

Using Decision Analysis to Select Strategic Partners

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Problem Background

- An element of the Department Of Defense (DoD) desires to team with other organizations to help fulfill information gaps. But there is/are:
 - No easy way to compare foreign partners against given criteria.
 - No systematic approach for assessing foreign partners' benefits and drawbacks.
 - No audit trail to track how decisions were made.
 - Multiple stakeholders.
 - Conflicting objectives.
- Because this is a complex problem with multiple stakeholders and conflicting objectives, Decision Analysis is an appropriate technique to apply.

Project Purpose

- Determine the best foreign partners to team with to help fulfill a capability gap accounting for:
 - The benefit of establishing a partnership
 - The risk of losing capabilities.
- Ensure that the results are traceable, understandable, rigorous, and defensible.
- Ensure that all stakeholders have input on the decision process.
- Ensure that the process is repeatable without the assistance of decision analysts.

Stakeholders' Perspectives

- Interviewed stakeholders and customers
 - When would you consider using a foreign partner?
 - What are the attributes of a good/bad partner?
 - What concerns do you have about using a foreign partner?

Stakeholders' Themes

- Mission-driven
- Counter-intelligence/Security
- Relationship
- Return on Investment
- Coordination
- Sharing Rules
- Information-driven Decisions
- Common Goal

Next Steps

- Interview results drove:
 - the development of a catalog of partner attributes, and
 - the creation of a value hierarchy.

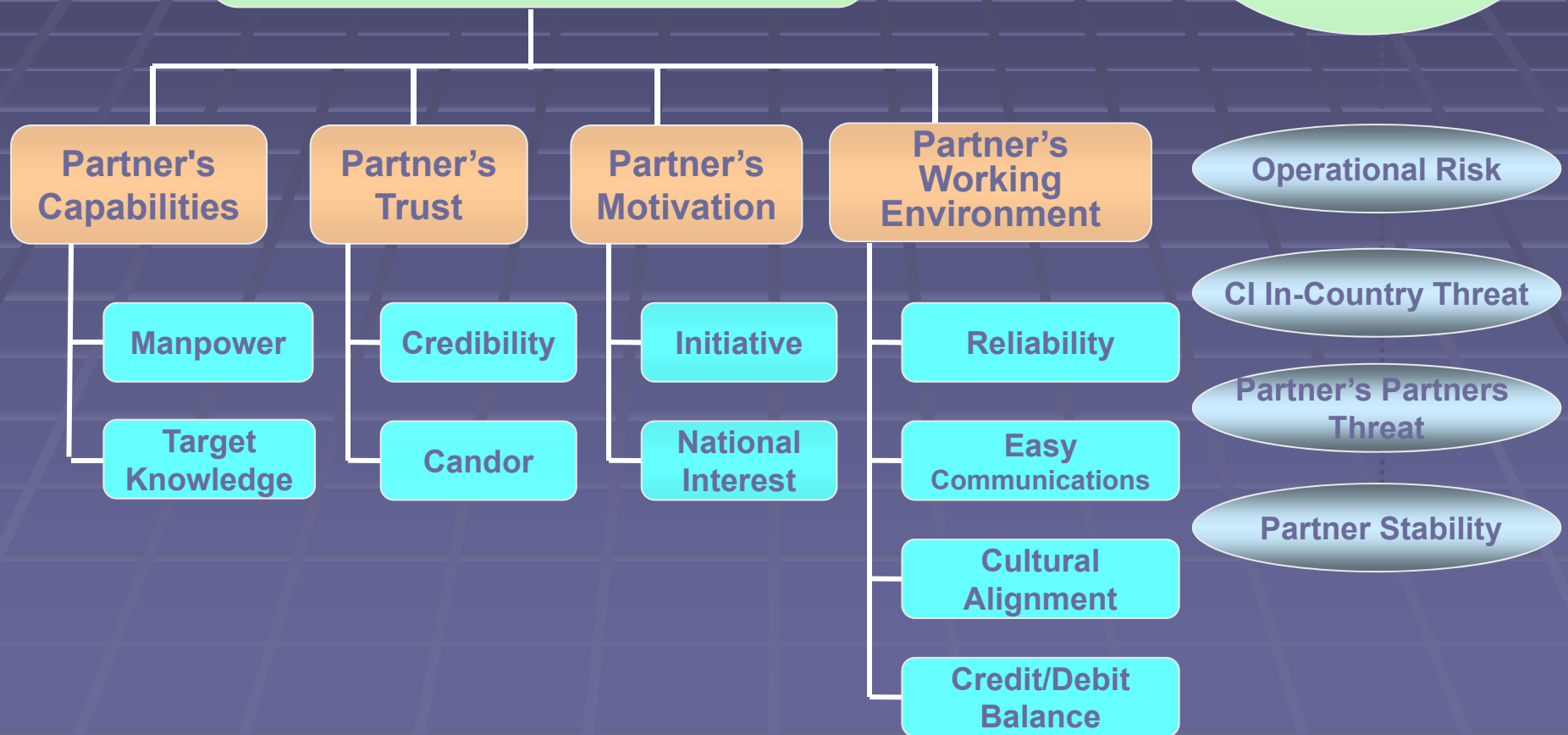
Approach

- Create a multiple objective decision analysis (MODA) model using the philosophy of value-focused thinking (VFT) as a guide.
 - Create a value hierarchy
 - Created scales that accounted for room to grow (VFT)
 - Developed swing weights
- Implemented model in an MS Excel-based tool

Partner Skills Value Hierarchy (U)

Maximize the likelihood of long-term, high-quality partnerships

Minimize the risk of lost intelligence



Partner's Skills Measure

Highly Capable	100
Capable	75
Developing	50
Planning for	25
Wants	10
Neither has nor wants	0
Unknown	0-100

Considering the capabilities of the partner's organization, determine a score that best describes the partner's skill for the needed capability.

Partner's Candor Measure

		CANDOR			
		Unknown - Too Early to Tell	Guarded	Neutral/ Mixed	Straightforward
LEVEL OF INVOLVEMENT	Intensive	X	0	70	100
	Moderate	X	10	50	90
	Minimal	U(25-70)	25	40	70
	None	U(0-100)	X	X	X

Pick the box that shows the intersection of: (1) candor, and (2) level of involvement of our interactions with the partner.

Partner's Available Manpower Measure

Low Manpower Impact (below .001)	100
Medium Manpower Impact (.001 to .01)	50
High Manpower Impact (.01 to .1)	25
Very High Manpower (Impact over .1)	0

What is the ratio of the number of people required for this requirement to the size of the partner's organization ?

Customer Assigns Weights

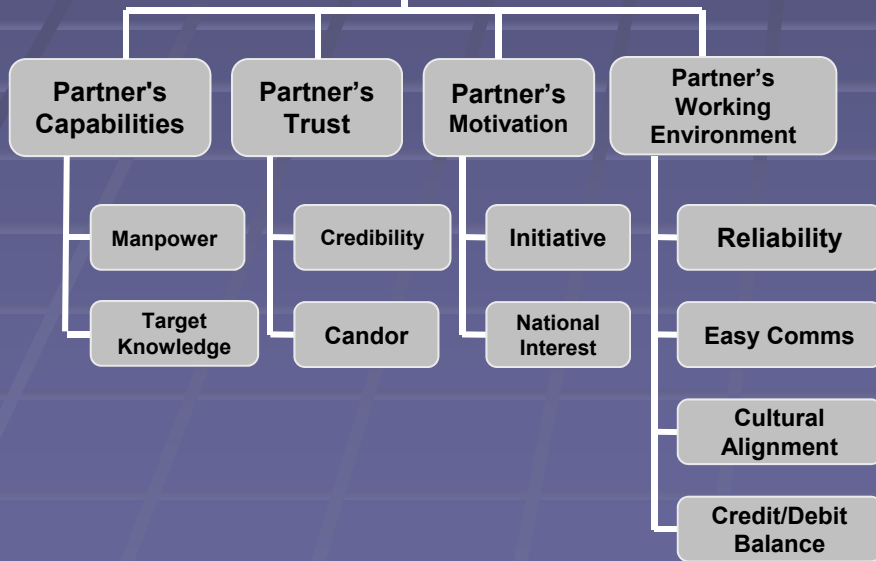
Relative Importance			
Nice to Have May Enhance DoD System Functions	Important Supports DoD System Functions	Very Important Improves the Quality of DoD System Functions	Critical Must Have to meet the DoD mission
Factors: Candor Cultural Alignment Target Knowledge	Credibility Initiative	Credit/Debit Balance Easy Comms National Interest	Manpower Reliability

The Excel model automatically determines trade-space variation for each assessment by examining the ranges of the scales used.

Minimize the Risk

Benefits

Maximize the likelihood of long-term, high-quality partnerships



Operational Risk

Fact of Technology or Target

CI In-Country Threat

Host and Hostile Intel Services

Partner's Partners Threat


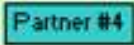
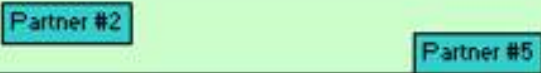
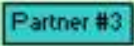
Sharing with the Adversary

Overall Stability

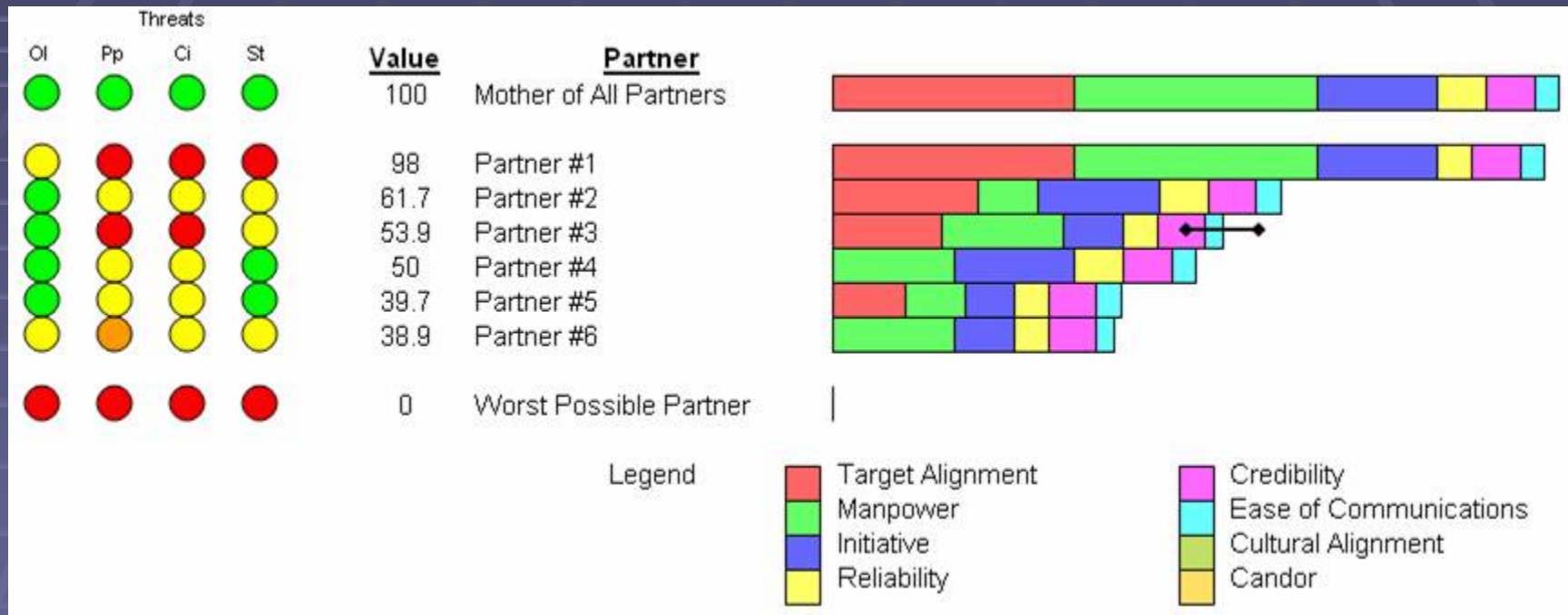
Political Violence/ Partner Stability

Tool Interface

- The tool was designed in MS Excel so that users who have never seen the model can easily score partners by moving boxes representing alternatives.

<input type="button" value="Done->"/>	Cultural Alignment with the U.S.
<input type="button" value="Toggle Values"/>	
Highly Aligned	 100
Somewhat Aligned	 75
Somewhat Unaligned	 25
Very Unaligned	 0
Unknown	(0, 50, 100)

Display of Results



Allowing for Uncertainties

- Certain data may not be available on a partner.
- To gain insight into how important the uncertainty is, we score the partner at its best and the worst possible levels
- The analysis shows us how important the uncertain data point(s) are – the wider the spread, the more important it is to resolve the uncertainty



In this case, there is significant uncertainty about the value of Partner 1. Partner 2 has less expected value, but has no uncertainty. A decision-maker comfortable with risk might choose Partner 1. One who is risk averse might prefer Partner 2.

Results and Insights

- Very difficult to make one tool that can be used on several different analyses
- Difficult for users to understand and use swing weights without decision analyst assistance
- Customers find the results helpful
- Developing a web-based tool that reads data from catalog