Digital Transformation of the NDR

Kerry Blinston
Topics

- Smart Data Solutions
- Failure
- Success
- Improvement vs Transformation
- Challenges
- Achieving Digital Transformation
Smart Data Solutions & NDR’s

Wells

- Wellbores (Docs) 8,500+
- Wellbores (Logs) 7,700+
- Docs & Logs 760K+
- Annual Growth 800GB
- Total volume 11.4TB
- Orders 4,800 / 1.3M Files

Seismic

- Datasets 51,000+
- Surveys 4,300+
- Velocity 7,900+
- Annual Growth 1.8PB
- Av. Orders 427 / 101TB
- Total volume 8.3PB

Digital Transformation of the NDR
Introducing Smart Data Solutions

O&G Rock & Fluids Archives

High Capacity Digitization

Digital Transformation of the NDR
Failure is simply the opportunity to begin again, this time more intelligently.

Henry Ford

Success is stumbling from failure to failure with no loss of enthusiasm.

-Winston Churchill

What is your best failure?
Automating the NDR

Kerry Blinston: Global Commercial Director

cgg.com

Creating value from National Data Repositories

Introduction

As the name suggests, National Data Repositories or NDRs are typically set up by government agencies and regulators as part of a long-term strategy to protect and optimize the value of a nation’s natural resources. By collecting, standardizing, and making data available quickly and efficiently, they reduce barriers to critical exploration and production operations.

To achieve this, NDRs must create value for key data generators and users—the operating companies and the service providers. In many respects, the value of NDRs to operating companies, especially in territories that have implemented public data release policies, can be argued to be the data volumes they enable them to access, a study commissioned by Common Data Access, “The business value cases for data management: a study” (Haikin and Lecode, 2011), it is stated that, since oil company value is directly related to an understanding of the subsurface data, contributions 25-33% of the value. Of course, unless the data can be efficiently accessed and integrated into a company’s systems and processes and be considered of recognized quality, that value is diminished.

CGG & NDRs

CGG Data Management Services has implemented and operated NDRs around the world since 2009. In 2013, CGG was awarded the contract to operate Odisse. Norway’s National Data Repository. Widely regarded as the first true NDR and referenced as an example of international best practice, Odisse serves over 50 different companies and over 30 regular users. It celebrated its 25th anniversary of operation in 2015. A core team of CGG experts deliver the services together with staff from our project partners, ERTN and Statoil. The initial phase of the current enhanced migration of a proprietary data model format into the PDM system, fully meeting its development of new functionalities, the design and implementation of the IT environment and the transfer of nearly 1 PB of data. Today the data volume exceeds 1 PB. Each month on average of 150 TB of new data is loaded. The 30+ Odisse users place over 1,000 data orders every month, averaging 66 TB of downloads and distribution.

In this white paper we discuss current NDR best practice and share our experience on how best to initiate, operate and create value from NDRs. We reveal how NDRs have evolved to provide greater automation and new capabilities and consider how they must further evolve to meet the future needs of the industry.

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Digital Transformation of the NDR

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Automation of the NDR

**Successes**
- ✔ Ordering / Download
- ✔ Header Validation
- ✔ Header Population
- ✔ Data Upload
- ✔ Machine Access

**Coming Soon...**
- ✔ Cloud Data Delivery
- ✔ API Data Streaming
- ✔ Advanced Seismic QC
- ✔ Classification, tagging and metadata extraction
Automation of the NDR

Coming Soon…

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**Improvement or Transformation**

**Transformation**: A new term for improvement or something genuinely different?

**Improvement**: the fact of something getting better, or the act of making something better

**Transformation**: the process of changing completely the character or appearance of something in order to improve it
## Success, Failure or Both?

<table>
<thead>
<tr>
<th>Improvement</th>
<th>Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fix existing ‘pain points’</td>
<td>Develop new, better and sustainable futures</td>
</tr>
<tr>
<td>Tactically driven relying on processes, methods and technologies</td>
<td>Strategy driven, fundamentally changes attitudes, mind sets and beliefs</td>
</tr>
<tr>
<td>Delivers small increments in performance and results</td>
<td>Creates significant increments in performance and results</td>
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</tbody>
</table>

- **Improvement**
- **Transformation**
Technology Challenges

Efficient / Effective Operations
- Automation
- Application Integration

Data Accessibility
- Data Integration
- File Formats

Enabling Technology
- Global Cloud
The tyranny of distance

- Geographic holes
- Latency
- Export restrictions
- Distributed data

Digital Transformation of the NDR
Digital Transformation of the NDR

40ms Target

Amsterdam / New York
Data scope

PPDM Data Model version 3.9
Data Diagrams

ADDITIVES - CATALOGUES

WORK ORDER COMPONENTS

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Digital Transformation of the NDR
Unlocking access to seismic data

The Open Group launches the Open Subsurface Data Universe Forum 21st March 2019

“By using new digital technologies and business best practices, we can transform the way the industry stores, shares, and analyzes subsurface data.” Steve Nunn, president and CEO of The Open Group

Bluware has recently donated its OpenVDS software… enabling true workflow efficiency and collaboration on large geophysical datasets” Dan Piette, CEO Bluware

https://www.opengroup.org/open-group-launches-open-subsurface-data-universe-forum

Why is Legacy Data Difficult to Access?

Finally, the format might not be suitable for the purpose you have in mind, like for example analytics.

“Teradata talked about data lakes. A talk that was clear that something has to happen in companies to change their relationship with data. Seg-Y and LAS are great transfer data types, but sub-par to terrible to work on”


Embracing Emerging Technologies to Economically Revive Legacy E&P Data. Andy Castro (CGG Services (Australia) P/L)
A long time coming

Open Subsurface Data Universe™ Forum - Scope

1. Open Spirit
2. Ocean Store
3. Open Earth Community
4. Open Subsurface Data Universe


Digital Transformation of the NDR
People & Process Challenges

- **Behaviours & Business Models**
  - Collaborative working
  - Maintaining competition

- **Standards**
  - Development / Evolution
  - Disciplined usage
  - Regulatory oversight

- **Resource**
  - Attracting talent
  - Enabling digital immigration
  - Recognition
Achieving NDR Transformation

- Get off the side lines and into the game
- Uphold the highest standards
- Technology enables, people create
Thank you

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