SPE's Management and Information Advisory Committee presents:

Webinars

"Decision Quality in Multi-Company Projects"

Pat Burdett

Lead Editor, SPE's Technical Report "Guidance for Decision Quality for Multi-company Upstream Projects"

Decision Quality in Multi-Company Projects

Webinars

Presented by: Pat Burdett
Lead Editor, SPE's Technical Report "Guidance for Decision Quality for Multi-company Upstream Projects"

Guest Speaker: Janeen Judah
2017 President of the Society of Petroleum Engineers International

Moderated by: Ellen Coopersmith
Founder & President, Decision Frameworks

Moderator: Ellen Coopersmith

Webinars

Ellen Coopersmith has a B.S. in Petroleum Engineering from the Colorado School of Mines, and is the Founder and President of Decision Frameworks, an international consulting, training and software practice focused on building and supporting decision quality capability in the energy industry.

Prior to forming Decision Frameworks in 1999, Ms. Coopersmith worked at Conoco, Inc. 16 years, the last five of which, as the director of Decision & Risk Analysis.

She is the 2017 incoming president of the Society of Decision Professionals (SDP), a board certified Decision Analysis Fellow, a Professional Engineer, a published speaker on decision making and decision quality implementation and has led a global decision analysis practice for 22 years.

Guest Speaker: Janeen Judah

Webinars

Education:
- B.S. & M.S. in Petroleum Engineering from Texas A&M University
- MBA from University of Texas of the Permian Basin
- JD (Doctor of Law) from University of Houston

Career:
- 1998 – Present: Chevron, currently General Manager of Southern Africa Business Unit
- Early career with ARCO Oil & Gas Company
- 35 years of industry experience

Qualifications:
- 2017 President of the Society of Petroleum Engineers International

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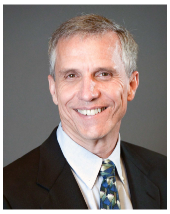
Pat Burdett

Webinars



Mr. Burdett is the lead author of a multi-company expert committee which drafted the SPE Technical Report: "Guidelines for Decision Quality for Multi-Company Upstream Projects", published in 2016.

Burdett has held various positions in Decision Quality and Analysis throughout his 10 years working with Chevron as a consultant and employee. He currently serves as Appraisal Decision Analysis Lead.

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Poll Question

Society of Petroleum Engineers

Are you an SPE Member?

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Poll Question

What geographical area are you from?

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Poll Question

What is your affiliation?

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Poll Question

What is your main job interest?

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Guest Speaker: Janeen Judah

Education:
- B.S. & M.S. in Petroleum Engineering from Texas A&M University
- MBA from University of Texas of the Permian Basin
- JD (Doctor of Law) from University of Houston

What is your knowledge of Decision Quality?

Career:
- 1998 – Present: Chevron, currently General Manager of Southern Africa Business Unit
- Early career with ARCO Oil & Gas Company
- 35 years of industry experience

Qualifications:
- 2017 President of the Society of Petroleum Engineers International

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Poll Question

What is your knowledge of Decision Quality?

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Decision Quality in Multi-Company Oil & Gas Projects

Pat Burdett

Lead Editor, SPE's Technical Report "Guidance for Decision Quality for Multi-company Upstream Projects"

Co-Sponsored - Society of Petroleum Engineers & Society of Decision Professionals

Outline

- What is the opportunity?
- What are the challenges?
- How do we get there?
  - Give decision makers what they need
  - Use a proven decision quality process
    - Review 6 components

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The Opportunity: *Improving on "Dismal" Performance*

- Recent large upstream oil and gas projects:
  - 78% of projects underperformed *
    - Average of 33% cost overruns
    - Average of 30% schedule overruns
    - 64% of underperformers had serious production problems
- Causes:
    - Execution problems – "poor functional integration"
    - Complex frontier geology?
    - Unlucky?
- Pre- FID?
    - MISALIGNMENT?
    - POOR DECISION QUALITY?

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

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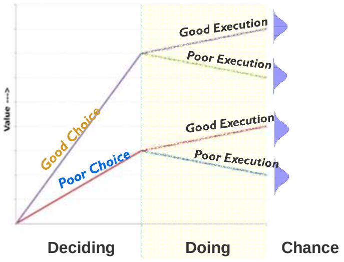
The Opportunity: *Sources of Value*

There is more value to be gained or lost in the decision stage, than in execution or outcomes.



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The Challenge:
Multi-Company O&G Projects

- Operator dominance
  - Under-representation from co-owners
  - “Operator-centric” interpretations
  - Perspective limited by Operator’s experience
- Project/Ownership complexity
  - Incomplete functional representation
  - Communication
- Alignment
  - Disagreement
  - Limitations on sharing information (Legal, competitive)

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How do we get there?
Give Decision Makers What They Need.

Give Decision Makers what they need for clarity of thought.

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How do we get there?
Give Decision Makers What They Need.

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/

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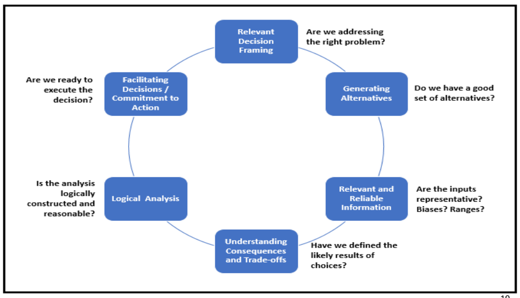
How do we get there?

Follow a proven decision quality process



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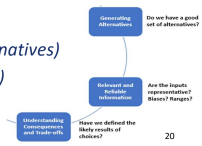
Relevant Decision Framing

Are we addressing the right problem?

- Common Outputs from Framing
  - Opportunity Statement
  - Decisions (especially Focus Decisions)
  - Boundary Conditions

  - *Alternatives for each Focus Decision*
  - *Strategies (thematically grouped alternatives)*
  - *Uncertainty list (and responsible SMEs)*
  - *Decision Criteria*



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Brainstorm of Framing Gaps

- Ready, shoot, aim
- Shortcuts
- Problem blindness
- Only considering one option / alternatives not considered
- Bias
- Lack of organizational capability
- Missing scope or misalignment on project scope
- Anchoring
- Not enough and / or not the right participants in framing
- Misalignment on selection criteria and value measures
- Process focused, not decision focused
- Failure to define success/failure
- Skipping framing entirely (already know the answer – yea right!)

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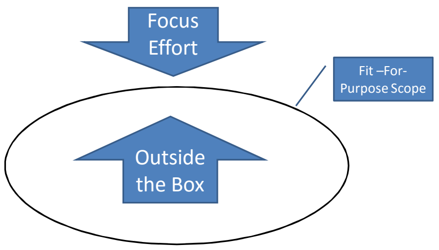
Framing
A natural tension



Generating Alternatives

Do we have a good set of alternatives?

- Doable
- Compelling
- Covers the “solution space”
- Innovative
  - Creative, supportive discussion
  - Diversity of expertise and perspective

Generating Alternatives

Alternatives List

Type of Test/EPS	Number/Type of Test Wells	Production Test Duration	Well Completion
Drill stem test (DST)	Appraisal well	30 Days	Single Zone
Lease 30 kbd FPSO	1 New Well	6 Months	Commingle Multiple Zones
Purchase 60 kbd FPSO	2 New Wells	1 Year	Selective Multiple Zones
Tie-back to nearby field	3 New Wells	2 Years	
	4 New Wells		

Generating Alternatives

Strategy Table

	Type of Test/EPS	Number/Type of Test Wells	Production Test Duration	Well Completion
Strategy A **Objective** Cheapest Information **Rationale** Uncertainty Reduction at Lost Cost	Drill Stem Test (DST)	Appraisal Well	30 Days	Commingle Multiple Zones
Strategy B **Objective** Lowest Cost for Longer Term Data **Rationale** Better Reservoir Investigation	Lease 30 kbd FPSO	Appraisal Well	6 Months	Selective Multiple Zones
Strategy C **Objective** Phased Development **Rationale** Higher Cost Might be Offset by Better Revenue	Lease 30 kbd FPSO	2 New Wells	2 Years	Commingle Multiple Zones
Strategy D **Objective** Phased Development **Rationale** Potentially Higher Production Without Constraint	Purchase 60 kbd FPSO	3 New Wells	2 Years	Commingle Multiple Zones
Strategy E **Objective** Minimum Commitment to New Infrastructure **Rationale** Can Continue Production if Reservoir Performance is Good	Tie-back to nearby field	1 New Wells	2 Years	Commingle Multiple Zones

Source: Decision Frameworks

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Relevant and Reliable Information

- Characteristics of good information
  - Timely
  - Unbiased
  - Reliable
  - Relevant
  - Assured

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Information Reliability

- Representative Data
  - Analogs
  - Benchmarking
- Expert Assessment
  - Representativeness of analogs
  - Assessment without analogs
  - Diversity of perspective
- Uncertainty - probabilities

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Defining Uncertainty Ranges

- There should be a 90% probability (P90) that the actual value will equal or exceed the **Low Estimate**.
- There should be a 50% probability (P50) that the actual value will equal or exceed the **Median Estimate**.
- There should be a 10% probability (P10) that the actual value will equal or exceed the **High Estimate**.

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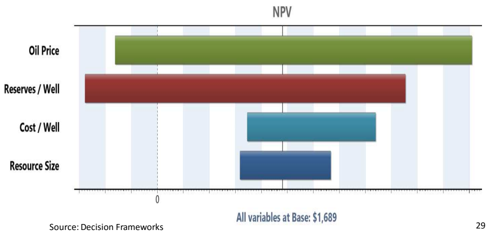
Information Relevance

- Tornado Chart ties uncertainties to results
- Extremes are at the High (P10) and Low (P90) Estimate
- Arbitrary ranges?



Source: Decision Frameworks

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Understanding Consequences and Trade-offs

Have we defined the likely results of choices?

- Decision Metrics
  - Quantitative
  - Qualitative
- Trade offs

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Logical Analysis

Is the analysis logically constructed and reasonable?

- Decision Metrics flow from inputs
  - Communicates the uncertainty around metrics
- Decision-focused analysis
- Fit-for-purpose

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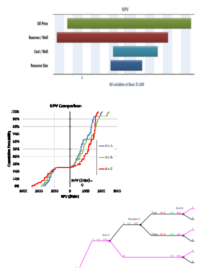
Analysis Tools

- Deterministic Analysis
  - Sensitivities
  - Scenario
- Probabilistic Analysis
  - Discrete values
  - Monte Carlo (stochastic)



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Facilitating Decisions & Commitment to Action

Are we ready to execute the decision?

You can't have clarity of action without clarity of thought. *

* Ron Howard (father of decision analysis)

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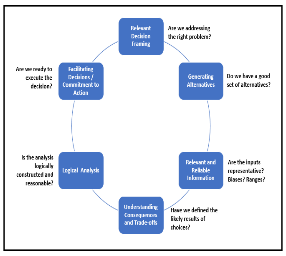
Facilitating Decisions & Commitment to Action

The process, and the resulting commitment, is only as strong as the weakest link.



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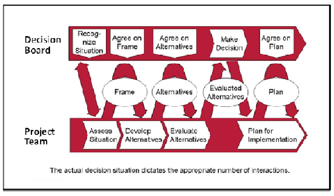
Facilitating Decisions & Commitment to Action

Dialogue between the Project Team and decision makers throughout the process assures alignment and "buy-in" at each step and confidence in the decision.



Source: Strategic Decisions Group

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Final Thoughts on Decision Quality

"As I think back over the years, I have been guided by four principles for decision making:

- First, the only certainty is that there is no certainty.
- Second, every decision, as a consequence, is a matter of weighing probabilities.
- Third, despite uncertainty we must decide and we must act.
- And lastly, we need to judge decisions not only on the results, but on how they were made." *

*Robert Rubin, US Treasury Secretary, Clinton Administration

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Poll Question

What aspects of Decision Quality do you see most important for the industry right now?

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Poll Question

- What is your interest in seeing more Decision Quality offerings from SPE, such as webinars, workshops, forums, tracks at major conferences?

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Questions


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