Data Integration for Prospect Evaluation and New Well Delivery
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A significant portion of the data involved with prospect evaluations and new well delivery projects is inherently spatial. Utilization of Portal for ArcGIS acts as a central platform for organizing this spatial data and provides a venue for multidisciplinary collaboration. The intent of this presentation will be to provide examples of how BP L48 Onshore is using ESRI technology to integrate data from several business functions into a single, easily accessible platform to optimize our workflows.

- Who is BP L48?
- Basin Development – New Well Delivery Process
- Front End Loading
- Portal for ArcGIS: One Map – One Team
- Working Example
- Benefits and Challenges
Fit-For-Purpose Organizational Structure
L48 Designed to Compete and Innovate

Traditional BP Functional Organization

- Accountability at functional level
- Business performance reporting occurs at regional level and functional level
- Delegations are along functional lines

BP Group Upstream Structure

- Designed to support large scale and long-term projects in multiple global locations with varying fiscal regimes

L48 Business Unit Organization

- Accountability at Business Unit (BU) level
- BU performance metrics defined by execution efficiency and delivering value to the overall business’ objectives.
- Delegations and decision making at asset level

Designed to support faster decision making, more innovation and shorter cycle times required for today’s onshore US market
Each discipline is working together across multiple projects within the BU:

- New Well Delivery
- Prospect Evaluation
- Business Development
- Operational Efficiencies
- Resource Management

A common language across each discipline: Geography.
New Well Delivery

- Geospatial process
- How can we optimize this workflow?
  - Outline and understand steps in process
  - Determine which disciplines have a key role in the process
  - What are their key data set?
  - Where are the “pinch points”?
New Well Delivery Process

**Front End Loading**

- Leadership Guidance
- Prospect Evaluation & Selection
- Surface Development Screening
- Location Scouting & Survey
- Regulatory
- Location Construction
- Drilling and Completion
- First Sales
- Basin Operation
FEL – Prospect Evaluation and Selection

- **Leadership Guidance**
  - Identify Business Strategy to define focus of the drilling program
    - Development
    - Acreage Capture
    - Proving Resource

- **Geoscience**
  - Reservoir Description

- **Land**
  - Subsurface Land Interest

- **Engineering**
  - Offsets Analysis & Forecasting

**Prospect Evaluation & Selection**
FEL – Reservoir Description

**Geoscience Package**

- Integrated Subsurface Reservoir Description
  - Well List
  - Framework Maps
    - TVD
    - TVDSS
  - Reservoir Properties
    - Isopach
    - PhiH
    - Net Pay
  - Seismic Products
    - Faults
    - Coherency
FEL – Subsurface Land Interest

**Land**

- Lease and Mineral Rights
  - Due Diligence
    - Depth Severances
    - High-grade Leases
      - WI/NRI
      - LWOL
      - HBP
      - Acreage Capture
  - Competitor Position
    - Broker Reports
    - Identify Opportunities
Engineering

- Offset Analysis
  - Offset Well Performance
  - Production
  - Well Design
  - Completion Design
- Forecasting
  - Well Costs & Performance
- Identify Potential Locations
FEL – Surface Development Screening

**Prospect Evaluation & Selection**
- Suggested locations from Geo, Land, Engineering
- Technical Review to leadership
- Approved location passed to surface development team

**HSSE**

**Government Regulation & Environmental Constraints**

**Primary Drivers for Iteration**

**Surface Owner & Topography**

**Facilities**
HSSE

- Government Regulations
  - Drilling and Perforation
    Hard lines
- Surface Constraints
- Protected Lands
- Environmental Regulations
  - Endangered Species
  - Flood Zones
Facilities

- Existing Well Sites and Structures
  - Surface Owner Negotiations
  - Pipelines
  - Residential & Commercial Structures
- Topography
  - Pad Design – Cut & Fill
  - Access
Iterative process that requires input from all functions.

Onshore market requires decisions to be made quickly and efficiently.
Portal for ArcGIS: One Map

*One Map is the realization that all functions work in the same geography and can therefore share much of the same spatial information.*

**Internal Data**
- OP/JV Wells
  - Land
  - Geoscience
  - More...

**External Data**
- IHS
- Drilling Info
- Government
- More...

**Geospatial Analysis**
- Competitor Surveillance
- Land Alerts
- More...

- OneMap is a geospatial platform to enable BP to manage and distribute spatial information for visualisation and analysis.

- Enables users to easily visualise and analyse spatial data from a variety of sources and can combine this with existing business data to derive value-added information to help spatially inform decision-making.
Organized, comprehensive, accurate FEL package.
1. Geoscience

1. Subsurface Description

Standardized geoscience package for each subsurface reservoir. This allows users to quickly find all relevant subsurface grids available.
1. Geoscience
   1. Subsurface Description

2. Land
   1. Asset Evaluation
FEL Workflow - Example

1. Geoscience
   1. Subsurface Description

2. Land
   1. Asset Evaluation
FEL Workflow - Example

1. Geoscience
   1. Subsurface Description

2. Land
   1. Asset Evaluation
   2. Narrows Focus
FEL Workflow - Example

1. Geoscience
   1. Subsurface Description

2. Land
   1. Asset Evaluation
   2. Narrows Focus
**FEL Workflow - Example**

1. **Geoscience**
   1. Subsurface Characterization

2. **Land**
   1. Asset Evaluation
   2. Narrows Focus - Neighborhood

3. **Engineering**
   1. Offsets
   2. Narrow Focus - Location

4. **Pass location to Facilities and HSSE for surface hole location screening.**
1. HSSE

1. Surface location with Government & Environmental Regulation
FEL Workflow - Example

1. **HSSE**
   1. Surface location with Government & Environmental Regulation

2. **Facilities**
   1. Continue surface location vetting
      1. Land Owner
      2. Surface Use
      3. Topography
      4. Access

3. **Iterate surface locations.** Approved through Geo/ Land/ Engineering.
FEL Workflow - Example

1. HSSE
   1. Surface location with Government & Environmental Regulation

2. Facilities
   1. Continue surface location vetting
      1. Land Owner
      2. Surface Use
      3. Topography
      4. Access

3. Iterate surface locations. Approved through Geo/ Land/ Engineering.
**Benefits**

- Single access point to accurate, reliable spatial information. *Internal & external.*
- Single web-based platform for functions to collaborate and share data. Intranet and internet.
- Simplifies workflows and supports quicker and better decision making.
- Bridge the gap between the geospatial power users and the occasional users.
- Increased efficiencies in planning and execution.

**Challenges**

- Communicating the benefits to drive changes in workflows and mind-set
- Engagement of users for education of tools, technology, and geospatial capabilities.
- Data automation
- Ownership and management of content. Company wide vs. user specific.
- Cartography
- Dedicated support crucial for timely servicing needs of users.
Thank you!

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