BUILDING E&P National Data Repository in INDIA

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Introduction

1. Upstream industry data & information management challenges
2. Can NDR help to resolve them?
3. Key issues to address during NDR designing phase
4. Possible Roles & responsibilities of Stakeholders during NDR Development
5. NDR Design Options
6. Digital Centre Evolution
7. NDC in Digital Age
8. Summary & Conclusion
Data - Most Vital Asset

“*The value of our company is based on its reserves, its barrels of oil equivalent. They are all ‘virtual.’ We cannot count them, they are a projection of our data. Which really are our assets -- barrels of oil equivalent or data describing the barrels we think we have?”*

“Quiet Revolution,” CERA, 1996

*I don’t think, you can do today’s jobs with yesterday’s methods & be in businesses tomorrow*
1. Oil Field Data Life Cycle & Phases

Every Cycle Generates Huge Volumes of Data, Information and Interpretation Layers
2. Can NDR Help Resolve These Challenges?

**YES!**

**Government NDR perspective:**
1. An inflow of capital and technological investment
2. Increased revenue through royalties (efficient NELP)
3. Data Protection
4. QC

**Oil Companies perspective:**
1. Information on demand, reducing access time
2. Improved interaction with oil companies, Service companies and Government & others

**NDR Management Tools:**
1. Data Model
2. Loading and Exporting tools
3. Quality control Tools
4. Data search engines
5. Data Integration tools

**Service Organizations (Technology Provider / Operator)**
3. NDR – Key issues of Design Phase

- Indian government / Regulatory body objectives?
- Indian upstream industry objectives?
- Financing the initiative?
- What is required to build a long-term sustainable solution in the Indian context?
- Phase wise design/Implementation
- Will the NDR be government or service company or consortium operated?
- Oil companies expects to proactively use the NDR and not only report data into it?
- Meta data only model?
3. (contd.) NDR – What is critical success criteria?

- Operating Oil Companies perspectives to be borne in mind
- Oil companies realization that data is a National Asset
- Data, the most important asset of oil companies must be shared at mutually worked out cost model
- Current Intellectual Data may not be needed at NDR
- Cost Committee: Govt Rep + Oil Co Rep + Service provider Rep + independent upstream financial institution
- Security Framework Workgroup
- Data Model, Data Flow & Work Flows and QC Council
- NDR Apex Advisory Group
- NDR Operating Group
4. Role & Responsibilities of the NDR Stake Holders (in India)

- Consensus on legal, data security, commercial framework and on operational & technical framework for the NDR
- Define own data management solution within the context of the NDR
- Use NDR as hub for all data sharing
  - concept of one source for all data in a gradually
- Timely reporting/submission cycle of data to NDR operator
- QC of ”own” operator stakeholder data in NDR
- Robust Financing model
- DISKOS Norway, (NPD) and - CDA, UK, (DTI) & other best practices
- Standards Development, participation process
- Use WITSML, ProdML, GUWI, PWLS and RESQML products of Energistics in their present form in the India-NDR
4. (contd.) Possible Regulatory Role

• Provide legislation and regulation as foundation for NDR

• Play leading role in building consensus in defining standards and guidelines for NDR use
  • Define reporting schedules & deadlines
  • Define reporting standards (Energistics, UKOOA, PPDM,....)
  • Define routines for release of public data
  • Define phased components and deliverables

• Push oil companies for joining NDR showcasing mutual gains + possible tax reliefs for NDR participation & support.

• Provide financial incentives to oil companies for NDR participation
  - Tax relief can be implemented in Production Sharing Agreements or License Work Programmes (if feasible)
4. (contd.) Role of the Service Organizations

- Build consensus for finalizing technology and processes for efficient QC, storage, retrieval and distribution of NDR data

- Develop procedures for data handling in accordance with government regulations

- Provide service level understanding in accordance with agreed version
  - Cater to core needs as defined by oil company consort
  - Provide specific needs of oil companies beyond the level defined by industry consortium if required
### 5. NDR Design Options / Models

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<thead>
<tr>
<th>Model-I</th>
<th>Govt Initiated, Dictated &amp; driven model (Compliance Model)</th>
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<tbody>
<tr>
<td></td>
<td>Negligible use by operating oil companies</td>
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<tr>
<td></td>
<td>Basically meant to provide public domain data for licensing rounds</td>
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<td>Government and / or service company operated</td>
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<tr>
<th>Model-II</th>
<th>Govt initiated, oil cos. Supported model (Sharing Model)</th>
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<tr>
<td></td>
<td>Some use by operating oil companies</td>
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<tr>
<td></td>
<td>Used for data sharing between production licenses/PSAs as well as access to public data</td>
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<td>Service company operated</td>
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<th>Model-III</th>
<th>Oil Consortium and govt driven (Hub Environment)</th>
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<tr>
<td></td>
<td>Commitment of oil companies</td>
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<tr>
<td></td>
<td>Prolific use by all E&amp;P players</td>
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<tr>
<td></td>
<td>Replicate Company’s own data management solutions</td>
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<td></td>
<td>Service company operated</td>
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<td>Can work as a disaster recovery solution</td>
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<th>Model-IV</th>
<th>Meta-Data Model (Preferred)</th>
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<tr>
<td></td>
<td>Meta-data only resides in NDR</td>
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<tr>
<td></td>
<td>Bulk data remains with parent company / on demand sharing</td>
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<td></td>
<td>Data selection through Meta-data navigation at DGH or through World Wide Web</td>
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<tr>
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<td>All Oil companies linked to NDR through Secured WAN Protocols</td>
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<tr>
<td></td>
<td>Security issues comparatively less</td>
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<tr>
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<td>Ownership remains with parent company</td>
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<td>Can start quickly</td>
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Data Centre Evolution

Capture → Preserve → Self Service → Delivery → Virtual
NDC in Digital Age

- Data Management platform is key enabler
- Online services are critical
  - Configurable to meet your needs
  - Automation delivery efficiencies
  - Control maintenance
  - Flexible service and business model

Data
- Acquisition
  - Raw format data
  - Field deliveries
  - Real time Data

Information
- Management
  - Data storage
  - Quality maintenance
  - Governance and security

Knowledge
- Delivery
  - Delivery to E&P applications
  - Decision making
6. Summary & Conclusions

• While designing India’s National Data Repository:
  - Approach and build consensus within stakeholders keeping their data centric and commercial meaning intact.
  - Carefully determine the objectives for the NDR (Archive or Data sharing hub)
  - Who is going to finance the initiative (Government or Govt + Industry or Industry consortium)?
  - Brainstorm & Consider the alternative NDR models and decide which one is best suited to fit the nation’s needs; Keeping in view oil companies business interests and ease of implementation.
  - Attempt leveraging meta-data model to ensure simplicity of operations and avoiding multilevel replications to begin with
  - Analyze with a clear purpose what the service industry, regulatory body and oil companies have to offer in the entire process.
Queries Please?