



DAVE: A Marriage Made in Heaven or Hell?

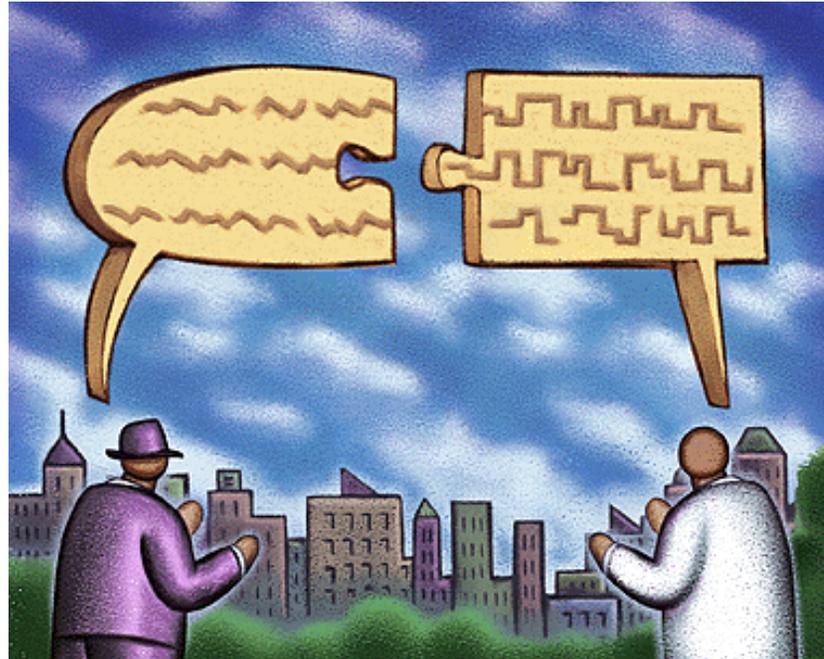
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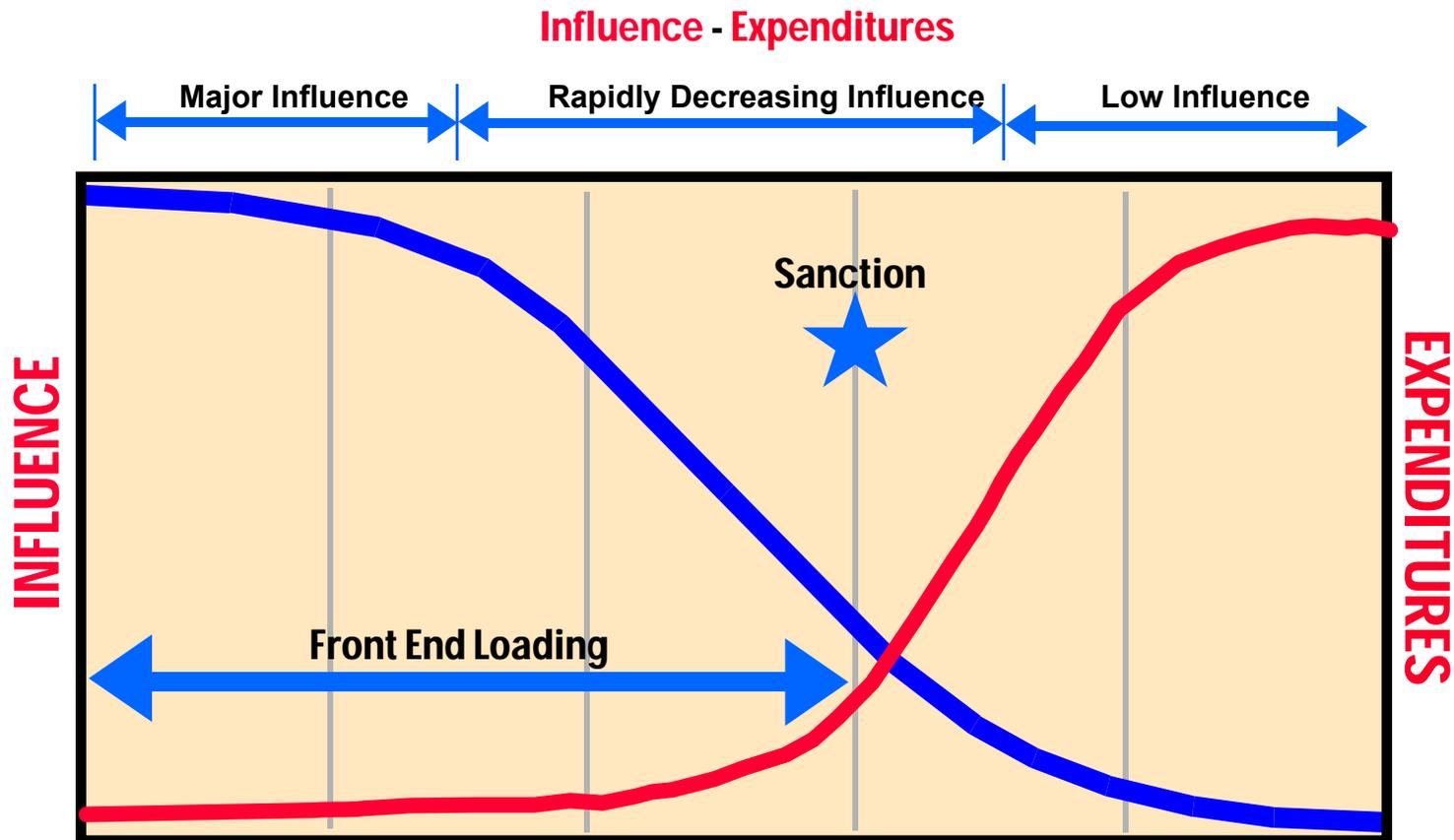
DAAG Conference

May 16, 2001

How many times have you been called in to do an “operational DA”?

- Why do decision analysis projects usually only occur on the front-end of projects?
- Are there no decisions to be made after the go / no-go?
- What will it take to get better decisions made throughout the entire value creation process?

A typical project life cycle has an inverse relationship between influence and expenditures over time.



Proposition: Decision Analysis and Value Engineering can work together to create more value for organizations.

- **Each process has strengths and weaknesses that can benefit from collaboration**
- **A unified business process for making and implementing decisions could be developed**
- **Greater understanding and use by all levels of the organization**



Value Engineering Brief History:

- Began at GE early 1940's
- 1947 - Value Analysis
 - Lawrence D. Miles “Father of VM”
- 1954 - Value Engineering
 - U. S. Navy
- Society of American Value Engineers (SAVE)
 - Formed in 1959
- 1964 Function Diagramming language.
 - U. S. Navy
- Value Management, Value Control, Value Improvement

Why do Companies Use It? ...

- Customer Satisfaction
- Productivity Improvement
- Quality Improvement
- Time Saving
- Proven over 50 years
- Functions Achieved
- Results Oriented
 - Enhanced operation
 - 5 - 15% cost savings
 - Lower life cycle costs



Benefit to cost 20:1

Value Engineering and Decision Analysis are overlapping practices in business - but they rarely meet.

• **SITUATION**

• **STRATEGY**

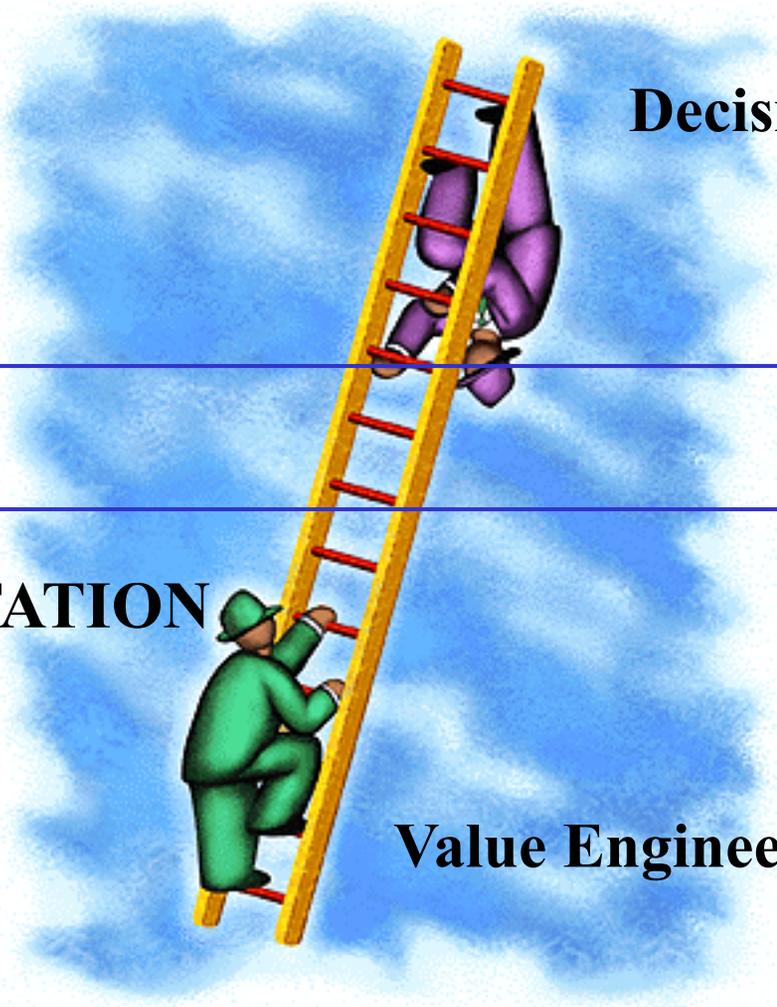
• **PLANNING**

• **IMPLEMENTATION**

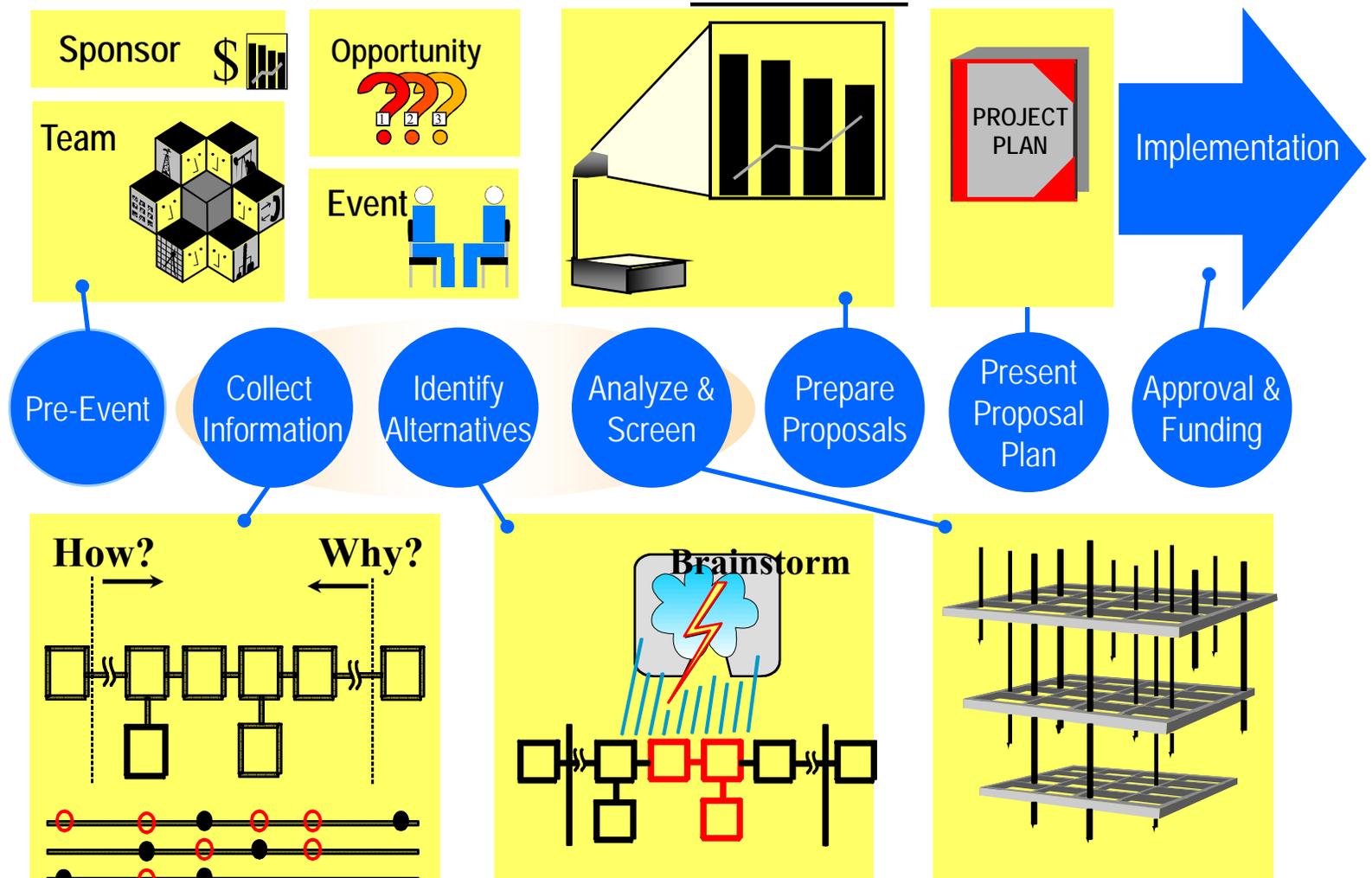
• **OPERATION**

Decision Analysis

Value Engineering



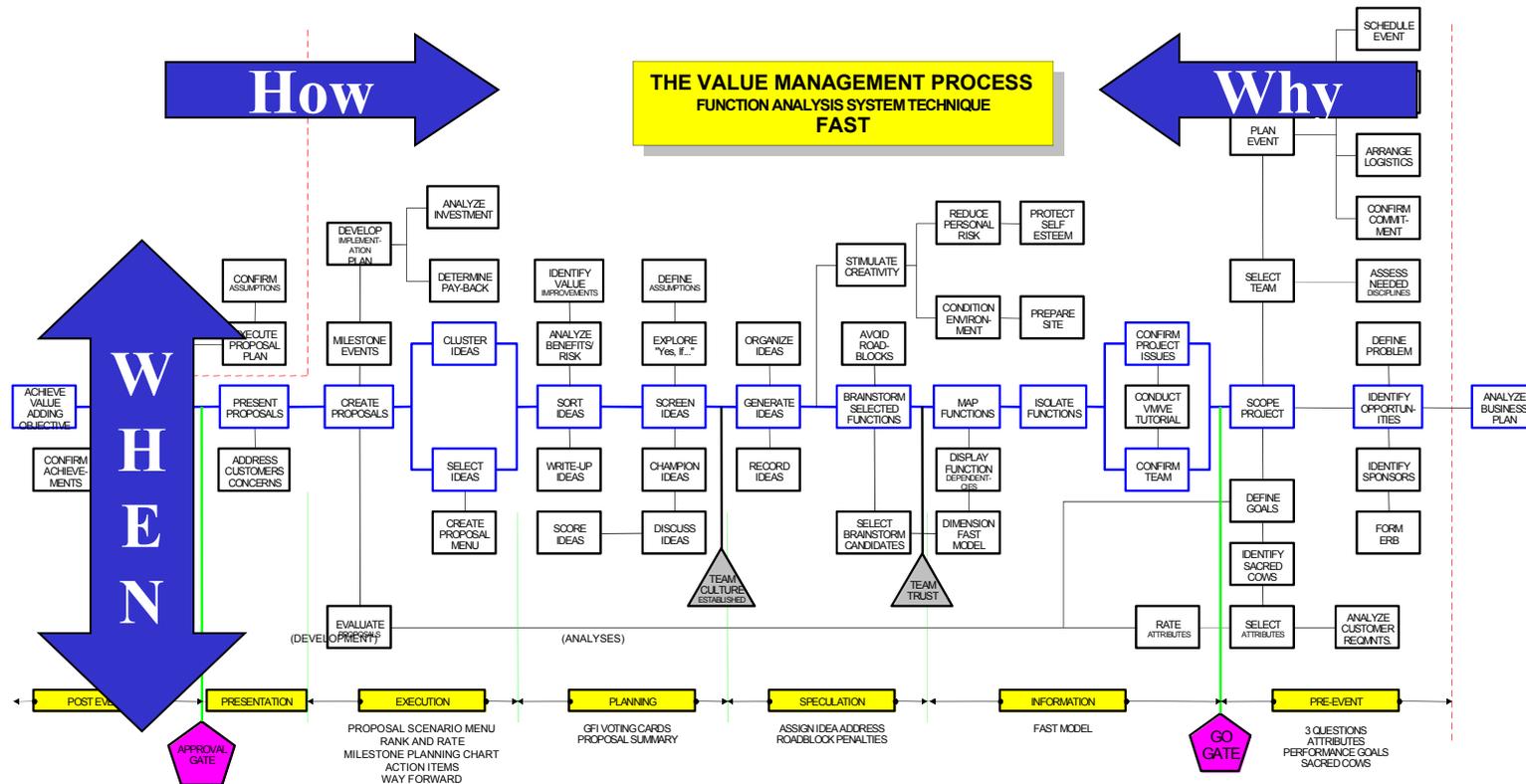
The Value Engineering "Job Plan"



The VE Job Plan is similar to DA in structure, but is less rigorous in evaluation of alternatives.

- 1. Pre-Event
 - Scope Project
 - Define Goals
 - Select Attributes
 - Identify Sacred Cows
- 2. Information Phase
 - Isolate Functions
 - Create FAST Model
 - Relate Function to Cost
- 3. Speculation Phase
 - Brainstorm Ideas
- 4. Planning Phase
 - Screen Ideas
 - Evaluate/Sort Ideas
 - Cluster Ideas
- 5. Execution Phase
 - Develop Proposal Menu
 - Build Proposal Scenarios
 - Evaluate Proposals
 - Justify Business Case
- 6. Presentation Phase
 - Present Results
 - Recommend Proposal
 - Review Implementation Plan

New tools like the FAST diagram can provide operational insights and decision optimization.



There are stereotypical views of both processes, which may have kept them apart.

Decision Analysis

- Only for large projects
- Time consuming
- Expensive
- Only for strategic projects
- Requires large teams
- Not valid for operational decisions

Value Engineering

- Only for cost reduction
- Only used by operational management
- Only used after decision to proceed is made
- More for optimization than concept selection
- Does not work in strategy development

The marriage of the two processes provides a more robust and value adding process.

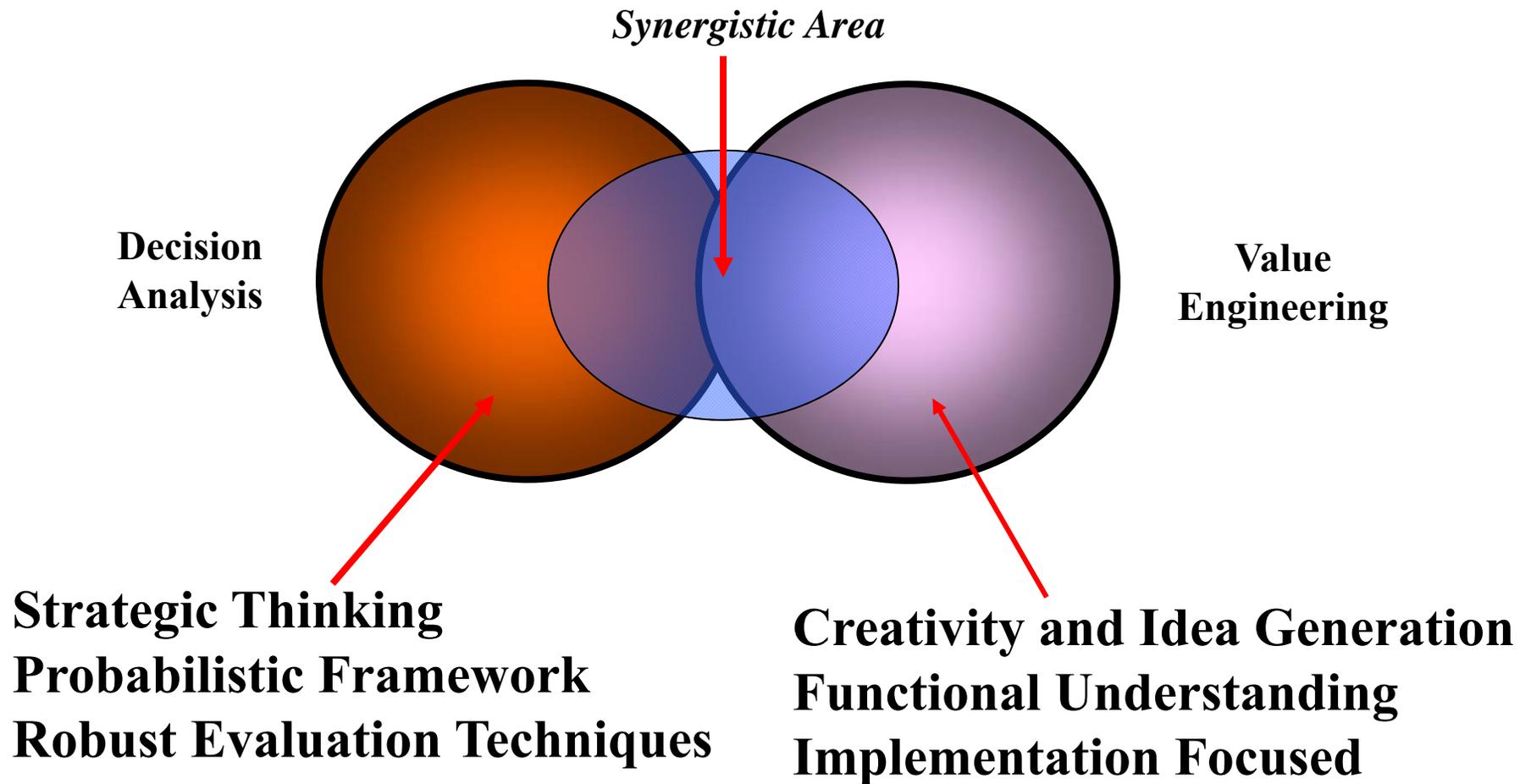
Decision Analysis

- + Understood by senior management
- + Explicitly deals with uncertainty
- + Can quantify soft and hard issues
- + Focused on taking action
- Poor implementation handoff
- Not designed to “optimize” the alternative
- Could be more creative

Value Engineering

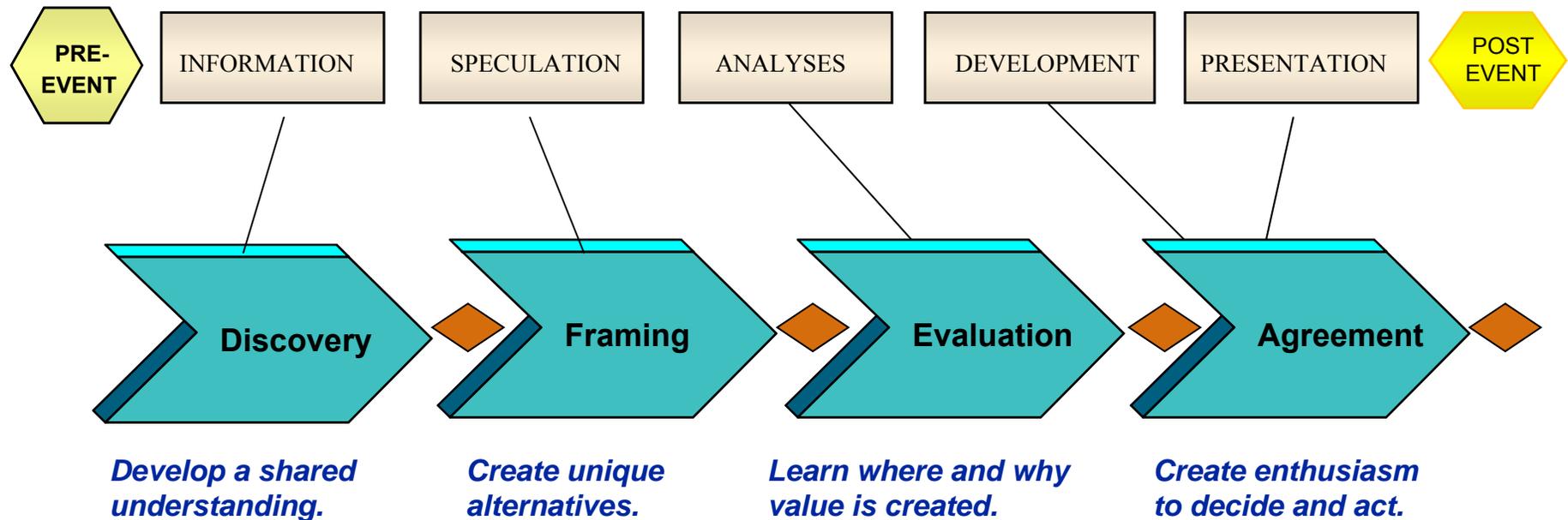
- + Understood by project managers
- + Identifies functions and relationships
- + Creative process
- + Focused on implementation
- Does not explicitly account for risk
- Anchored by committed strategy
- May be augmented by probabilistic framework for understanding the value of information

Real synergy can be created that will reduce workloads and the decision cycle time of the organization.



Both processes share a synergistic flow, with the end goal being creation of greater value.

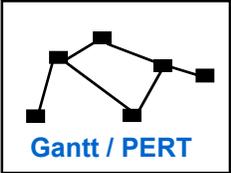
Value Engineering Job Plan



Decision Analysis Process

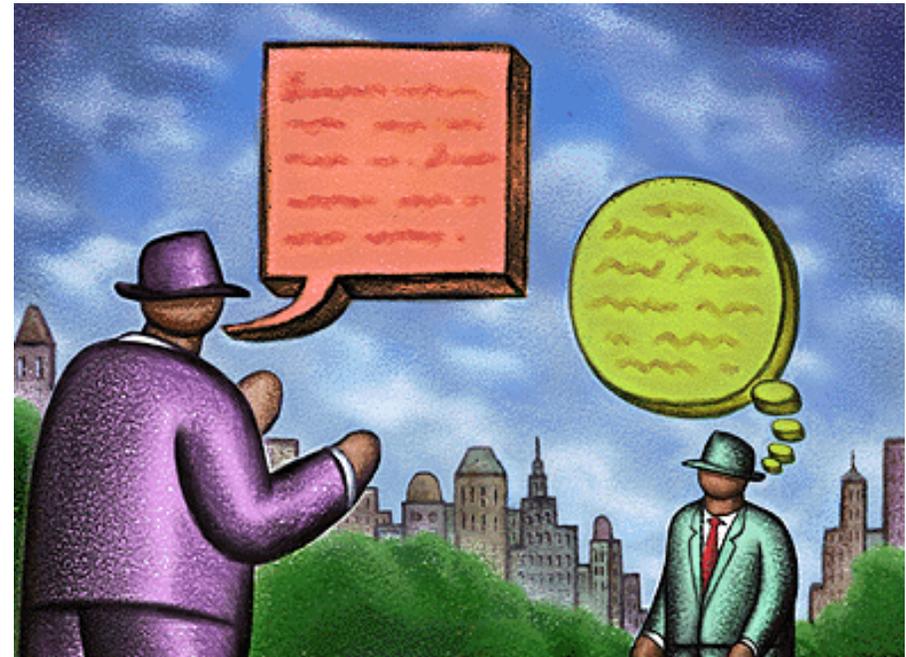
 Decision maker interaction

By aligning the two processes we can add value from strategy through operation.

	 Strategic	 Execution	 Operations
Value Creation:	<i>Determine Value Potential</i>	<i>Create / Capture opportunity</i>	<i>Convert the Resource to revenue</i>
Quality Focus:	<i>Decisions</i>	<i>Project Management</i>	<i>Operations Functionality</i>
Example Metrics:	<ul style="list-style-type: none"> • PV 12 • Capital Efficiency 	<ul style="list-style-type: none"> • Schedule • Budget • Fulfill Strategy 	<ul style="list-style-type: none"> • OPEX • ROA/ROCE

This marriage will provide senior management and operational management with a common language.

- **Senior management will:**
 - See the different options and the accompanying risk and return
 - Have confidence in the scope and level of analysis
- **Operational management will:**
 - Be able to communicate value improvements in a common language
 - Utilize a probabilistic framework for better judgment of risk and return

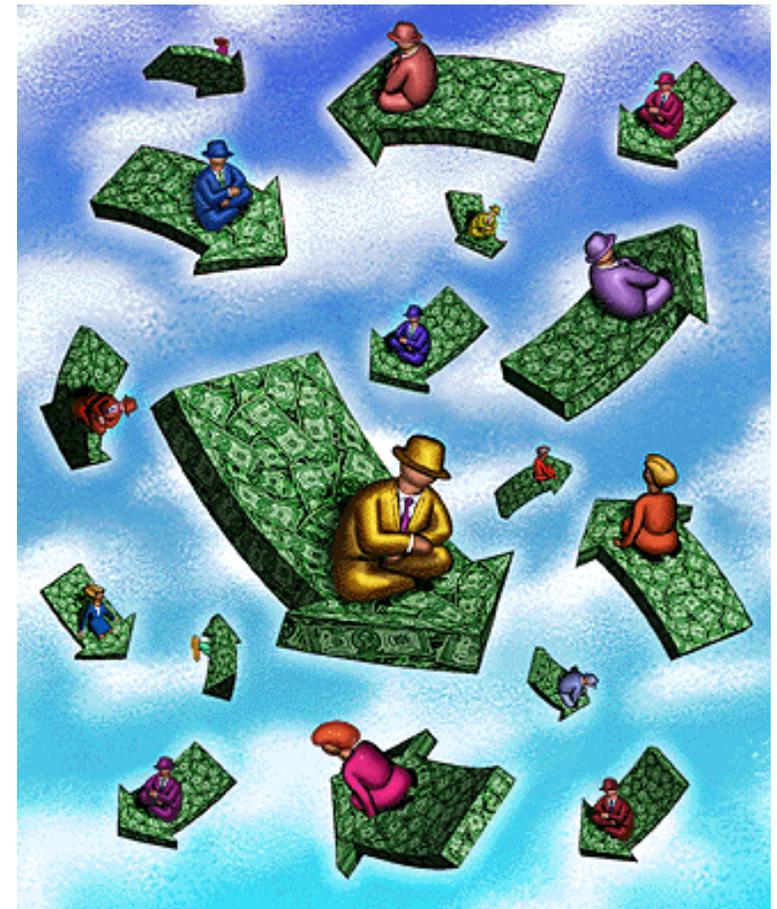


The real world benefits we have seen include:

- **A common language for all projects**
- **Greater process flexibility with project decisions**
- **More robust scenario development and planning**
- **Implementation tied to integration of processes and systems**
- **Decreased project execution cycle time (30-50%)**
- **Better understanding of the functions required to implement a project or product**
- **Development of more unique alternatives**

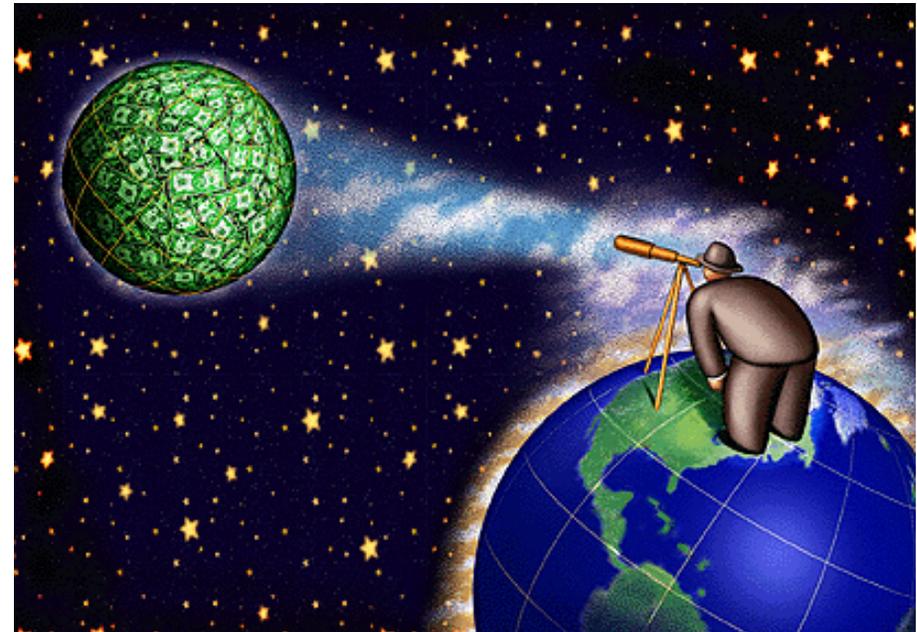
e Commerce example.

- **Used FAST in the Discovery stage to identify the functionality of the e-commerce process.**
- **Developed strategy maps which were tested against the FAST.**
- **Consulting cost: \$50k**
- **Investment: \$30MM**
- **Return: \$1.6B**



Oil and Gas Example.

- **Developed FAST model of Upstream business**
- **Tied the FAST model to project schedule to identify critical path**
- **Shortened time to first oil by six months**
- **Increased value by \$30MM NPV**



There are many examples from other industries.

- **Pharmaceutical**
 - R&D
 - Project Management
 - Portfolio Management
- **Airlines**
 - Pilot Negotiations
 - Flight Operations
- **Oil and Gas**
 - Offshore Developments
 - Pipelines
 - Refining
- **Internet Start ups**



What is needed to make the marriage work better?

- **Cross learning of the tools and processes**
- **Joint conferences and seminars**
- **Public courses on the linkages using real cases**
- **Development of a common and agreed upon set of terms**
- **Creation of a joint web site or forum**