



Marginal and Mature Field Development and Operation

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Transforming Marginal Fields: AI-Driven Operational Excellence and Sustainability

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SLB



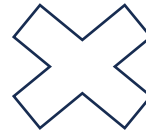
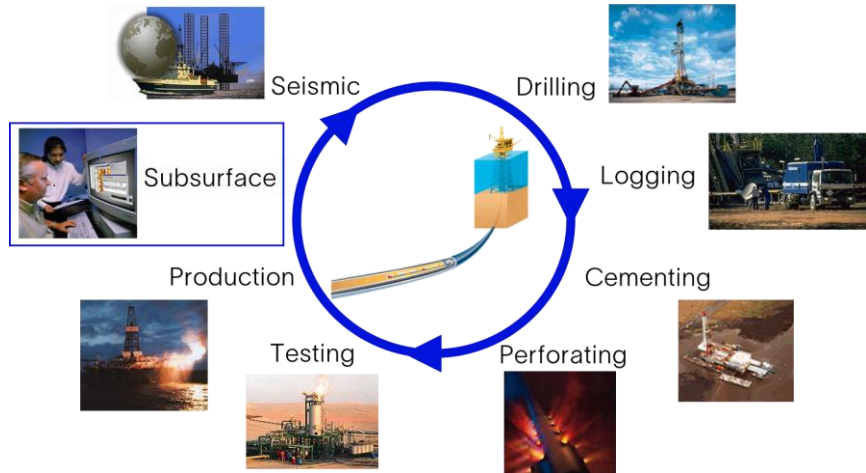
MARGINAL FIELD REDEVELOPMENT

Malaysia:

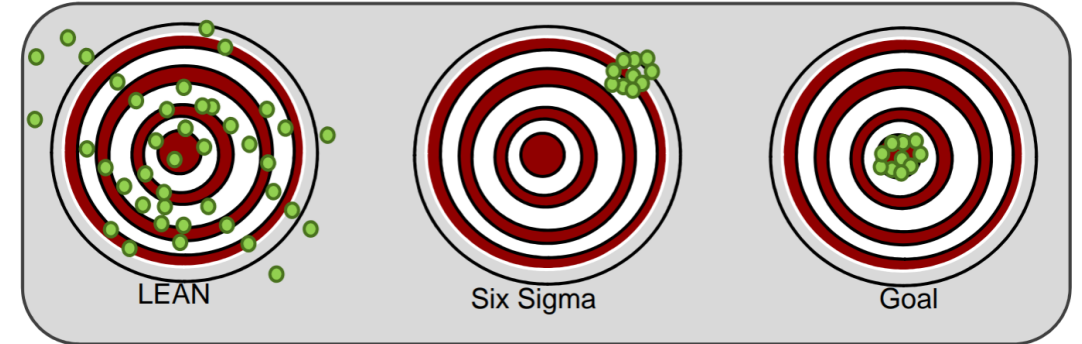
- Tax incentives for marginal fields - applicable to field in a petroleum arrangement contract area which has potential crude oil reserves not exceeding 30 million stock tank barrels or natural gas reserves not exceeding 500 billion standard cubic feet.
- Other incentives (investment allowance): Infrastructure Assets, High Pressure High Temperature (HPHT), Deepwater Project, EOR etc.
- Petronas - Small Field Asset fiscal model – new fiscal model and a staggered commitment via 2-step approach (“Study to Develop” or “Drop and Relinquish” scheme).

Foundation workflows

E&P domains



Project management



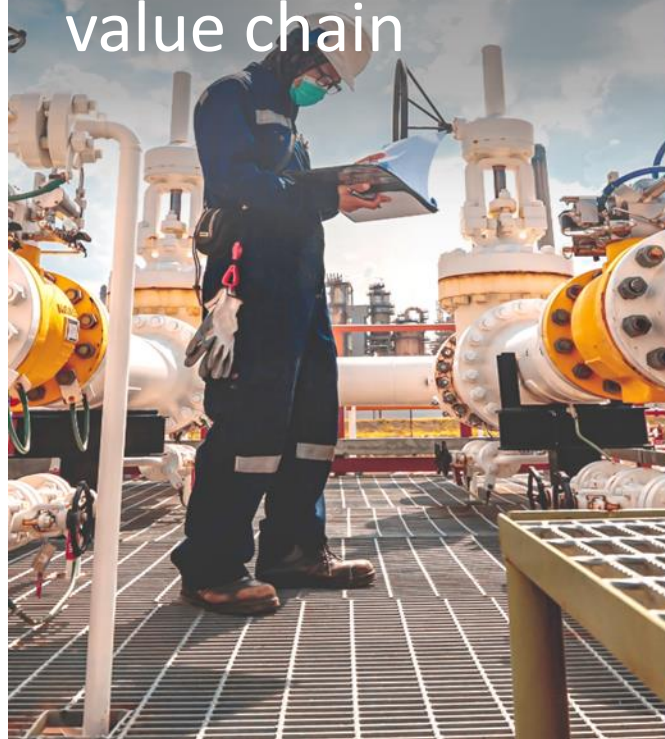
LEAN = Tools/Technique to eliminate Waste in a Process
 Six Sigma = Tools/Technique to eliminate variation in a Process
 LEAN and Six Sigma together will lead to the Goal of an optimized Process

Artificial intelligence in our day-to-day life
Autocorrect fixes typos

Harness data and AI for innovation and scaling

Data accessibility

Improve access to data & bring trust across the full value chain



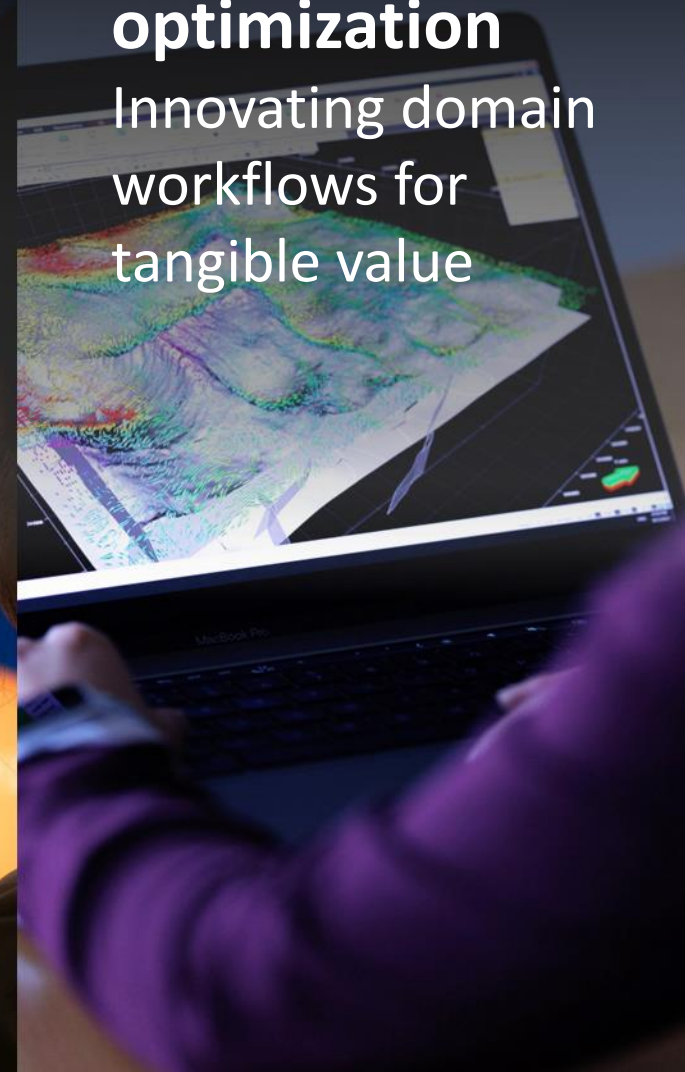
AI foundations

AI unlocks data potential to drive innovation



Workflow optimization

Innovating domain workflows for tangible value



Case Study 1 - Challenges

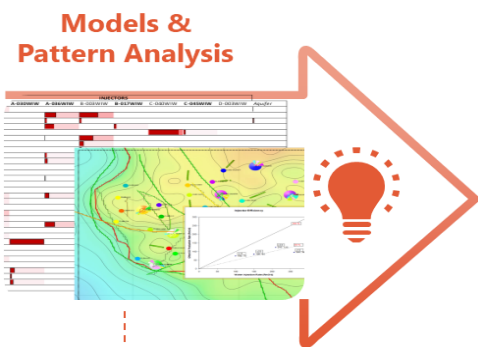
Meeting Production Targets

- Declining production
- Water production
- Field constraints
- Electric shutdown
- Well stabilization

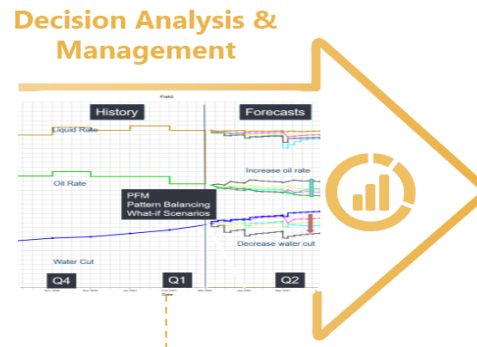
Time to decision

- Minimum 1 week for simple issues
- Up to 2-3 month for a complex problems

High Level Waterflood Solution Schematic



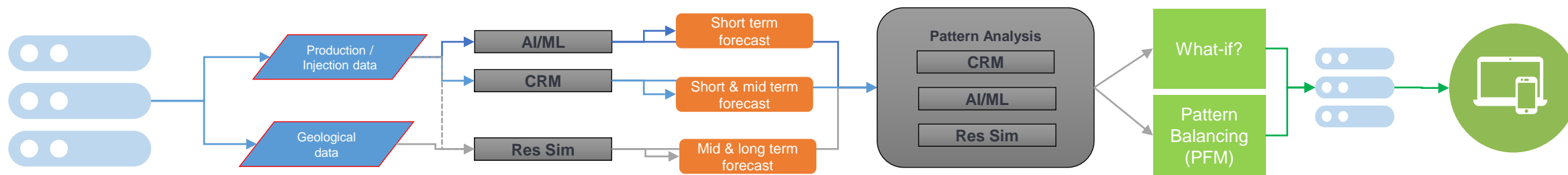
- Observed data
- Modelling (Physics, AI/ML)
- Pattern analysis



- Pattern balancing
- What-if scenarios
- General insights
- Short term and mid-term forecasts



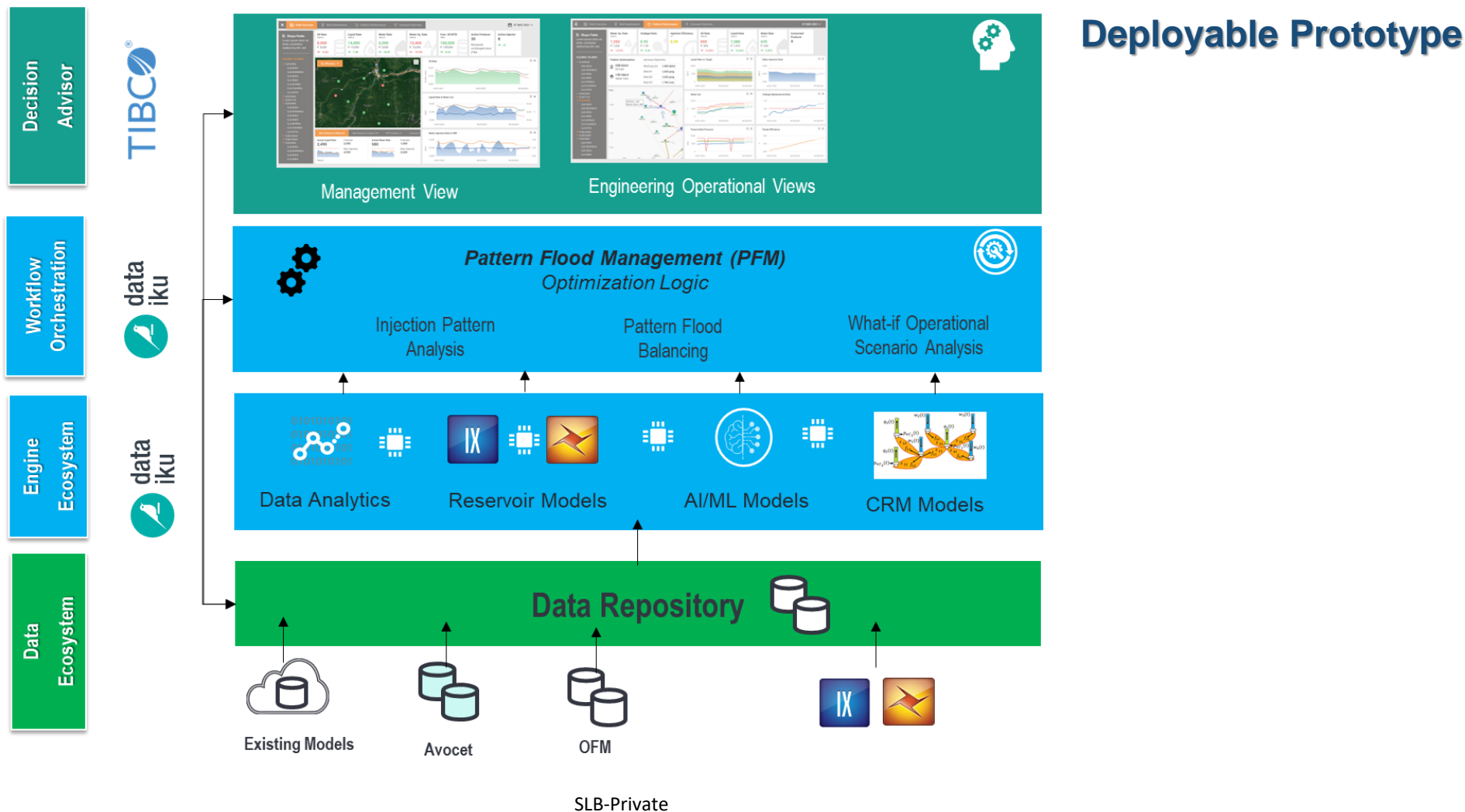
- Recommended production and injection
- Remedial operations
- Field implementation
- Monitoring & Surveillance



Note: Short term forecast = weekly forecast

Injection Pattern Analysis & Optimization Smart Workflow

Solution Framework: Injection Pattern Analysis & Optimization Smart Workflow



Case Study 2 - Challenges

Re-development asset

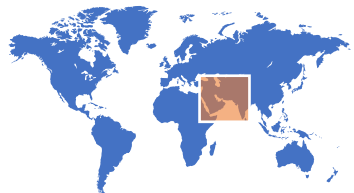
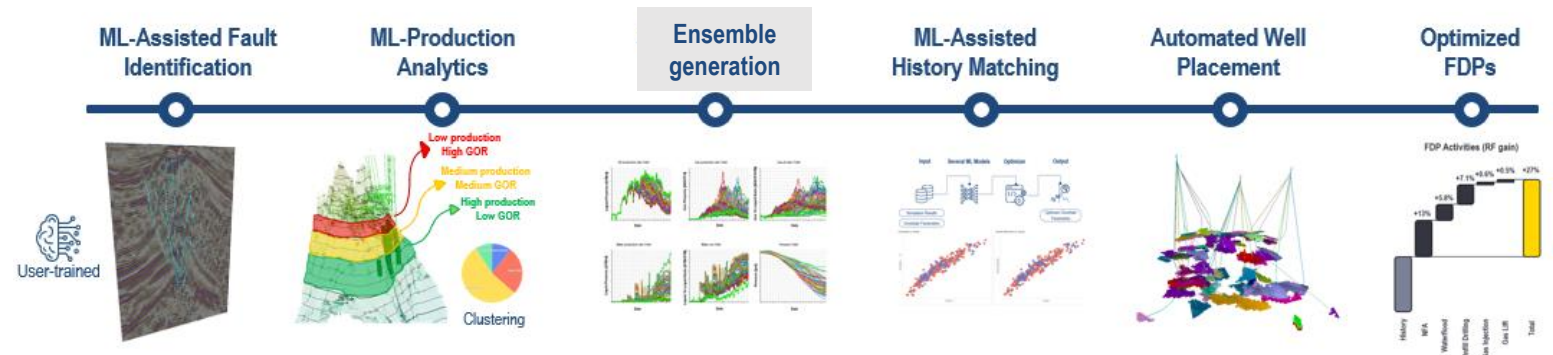
- Increase recovery
- Highly complex field
- Conventional workflows struggling

Time for execution

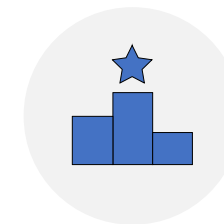
- 6 months

Intelligent Field Development Planning

- Agile reservoir modeling for enhanced and accelerated modeling
- Incorporating AI to optimize field development planning (FDP) workflows at scale



Calibration for scenarios evaluation



Optimal FDP with highest recovery factor



Final Thoughts

- Leverage your platforms
- Keep upgradability as part of your architecture plans
- Invest in technology development, it pays on the long run

Discussion Points

Challenges	Why solve it
The trust we put in AI	How we use it helps position the usage within the company