying data into one seamless system.

- **Centralized Upstream Data Store:** A centralized upstream data store enables seismic processing, interpretation and modeling, reservoir modeling, reservoir simulation, and production optimization workstreams to share the same information repository. This eliminates the analytical errors introduced when siloed copies of data are out of sync and enables a uniform set of governance, provenance, and security processes to be applied to ensure consistent quality checking of data. A unified system also reduces overall data storage costs and facilitates agile data provisioning across workstreams. Dell EMC PowerScale with petabyte-level scalability is designed for precisely these requirements. With our ability to support 16 TB files with PowerScale, we will enable companies to more seamlessly process and manage the large seismic datasets.
- **Take Control of Unstructured Data:** With Dell EMC DatalQ dataset management and insights software, Oil and Gas companies can visualize all unstructured data through a single pane of glass, effectively eliminating challenges associated with data silos. Using advanced tracking and reporting features of DatalQ, IT and storage administrators can conduct intelligent data analysis, manage storage costs, rapidly locate files and accurately report on the usage of storage infrastructure.
- **Tiered Online Data Management:** Companies want to migrate away from tape to online disk storage for quicker data access and to enable new analytical workloads not supported by tape. The capabilities of Dell EMC PowerScale make it viable to move away from tape by enabling storage policies to be defined that dynamically locate data on PowerScale node with characteristics that match usage and access performance needs. For small and mid-sized organizations, Dell EMC PowerScale offers cost-effective, entry-level all-flash storage with flexibility and longevity for future expansions
- **Optimized Workstreams:** Dell Technologies provides solutions that enable upstream data stored on PowerScale platform to be located, provisioned, and executed significantly quicker, with the ability to identify specific data sets by development project criteria or business context. Additionally, Dell EMC Virtual Desktop Infrastructure (VDI) Complete Solutions in conjunction with Dell EMC Hyper-Converged Infrastructure (HCI) options simplify the infrastructure needed to access and run applications from vendors such as Schlumberger, Halliburton Landmark, and IHS Markit. Preconfigured appliances combine compute, networking, virtualization, storage, and security components into a single optimized appliance that reduces application- deployment time and delivers performance in line with workload types. Dell EMC's comprehensive High Performance Computing (HPC) portfolio delivers shared computing power for intensive workloads such as seismic processing and AI.
- **Optimized Data Life Cycle Management Strategy:** Oil and Gas companies with significant upstream operations have large volumes of data on tape. This may be an inexpensive way to store it, but it does not support a dynamic and agile way of leveraging analytics, particularly when we look at the rise in advanced analytics and artificial intelligence workloads which do not work on tape-based data. With Dell EMC PowerScale and Dell EMC ECS, companies can consolidate their siloed upstream data into a data management platform for storing and provisioning consistently quality checked data that can be easily scaled and secured. Dell EMC DatalQ, an unstructured dataset management and insights software, allows oil and gas companies to visualize all data through a single pane of glass, effectively breaking down siloes of trapped data. With a unified file system view of storage solutions, third-party platforms and the cloud, DatalQ delivers unique insights into data usage and storage capacity. DatalQ enables companies to move data from on-prem storage platforms to the cloud and back again, ensuring projects and users have access to the right data, in the right place, at the right time. With our extensive portfolio of products, we can help companies bring more data online cost-effectively by moving relevant volumes off tape. This increases data availability to quickly enrich analytical workloads and drives operational efficiency.

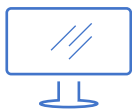
Achieving the Next Level of Upstream Business Agility

Dell Technologies helps Oil & Gas companies turn their upstream data into value that enables more confident decision-making and increases operational efficiencies. With the ability to deliver complex innovation in a simplified

approach, IT is transformed into a strategic partner for the business. Oil & Gas companies can gain access at the right time to the right data to accelerate the discovery and exploitation of new hydrocarbon reservoirs and to maximize the production of existing ones. Dell Technologies solutions for data life cycle management deliver the next level of upstream business agility.



The Value of Dell Technologies: The Dell Technologies Data Life Cycle Management Approach
Data is readily available when and where needed to better support overall operations through an ecosystem of interconnected analytical workstreams.



Learn more about our solutions for energy



Contact one of our industry experts



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