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Modern Technologies and  
Perspective Oil and Gas  
Industry Projects

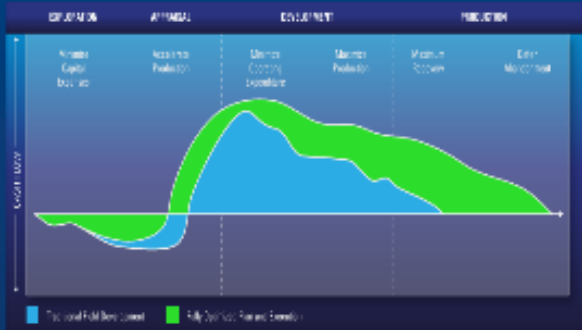
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# Digital Oilfield and Integrated Operations Solutions

Gökhan Saygi  
President, Russia and Central Asia

**Schlumberger**

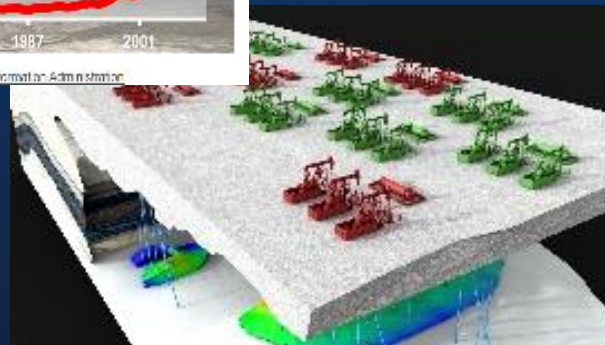
# Asset Operations in Focus: A GOM Case



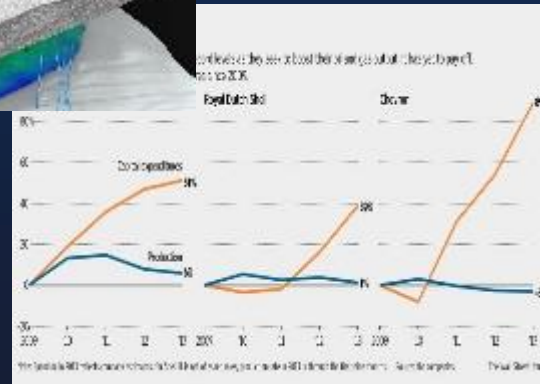
**99% of projects  
don't meet  
forecast**



**\$/well and #wells**



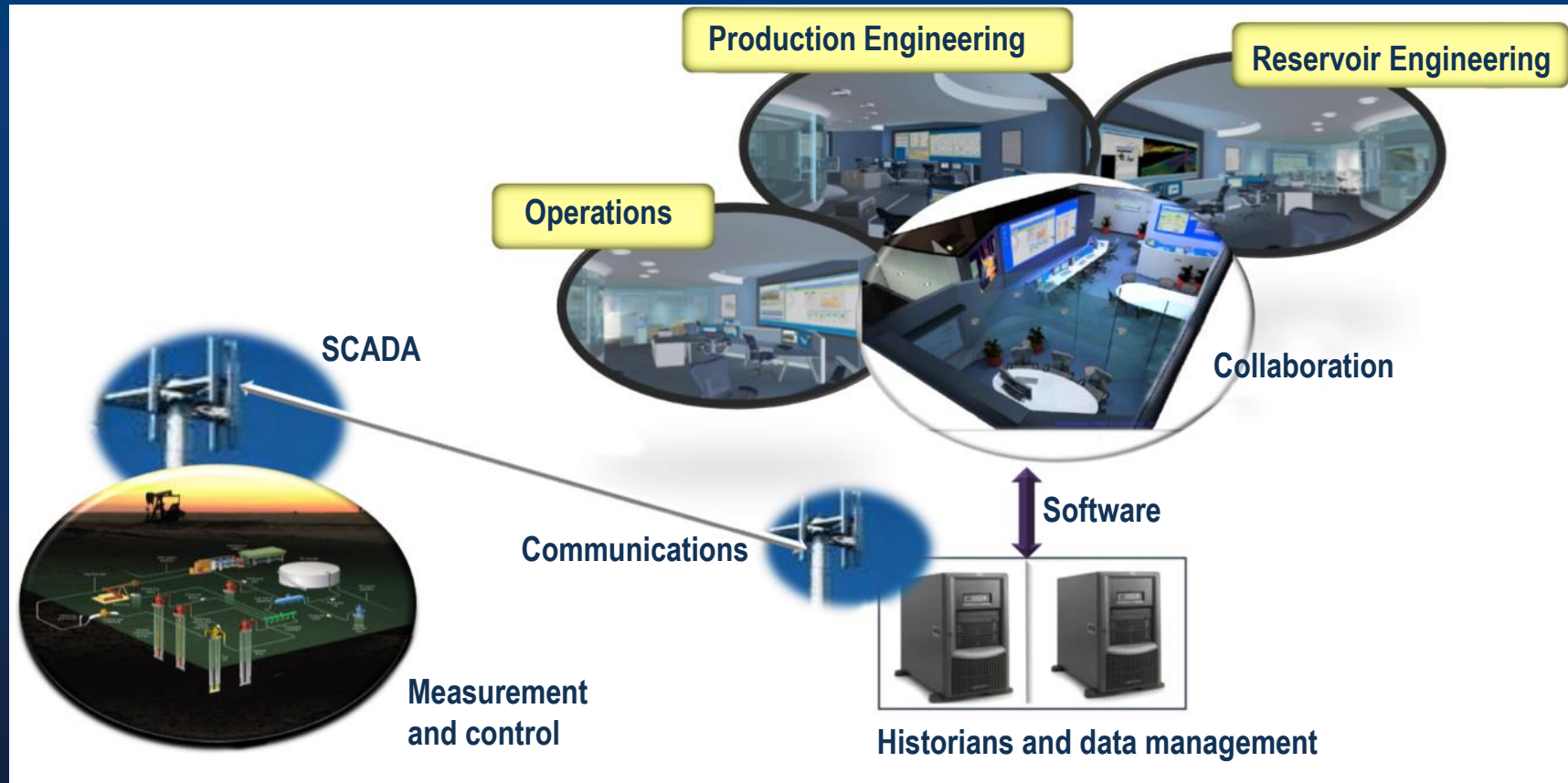
**8% Unplanned  
downtime**



**Projects delayed >2 years &  
> \$3B/year in lost production**

# DOF-IO: Supports Decision Making

## A System of Integrated Components



# What is DOF-IO?

The **Digital Oilfield (DOF)** and **Integrated Operations (IO)** can be defined as a solution that integrates technology, information, people, process, and organization, using online data to efficiently and effectively maximize oil and gas asset performance and value throughout the production life cycle.



**Deepwater  
greenfield**



**Offshore  
fields**



**Midstream  
pipelines**



**Shale  
coalbed  
methane**

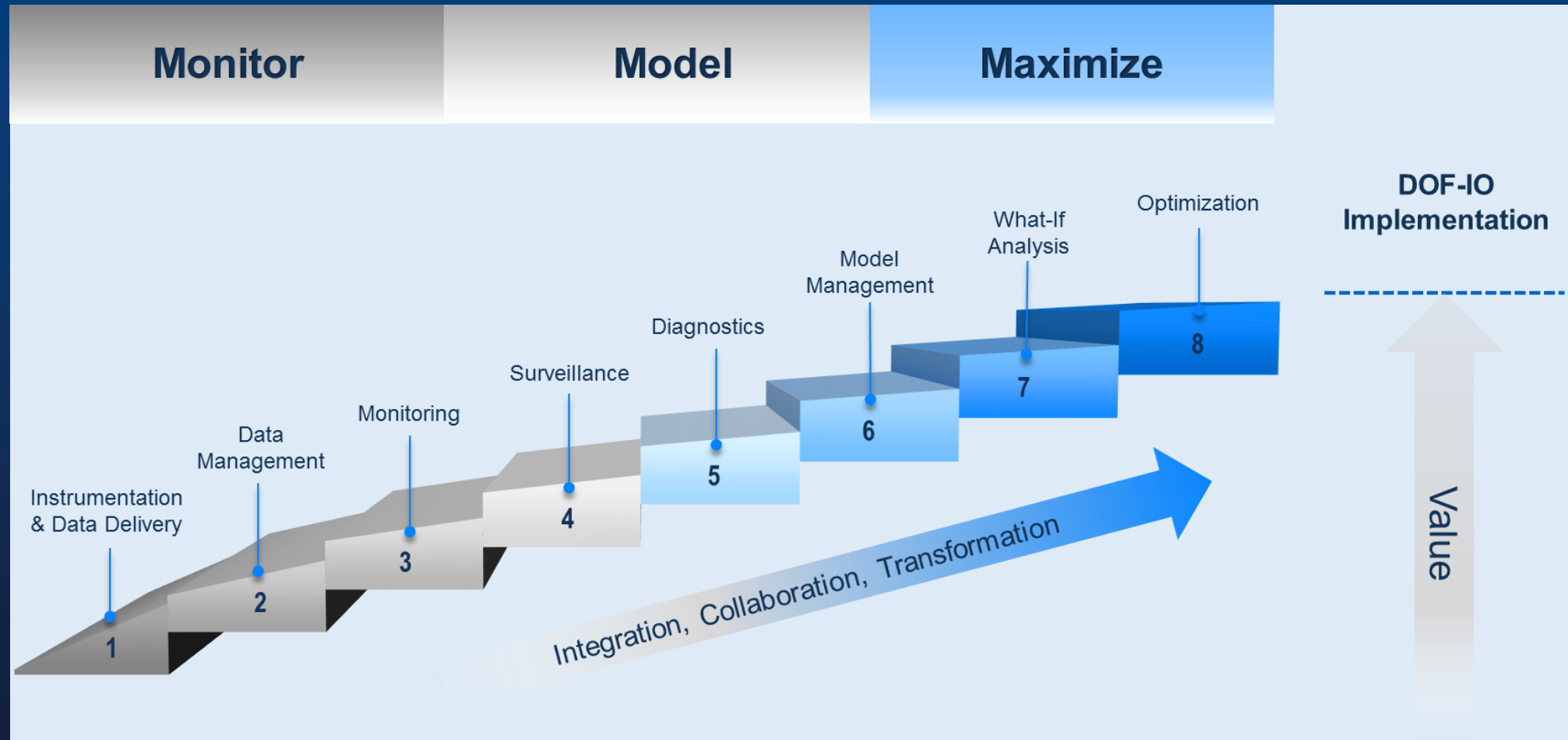


**Heavy  
Oil**

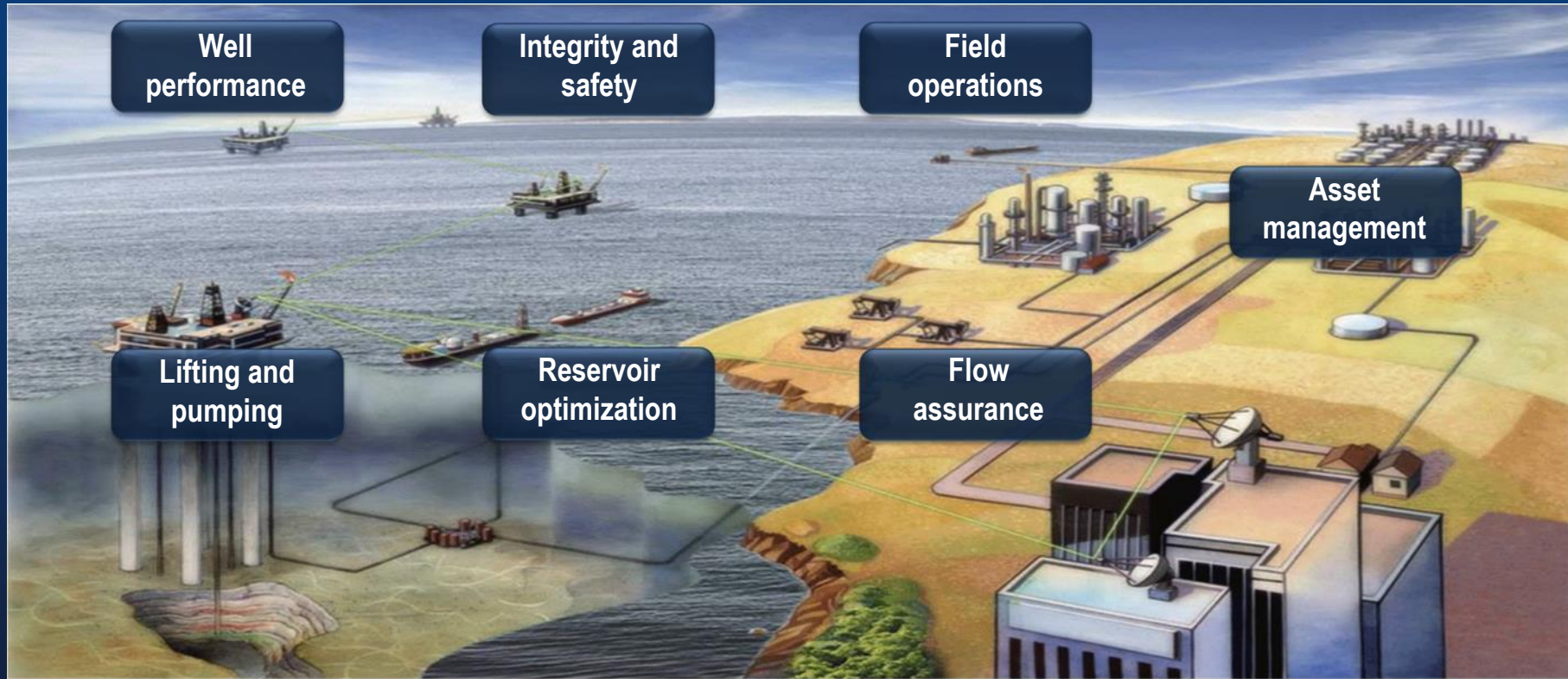


**Brownfield  
Enhanced  
oil recovery**

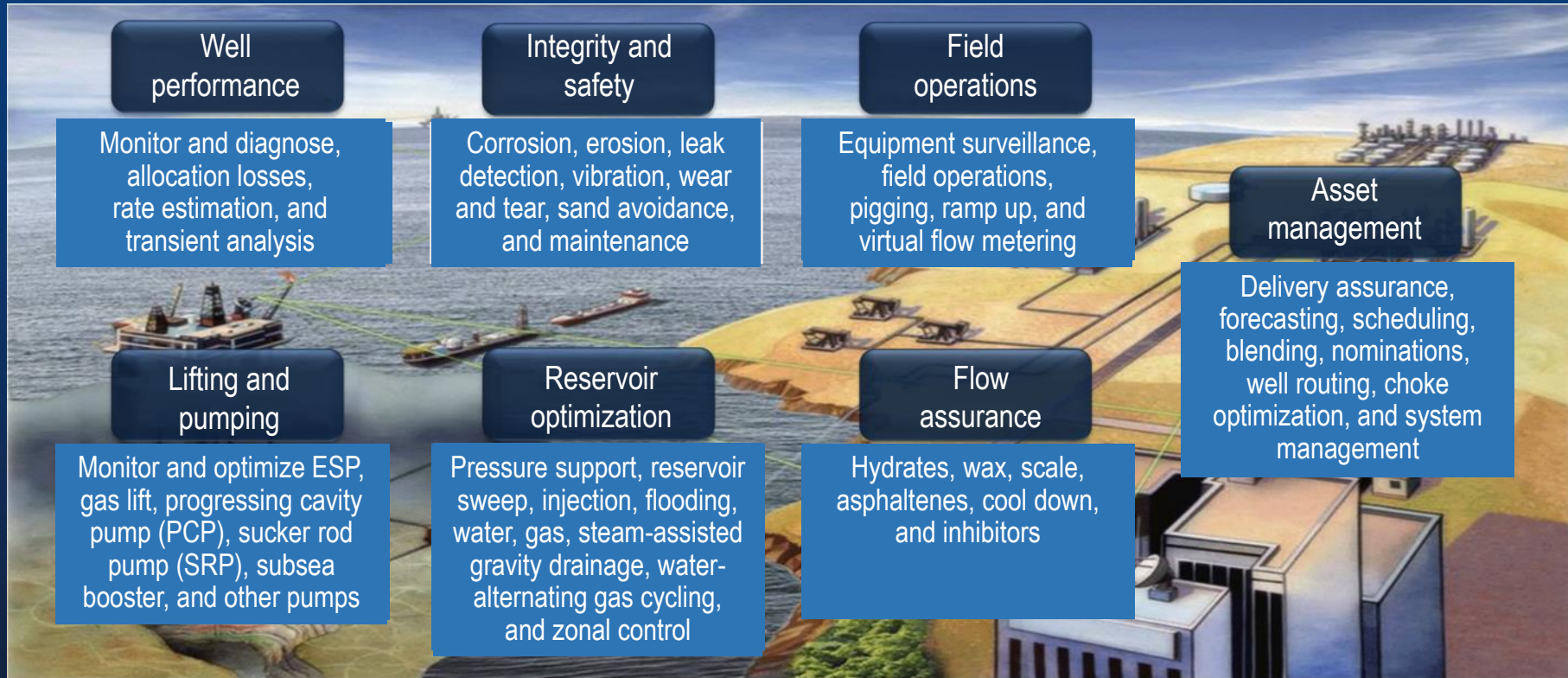
# DOF-IO: From Data to Decisions



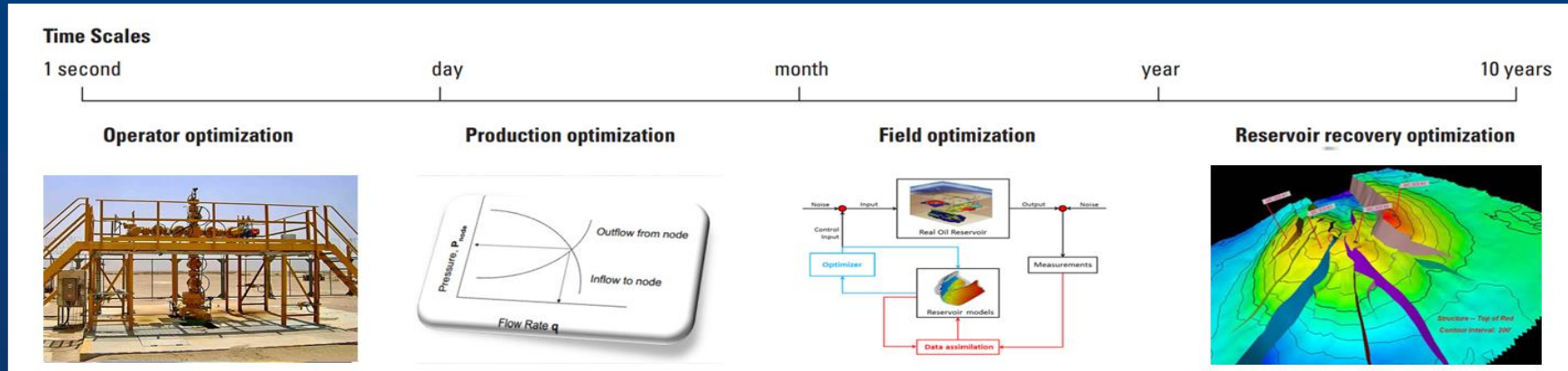
# DOF-IO: Domain Themes



# DOF-IO: Domain Workflows



# DOF-IO: Technical Domains and Time Scales



Equipment condition  
Pumps and lift  
Leaks and safety valves  
Stimulation operations  
Drilling operations

Liquid dropout and slugging  
Hydrate and inhibitor  
Time-lapse nodal analysis  
Choke optimization  
Metering, allocation, and losses

Pressure depletion  
Zonal drainage  
Fluid changes  
Condensate banking  
Stress changes  
Integrity and corrosion

Field development plan (FDP) and drilling  
Well locations  
Completions  
Capex investment

- Promotes safety and integrity
- Reduces downtime and early problem detection
- Minimizes operation risk
- Enables reliable KPI prediction

- Anticipates production issues
- Maximizes production
- Optimizes production parameters (gas lift)

- Maximizes recovery
- Provides better understanding of the reservoir
- Enables a better FDP
- Integrates different disciplines around a common vision

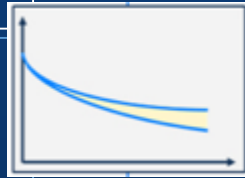


# VALUE:

$$\text{Revenue} - \text{CAPEX} - \text{OPEX} \pm \text{Intangibles}$$

## Revenue: Deferred production

- Exception-based surveillance: detect losses quickly
- Unplanned downtime
- Problem prediction: hydrate and wax
- Maintenance disruptions



## Revenue: Accelerate production

- Optimize transient operations
- Optimize resource use
- Understand operational constraints

## Revenue: Recovery

- EOR, flooding, and thermal
- Pressure support and voidage
- Zonal sweep and drainage
- Extend field economic limit



## OPEX: Efficiency and productivity

- Automation
- Field crew size
- Maintenance cost
- Chemical inventory
- Gas volume
- Shared experts
- Mobile data solutions
- Power consumption
- Rig time
- Logistics



## Safety: Penalty avoidance

- HSE incidents
- Contract penalties
- Travel
- Personnel

## CAPEX: Investment

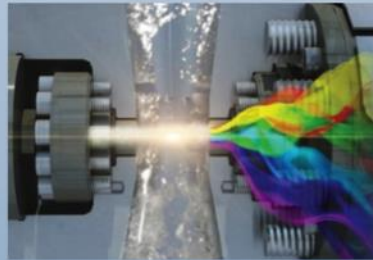
- Number of wells
- Surface equipment
- Capacity planning
- Equipment run life
- Loss of capital equipment
- Supply chain

## Operational excellence

- Standardized workflows
- Best practices
- Knowledge capture
- Open and interoperable systems
- Collaborative teams
- Reusable advisories
- Reduced uncertainty

# DOF-IO Summary:

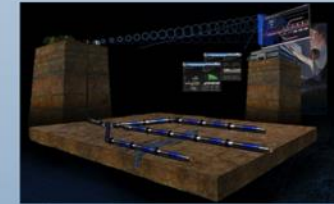
Integrate Technology, Information, People, Process, Organization



- Wellsite technology
- Equipment reliability
- Data communication
- Data management



- Workflows and models
- Algorithms and analytics
- People skills
- Collaboration



- Surface and subsurface domain knowledge
- Job planning and scheduling
- Logistics and maintenance

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