



# DECISION QUALITY FOR MULTICOMPANY OIL & GAS PROJECTS RECENT DEVELOPMENTS IN GUIDANCE TO IMPROVE DECISION QUALITY

Decision Analysis Special  
Interest Group (DASIG) of the  
OR Society



# AGENDA

- What is the Industry Opportunity ?
- How do we sanction ?
- What are the challenges ?
- How do we get there ? -Clarity of thought
  - Use a proven decision quality process
- Human factors / Behaviours
- What goes wrong ?
- Decision makers needs – The Bill of Rights
- Industry guidance



SPE Technical Report



Guidance for Decision Quality for  
Multicompany Upstream Projects

Final Report

24 February 2016

*This Technical Report represents the consensus of Subject Matter Experts (SMEs) and is intended to provide useful information to members of the Society of Petroleum Engineers (SPE) and the Society of Decision Professionals (SDP), the public, and the industry. This Technical Report is not intended to take the place of advice on the application of technology to specific circumstances. Readers of this Technical Report are responsible for assessing its relevance; verifying its accuracy; and their own choices, actions, and results. SPE, SDP, and contributors to this Technical Report are not responsible for actions taken as a result of reading this document, nor the results of those actions.*

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# WHAT IS THE INDUSTRY OPPORTUNITY ?

## How we perform as an industry

Recent Oil and gas industry projects underperformed 'sanction' ~ 80% of the time\*

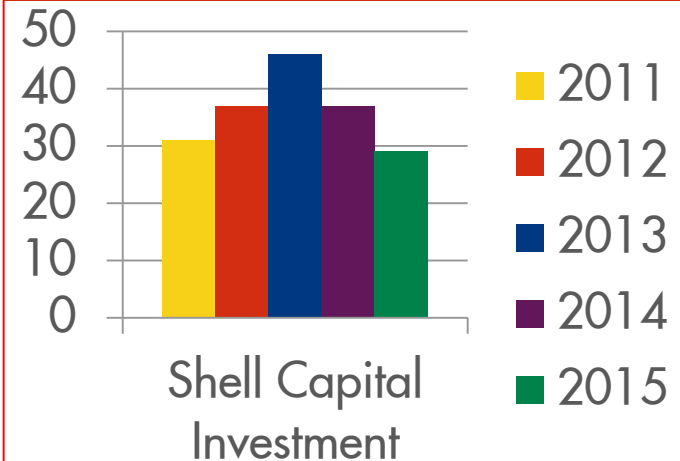
~30% of these projects had cost or schedule over runs.

~ 60% of these projects had production problems.

\* Source : Ed Merrow, IPA, Oil & Gas Facilities, April 2012

Shell

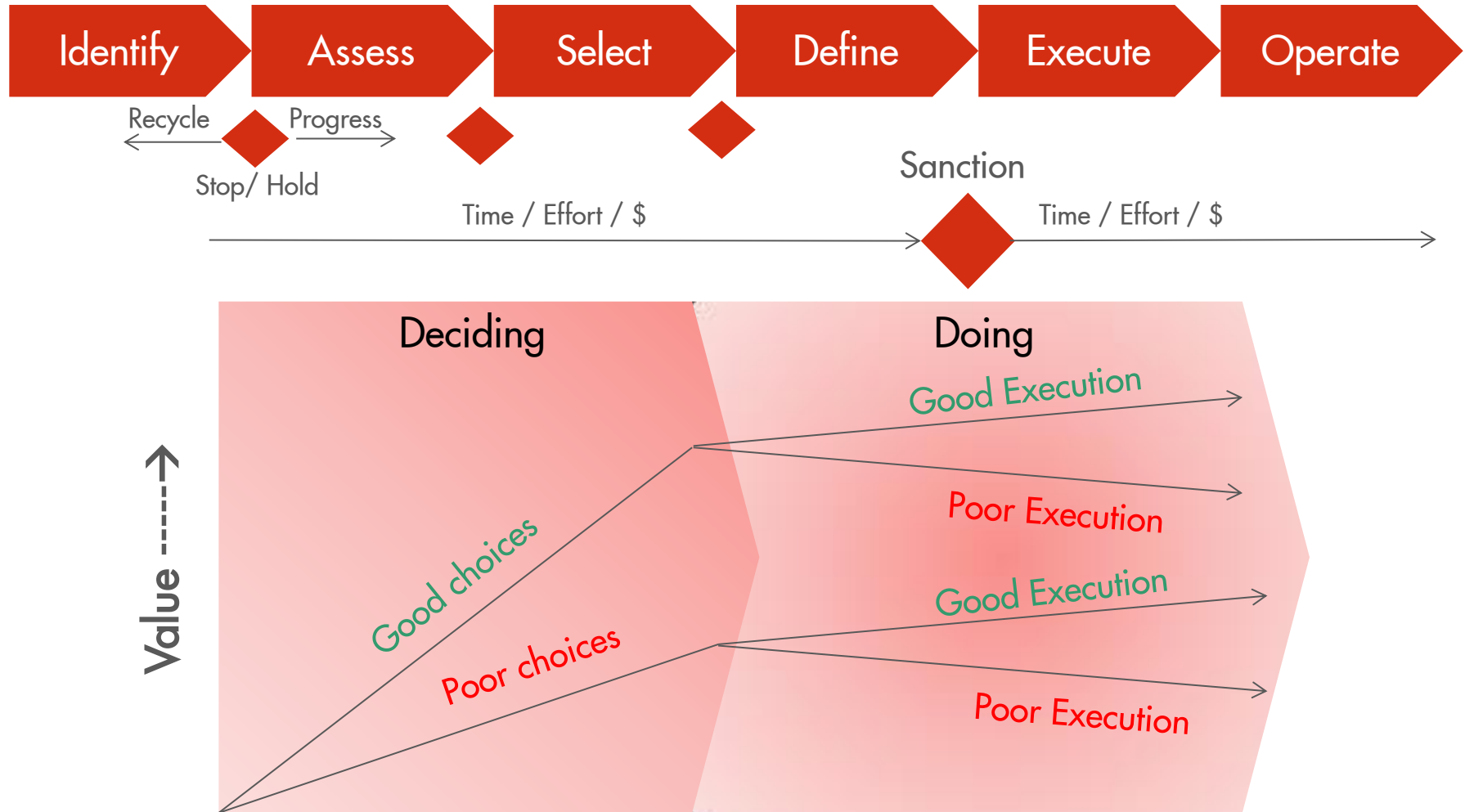
## Shell invested \$180bln over the last 5 years



## Brent oil price – last 10 years



# HOW DO WE SANCTION ? – TYPICAL PROJECT MANAGEMENT PHASES



# CHALLENGES – WORKING IN A MULTI COMPANY VENTURE

Identify

Assess

Select

Define

Execute

Operate

**Ormen Lange – Supplies 20% of UK Gas**  
3 years to construct 2004-2007  
By up to 20,000 people

## Ormen Lange key facts

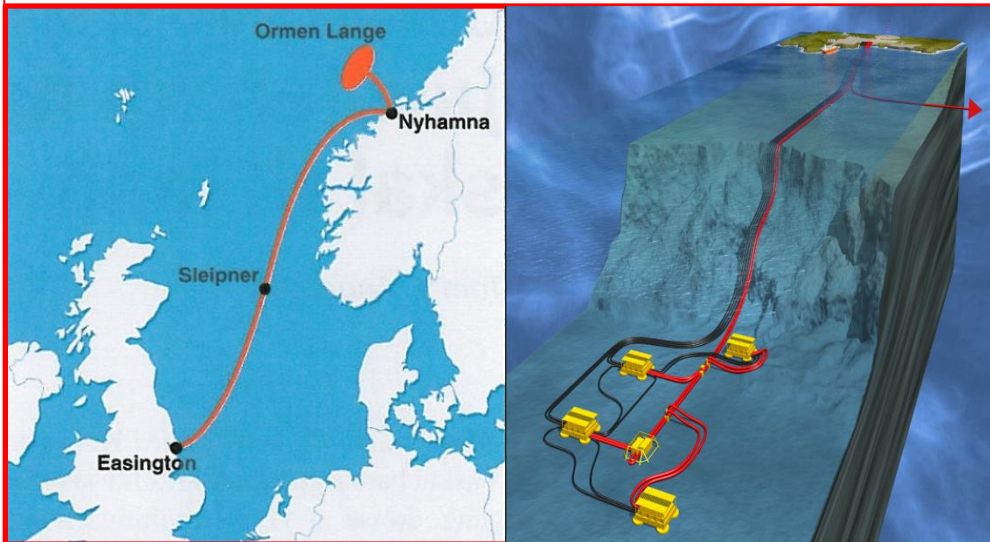
Location: Norwegian Sea, 120 kilometres (75 miles) north west of Kristiansund, Norway

Depth: 850-1,100 metres

Interests: Shell (17.8% operator), Statoil (25.4%), Petoro (36.5%), Dong (14%) and ExxonMobil (6.3%)

Fields: Ormen Lange

Design capacity: 70 million standard cubic metres gas/day



- Complexity
  - Functions
  - Communications
- Alignment
  - Disagreement
  - Limitations on sharing info.
- Operator dominance
  - Operator 'perspective'
  - Under representation from co-owners

# HOW DO WE GET THERE ? – CLARITY OF THOUGHT

Identify

Assess

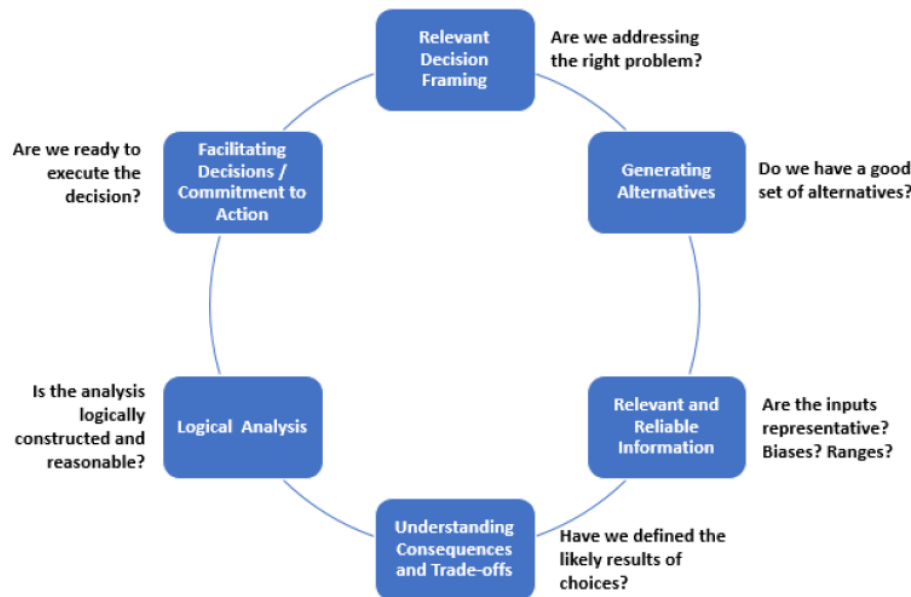
Select

Define

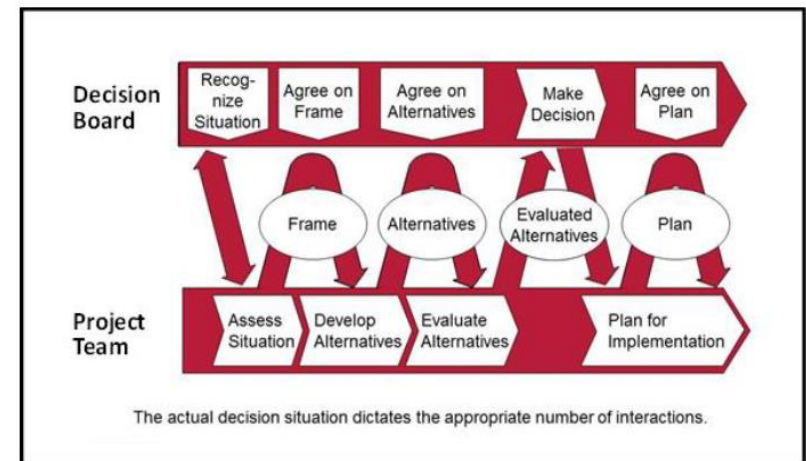
Execute

Operate

## Decision Quality 'Significant Decisions'



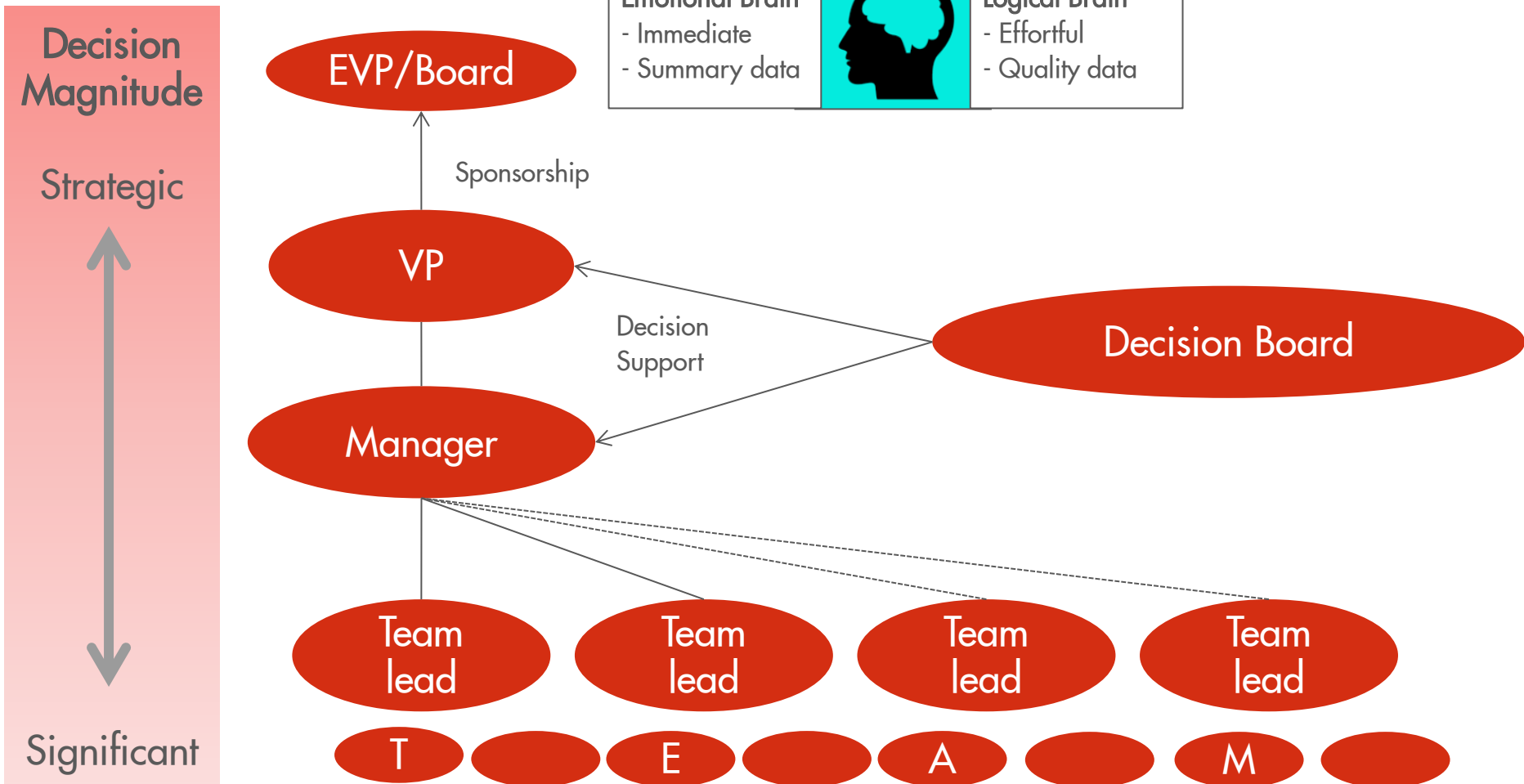
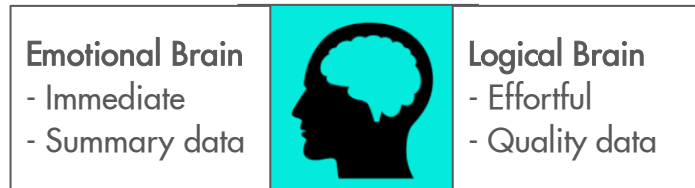
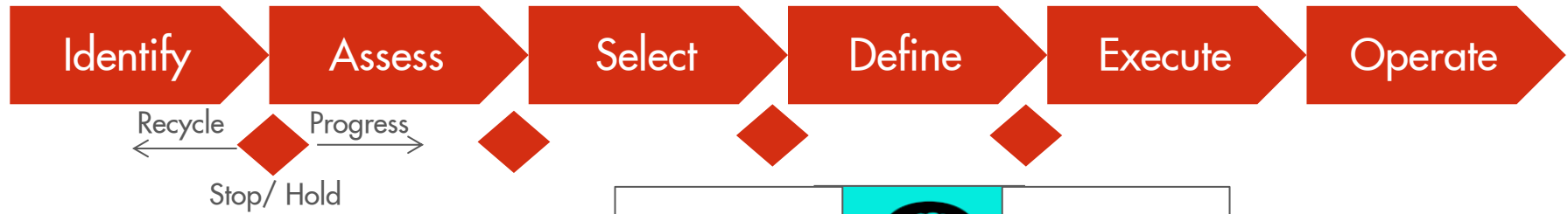
## Decision Quality Dialogue 'Strategic Decisions'



Source: Strategic Decisions Group

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# HUMAN FACTORS / BEHAVIOURS



# HOW DO WE GET THERE ? – CLARITY OF THOUGHT

Identify

- Develop 70MMscm/d
- In 1 km of water
- Commercialise

Assess

- Engineering Concept ?
- Subsurface uncertainty ?

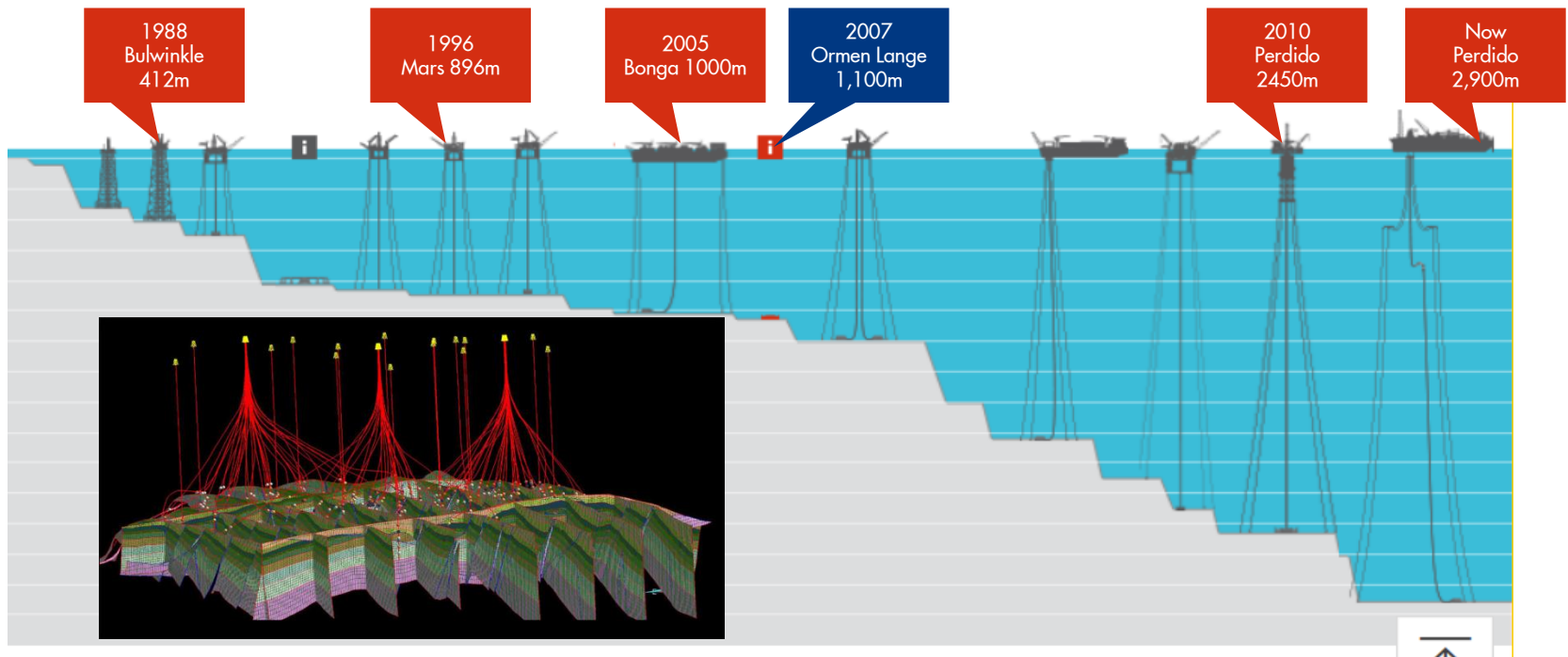
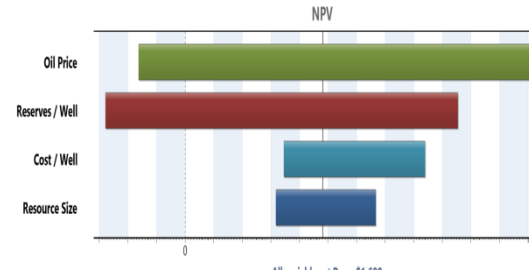
Select

Decision Analysis

Define

Execute

Operate





# WHAT CAN GO WRONG / OPPORTUNITIES?

Identify

Assess

Select

Define

Execute

Operate

9mths -> ~10 years

- Lots.....the future is uncertain

Under/over  
estimation of risks /  
uncertainties

Emotional Brain

- Immediate
- Summary data



Logical Brain

- Effortful
- Quality data

Government

NGOs

Stakeholder  
influences

Communities

Fishermen

Optimism

Anchoring

Sunk Cost

Biases

Group think

Motivational

# DECISION MAKERS NEEDS

## *Decision Maker's Bill of Rights*

As a decision maker, you have the right to:

- A **decision frame** that structures the decision in the context most relevant to your needs,
- **Creative alternatives** that allow you to make a selection among viable and distinct choices,
- **Relevant and reliable information** upon which to base your decision, including the uncertainty of the information
- An understanding of the **potential consequences** of each alternative based on your choice criteria
- A **logical analysis** that allows you to draw meaningful conclusions from the information to reach **clarity of action**
- **Effective facilitation** to gain alignment and commitment to action



SDP is a global, multi-industry organization dedicated to promoting quality decision standards and connecting decision makers, practitioners and academics of decision sciences. <http://decisionprofessionals.com/>



SPE Technical Report



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[https://www.onepetro.org/general/  
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TR?\\_ga=1.135063985.120869960  
0.1458903656](https://www.onepetro.org/general/SPE-181246-TR?_ga=1.135063985.1208699600.1458903656)

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