Irregular Warfare Analysis Workshop
WG 5: Thinking Models

Military Operations Research Society

Working Group Out Brief

3-6 February 09

Chairs: LTC Scott Smith, USSOCOM
Dr Bob Sheldon, MCCDC

Workshop Summary

These slides were briefed in the plenary session outbrief on 6 Feb 09 by LTC Smith & Dr Sheldon.

Agenda
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- Working Group Purpose/Charges
- Participants
- Schedule / Briefs received
- Findings
- Way Forward
- Key Take-Aways

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Workshop Summary

"Way Forward" was added to the MORS outbrief template.

"Suggestions" was removed from the template.

Working Group Purpose/Charges

Purpose: Frame the context of the IW problem properly, break down IW operations into its natural components, and investigate the subject through discourse and the application of systems thinking.

- **Charge to WG5**
  - **How should we be thinking about Irregular Warfare?**
  - **Can using a systemic approach better frame the problems, and lead us to a new set of solutions?**

Workshop Summary

WG-5 fulfilled its purpose. One aspect "break down IW operations into its natural components" had already been well-documented in the IW JOC, 11 Sep 07.

WG-5 answered the Charge. One aspect "lead us to a new set of solutions" should more appropriately be described as "lead us to a better understanding of IW".

WG-5 was well-represented by USSOCOM. LTC Smith, USSOCOM J-8 was co-chair, LTC Yancey, USSOCOM J-8, led the Systemic Operational Design (SOD) exercise, Maj Mills provided the perspective of USSOCOM J-10, MAJ Leonard Kergosien provided insights from TALENT – the "human terrain" counterpart.

Mr Bitinas aided in capturing graphics from the SOD exercise and translating them to PowerPoint.

Mr Upton helped produce the final outbrief.

WG-5 Agenda - Wednesday

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- **Wednesday, 4 Feb 09**
  - **1040-1130 WG-5 Overview & Introductions – Bob Sheldon & LTC Scott Smith**
  - **1130-1300 LUNCH**
  - **1300-1430**
    - **SOCOM IW challenges – LTC Scott Smith**
    - **OZ Wargame Integration Toolkit – Dr Debbie Duong, OSD PA&E SAC**
  - **1430-1445 BREAK**
  - **1445-1630**
    - **IW Decomposition Analytic Strategy – LTC Russ Schott, Mr Paul Works, TRAC**
    - **Systemic Operational Design (SOD) exercise - LTC Scott Smith, LTC Reb Yancey**

Workshop Summary

During the introductions, participants were asked to give their names, organizations, and their interest in IW.

There were 2 formal presentations in WG-5.

Dr Duong briefed the OZ Wargame Integration Toolkit, which is currently being used to support the OSD PA&E SAC Africa IW Analytic Baseline (AB) Study.

LTC Schott briefed the IW Decomposition Analytic Strategy, with supplemental commentary provided by Mr Mike Bauman, Director of TRAC.

References:

TRADOC Pam 525-5-500, Commander's Appreciation and Campaign Design V1, 28 Jan 2008

Systemic Operational Design: Learning and Adapting in Complex Missions, BG Huba Wass de Czege, US Army (Ret), Jan-Feb 2009, Military Review

WG-5 Agenda – Thursday, Friday

- **Thursday, 5 Feb 09**
  - 0800-1000 SOD exercise, cont.
  - 1000-1015 BREAK
  - 1015-1200 SOD exercise, cont.
  - 1200-1300 LUNCH
  - 1300-1430 SOD exercise, cont.
  - 1430-1445 BREAK
  - 1445-1630 SOD exercise, cont.
- **Friday, 6 Feb 09**
  - 0800-1045 Build/scrub WG-5 outbrief

Workshop Summary

Results of the SOD exercise are on subsequent slides.

Commander's Visualization was highlighted by several participants as being a key to the success of the SOD exercise.

SOD, used as a process methodology, assisted in the development of various "Thinking Models" of various aspects of IW. Among them were:

A "group thinking pad" was used to visualize the concepts associated with a complex dynamic system that facilitates group understanding and learning.

Another descriptor: SOD is both an ontology (logical categories) and an epistemology (nature and scope of knowledge).

Participants used both a white board and butcher paper to sketch out their ideas and engage in cordial discourse.

The following slides represent different perspectives on IW, some developed by individual WG5 participants, some developed by subgroups within WG5, and some developed collectively by the entire group.
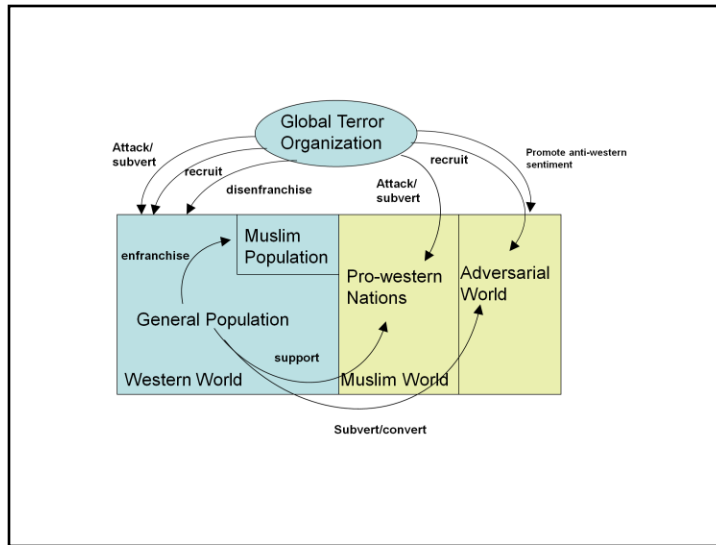
This graphical view is similar to the global representation as presented by Mr. Miller during the plenary session.
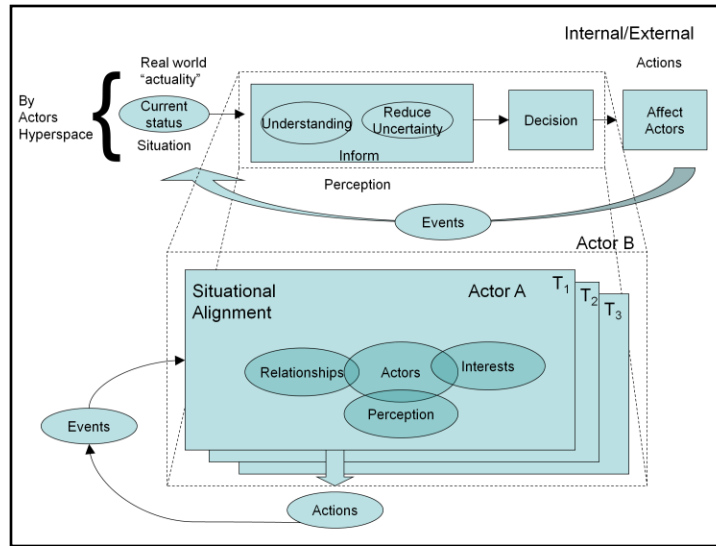
This "Decision cycle" chart represents how actors make decisions as their "situational alignment" changes in a temporal manner (T1, T2, T3), depending on changes in their relationships, perceptions, and interests. The dashed lines represent how the parallel dynamics of information, understanding, and uncertainty have an effect on an actor's relationships, interests and perceptions to create a new situational alignment given each new event.

Relationships
Interaction and mediation
Over time/in time
Client create value
Enhancing relationships

Relationship bank

Adversary

Elder

Village

Hot/Cold

"Thickness"

Position
On an issue

US
Forces

Interests
Values/beliefs
Importance
influence
risk
} Assign
values

Actor

Interests values

Perception of a Relationship

Decision/action

Actor

Events
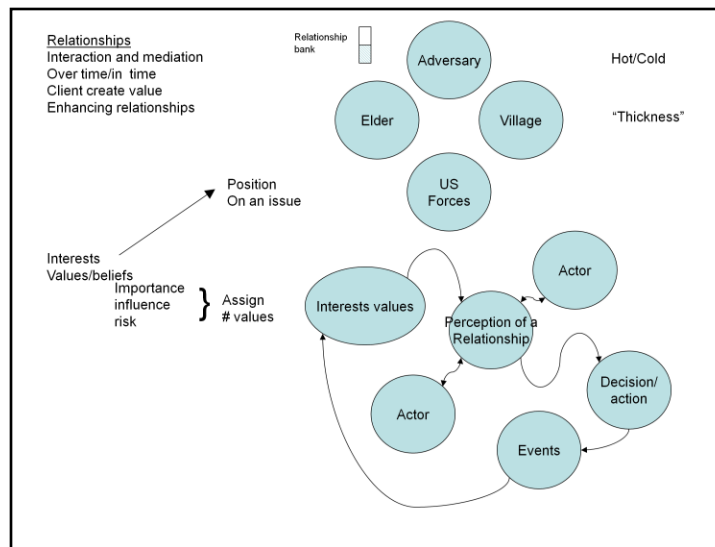
These notes provide some of the background for evolving systems understanding of the role of relationships in irregular warfare. Influencing the populace on various issues is critical. We can influence through persuasion, negotiation and coercion. Relationships enable persuasion and negotiation. Relationships involve interaction over time. It is not sufficient to focus narrowly on our relationship with someone. We must also gain some understanding of that person's relationships with others. [Jack Jackson: lajackso@nps.edu]

Persuasion is communicating to induce others to voluntarily think or act differently. Fundamental to effective persuasion is the idea that the audience is sovereign (i.e., they have the power and they decide).

The key elements of persuasion are Logos (content), Ethos (messenger), Pathos (audience) and Agora (context). Logos is the logical, coherent and cogent argument. Ethos is the characteristics of the messenger. Pathos is the motives, feelings, attitudes and knowledge of the audience. Agora is the context for communication in terms of (1) timing and (2) the physical method and cultural setting. Syzygy, meaning to join or yoke, is the alignment of these key elements. Effective persuasion combines and balances these key elements.

Salience is about the importance and relevance of an issue to a group. Self Indulgence occurs when the issue is salient to the messenger, but not the audience. Pandering occurs when the issue is salient to the audience, but not to the messenger. Salience should guide agenda setting. If the topic is salient to the audience then persuasion is possible.

Negotiation is trading, exchange or bargaining to reach an agreement. An interest is something that creates an advantage or disadvantage to a party (e.g., obtaining the highest price possible). A position is a policy that encapsulates interests. Positions are a defensive strategy.

There are three dimensions of performance in negotiation: claiming value by serving your own interests, creating value by satisfying other parties to the extent possible, and maintaining and enhancing ongoing relationships. Claiming value is naturally at odds with creating value and maintaining and enhancing relationships.

A party creates value by satisfying other parties to the extent possible. Information exchange supports creating value, but allows the other party to claim value at your expense by withholding information. Recognized methods for creating value include logrolling (conceding on issues of lesser importance to gain on issues of greater importance), distinguishing positions from interests and focusing on interests, creating a multi-dimensional trade space (E.g., ask each party for multiple simultaneous offers.).

For each party, the best alternative to a negotiated agreement (BATNA) is the primary source of negotiating power and minimum threshold for a negotiated agreement. BATNA is not static. BATNA is a perception to the other party. The zone of possible agreement (ZOPA) is the region for negotiation between two party's BATNA. No ZOPA implies no negotiated deal.

Relationships often matter more than the outcome of the negotiation. Relationships experience virtuous and vicious cycles. Virtuous cycles occur when two parties attribute good motives to each other and build trust. Vicious cycles occur when two parties attribute bad motives to each other and build mistrust. Cycles have intensity, which tends to increase over time. A long run virtuous cycle is prone to switch when a dramatic harmful event occurs and the intensity is often as great in the new vicious cycle.

The causes of vicious cycles include naïve realism (My view must be true; I am objective and reasonable. Other reasonable and objective people should reach the same conclusion as me. Anyone who sees differently is not objective and reasonable.), confirmatory bias (Giving greater weight to confirming information and lesser weight to disconfirming information.), blaming dynamics (Reacting not to what someone does, but why we think they did it.), and the lone moderate phenomenon (Others on both sides are extreme; I am moderate.)

Attribution errors are a common feature of bad relationships. In particular, accuser bias occurs when we overestimate the dispositional causes and underestimate the situational causes. Dispositional causes are factors mostly within the individual's control including attitudes, beliefs, character and personality traits. Situational causes' are factors beyond the individual's control including social or physical environment factors.

Virtuous cycles occur when two parties attribute good motives to each other and build trust. The perception of a fair process promotes a virtuous cycle. Procedural justice occurs when (1) parties participate in selecting the rules and (2) parties feel that voice is heard and considered. The consequences of procedural justice are (1) satisfaction with outcomes, (2) compliance with agreements, (3) willingness to settle, and (4) trust, commitment and loyalty. It must be noted that soliciting input for the sake of appearing interested (pandering) is highly destructive and a formula for backlash.

References

Class notes and handouts from Professor Gary Orren on "Persuasion: The Art and Science of Effective Influence", June 1007, Kennedy School of Government, Harvard University.

Class notes and handouts from Professor Keith Allred on Negotiations, June 1007, Kennedy School of Government, Harvard University.

"You [military professionals] must know something about strategy and tactics and…logistics, but also economics and politics and diplomacy and history. You must know everything you can know about military power, and you must also understand the limits of military power. You must understand that few of the important problems of our time have…been finally solved by military power alone."– President John F. Kennedy

A society can be defined as a population, whose members are subject to the same political authority, occupy a common territory, have a common culture, and share a sense of identity. No society is homogeneous. Each society is composed of both social structure and culture. A society usually has a dominant culture, but can also have a vast number of secondary cultures. Social structure refers to the relations among groups of persons within a system of groups. Social structure is persistent over time. It is regular and continuous despite disturbances. The relationships among the parts hold steady, even as groups expand or contract.

Six possible indicators of legitimacy to analyze threats to stability: (1) the ability to provide security for the populace (including protection from internal and external threats); (2) selection of leaders at a frequency and in a manner considered just and fair by a substantial majority of the populace; (3) a high level of popular participation in or support for political processes; (4) a culturally acceptable level of corruption; (5) a culturally acceptable level and rate of political, economic, and social development; and (6) a high level of regime acceptance by major social institutions. The presence of the rule of law is a major factor in assuring voluntary acceptance of a government's authority and therefore its legitimacy.

People refers to nonmilitary personnel encountered by military forces. The term includes all civilians within an area of operations (the populace) as well as those outside the area of operations whose actions, opinions, or political influence can affect the mission. Every action, including uses of force, must be "wrapped in a bodyguard of information."

[COUNTERINSURGENCY]
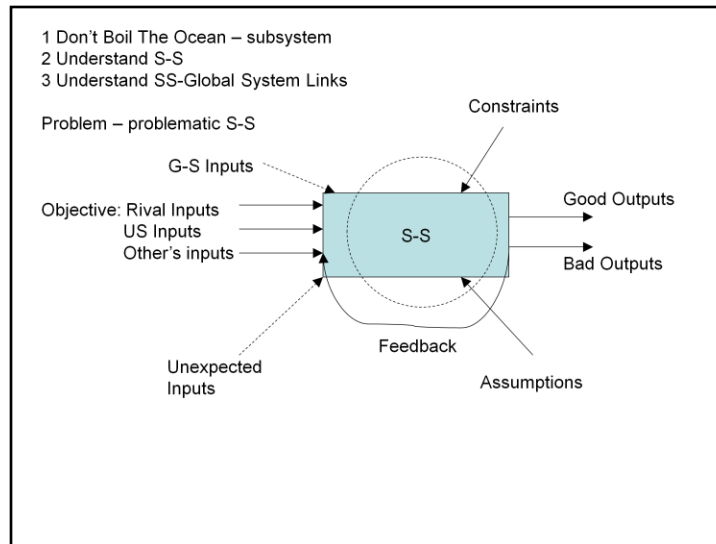
This was a systems engineering approach to looking at sub-systems.

Tenets:
1. Don't boil the ocean – Address the sub-system of interest.
2. Understand the sub-system
3. Understand the links to the larger system – sub-optimizing on the sub-system may adversely effect the larger system

Problem: ID the problem & sub-system of interest (problematic sub-system)

Objective: Influence the sub-system (hence the larger system) in a positive/beneficial way to US
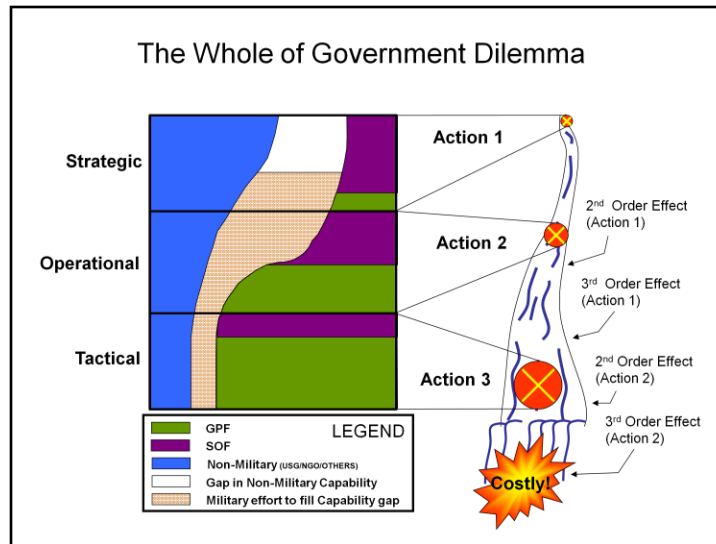
Notes:
• We can influence inputs, outputs, and feedback
• Use this framework to wargame the system by inputs, outputs, feedback
• Wargaming team must be multifunctional – military, social scientists, analysts, etc.
• Capture issues, agreements, risks, etc. for follow on analysis
• Use synchronization conference to tie sub-systems together
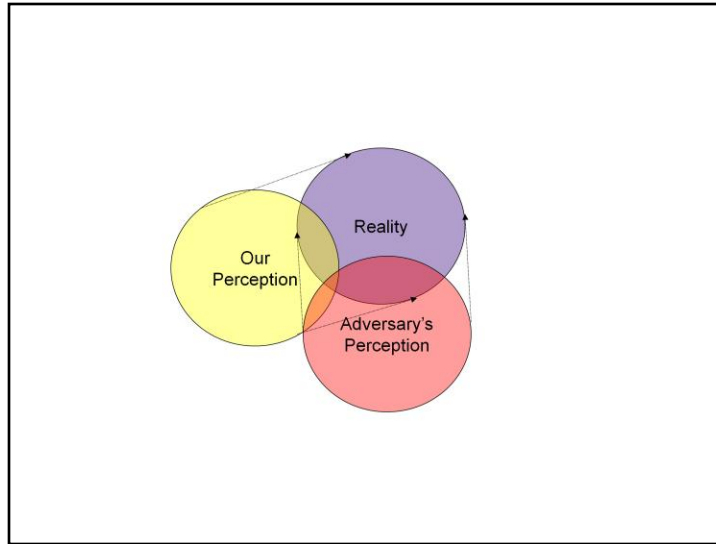
The idea that was discussed using this diagram was that it may be necessary to look at the different perceptions of reality and try to align them in order to come to a common understanding.

Dynamic Model of Situated Cognition
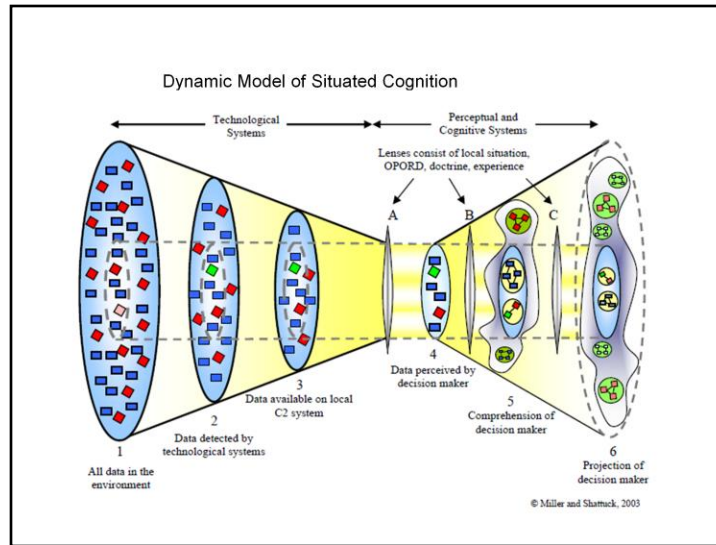
The dynamic model of situated cognition (DMSC) developed by Dr. Nita Miller and Dr. Larry Shattuck describes how information from the real world is processed into situation awareness. The diagram is in the context of military command and control, but the underlying theory applies widely. The model contains ovals with elements of information that represent the real world, available information, information attended to by the person, perception, comprehension based on mental models, and projection into the future. Lenses that represent the individual's experience (including culture, education, training, etc.) modify the information and produce the elements of situation awareness (perception, comprehension and projection).

The Whole of Government Dilemma

Strategic

Operational

Tactical

Action 1

Action 2

2nd Order Effect (Action 1)

3rd Order Effect (Action 1)

Action 3

2nd Order Effect (Action 2)

3rd Order Effect (Action 2)

Costly!

LEGEND
- GPF
- SOF
- Non-Military (USG/NGO/OTHERS)
- Gap in Non-Military Capability
- Military effort to fill Capability gap

The large box represents all the non-adversarial (the good guys) stakeholders of an IW campaign. The curved line divides the box between military and non-military actors of those who should participate in planning and execution of actions associate at the different levels of warfare. The purple areas represent the proportion of SOF relative to the proportion of GPF applied at the varying levels of warfare. The blue shaded area represents the actual level of participation from the USG/NGO/Others. The open white space represents the vacancy created by the lack of an integrated effort across all of the relevant stakeholders (those who do not show up to participate or those who are not integrated into the process). The area shaded with bricks represents the propensity for DoD to execute tasks that they may not necessarily be equipped or trained for in the absence of other stakeholders.

Hypothesis: Irregular Warfare requires the use of all available means by which to bring about a desired transformation and/or outcome.

The "river" on the right represents the time of entry where we engage the adversary at the varying levels. Depending where we choose to enter the stream of influence (red circle with yellow hashes) will determine how much influence we will have at any of the given levels. The objective should be to "minimize" the level of effort at the tactical level, where it becomes very costly and less productive, and maximize the level of effort at the Strategic and Operational levels, where the second and third order effects are less costly and are much more productive in transforming the system. If we wait to enter the stream of influence (as has been our practice for decades) nearer to the tactical level there may be catastrophic 2nd and 3rd order effects as we head over the waterfall!

Way Forward

- We've only scratched the surface
- Continue SOD exercise
- Establish a Community of Interest (COI)
- Take advantage of USSOCOM J-10 bi-weekly VTC
- Explore collaboration site

Workshop Summary 18

During this two-day exercise, the group was exposed to the SOD methodology and participated in the early stages of the investigation process. There is much more work to be done to hammer out the logic of the sub-systems and how they relate to the system as a whole. Once the relationships are represented it will begin to reveal insights to opportunities that could be exploited in order to transform the system to a more favorable endstate. It would be helpful to establish a COI across all domains to continue the development of this system understanding. One venue is the bi-weekly VTC being conducted by USSOCOM J-10 and the TRAC led IW-WG.

There are 3 key ideas from SOD that would be useful for all analysts to consider when analyzing IW.

1. In traditional analysis based on the Scientific Method, Problem Definition is Step 1 and then you move on with the study. The dynamic and "wicked" nature of IW requires that analysts revisit and reframe the problem as necessary throughout the study.

2. In many studies, analysts spell out their constraints, limitations, and assumptions (CLAs) & then move on with their studies. The dynamic and "wicked" nature of IW requires that analysts also revisit CLAs as necessary throughout the study.

3. As has been expressed historically by ORSAs, discourse with decision makers and SMEs is essential to the success of studies; just as it is for SOD.

Backups
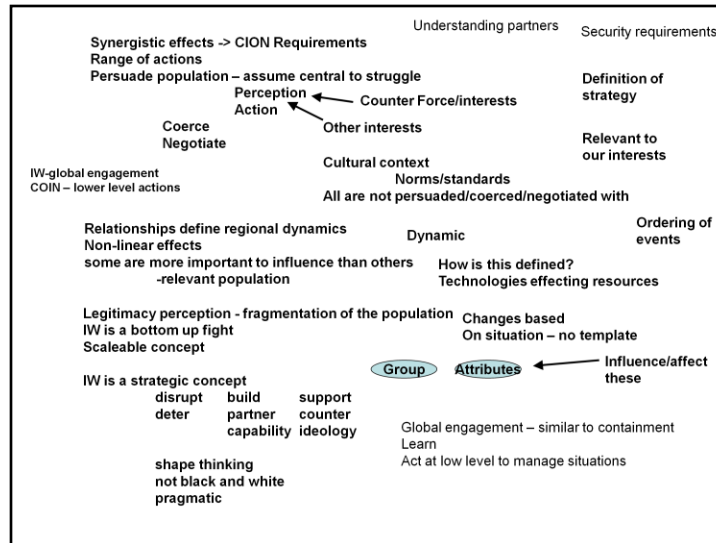
Some comments expressed about this graphic:

•Must understand ourselves.

•Think in terms of our adversary.

•Do we need a new capability?

•Logic reasoning to understanding.

•How do we standardize our data (information) for analysis?

•Is a soldier all things to all adversaries?

•Research.

•Theory and patterns vs. data collection.

•Range of outcomes.

•How we put a realistic bound on what we do?

When you investigate the components in the dynamically complex system, you begin to gain an appreciations of the how the system looks in it's totality.

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- A "visual thinking pad" (dry erase board) is used to enable thinking and to capture the group's rationalization. This is really a cognitive exercise, hopefully resulting in a group synthesis. The group should ask itself, *How are we thinking about this problem?* and then ask, *How should we be thinking about this problem?* A mental model (a representation of the group's thinking and learning) is then captured to enable thinking- and hopefully is a useful representation to enable/capture insight.