Resources2 Energy

Effective Valuation of Integrated Operations

Integrated Upstream Operations Conference

Norway

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Consultants serving the energy industry

Resources2 Energy

Our Industry Mindset

Unlike most industries, the routine decisions we make at all levels of any given operating company carry multi-million dollar price tags. Add to this the inherent danger of our operations, and then top it off with the risks and uncertainties of outside influences. It is no wonder we run our business on KPIs, and don't make changes to proven procedures without overwhelming and convincing value propositions.

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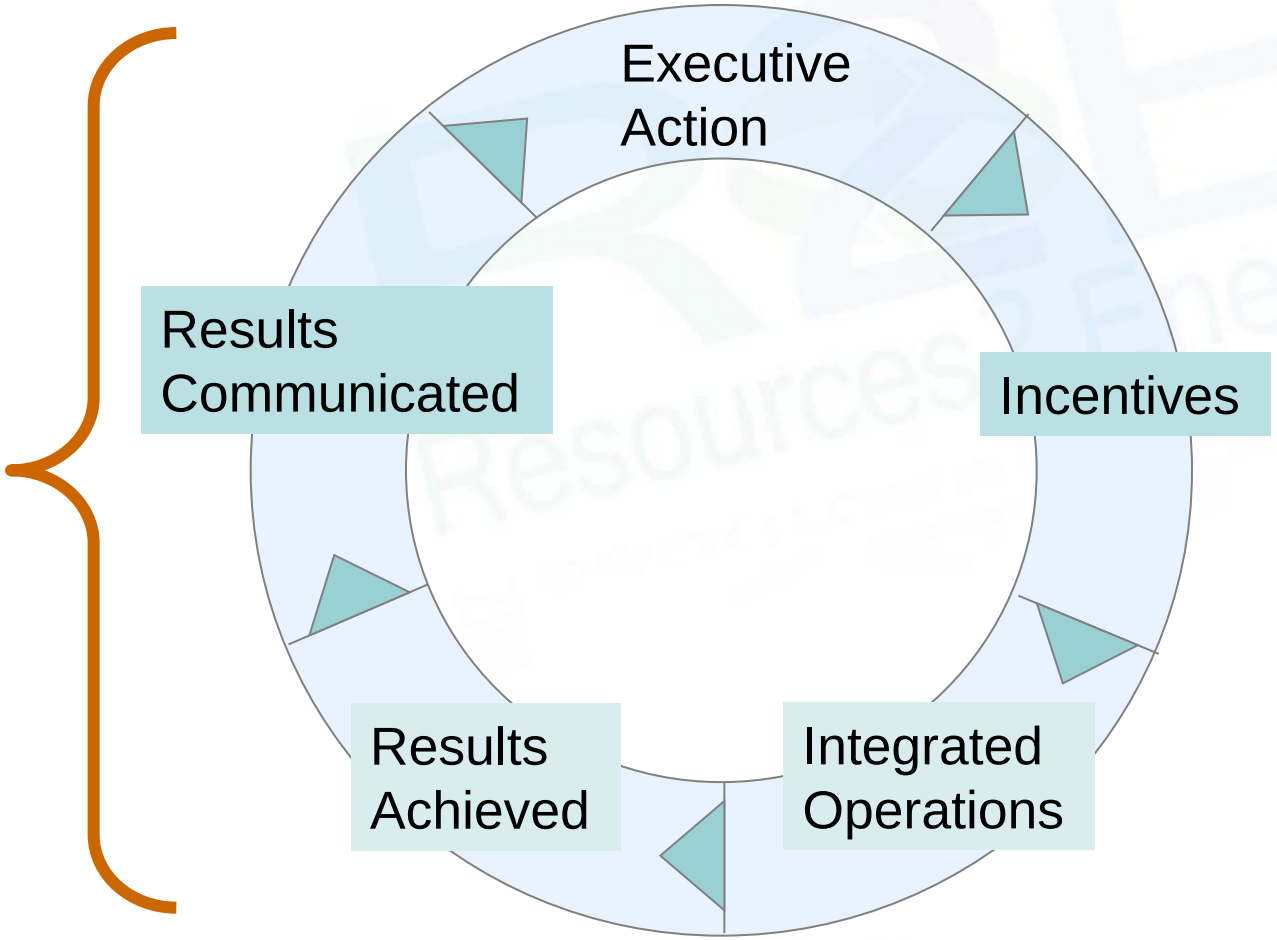
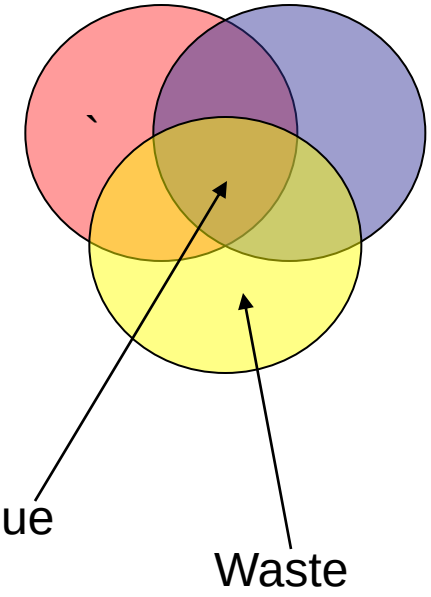
The Industry is Facing a Challenge of Getting the Adoption Cycle Spinning.

Valuation is nearly half the equation!

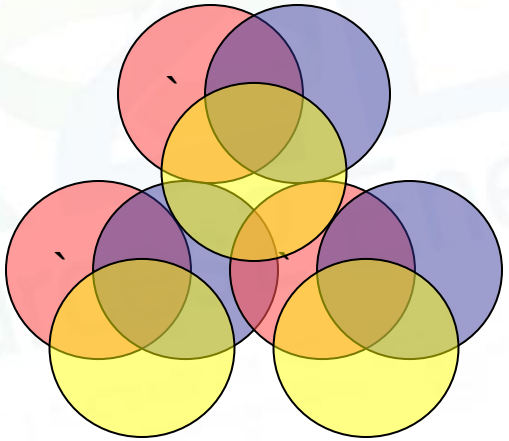


There is Intrinsic Value in the Integration of Operations.

Co-located Resources



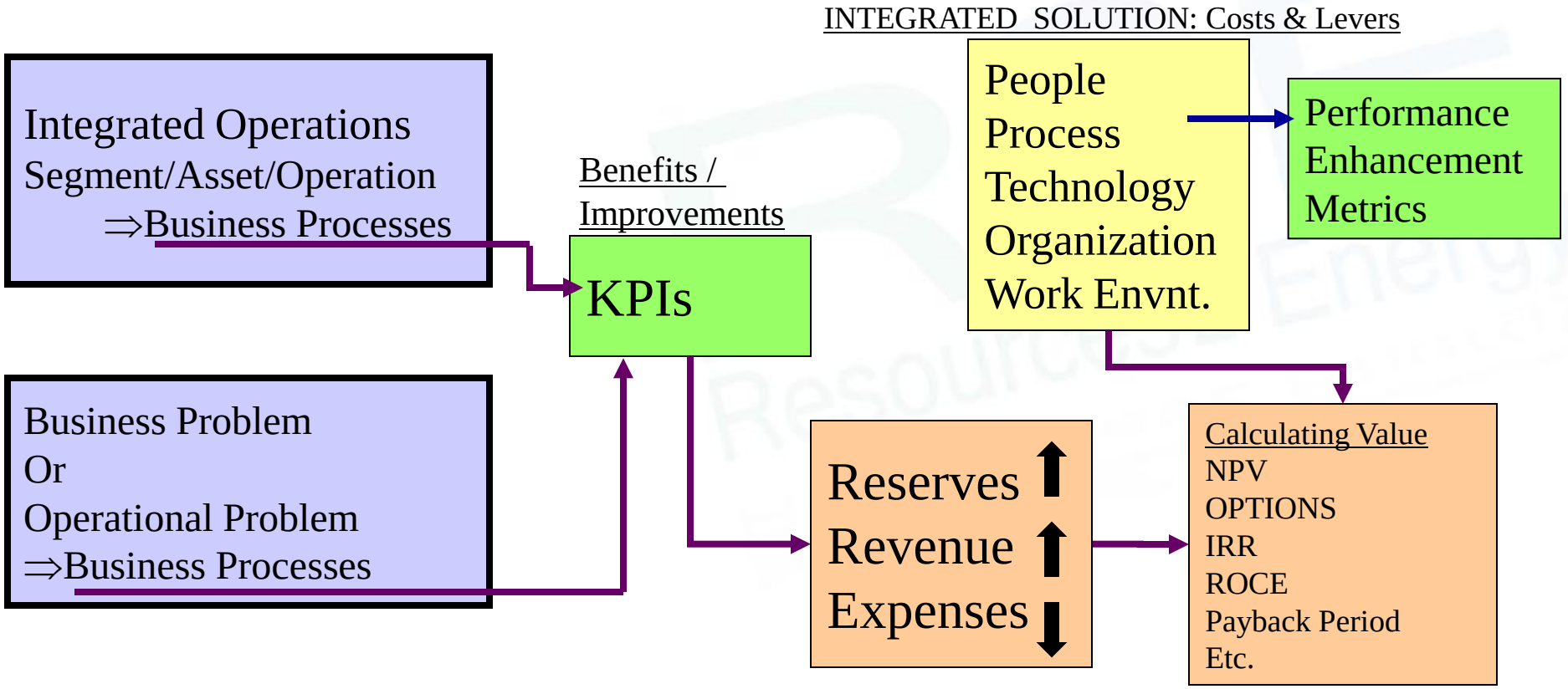
Dispersed Resources



More Areas of Value
And Less Areas of Waste

Yet the resistance to change has created a strong barrier to execution.

Pockets of Value Have Been Calculated in Isolated Situations Using Simple Methodologies.

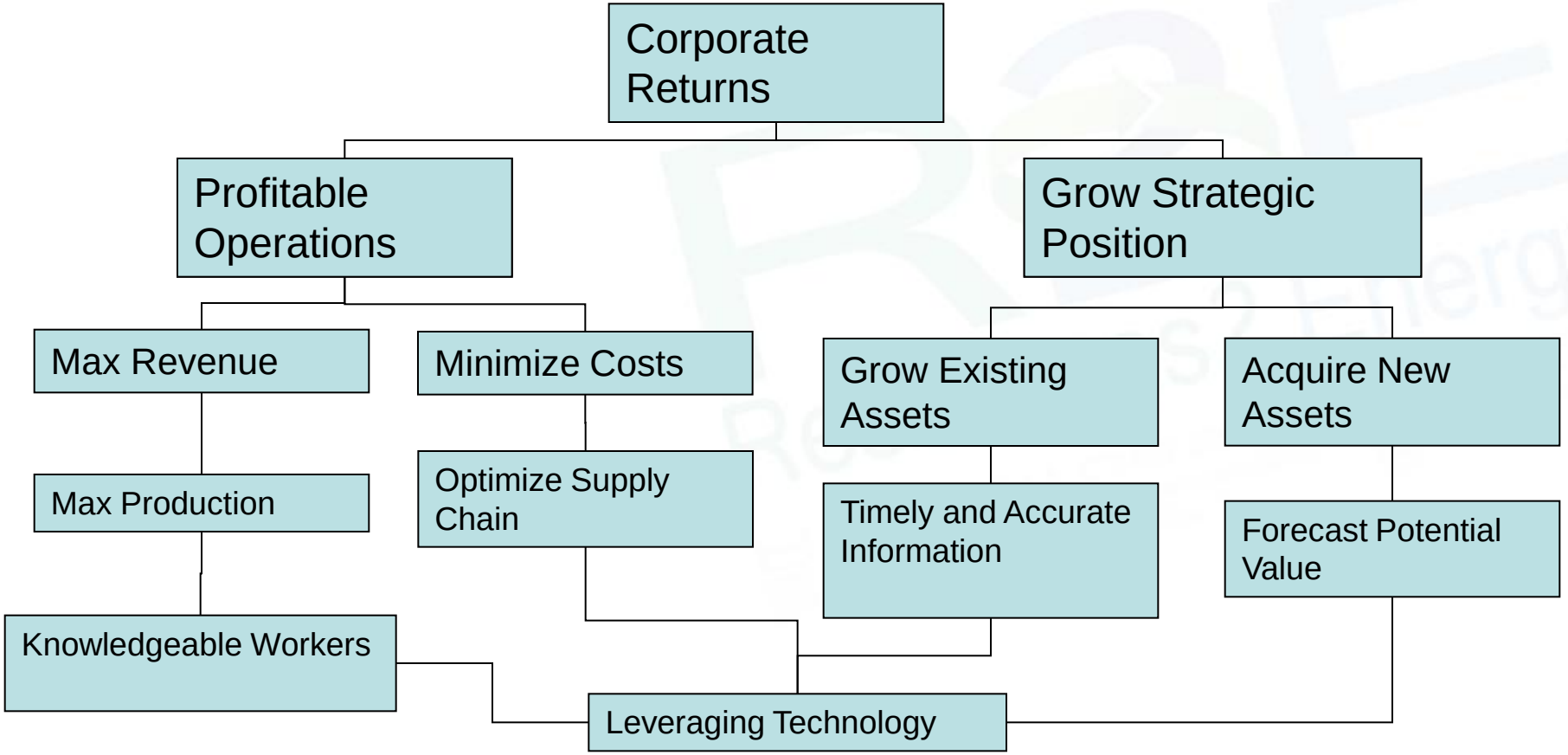


Yet compelling cases for change/ investment have yet to be unveiled.

There are Critical Success Factors for Valuing Integrated Operations…

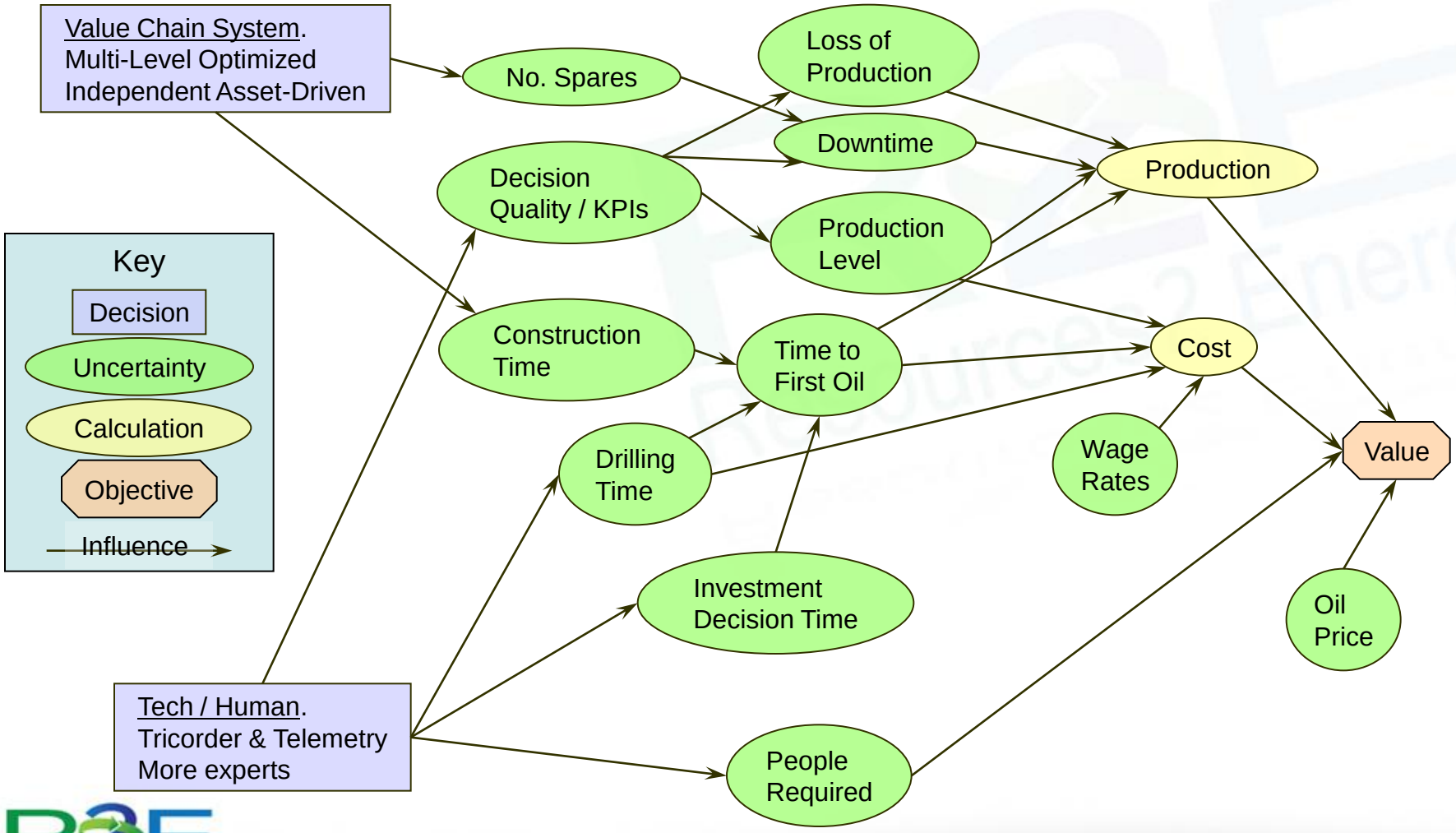
- Don’t lose sight of our KPIs
- Valuation that takes into account uncertainties
  - Stochastic Models
  - Sensitivity Analyses
- Valuation that clearly models risk vs. reward
- Valuation that speaks to the organizations multiple levels of stakeholders
  - Executive / Investor
  - Mid-level management
  - Field Operators
- Valuation that supports integrated decision management

Do We Calculate Value at the Asset Level or the Segment Level?



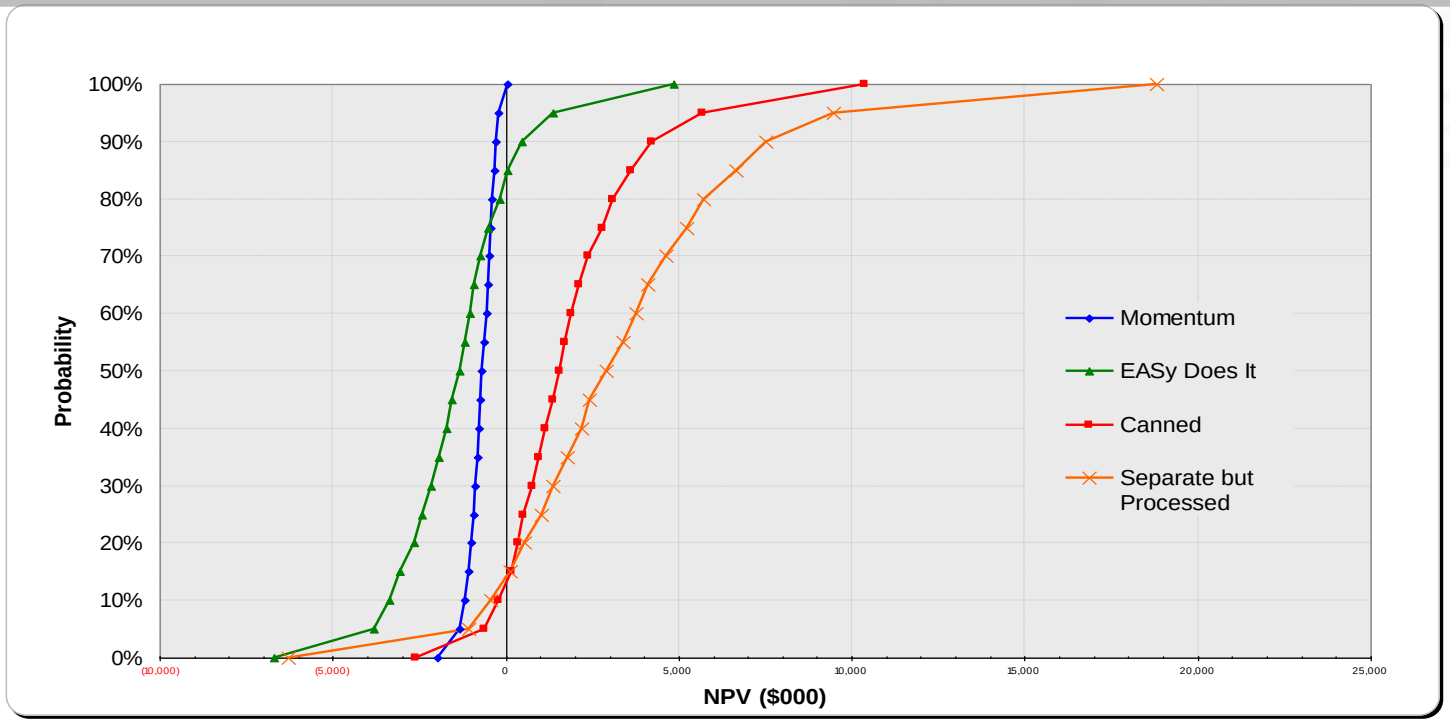
Understanding where a solution adds value drives alignment.

Old and Familiar Modeling of Uncertainties Applied in a New Way May Resonate…



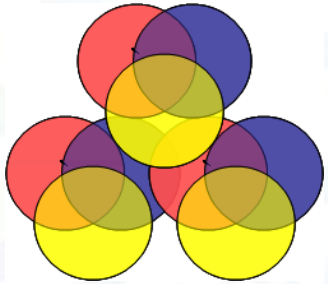
…with Those Most Interested in Understanding Risk vs. Reward.

The cumulative probability chart identifies ranges of outcomes and risks in selecting one alternative against another



Is there a Need to Create New Models to Help Us Value New Practices?

K= Cost of the Knowledge Worker
I= Effectiveness of the Incentive Structure
D= Quality of the Data (information)
V= Value of the Decisions



Formula for the Value of the Decisions of a Single Knowledge Worker	$\underbrace{K \times I}_{P} \times D = V$ P = Worker Productivity
Formula for the Value of the Decisions of Multiple *Co-Located* Knowledge Workers	$(P_1 + P_2 + \ldots P_N)D = V$

The Model is Incomplete…but it Begins to Tell the Story.

D= Quality of the Data (information)

D= Timeliness + Ground Truth + Transparency

- Single Source of Truth
- Secure, Robust

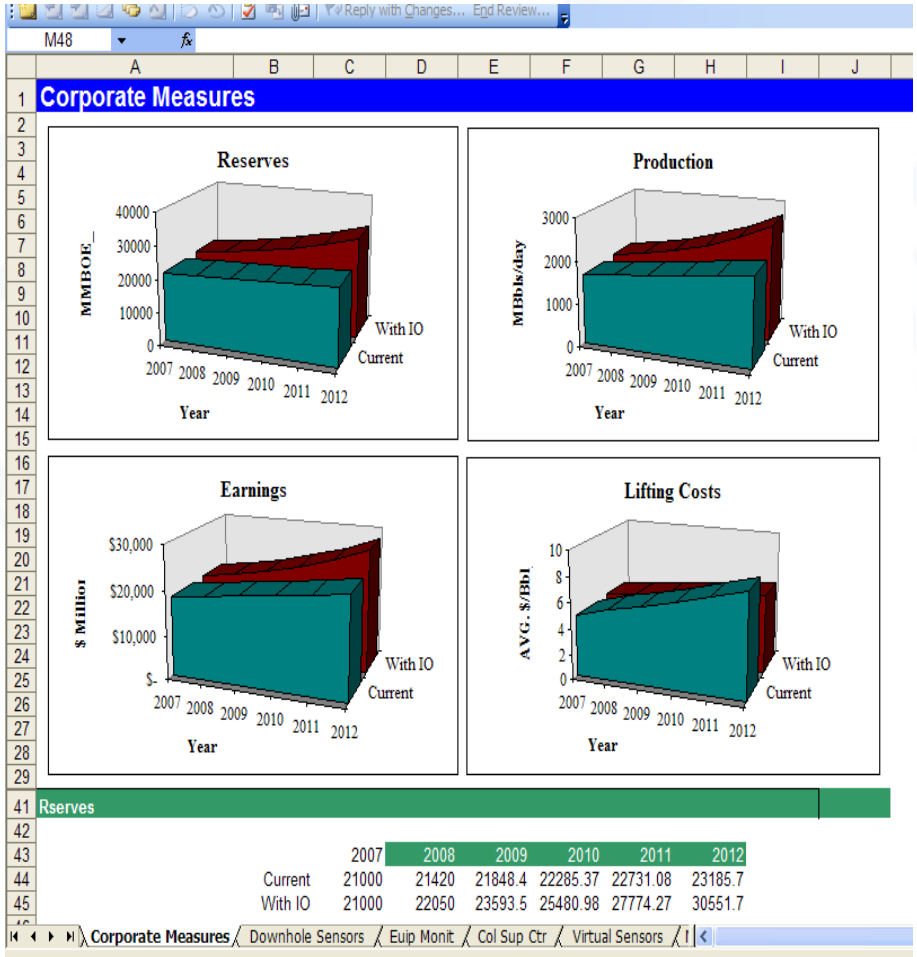
- Contextual Awareness
- End-2-end Visibility
- Presence, Modality

Formula for the Value of the Decisions of Multiple Dispersed Knowledge Workers	$P_1D_1 + P_2D_2 + \ldots P_nD_n - T = V$ Where T = The Cost of Data Transfer

An Integrated Operations Value Calculator

A suite of valuations of IO solutions that affect KPIs

Key Corporate Measures like Reserves, Production, Earnings, and Lifting Costs are summarized in dashboard view.



Sample Worksheet in the IO Calculator

Depth Correlation to Open Hole Logs

Electric line applications: quicker and more accurate information obtained, numbers cross-referenced to open hole depths.

- Speeds conventional operations by eliminating correlation logs
- Allows use of less experienced crews, particularly in remote locations.
- Results in fewer very expensive mistakes as well.
- Very significant in high alloy tubulars, where problems are compounded.

Well Classifications
Class 1: Onshore U.S.
Class 2: Offshore U.S.
Class 3: Onshore International
Class 4: Remote and Offshore International

Number of New Wells, per year "Super Major"			
Class 1	Class 2	Class 3	Class 4
300	40	500	40

Percentage of Acceptance with time		
	Year 1	5%
	Year 2	15%
	Year 3	25%
	Year 4	35%
	Year 5	45%

Number of Applications per year, per new well:	5
Time Savings per application, hours	2

Daily Spread Costs			
Class 1	Class 2	Class 3	Class 4
Rig Cost per Day - Conservative	$ 6,000.00	$ 35,000.00	$ 25,000.00	$ 150,000.00

SAVINGS				
Year 1	$ 37,500.00	$ 29,166.67	$ 260,416.67	$ 125,000.00
Year 2	$ 112,500.00	$ 87,500.00	$ 781,250.00	$ 375,000.00
Year 3	$ 187,500.00	$ 145,833.33	$ 1,302,083.33	$ 625,000.00
Year 4	$ 262,500.00	$ 204,166.67	$ 1,822,916.67	$ 875,000.00
Year 5	$ 337,500.00	$ 262,500.00	$ 2,343,750.00	$ 1,125,000.00

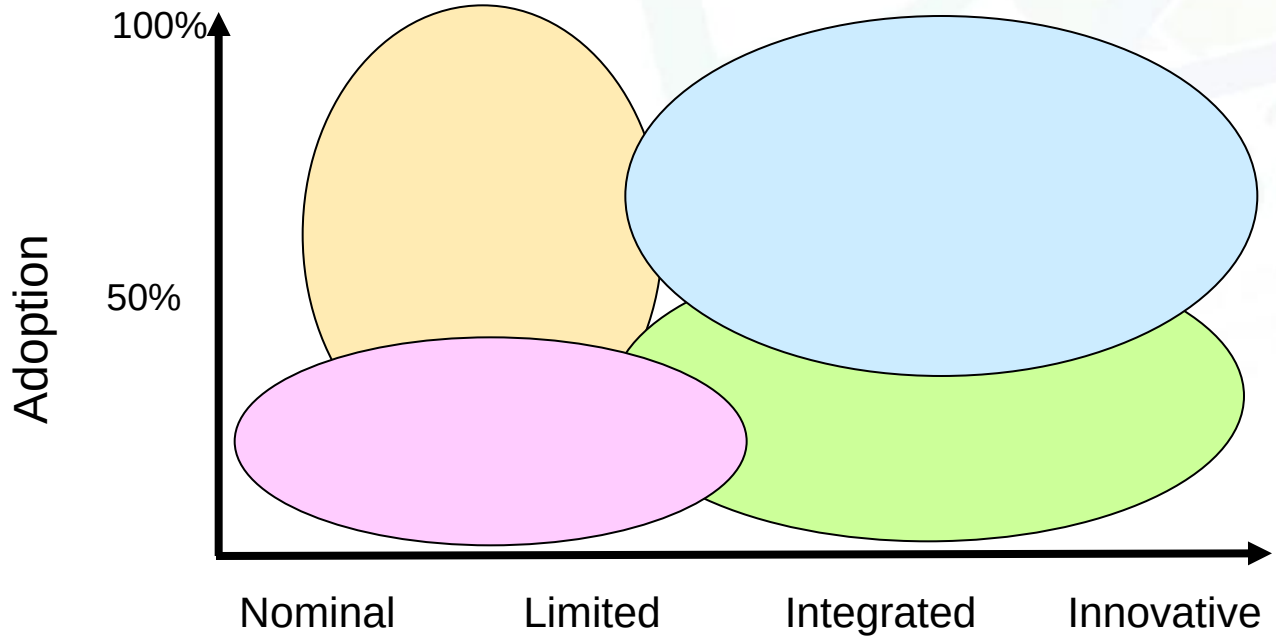
WACC	12%
5 Yr. NPV Rig Costs	$7,413,627.90

There is an Entire Suite of Tools Available, but…

- Mathematical Models
- Decision Trees
- Multi-Attribute Assessment
- Option Theory
- Game Theory

…No Matter the Model, Tracking Our Progress is Critical…

A capabilities assessment for IO is a means for evaluating the degree to which integration has been achieved and the corresponding value that has been realized, or conversely that remains to be realized.



…Along with Capturing Value in a Mechanism for Communicating Results Achieved.

IO Levers	Base	Last Quarter	This Quarter	Progress	Comments
People					
KPI 1	$XX	$XX	$XX		
KPI 2	$XX	$XX	$XX		
Process					
KPI 1	$XX	$XX	$XX		
KPI 2	$XX	$XX	$XX		
Technology					
KPI 1	$XX	$XX	$XX		
KPI 2	$XX	$XX	$XX		
Organization					
KPI 1	$XX	$XX	$XX		
KPI 2	$XX	$XX	$XX		
Work Envnt.					
KPI 1	$XX	$XX	$XX		
KPI 2	$XX	$XX	$XX		

The Adoption Cycle Eventually Transforms to a Continuous Improvement Loop.