# 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

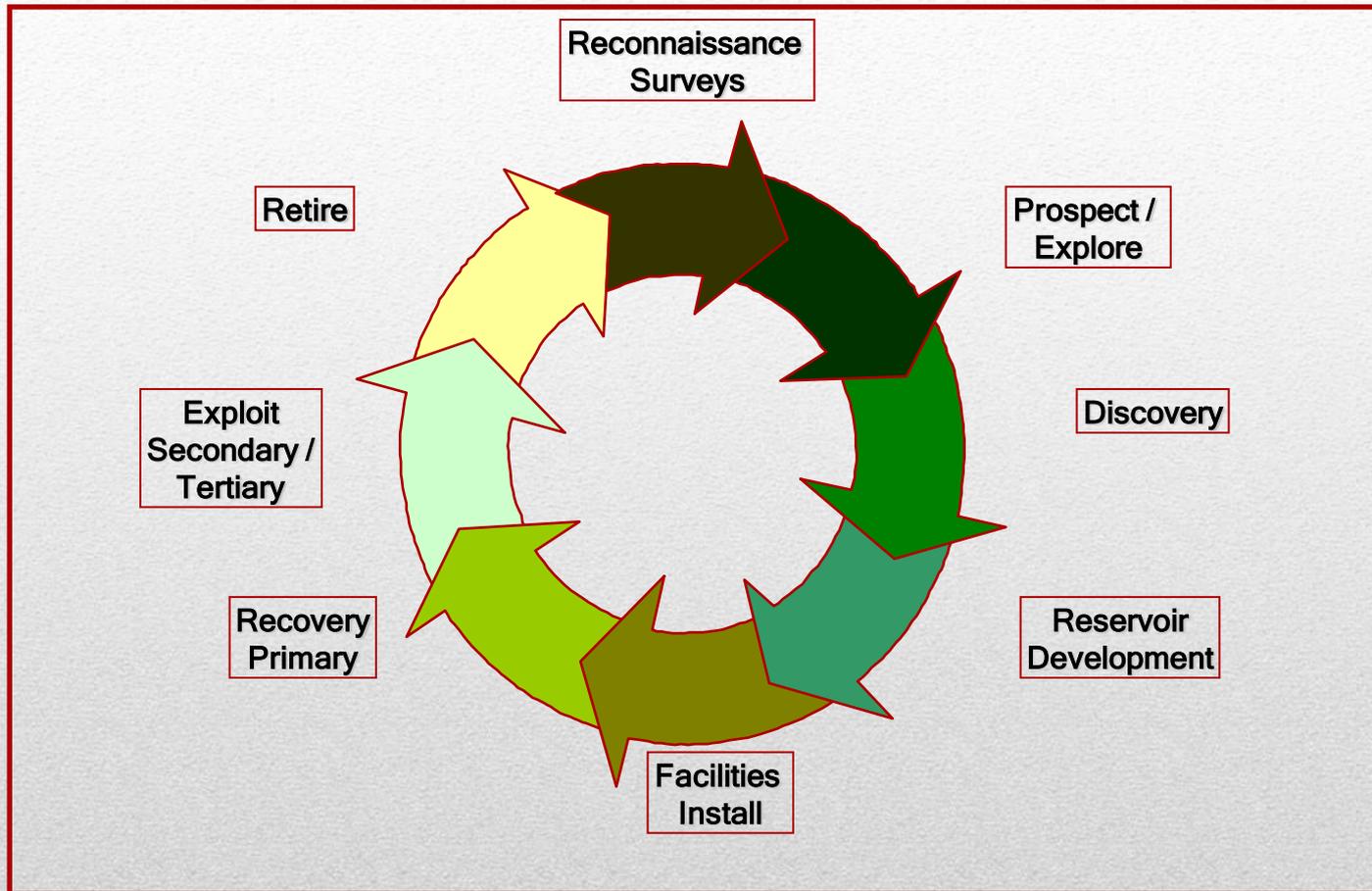7. NDC in Digital Age

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 todays jobs with yesterdays methods & be in businesses tomorrow*

# 1. Oil Field Data Life Cycle & Phases

Reconnaissance Surveys

Retire

Prospect / Explore

Discovery

Exploit Secondary / Tertiary

Recovery Primary

Reservoir Development

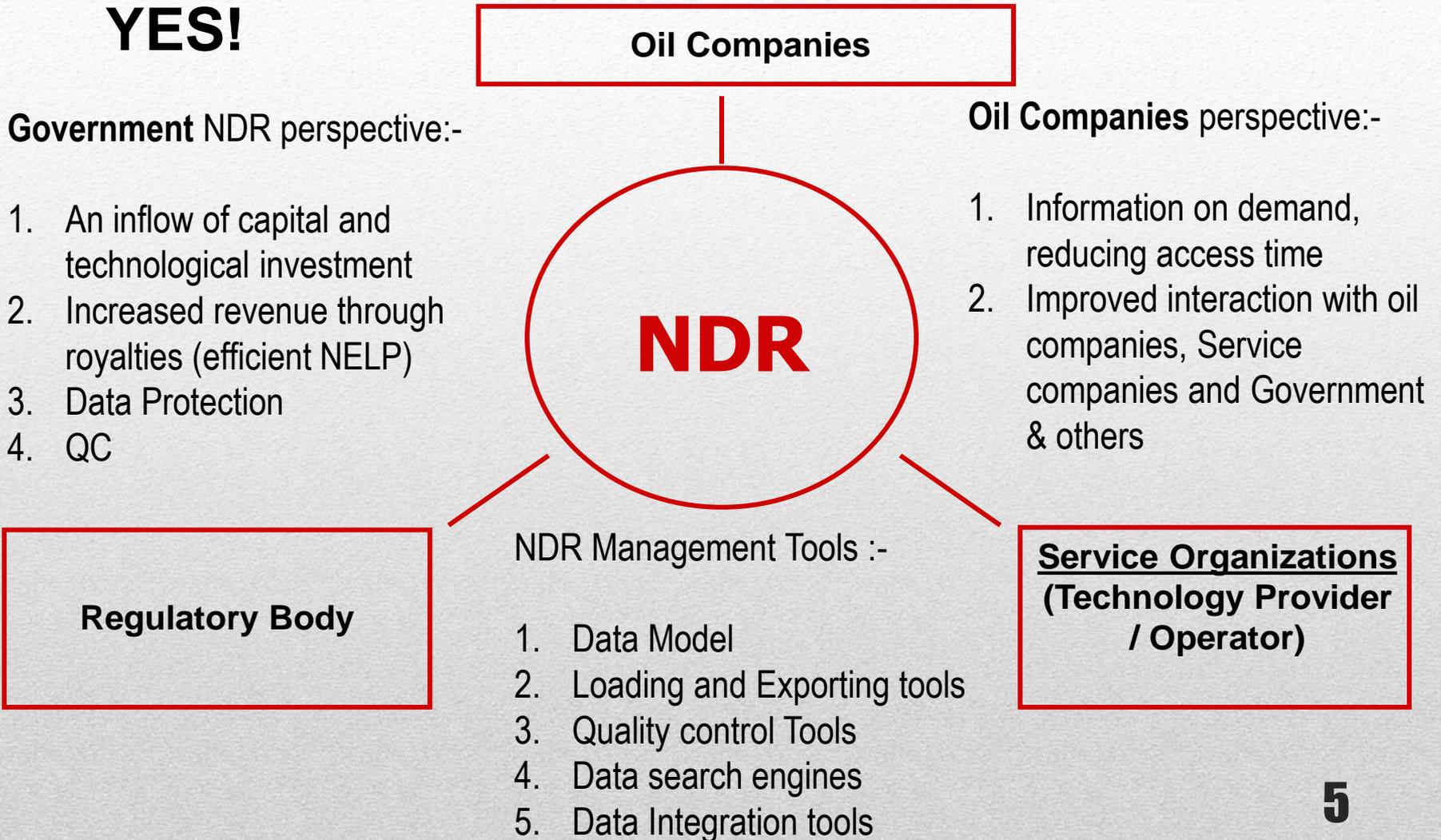Facilities Install

**Every Cycle Generates Huge Volumes of Data, Information and Interpretation Layers**

# 2. Can NDR Help Resolve These Challenges?

## YES!

**Oil Companies**

**Government** NDR perspective:-

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

## NDR

**Oil Companies** perspective:-

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

**Regulatory Body**

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)**

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# 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?

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# 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 <u>one source</u> 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

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# 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)

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# 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

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# 5. NDR Design Options / Models

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

# 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

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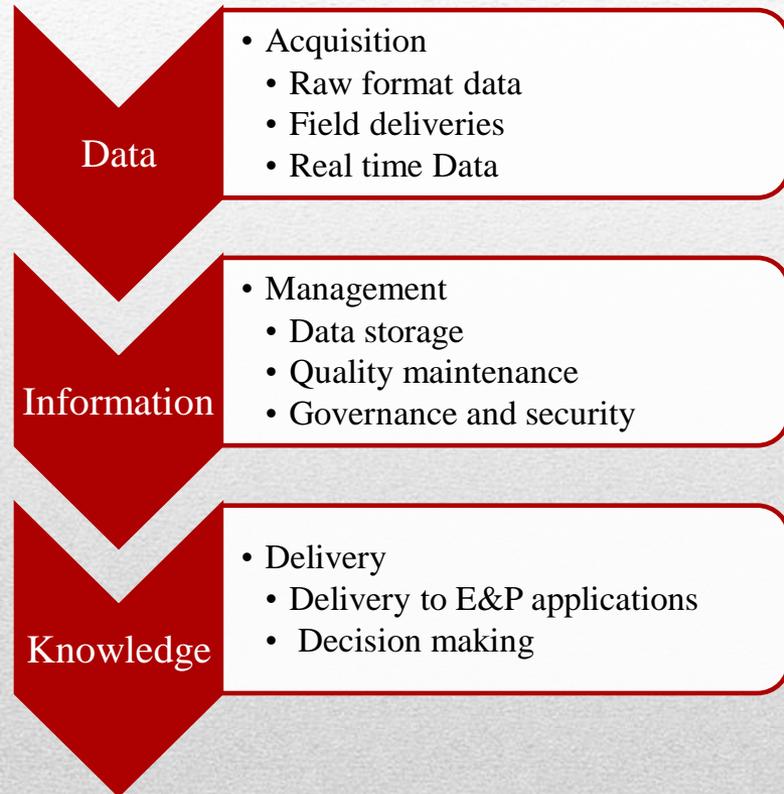
# 6. Summary & Conclusions

- 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?