- **Least Squares Software, Inc.**
- Principle Investigator

  William N. Reynolds, Ph. D.

- Team
  - Dr. Marta Weber – SME: Sociology, Psychology, Behavioral Profiling
  - Dr. Jim Holden-Rhodes – SME: Intelligence Analysis, Political Science, Open Source Intelligence, IW/COIN
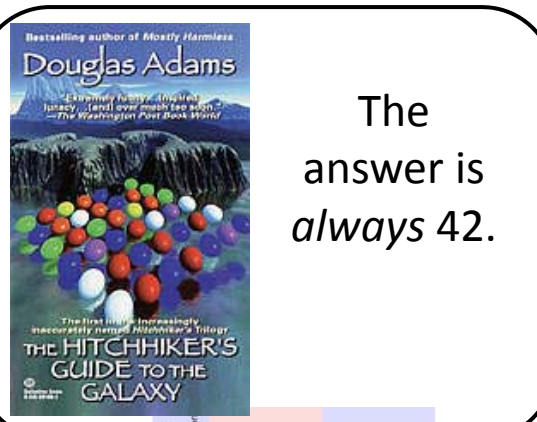
What makes an AM/SAT effective?

- Core Expertise: Analytic Methodology/Structured Analytic Techniques
- Approaches to structure human judgment.
  - Designed to mitigate problems with human reasoning
    - Cognitive Biases
    - Limited Working Memory

		Hidden Program		Leadership Mix			Hidden Pathway Financing		Over Pathway Financing	
		None	Exists	Overt Only	Both	Hidden (Overt as Cover)	High	Low	None	High	Low
Hidden Program	None										
	Exists										
Leadership Mix	Overt Only		X								
	Both	X									
	Overt as Cover	X									
Hidden Pathway Financing	High	X		X							
	Low	X		X							
	None		X		X	X					
Overt Pathway Financing	High										
	Low										

Morphine: Morphological Analysis

Douglas Adams

The answer is *always* 42.

THE HITCHHIKER'S GUIDE TO THE GALAXY

Evidence
1. Structure orientation
2. Structure dimensions
3. Military threat perception
4. Communication deficit
5. Political leverage of Kafiri military
6. Adami-Kafiri border
7. Defector reports on Hula-Hoop radar

Evidence	H1	H2
Orientation	+	−
Dimensions	+	−
Military threat	−	+
Communications defic	+	−
Military influence	−	+
Border tensions	−	+
Defector reports	0	+

Hypotheses
1. H.H. a communications structure
2. H.H. a missile guidance structure

Findings
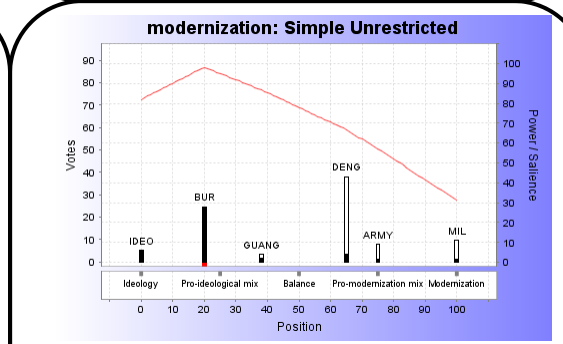1. Hula Hoop a radar installation
2. Hula Hoop a communication tower

Analysis of Competing Hypotheses
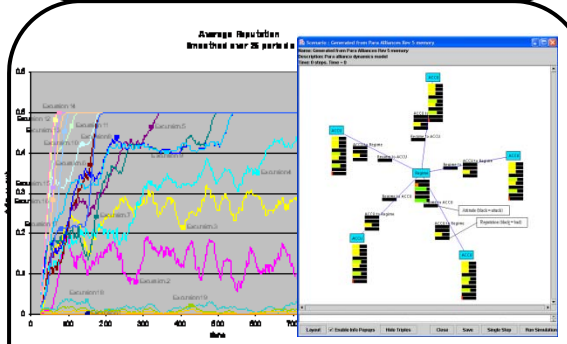
Policrash: Depth Simulation
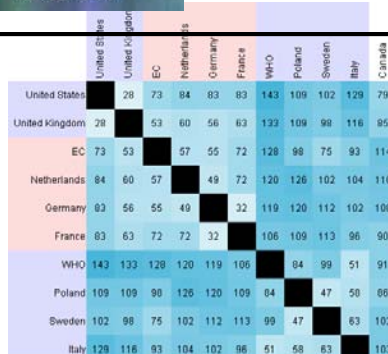
Landscape-Decision: Coalition Analysis
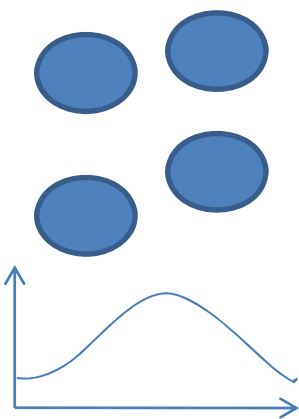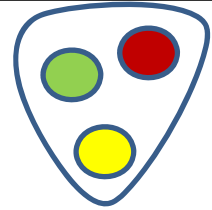
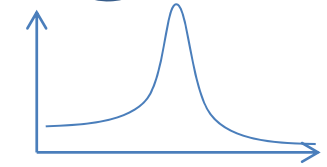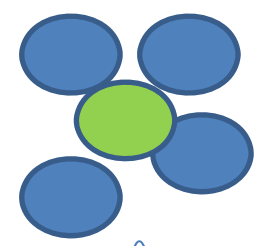modernization: Simple Unrestricted

Landscape-Decision: Decision Modeling

Breadth-Depth: Hypothesized Cost-Benefit Framework for SATs

Add high-value reasoning element

Low Uncertainty Argument
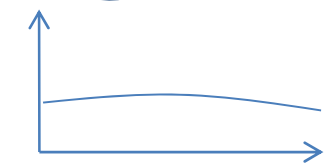
Pool of Potential Reasoning Elements

Recommended Approach:

Low Complexity methods To *Triage* High-Complexity methods

Initial Understanding – Relatively Hi Uncertainty

Add low-value reasoning element
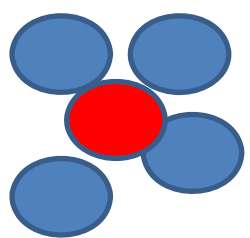
Higher Uncertainty Argument

Analytic Cost

SAT Complexity

- **Desired Collaborations:**
    - LSS would like to work with other performers interested in researching, developing and delivering forecasting methodologies and tools.

- **LSS' Value Propositions**
    - Work with our and/or other performers' tools/methods to develop Breadth-Depth approach, conduct experiments.
    - Support others through validation of techniques through triangulation, in particular using efficient, coarse-grained models that capture expert knowledge (Morphological Analysis/Morphine/Causal Inference Theory).
    - Track record of developing CONOPS for methods and tools for real-world deployment.
    - Support case studies with SME, Analytical, Complexity and Software Expertise.

- **LSS Specific SATs**
    - **Landscape-Decision** – Coalition and Small Group Decision Analysis, deployed at two agencies.
    - **Morphine** – Tool for conducting Morphological Analysis. Structured, highly efficient capture of SME knowledge for validating other approaches. Basis for designing statistical tests based on Causal Inference Theory.

Contact Information

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