

Asset Optimization Case Example

Petronas Samarang Field

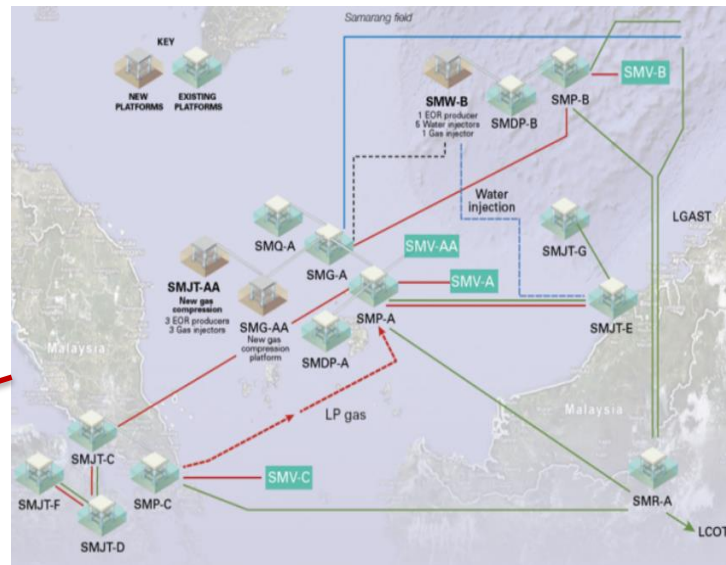
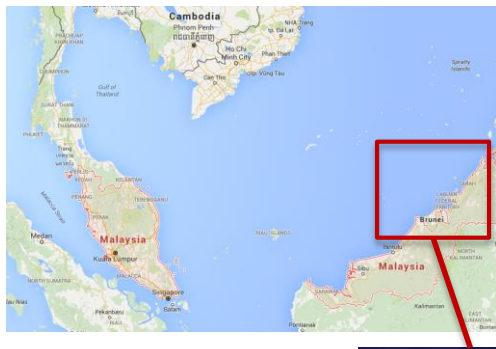
David Rossi, Scientific Advisor

Schlumberger SIS

October 2015

Samarang – Overview & Challenges

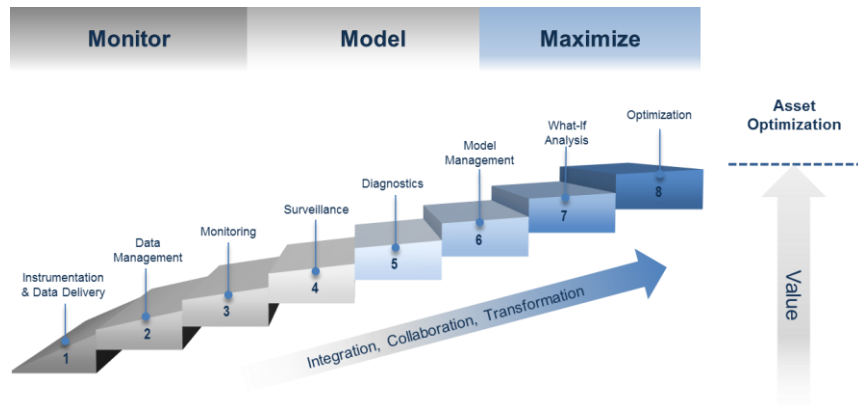
Samarang Asset Description



OTC-25035
SPE 167435
SPE 167436

Main Challenges

- Lack of field instrumentation, dispersed data sources
- Poor infrastructure and network, absence of data management tools
- No control systems - need for automation architecture
- Need for improved collaboration
- Lack of streamlined process, long decision cycles

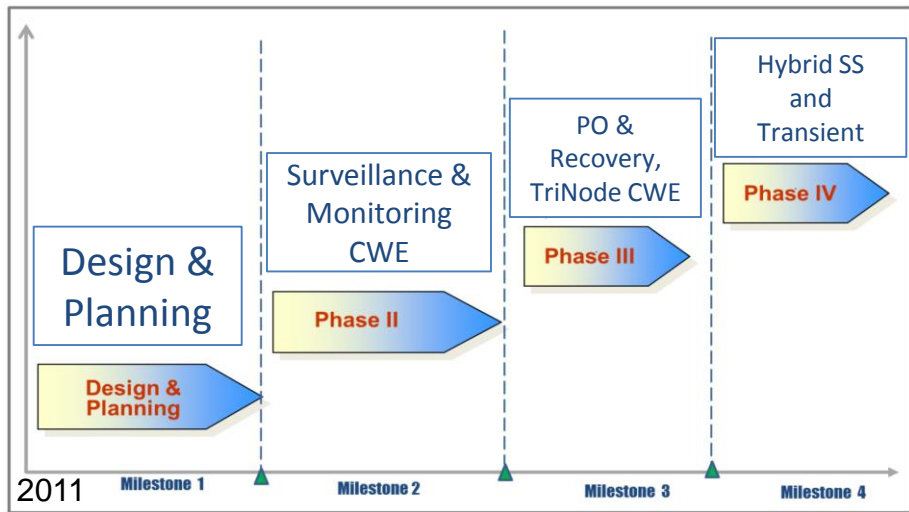


Samarang – IO Solution

Tri-Node Collaborative Working Environment



Samarang IO Project Plan



IO objectives:

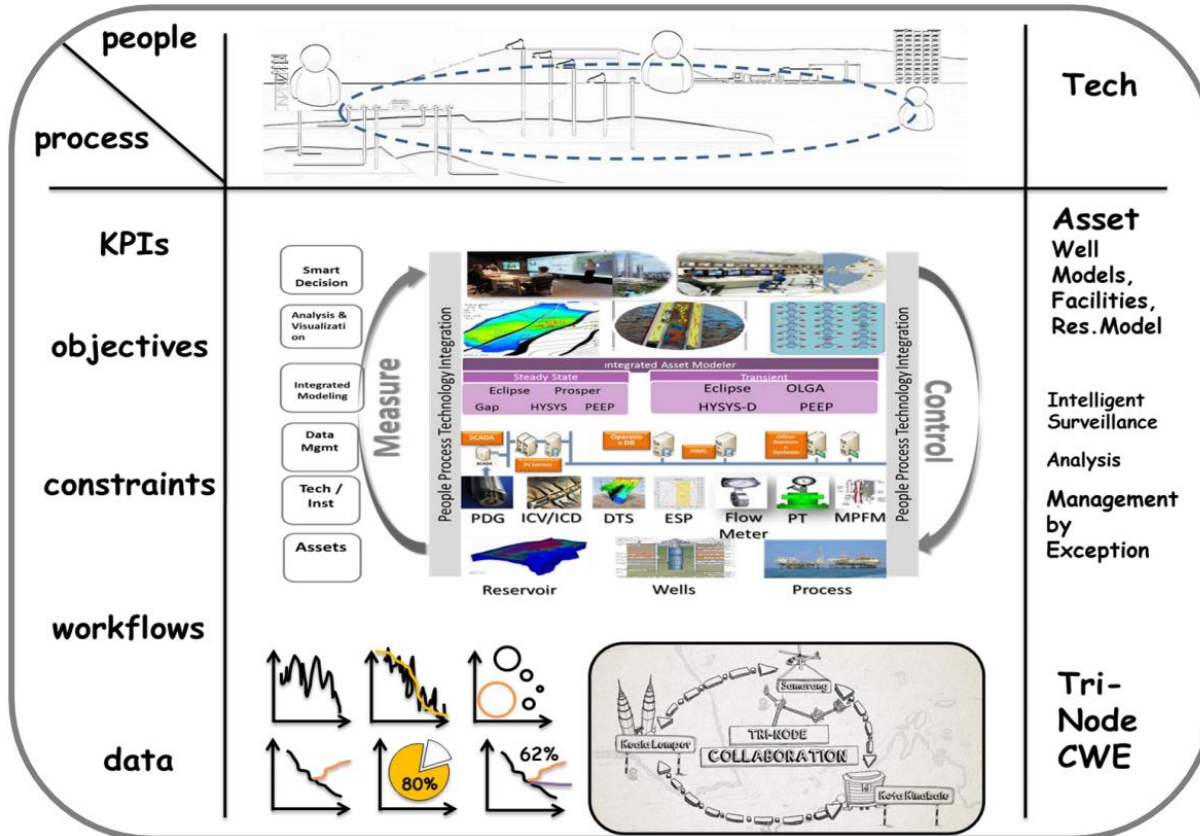
- Increase the production and recovery factor through total asset optimization
- Increase operational efficiency through streamlined workflow processes
- Reduce unplanned deferment and downtime
- Create a CWE among multiple disciplines and locations
- Remote tri-node monitoring of offshore facilities

Samarang IO Framework

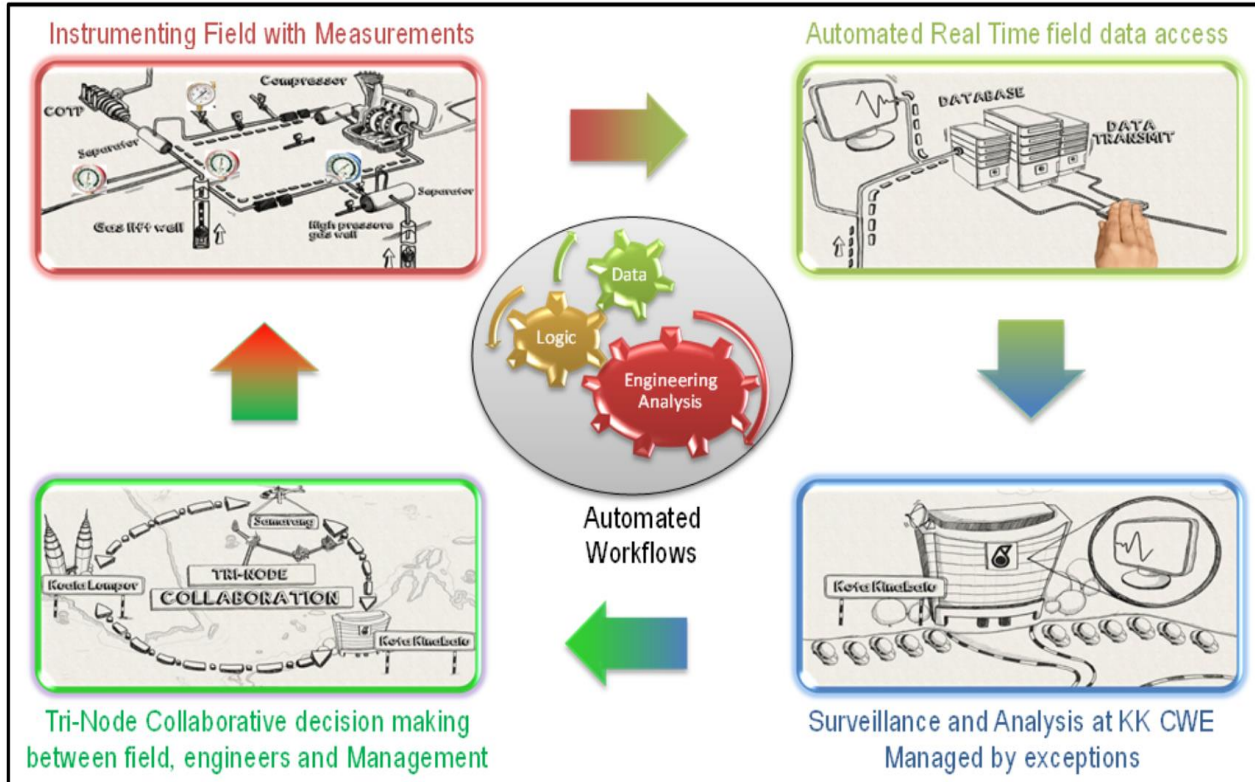
People Process Technology

SPE 167435

SPE 167854



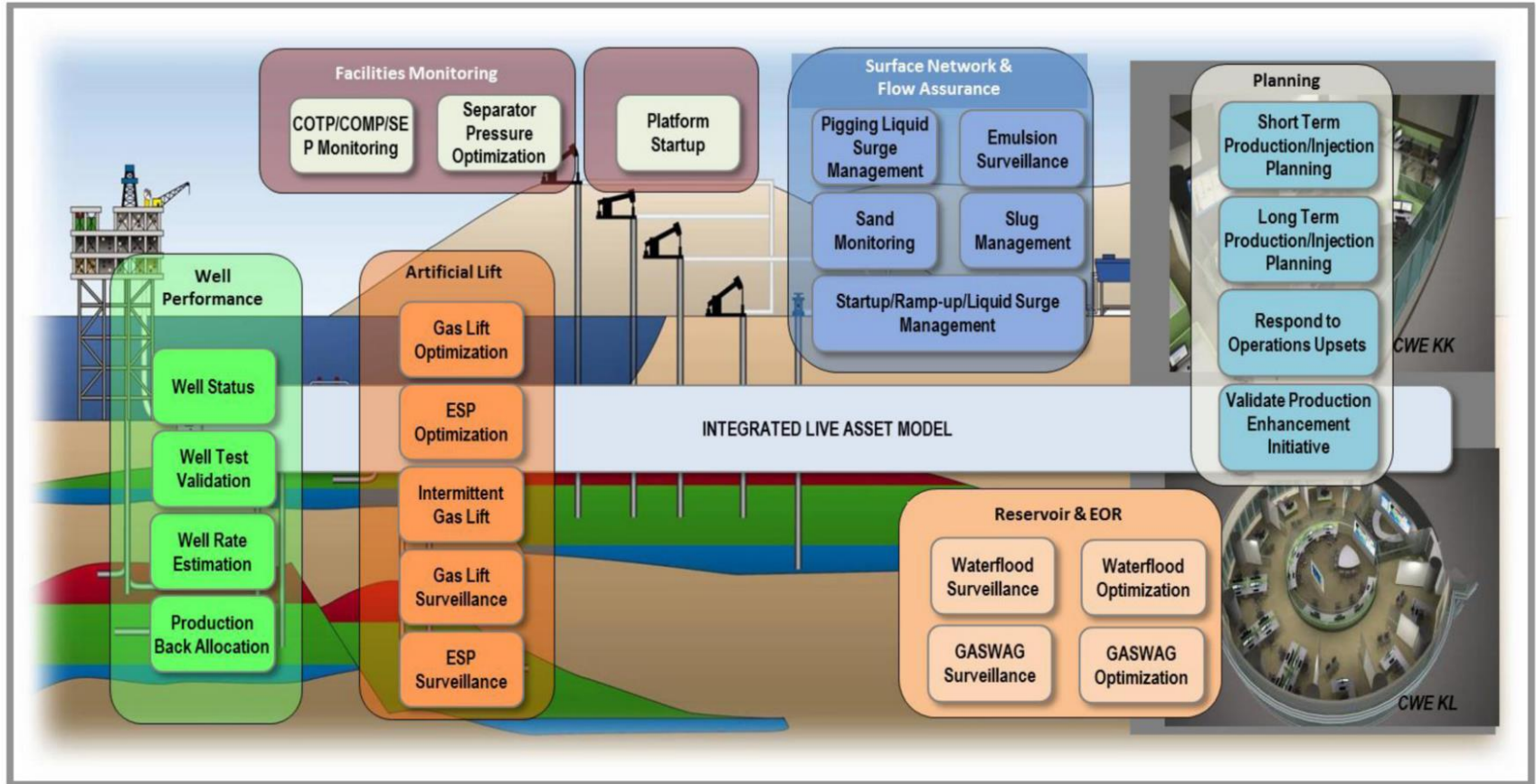
IO Solution Approach



Meters, gauges, WF, TH Qgl, headers, trunk line, Separators; MPFM, DH, microwave telecomms

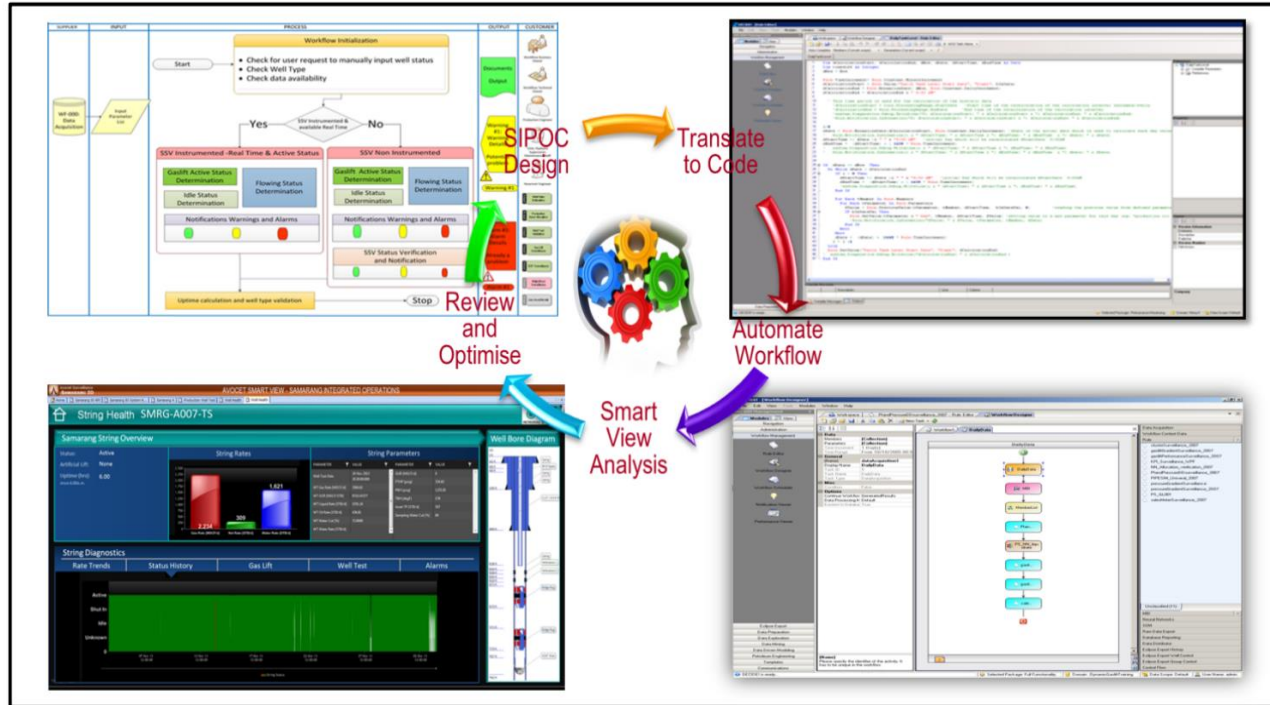
Samarang – Workflows

Samarang: 25 Asset Workflows

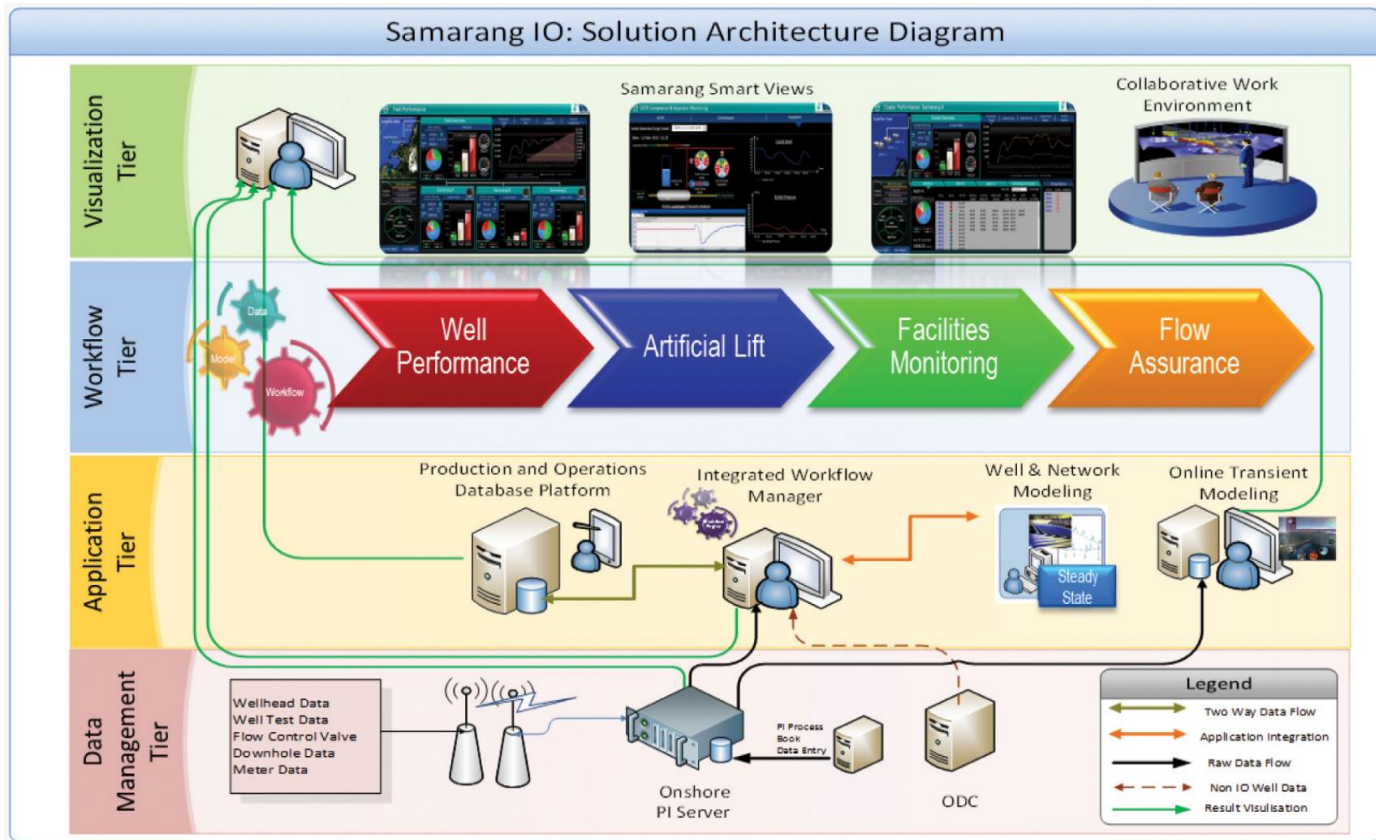


Workflow Development

Design, Develop, Deploy, Apply, Improve



Solution Architecture

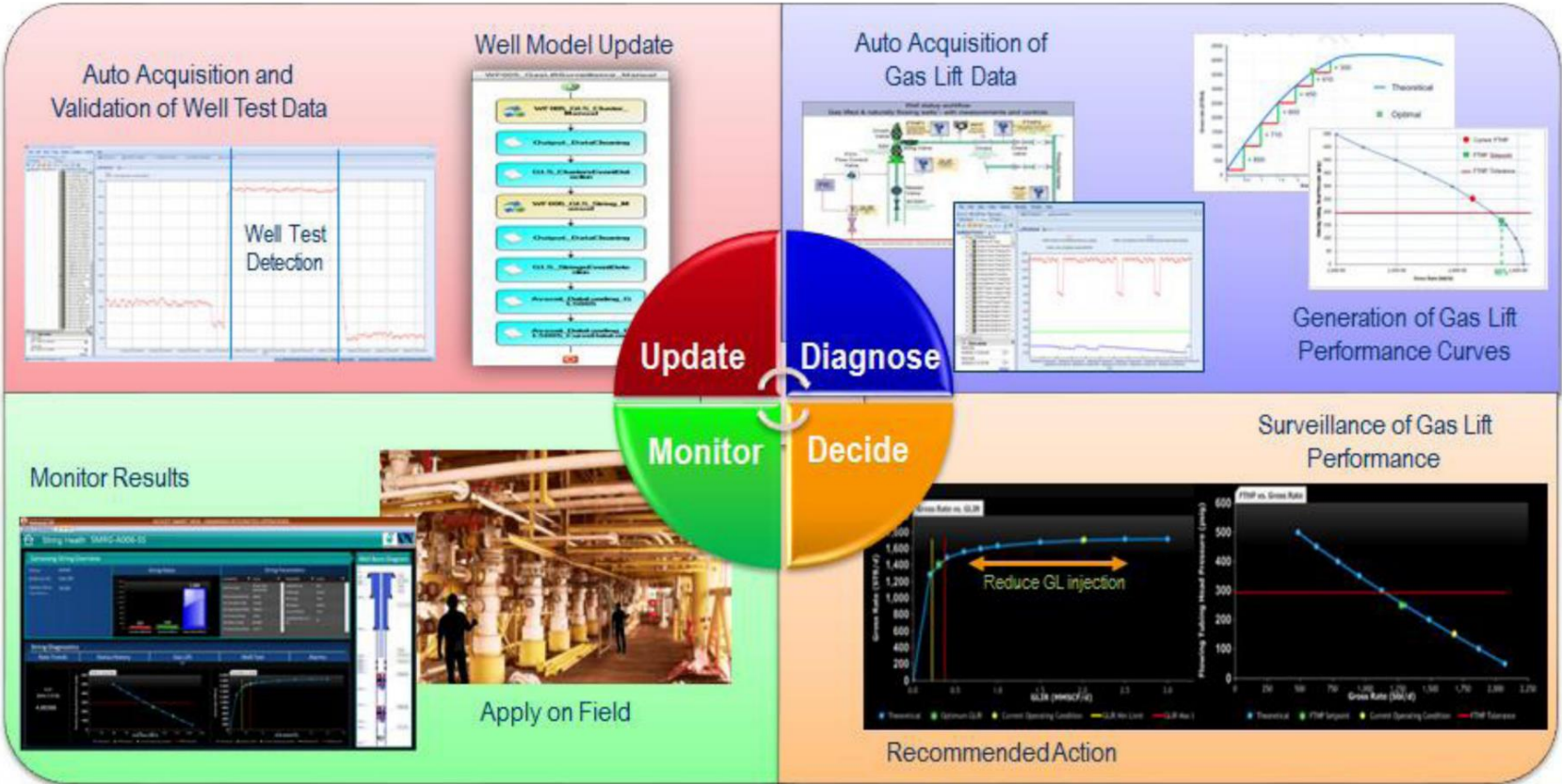


Samarang Workflow Case Example

Gas Lift Surveillance and Optimization

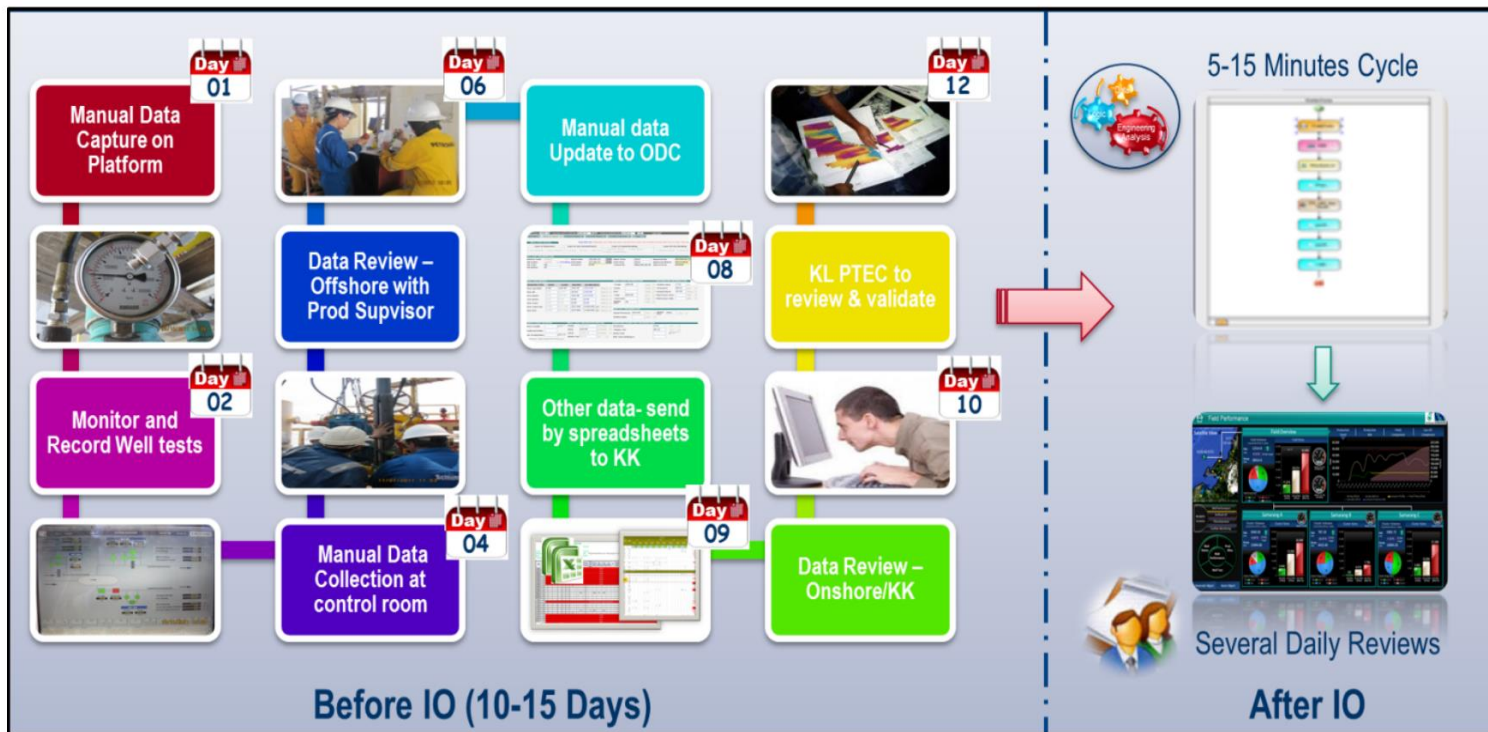
Automated Well Test Validation (OTC-25035)
Well Integrity Workflow (SPE 167855)

Gas Lift Surveillance and Optimization Workflow

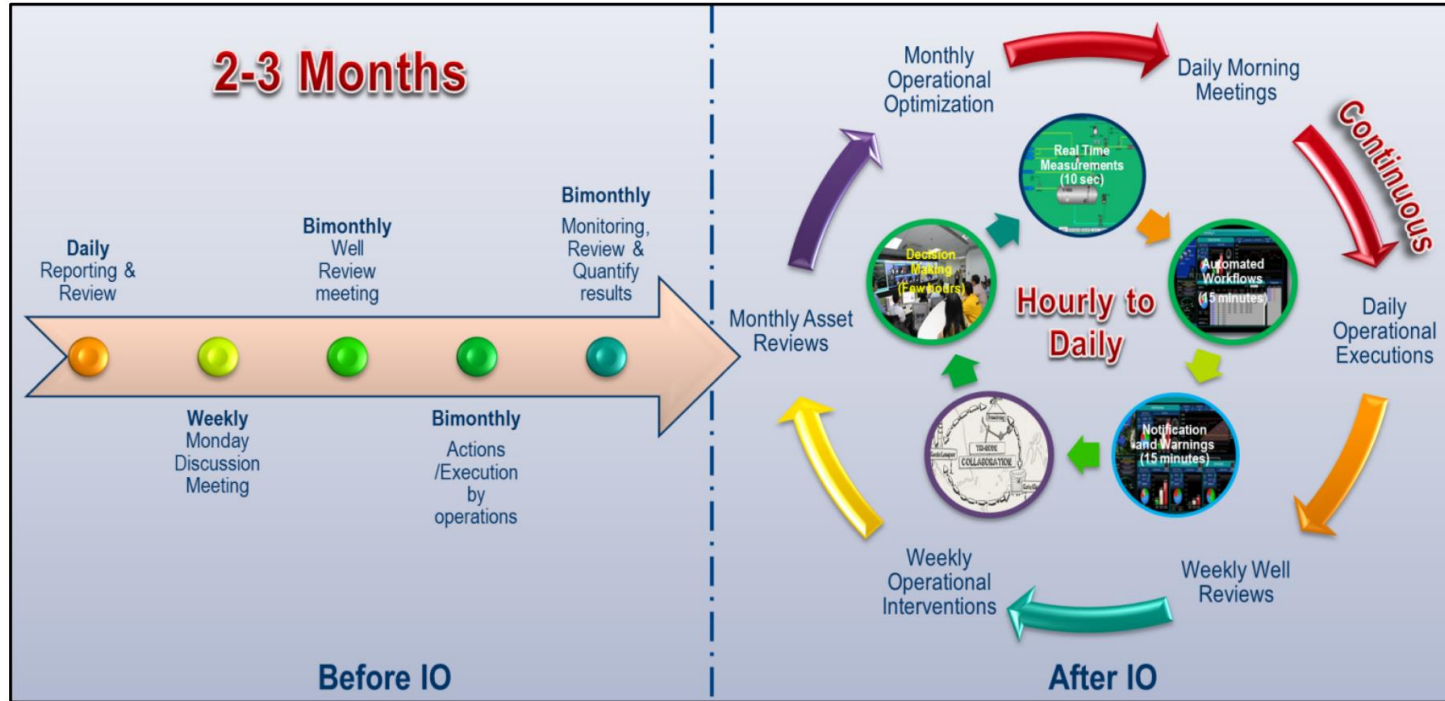


Samarang IO – Value

Fast-Loop: Improved Decision Cycle Time



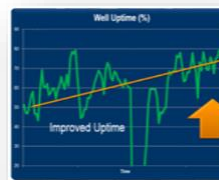
Medium-Loop: Improved Decision Cycle Time



Samarang Value



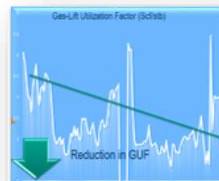
Production:
From 4.7k to 15kpod



Well Uptime:
from 60% to 80%



Intra-Field Visits:
75% reduction



Gas Lift:
20% Improvement



Response time to Field:
70% improvement



Well Test Update:
from 9 days to 2 hours

SPE 163724

2013



Integrated Operations (IO) Model for Samarang Field Conceptual Study

SPE-167855-MS

2014



Samarang Integrated Operations (IO): Well Performance Workflows Enable Continuous Well Status and Performance Monitoring

SPE 167435

2013



Integrated Operations Implementation in Samarang Field

SPE-171530-MS

2014



Samarang Integrated Operations (IO): Real Time Integration of Wells and Field for Gas Lift Surveillance and Optimization Using Analytical Integrated Modelling Approach

SPE 167436

2013



Samarang Integrated Operations (IO) - Enabling Real Time Monitoring and Operation of Remote and Mature Asset

SPE-173578-MS

2015



Samarang Integrated Operations (IO) – Achieving Well Performance Monitoring, Surveillance & Optimization Through Data and Model Driven Workflows Automation

SPE 167854

2014



Samarang Integrated Operations (IO) - Begin To Deliver Value

SPE-173579-MS

2015



Samarang Integrated Operations (IO) - Tri-Node Collaborative Working Environment (CWE) Integrating People, Technology and Process

OTC-25035-MS

2014



Well Performance Workflow Automation: An Integrated Operations (IO) Approach to Unlock the Field Potential for Samarang Asset

SPE-173580-MS

2015



Samarang Integrated Operations (IO) - Reusability and Repeatability Process for Scaling up to Multiple Assets Implementation

The End