ConocoPhillips Digital Journey Starts with nxtgenG&G

John Blackburn – Geoscience Capability Lead

ConocoPhillips: Ikhide Longe, Rachel Sissenwein, Manish Pradhan, Lacey Sawvel
Schlumberger: Todd Olsen, Mark Pollinger, Maria Perezhogina
Long Range GGRE Digitalization Plans

NXTGENG&G
Petrel/Studio and Ecosystem Onsite

SELECTION  DESIGN  EXECUTION

2018  2019  2020  2021  2022  2023  2024

GG + RE
SYSTEM INTEGRATION
Cloud Native, Delfi
OSDU

RE TOOLS
VISION:
DELIVER A BEST-IN-CLASS GEOSCIENCE SOFTWARE ENVIRONMENT ENHANCED
BY ACCESS TO RELIABLE DATA THAT PROVIDES A COMPETITIVE ADVANTAGE

STRATEGIC OBJECTIVE
Simplify geoscience ecosystem
▪ Transform business practices
▪ Increase integration across workflows
▪ Improve data quality
▪ Improve data management practices

PROJECT OBJECTIVE
Transition 400 Geoscientists to Petrel
Migrate 29 business groups
By end of 2020

FACILITATION
Strategic partnership with Schlumberger:
Alignment at all levels

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>Oct. 2018</td>
<td>Go Ahead Decision</td>
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<tr>
<td></td>
<td>Mar. 2019</td>
<td>Project Started</td>
</tr>
<tr>
<td></td>
<td>Nov. 2020</td>
<td>All Users In Petrel</td>
</tr>
<tr>
<td></td>
<td>Apr. 2021</td>
<td>Final Completion</td>
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</table>

2018
VALIDATION
2019
DESIGN
2020
IMPLEMENTATION
2021
ADDITIONAL MIGRATIONS
nxtgenG&G Program

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SOFTWARE & WORKFLOWS
- All staff on Petrel by year-end 2020
- Simplified, integrated tool set, including Petrel and other software

PLATFORM
- Defining an optimized compute environment for Petrel
- Virtual workstations facilitate ‘Work Anywhere’ capabilities
- Based on Windows

DATA
- Rigorous data clean-up
- Data quality improvement
- Data discovery
- Standards
- Coordinate reference systems Meta data tags
- Behavioral Change
- Implement data governance

PEOPLE
- Training
- Global support system
- Global standardization

PROGRAM
- Enabled by globally funded effort to migrate the geoscience community
- Sustained by global, long-term support model

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## Integrated Global Project

### NXTGEN&G GLOBAL STEERING TEAM
**Sponsors:** 3 ConocoPhillips executives, 1 Schlumberger executive
**Program Owners:** GGRE Decision Board

### IMPLEMENTATION LEADERSHIP
**Product Owner:** John Blackburn
**IT Portfolio Manager**

### CONOCOPHILLIPS LEADERSHIP
- 32 Business
- 7 IT
- 3 Schlumberger

### SCHLUMBERGER SPONSORS
- 2 SLB HQ Managers

### CORE DELIVERY TEAM
- 25 ConocoPhillips
- 13 Schlumberger
- 42 Other contractors

### SCHLUMBERGER GLOBAL SUPPORT
- 23 Training
- 14 Mentors
- 21 Core and support team

*Map of global locations with stars indicating key regions.*
Key Components to a Sustainable Data Ecosystem

- Data Governance
- Knowledge Capture and Data Management
- Log Harmonization
Global Alignment on Geodata Management

Change from Passive data management to ACTIVE data management

Managers
Set expectations on enforcement of Standards and Procedures

Supervisors
Ensure expectations are met:
• Nominate gatekeepers
• Review Studio monitor reports

Gatekeepers
Conduct review if interpretations and promote through process in Studio

Studio Managers
Manage and monitor Studio access, data and interpretations

Data Loaders
IT/Business Unit
Load wells and seismic data as per procedures

End Users
Business Unit
Share, publish interpretations To Studio as per procedure

Knowledge capture

Manage database
**Objectives:**
- Ensure foundational data is not changed
- Improve data discovery
- Enhance data quality over time
- Keep Studio repository clean

**CULTURE CHANGE**

Geoscientists take ownership of:
- Capturing critical data
- Interpretation quality
- IT own foundational data quality

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**THREE QUALITY ATTRIBUTES REQUIRED FOR ALL STUDIO DATA:**

<table>
<thead>
<tr>
<th>Quality Attribute</th>
<th>Global Tag</th>
<th>Description</th>
<th>Auto-delete</th>
<th>Write</th>
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<tr>
<td>1. Project</td>
<td>Asset/Area</td>
<td>AOI</td>
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<td></td>
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<tr>
<td>2. Data Origin</td>
<td>Internal</td>
<td>COP generated</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>External</td>
<td>Other Co./Public Data</td>
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</tr>
<tr>
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<td>Restricted</td>
<td>Restricted use data</td>
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<tr>
<td></td>
<td>Legacy</td>
<td>Unknown origin</td>
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<tr>
<td></td>
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<td>Joint Venture owned</td>
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<td></td>
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<tr>
<td></td>
<td>JIP</td>
<td>Joint Industry Project owned</td>
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<td>3. Data Status</td>
<td>Temporary</td>
<td>Short term share</td>
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<td></td>
<td>In Progress</td>
<td>Multi-interpreter working</td>
<td>90 days</td>
<td>All</td>
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<tr>
<td></td>
<td>Locked</td>
<td>Single interpreter working</td>
<td>90 days</td>
<td>All</td>
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<tr>
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<td>Flags Gatekeeper</td>
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<td>All</td>
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<tr>
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<td>Approved</td>
<td>Ready to promote</td>
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<td>Gatekeeper</td>
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<td>COP*</td>
<td>Best available data</td>
<td>no</td>
<td>Studio manager</td>
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Global Well Log Standardization

Challenge
• Global well logs in all Petrel projects
• Log aliasing in Petrel
• Log quality
• Data consistency

Advantages
• Saves time creating log alias
• View all of valid data available
• Standard team displays
• Easy to transfer scripts around globe
• Consistency – team use the same data
• Ready for global analytics

CREATING ‘AUTO’ LOGS
Multiple GR runs become one over full recorded interval

Standardized log names
- Prefix AUTO or GOLD
- 49 Global standard log names
Challenges During The Project

**EXTERNAL**
- COVID-19 PANDEMIC
- TRANSITION TO REMOTE LEARNING

**INTERNAL**
- MID-PROJECT SCOPE CHANGE
- GLOBAL SUPPORT & GOVERNANCE