Digital Transformation: A Fourth Industrial Revolution in Indonesia’s Upstream Data Management

19 Sep 2019
Agenda

• Introduction
• Background & Challenges
• Methodology
• Key Success Factors
• Values and Benefits
Introduction

SKK Migas

Supervise the upstream oil and gas activities in Indonesia

211 PSC blocks
~900 fields
2 MBOEPD target
$14.7B annual budget
Background

- Manual processes
- Data exchange uses office documents
- Similar issues with WP&B and AFE approval processes
- Average of 35 POD approved annually
Challenges

- Data Availability & Quality
- Magnitude of Data
- Data Format
- Nomenclature
- Manual Data Collection
Subsurface Data Management System (SDMS)

Integrated, reliable, up to date, and easily accessible data management system that supports analytical process which then generates knowledge to support fast and efficient decision making hence managing the oil and gas natural resource more effectively
SDMS Vision

POD
AFE
WP&B

Evaluator

Business Process

Data Managers

Data Management

Analytics

Subsurface Data

Knowledge Management

Top Management

Business Intelligent

Geoscientist

Data Analyst
Five Years Plan

2016
- Data Collection
- Pilot Project

2017
- System deployment
- Continuous data collection & loading
- Pilot for external data access

2018
- Define scope for online business processes
- Launch of GGR Café – PSC collaboration room
- Open for investor data browsing
- Continuous data loading

2019
- Ministry decree on open data access for oil & gas
- Start deployment of data analytics initiatives

2020
- Launch online data submission
- Start deployment of online business processes
- Define scope for advanced analytics
- Complete basic data loading
- Integration with data from the ministry
Data Volumes Overview

WORKING AREA
194 Total PSC Blocks in SDMS

WELLS
42,630 Wells
1506 Fields

SEISMIC 2D
1826 Surveys
39,422 Lines

SEISMIC 3D
348 Surveys

Deviation Surveys
45,512 Records
25,611 Wells

Checkshots
2,311 Records

Markers
725,301 Records
23,457 Wells

Well Logs
909,897 Well Log Curves
21,736 Wells

DOCUMENTS / FILES
213,011 Files
65 Document Types

- 39,140 Well Log Related Files
- 87,584 (Other File Types)
- 11,198 Velocity
- 23,699 Drilling and Completion
- 17,500 Well Testing
- 4,773 Petrography
- 105,799 Seismic Related Files
- 4,759 SCAL / RCAL
- 1,074 Core
- 3,479 Biostratigraphy
- 1,244 Horizon
- 2,980 Geological Model
- 1,219 Geological Marker
- 1,846 Geochemistry
Key Success Factors

Technology
Leading edge, certified and proven, flexible models and infrastructure

People
Well defined organization and competency level

Process
Workflows derived from business processes
People as the key component

- **Organizational Readiness**
  availability and commitment of resources

- **Technology Mastery**
  transfer of technology and best practices to sustain the operation
Supporting the business processes

- **Requirements Assessment**
  collect business cases and technical requirements

- **Governance Setup**
  document the standards, policies, and procedures for data operation

- **Continues Improvements**
  perform reviews and recommendations
With technology as the enabler

- **IT Infrastructure**
  ensure sufficient support from the IT enabler components to sustain the operation

- **System Application**
  deploy a robust system to contain all data & workflows and deliver values to all stakeholders
Workflow Transformation
Way Forward: Data Analytics Ambitions

Production Forecast Tool
- Top-down model production profile
- Reserves and economics prediction

Automated Interpretation
- Auto-generate 3D maps from log & seismic data in SDMS

Asset Portfolio Management
- Production vs Cost Optimization
- Cost impact analysis

EOR Candidate Selection
- Screen EOR candidates using analogs from public data
Values & Benefits

+ Easy access to higher **quality and reliable information** – finding data in a matter of seconds

+ **Promote oil & gas potential to investors** – discussions with investors is more effective, facilitated with availability of data

+ **Higher degree of collaboration** between SKK Migas and PSC contractors – reduce delays caused by manual exchange of data

+ **Foundation for data driven innovations** – ready to adopt advanced data analytics based workflows
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THANK YOU