Red Team and Army Logistics University

What We Do, and Why

The University of Foreign Military and Cultural Studies brings a unique, tailored approach to providing an education focused on decision support. The core of our curriculum is based on self-awareness, groupthink mitigation, critical thinking, and cultural apperception. Our premise is that people and organizations court failure in predictable ways, and that they do so by degrees, almost imperceptible, according to their mindset, biases, and experience, which are formed in large part by culture and context. Our education involves more than Socratic discussion and brainstorming. We borrow techniques, methods, frameworks, and best practices from several sources and disciplines to create an education and practical application method that we find to be the best safeguard against individual and organizational tendencies toward biases, errors in cognition, and groupthink. To that end, our curriculum is rich in divergent processes, red team tools, and liberating structures, all targeting decision support via a trained disposition towards curiosity, self reflection, and empathy for others.
Our approach has proven effective in units and organizations from brigades to the Joint Staff.

The upcoming pages describe Red Team Tools, Techniques and Liberating Structures. The methods are practical and designed to stimulate critical conversations, liberate the full potential of any group, and make it easy for leaders of all levels to create conditions for people to work at the top of their intelligence and creativity.

For more information about Liberating Structures:
http://www.liberatingstructures.com/

The Surprising Power of Liberating Structures, Simple Rules to Unleash a Culture of Innovation, Henri Lipmanowicz and Keith McCandless.

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Agenda

Desired Outcome: Equip ALU with new ideas on how to strategically administer educational programs with an emphasis on critical thinking.

1. Overview of the University of Foreign Military and Cultural Studies
2. Use Divergence –Convergence (structured brainstorming) to collect input from the group identifying the obstacles to improving the critical thinking aspect of ALU curriculum
3. Apply small group techniques {1 on 1, 2 on 2 Emissary Exchange} to critically examine the 'why' we need to overcome the obstacles earlier described
4. Identify what is within the power of the group to improve irrespective of new policy or resources by using two techniques - My 15% and Ad Agency
5. Conduct a 4 Ways of Seeing exercise (how X sees X, how X sees Y, how Y sees Y and how Y sees X) focused on the perspectives of ALU leaders vice faculty on the issue of curriculum update and inclusion of critical thinking
6. End with a Second Chance meeting using a Weighted Anonymous Feedback method '5x5=25.'

5 Whys

The 5 Whys is a question-asking technique used to explore the cause-and-effect relationships underlying a particular problem. The technique is used to determine the root cause of a defect or problem symptom. However, the process can be used to go deeper to explore questions related to purpose rather than problems.

Method: Pick an issue or pose a question and ask participants to think about it for at least a minute. Pair up or form a small group and choose one person to state their thoughts on the issue. Each participant gets a turn in this role of explaining their thoughts and position on an issue of their choice.

The role of the others in the group is at first to be active listeners. Let the speaker complete their thoughts; do not interrupt for clarification or any other purpose. Once the speaker is done, ask "why?" at least five times, e.g. "Why is that important? Why should my staff section care about that? Why should resources be applied against that effort now?"

You don't need to stop at 5 whys, several "what" and "who" questions should arise as a result, like "what should do we do now? What are the implications of what is suggested? Who else needs to know?"

It is important to begin with "why" questions. The answers to "why" questions get at causal links behind events and problem symptoms. "What" questions tend toward simple data collection, and are subject to confirmation biases.

The Four Ways of Seeing

Examining the situation using the Four Ways of Seeing may show the challenges you face:

1. How you view yourself, your unit, the mission, etc.
2. How the adversary (or indigenous people) views himself; his cause, unit mission, etc.
3. How you view the adversary (or indigenous people)
4. How the adversary (or people) views you
5. Identify disconnects between steps 1 & 4, 2 & 3. These are critical points that analysis and planning must address

Thorough research should be conducted to complete the analysis of these perceptions. It is more complex than the simple model implies, for several reasons:

- Seldom, if ever, will there be only two actors in the system under study.
- All the actors' perceptions and inter-relationships within the system must be considered in order to provide context for the analysis.
- How each actor perceives and defines the operational environment, legitimate targets and acceptable weapons must also be considered
- It must be realized that all actors hold values, beliefs, and perceptions that they view as right and rational.
- Perceptions of the external audience(s) to whom we and our adversaries are playing cannot be discounted.

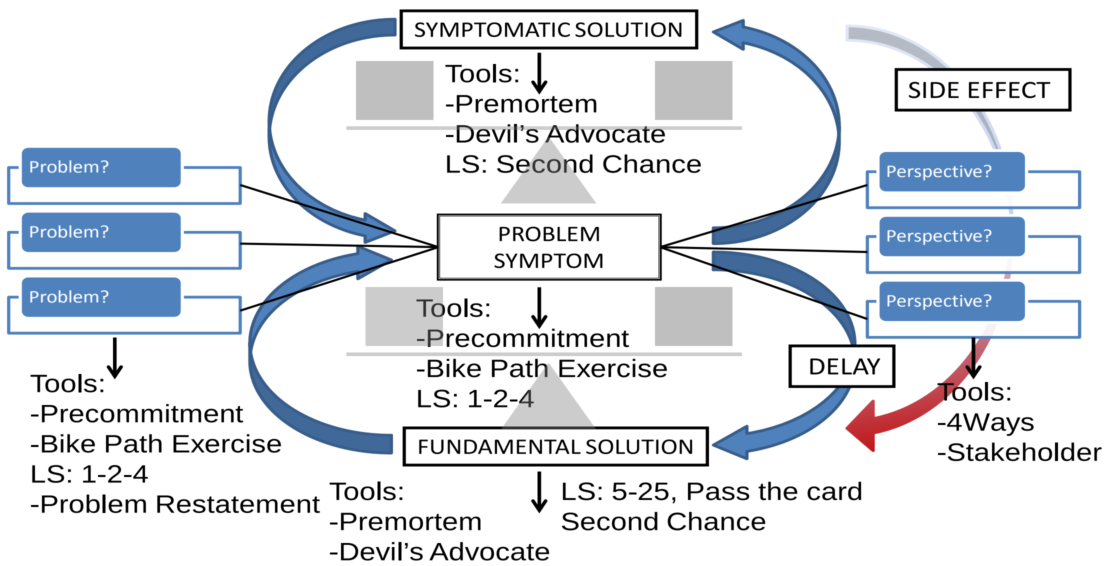
How X Sees Itself	How X Sees Y
How Y Sees Itself	How Y Sees X

Mitigating Groupthink

- The leader should refrain from stating up front any preferences or expectations.
- Establish an *expectation of conflict* in deliberation—but focused on the issues, not between personalities. Conflict can foster creativity and learning.
- Prior to beginning, have all individual “pre-commit” by writing down their initial answers to the issue being discussed—this helps establish ideas prior to deliberation and mitigate a pull toward conformity. Demand several options from each member.
- Each member of a decision-making group should have the *responsibility* to air objections and doubts, and be reinforced by the leader’s acceptance of criticism from the group at large.
- *Leverage anonymity of ideas and responses* where possible.
- The group should consciously construct alternative perspectives of the situation. Alternative perspectives force the group to form options in the case they occur.
- The group should set up several independent sub-groups to work on the same issues. *Seek diversity in assembling these groups*.
- The group should assign individuals to act as a devil’s advocate vis-à-vis options, policies, etc., that the group is assembling.
- The group’s individuals should seek outside expertise and input on the question(s) at hand.
- The group should bring in expertise to challenge the views being developed by the group itself.
- Once the group has reached a conclusion on the best option, a “second chance” meeting should be held at which every member restates any and all reservations he/she may have concerning the chosen option.

From Janis, Irving, *Groupthink*, pages 262-271; and Russo, J. Edward and Schoemaker, Paul J.H., *Winning Decisions: Getting It Right The First Time*, Chapter 7.

“Shifting the Burden”



The “Shifting the Burden” model structure as Peter Senge calls it is composed of two balancing (stabilizing) processes. Both balancing loops try to correct the same problem symptom, but one addresses symptoms while the other addresses the underlying problem(s). Efforts directed only at symptomatic solutions which appear beneficial at first only serve to exacerbate the problem over time, often with debilitating side effects. While Senge addresses the underlying problem indirectly in “Understanding and Using the Model” on page 105 of *The Fifth Discipline*, (revised 2006 edition), the problem is not part of the model, only the problem symptom. He talks about a problem again in “How to Create Your Own Shifting the Burden Model” on page 111, but does not address how to determine what the problem is or how it is perceived. Senge’s approach is symptom/solution centric. The addition of problem and perspective elements to the structure along with Red Team tools and Liberating Structures to diagnose them make Senge’s structure a richer framework for Red Teamers to develop alternative perspectives and options. To start with identifying the problem symptom as Senge suggests is a good place to begin, but rather than proceeding from there to identifying the fundamental solution (convergent thought process) this model recommends a close examination of the underlying problem(s) and perspective(s) before moving on to the solution(s). Sometimes restating a problem shows there is more than one problem. Several tool recommendations are included in the illustration. Operating Assumption is a good alternate term to use instead of Perspective. See JJ O'Boyle's article, “The Culture of Decision Making” for an explanation of cultural logic and operating assumptions.
http://www.winstonbrill.com/bril001/html/article_index/articles/251-300/article251_body.htm

From Senge, Peter, *The Fifth Discipline*, 2006 Revised Edition, pages 111,112.

Circle of Voices

Circle of Voices is a simple facilitation practice designed to equalize participation and teach students that listening, appreciating, and synthesizing are just as crucial to good discussion as is making brilliant original contributions.

Participants form small groups of five to six seated in a circle. They are given a minute or so in silence to think about what they have to say about an assigned topic. The discussion opens with one person having a period of uninterrupted "airtime" of no more than one minute. During this time the speaker may say whatever they wish about the topic at hand. While the person is speaking no interruptions are allowed. People take their turn to speak by going around the circle in order. This eliminates the stress of other participants having to decide when or whether to jump in, or for the speaker to worry about interruption before they can finish their thoughts.

After the initial "circle of voices" is complete, discussion opens for anyone to speak. The only restriction on this period of discussion is that participants are only allowed to discuss other person's ideas that have already been expressed. Participants may not expand on their own ideas, only about their reaction to something already said. This prevents a tendency toward "grandstanding."

Facilitation principles:

- Precommitment
- Everyone speaks once before anyone speaks twice.
- Active listening.
- Respectful engagement.

Circular Response

Circular Response is a great way to facilitate discussion participation, promote continuity of conversation, and to give people some experience in the effort required for respectful listening.

Participants form groups of six to eight, seated in a circle. They are given a minute or so in silence to think about their response to a discussion topic or question. The conversation begins with one person having a period of uninterrupted "airtime" of no more than one minute. During this time the speaker may say whatever they wish about the topic at hand. While the person is speaking no interruptions are allowed.

After the minute is up, first speaker yields the floor to the person on their left, and that person speaks for a minute. The second speaker is not free, however, to say anything they want. They must incorporate into their remarks some reference to the preceding speaker's message, and then use this as a springboard for their own comments. This does not have to be an agreement – it may be an expression of dissent from the previous opinion.

After a minute, the second speaker stops talking, and the person on their left becomes the third discussant, following the same ground rules. Following this pattern the discussion moves around the circle. Once everyone has had the opportunity to speak, the floor is opened for unconstrained conversation.

The interesting thing about this facilitation technique is that the last person has no advantage over the second speaker. This is due to the last speaker not having the luxury of mentally rehearsing the perfect contribution because they have no idea what the person immediately before them is going to say until they speak.

Facilitation principles:

- Precommitment
- Everyone speaks once before anyone speaks twice.
- Active listening.
- Respectful engagement

Pre-Mortem Analysis

This is a method for helping decision makers anticipate problems. The purpose of a PreMortem is to find key vulnerabilities in a plan. In contrast to risk analysis, the PreMortem begins with the assumption that the plan *has failed*. The pull of groupthink, consensus, and a false sense of security is punctured, and is replaced by an active search aimed at preventing trouble later on. The premise for the PreMortem exercise is that people may feel too confident once they have arrived at a plan. PreMortem analysis empowers the participants to question the premise of a proposed course of action, its assumptions, and tasks. It breaks ownership of a course of action through a divergent process that encourages objectivity and skepticism.

There are six steps to the PreMortem exercise:

Step 1. Preparation. All members should be familiar with the base plan, at a minimum.

Step 2. Imagine a fiasco. Imagine that the plan failed. Ask, why did this happen? What could have caused this? Specifically, what are the *reasons*?

Step 3. Generate the reasons for failure. Participants individually spend several minutes writing down all the possible reasons for failure. It is important to do this individually first, so that the insights and experience of each participant are brought to bear.

Step 4. Consolidate the lists. Go around the room in round-robin fashion and solicit input from the participants one at a time. Record the ideas on a whiteboard or poster paper. Continue until all ideas are exhausted. This is a divergent process in which four rules must be followed:

Rule 1: The more ideas, the better
Rule 2: Build one idea upon another. In other words, if someone else's idea prompts a new one from you, write it down.
Rule 3: Wacky ideas are okay. This rule bothers most people. Conventional wisdom dictates that "new" ideas must be sensible, reasonable, constructive, and practical. Wacky, silly, and foolish are subjective modifiers that people tend to apply to any idea that does not conform narrowly to a risk-free standard of sensible, reasonable, constructive, or practical. Although wacky ideas may seem foolish, they can generate serious thought.
Rule 4: Don't evaluate ideas, neither yours nor someone else's. This includes body language, eye rolls, nods or groans. This rule liberates people from their self-imposed restraints in generating ideas, and eliminates fear of criticism and ridicule.

Step 5. Revisit the plan. Based on the list of concerns, revisit the plan and determine what to mitigate. Determine "ownership" and develop concepts for modifications to the plan.

Step 6. Keep and periodically review the list. This helps keep the possibility of different types of failure fresh in everyone's mind as the plan develops or is implemented.

From Klein, Gary, *The Power of Intuition*, pages 98-101.

Weighted Anonymous Feedback

This is a method to tap into the wisdom of the crowd. This is not recommended to make a decision. It is a way to get feedback you might not otherwise get from your staff.

Method: Distribute file cards to everyone. Pose a question: E.g., What is the single greatest obstacle to implementation of plan/concept/policy X?

Ask the participants to think about it and write their best idea as clearly and in as few words as possible on the card – a bullet, not an explanation.

When everyone has completed their card, invite the participants to stand up, mill around, and pass the card to someone new. Repeat the process until told to stop, then each participant reads the card they hold to one another in a way that might "sell" them on the idea. Trade cards. On the back, rate the idea you were just "sold" from 1 to 5; 5 is brilliant, 1, not so much.

Once you grade the card, repeat the process. No one should grade their own card. Emphasize the participants must read the reply without turning the card over and viewing previous scores so they are not influenced.

Repeat the process five times, in five rounds. By round five, each card should have five ratings on the back of the card. Add them up.

Ask "Does anyone have a card with a score of 25…24…23…until you get a "yes." Ask that person to read the card aloud and record the reply on a piece of butcher paper. Continue with the countdown until you get at least the top five replies.

Troika Consulting

This is a great process to help participants get started thinking about applications and action planning.

Invite participants to find two partners and sit down in a group of three (or four, but no more than four). Suggest that one member of the group be a time keeper to keep the group on track and to ensure everyone gets equal time. Give everyone time to reflect individually on a gnarly question. It may be very useful for them to take some notes.

Think about a challenge you are facing in your staff section.

What's the question you most need to answer in order to move forward? How can you get that question answered?

What's the biggest obstacle to making the changes you want to make? What must be done to move beyond that obstacle?

In each round of 10 minutes, one participant will share their challenge and ideas for next steps.

The role of the partners is first to ask questions to help them hone and improve their ideas. Next, the partners engage with each other and, finally, with the participant about how they might handle the challenge and what possibilities might contribute to moving forward.

Switch roles so that each member of the troika has a turn. After each member of the troika has had their turn, the group can spend some time in conversation about insights and patterns they noticed across the three rounds.

TRIZ

Triz is a problem-solving, analysis and forecasting tool derived from the study of patterns of invention. It was developed by the Soviet inventor and science fiction author Genrich Altshuller and his colleagues in the 1940s. In English it is typically translated as "the Theory of Inventive Problem Solving." It is sometimes used in Six Sigma processes, in project management and risk management systems, and in organizational innovation initiatives. The full TRIZ process includes many problem-solving strategies. As a Liberating Structure, we only use one piece of the TRIZ approach.

Think about a difficult and complex problem you need to solve. Describe as many of the key elements of the result you want as you can. Be as specific as possible.

Next, design a comprehensive system that makes it absolutely impossible to get that result. What policies, practices, and ways of operating would make it 100% certain there is no way any of the things you want can happen.

Does the system you've designed have anything in common with the current state of affairs?

What would it take to eliminate similarities between the current system and the adverse system you designed?

TRIZ is a process that emerged from engineering. You can find out more about it at http://www.triz.co.uk.

My 15%

Most people have about 15 percent control over their work situations. The other 85 percent rests in the broader context, shaped by the general structures, systems, events and culture in which they operate. The challenge rests in finding ways of creating transformational change incrementally: By encouraging people to mobilize small but significant "15 percent initiatives" that can snowball in their effects. When guided by a sense of shared vision, the process can tap into the self organizing capacities of everyone involved.
It doesn't matter if you're a General Officer or an enlisted soldier, a Senior Executive or a member of the team. You still have only your 15 percent.

Where do you have freedom to act? What's in your 15%?

Dot Voting

Frequently planning teams must prioritize their efforts as there is simply not enough time to address all legitimate issues. Dot voting is a method designed to anonymously collect the groups' perspective on what the most urgent issues are that need to be addressed.

- Identify the largest possible universe of issues using divergent thinking and collect them in a macro list

- Group the input in the broadest possible way so that no two topics remaining on the list overlap with each other - i.e each topic is distinguishable from each other

- Number the remaining distinguishable issues (for the sake of this illustration let's assume there are 12 different and legitimate issues worthy of the groups energy and attention)

- Each member writes a list of the numbers 1-12 in a column on a 3x 5 card

- Each member then 'dot votes' 7 times (place a dot next to the number of the topic that s/he wants to vote for. All 7 votes can be given to a single topic, 7 topics one vote each, or divided 3 and 4, 1 and 6, 2 and 5, etc.

- Collect the 5x8 cards and total the number of votes for each idea or issue

The value of this approach is as follows:

- forces each person to prioritize by having a little more than 50% votes of the total number of issues (7 of 12) but also gives them the opportunity to vote for more than one compelling issue
- gives some indication of the weight of each idea with respect to each other (a group score of 40 is significantly higher than a group score of 20 even though 20 may be the second highest score). This can be used to develop what the weighted/ priority factors for a COA should be

Note - for this to work properly it is absolutely critical that ideas don't compete against each other during dot voting so creating distinguishable issues is a key part of the process.

Six Words

Help people get to the core of an idea by writing a short phrase summarizing their thinking into a set number of words.

This idea is based on a complete short story written by Hemingway “For sale, baby shoes – never worn.”

These 6 words communicate a huge degree of information and emotional content. This is an exercise in creating pithy bumper stickers that communicate in a visceral way and are memorable

One on One, Two on Two, Exchange Emissaries

In this method members of the team are asked to think about ways to address the problem before the group. They first spend time thinking and writing down their ideas.

Next, the members form into pairs and exchange ideas

Next, two groups of two each form a group of four and exchange the ideas each group developed both individually and as a group of two

Each group of four selects a spokesperson for the group.
After each group has had sufficient time to explore their options to address the problem they send their spokesperson to another group of four that addressed the same problem and in turn welcome the spokesperson from the other group to their group

Each spokesperson (emissary) provides the group they have joined a description of the ideas developed by the group they are representing. After they are finished the group they have joined tries to add to or improve the ideas brought to them by the emissary. After this exchange the emissary returns to his/her group

Upon return the emissary shares the feedback from the group visited, in turn the emissaries group informs him/her of their exchange with the other group's emissary

This concludes with a group out brief of the issue.

Divergence- Convergence

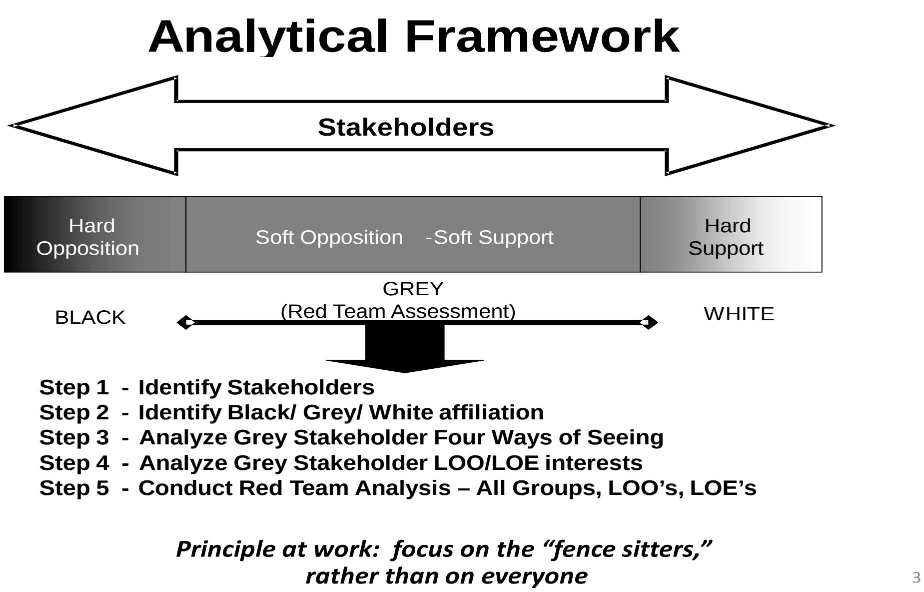
This is the single most important Liberating structure. It is based on the idea that before tackling an issue, we must think first, write down our thoughts, and then share them in a disciplined fashion.

Most frequently this is done by going around the room and taking one idea from each member of the group. You cannot share more than one as to give others a chance to contribute. If someone else offers something on your list, then scratch it out and offer something not yet raised. This goes on until all lists are exhausted.

Stakeholder Mapping & Analysis (1 of 4)

Stakeholder mapping is a diagnostic tool for use in analysis, influence, negotiation, and decision support.

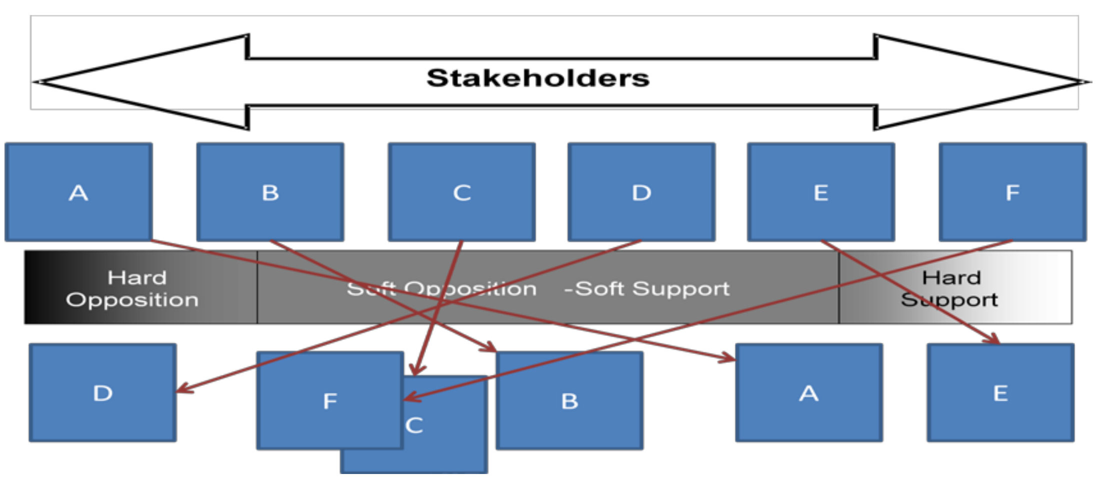
Operational Stakeholder Mapping: Visual



Step 1: Identify Stakeholders
Stakeholders can be:

- Internal or external
- Senior or subordinate, or horizontal levels
- Strategic, Operational, or Tactical
- Individual, organization, or entity

Step 2: Identify Stakeholder Black/White/Grey Affiliation



Stakeholder Mapping (2 of 4)

Step 3: Analyze Grey Stakeholder Four Ways of Seeing

Thorough research should be conducted to complete the analysis of these perceptions as it is more complex than the simple model implies, for several reasons:

- Seldom, if ever, will there be only two actors in the system under study.
- All the actors' perceptions and inter-relationships within the system must be considered in order to provide context for the analysis.
- How each actor perceives and defines the organizational or Operational Environment, strategic goals, and plans must be considered.
- It must be realized that actors and organizations may hold perceptions, both accurate and inaccurate.
- Perceptions of the external audience(s) to whom we and our allies are playing cannot be discounted.

Example: 4 Ways of Seeing

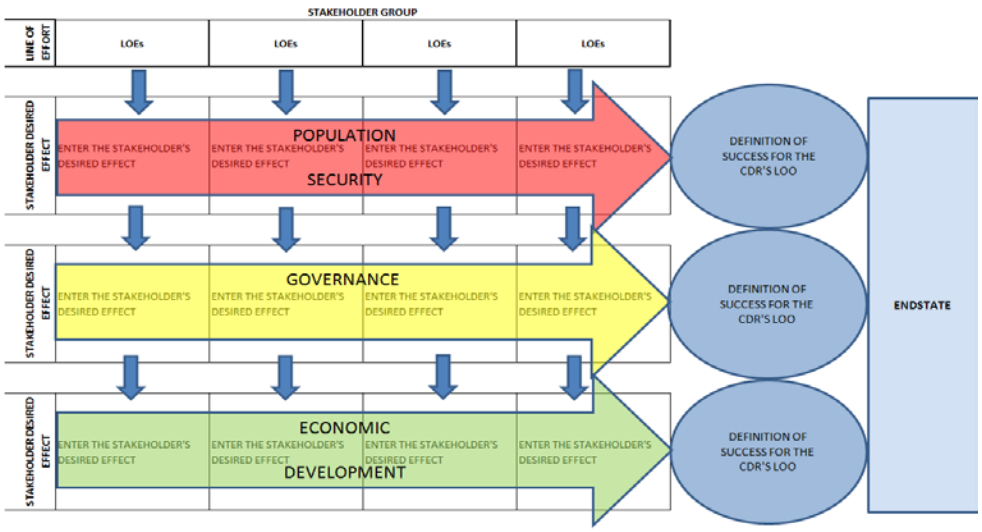
	A	B	C	D	E	F
A	A-A	B-A	C-A	D-A	E-A	F-A
B	A-B	B-B	C-B	D-B	E-B	F-B
C	A-C	B-C	C-C	D-C	E-C	F-C
D	A-D	B-D	C-D	D-D	E-D	F-D
E	A-E	B-E	C-E	D-E	E-E	F-E
F	A-F	B-F	C-F	D-F	E-F	F-F

7

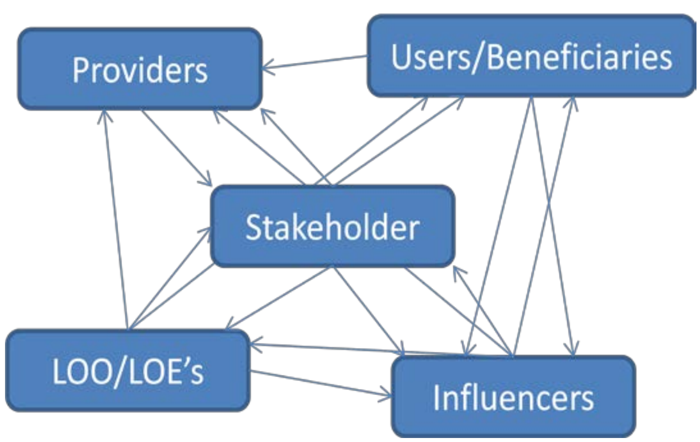
Stakeholder Mapping (3 of 4)

Step 4: Analyze Stakeholders Lines of Effort (LOE) Interests.

- After a thorough assessment of the Stakeholder, the Red Team defines the Stakeholder's LOEs. Begin with the "fence sitters."
- Determine what the Stakeholder's Desired effect is within each LOE.
- Next, the Stakeholder's desired effect in the Lines of Effort (LOE) is assessed within the Commander's LOOs.



- Step 5: Red Team Analysis: Organizational Mind Mapping. There is no one way to conduct Red Team analysis. Mind Mapping may be useful in organizational analysis: after identification of stakeholders, categorization is required. This is done by using a whiteboard or flip chart.

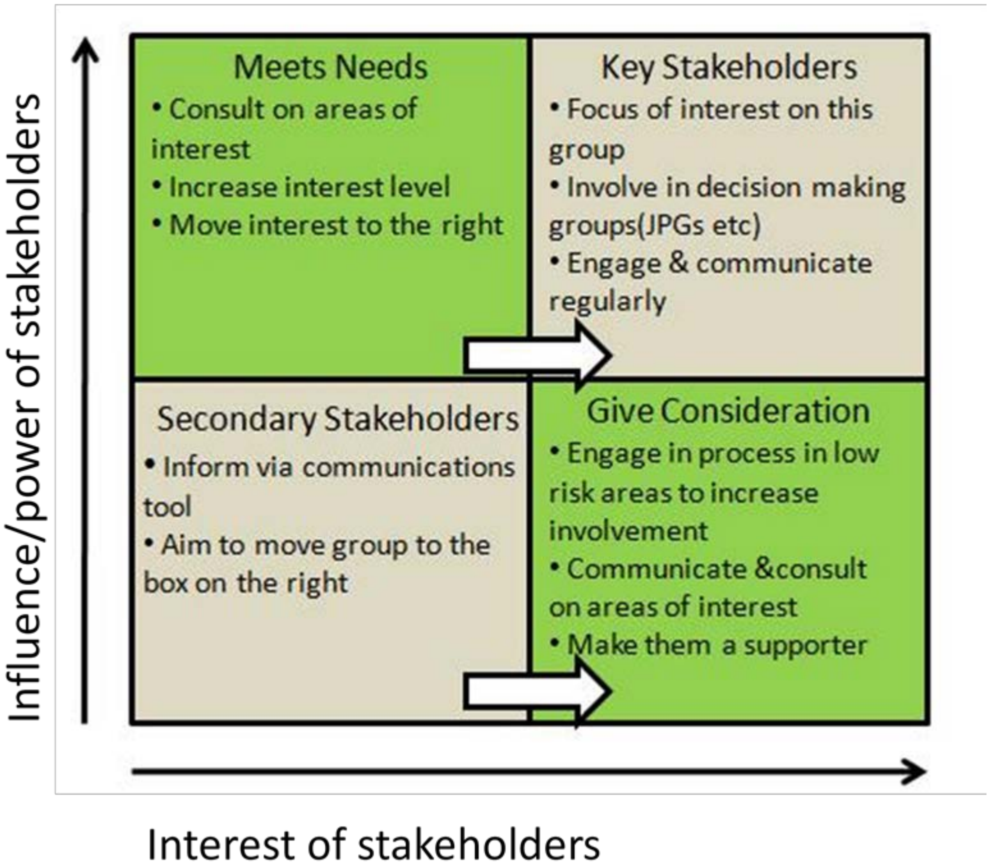


The arrows are representative of potential links between the stakeholders, e.g. command relationships, habitual collaboration, common interests, etc.

Stakeholder Mapping (4 of 4)

Step 5: Another method for Analysis

- Once stakeholder interests have been mapped, they must be prioritized. A common approach is to map the interest and influence of each stakeholder group based on a chart like this one:



Once the stakeholders have been mapped, focus of effort can be placed on the highest priority groups while providing sufficient information to keep the less influential groups happy.

1- 2 - 4 - Whole Group

This process is a good way to get a rich conversation and more ideas by using small groups. It involves the principle of pre-commitment, critical thinking, and the clear expression of thought.

Method:

One: Individual Reflection and Pre-Commitment. Give participants a short amount of time to reflect on a question or issue. You may use a common issue or have each person choose their own issue. Have them write down their thought or position on the issue. To write is to think again. By writing the participants are pre-committing to their ideas without external influence. Encourage the participants to use the framework of State, Elaborate, Exemplify, and if possible, Illustrate (SEEI). For example, "Here's what I think, here is what I mean by that, let me give an example, and here is a graphic illustration (or analogy)." If you can complete all these steps, you have thought through a problem completely.

Twos: Have the participants find another person and share their ideas. Record any new thoughts or insights.

Small Groups: Invite each of the pairs to join up with another pair to briefly share their issues and any insights gained. Then share observations of the quality of each pair's examination of their issues. How were the issues framed? What was missing from the explanation? Were there biases detected?

Whole Group: Invite everyone back into the whole group. Ask an open question like "What insights emerged from your conversations? What did you learn? How has your understanding/view of the issue changed?"

Lastly, ask "What's your 15% of the problem?

"Most people have about 15-percent control over their work situations. The other 85 percent rests in the broader context, shaped by the general structures, systems, events and culture in which they operate. The challenge rests in finding ways of creating transformational change incrementally: By encouraging people to mobilize small but significant "15-percent initiatives" that can snowball in their effects. When guided by a sense of shared vision, the process can tap into the self organizing capacities of everyone involved."

- Gareth Morgan, The Globe and Mail

It doesn't matter if you're a General or an enlisted soldier, a Senior Executive or a member of the team. You still have only your 15 percent. Where do you have freedom to act? What's in your 15%?

This conversation works very well using the Troika process.

Some Critical Thinking Habits (1 of 2)

[Note—this is by no means an "all-inclusive list."]

- Thinks "meta-cognitively"— thinks about his/her own thinking, and is "reflectively skeptical"
- Understands the constraining role of personal world views
- Demonstrates the intellectual courage required to challenge conventional wisdom
- Searches for what he/she doesn't know, rather than being complacent with what he/she does know
- Asks "Why?" "How Do?" "So What," and "What ***should*** we be doing?"
- Able to discern relevant from irrelevant
- Is exceedingly curious and inquisitive; driven to determine a more refined version of a given perception
- Is detached emotionally— "reason prevails"
- Is disinclined to board the Bus to Abilene—"intellectually independent"
- Is (and remains) open-minded to ideas
- Seeks to understand the opinions of others
- Seeks relevant information
- Reconsiders and revises views where honest reflection suggests that change is warranted
- Detects attempts to reify concepts
- Frames a problem in several ways to consider alternative perspectives
- Evaluates the consequences of various alternatives
- Understands how framing can be used by others to mislead, in order to bias the reader/listener
- Attempts to identify the interconnected variables of a complex situation, and the variables' interrelationships/relative strength of those interrelationships
- Generates hypotheses for given situations, and then tests those hypotheses
- Seeks disconfirming evidence
- Discerns inferences drawn, and looks for faulty inferences
- Distinguishes between *causation* and *correlation*
- Recognizes the bias in hindsight analysis
- Understands the effects of memory on decision making
- Knows of/recognizes cognitive biases present in decision making
- Knows of/recognizes the effects of social conformity/social psychology (including groupthink) present in group decision making
- Discriminates between inductive and deductive reasoning
- Uses metaphors and analogies appropriately--RTHB
- Produces and uses graphics to enhance comprehension—Heuer and Jones

Critical Thinking Habits (2 of 2)

- Judges the credibility of an information source
- Identifies premises and conclusions
- Challenges explicit assumptions
- Actively looks for implicit assumptions, and challenges them
- Challenges "facts": not all facts are created equal
- Recognizes and defends against inappropriate use of emotional/loaded language
- Identifies/recognizes underlying theories and/or philosophies inherent in an argument
- Detects misuse/abuse of word definitions
- Understands, recognizes and avoids common logic fallacies
- Remembers to ask "What's missing from the argument?"
- Checks for adequate sampling size and possible bias in sampling when a generalization is made
- Asks "Are there rival causes that we have overlooked?"
- Asks "What are the implications of accepting this argument as-is?"

Finally:

- Is systematic and thorough in applying precepts of critical thinking to various situations
- *Defers judgment*

Critical Thinking Format

- What is the argument?
    - ✓ Argument = Issue (or premise, or thesis) + Reasons + Conclusion
        - ➢ Premise: a proposition supporting or helping to support a conclusion; a proposition antecedently supposed or proved; something previously stated or assumed as the basis of further argument; a condition; a supposition.
        - ➢ Thesis: a proposition stated or put forward for consideration, esp. one to be discussed and proved or to be maintained against objections; an affirmation, or distinction from a supposition or hypothesis
    - ✓ Is the right problem defined?
    - ✓ Is there any use of vague or ambiguous words?
    - ✓ What is the author's point of view?

- Are there any value conflicts?
- Are there any *prescriptive* assumptions? (Statement by author of the way things *should* be—is it a good assumption?)
- Are there any *descriptive* assumptions? (Statement by author of the way things *are*—is it a good assumption?)
- Are there any fallacies in reasoning? (See backside for listing of fallacies)
- Does the author use any heuristics (a simplifying strategy, or "rule of thumb") to lay out his information/make his case? (The devil is in the details…)
- How good is the evidence? Does the author use or rely on
    - ✓ Intuition?
    - ✓ Personal experience?
    - ✓ Testimonials?
    - ✓ Appeal to authorities?
    - ✓ Personal observation?
    - ✓ Research studies?
    - ✓ Analogies? (Is the analogy apt?)

- Is there a rival cause? Are there other plausible hypotheses (than the author suggested) which might explain what happened? What are they? Some other way to explain the evidence (reasons) and conclusion?
- Are statistics used?
    - ✓ Are they deceptive?
    - ✓ Use numbers without percentages?
    - ✓ Use percentages without numbers?

- Is there any significant information which is omitted? (Where is the dog that *isn't* barking?)
- Is there any other reasonable conclusion you can draw from the evidence?
- What are the implications of *accepting* the argument?

Logic Fallacies

- **Appeal to Emotions, or Appeal to Fear.** The use of emotionally charged language to distract readers and listeners from relevant reasons and evidence.
- **Appeal to Popularity, or to the Masses.** Occurs when an assertion is made that if something is good for everyone else, it must be good for you too. Marketing and advertisements usually make this claim.
- **Glittering Generality.** The use of vague emotionally appealing virtue words that dispose us to approve something without closely examining the reasons.
- **Appeal to Questionable Authority.** Occurs when the authority we use to support the premises is actually the wrong authority for the issue at hand. It's akin to "hiding behind" someone/something famous, in the hopes that that alone will sell the argument.
- **Slippery Slope.** Occurs when the conclusion of an argument rests upon an alleged chain reaction and there isn't sufficient reason to conclude that the chain reaction will actually take place. Unfortunately, hypothesizing often requires us to speculate in this arena.
- **Red Herring.** **O**ccurs when the author diverts the reader's attention with distracting information that is flashy, eye-catching, and generally not relevant to the topic at hand.
- **Straw Person.** Distorting an opponent's point of view so that it is easy to attack; thus we attack a point of view that does not truly exist.
- **False dichotomy**. Occurs when someone presents a complex situation in black and white terms—i.e., they only present two alternatives where many exist. The logic fault here is that there is much more to the argument than the watered-down version presented. Rather than allow watered-down arguments, critical thinkers actually need to *widen* the aperture to determine the best possible set of options.
- **Ad Hominem**. Occurs when someone tries to attack a person, and not a position.
- **Begging the Question.** An argument in which the conclusion is assumed (vice explicitly stated) in the reasoning.
- **Hasty Generalization Fallacy.** Related to anchor adjustment fallacy. A person drawing a conclusion about a large group based on experiences with only a few members of the group.
- **Faulty or Weak Analogy.** Occurs when an author uses an analogy to communicate a concept, but the analogy used is not strong enough to support the conclusion being drawn.
- **Causal Oversimplification.** Explaining an event by relying on causal factors that are insufficient to account for the event, or by overemphasizing the role of one or more of these factors.
- **Confusion of Cause and Effect.** Confusing the cause with the effect of an event or failing to recognize that the two events may be influencing each other.
- **Explaining by Naming.** Falsely assuming that because you have provided a name for some event or behavior, that you have also adequately explained the event.
- **Neglect of a Common Cause.** Failure to recognize that two events may be related because of the effects of a common third factor.
- **Post Hoc Fallacy.** Related to False Cause. Occurs when someone argues that because two events occurred together and one followed the other closely in time, then the first event caused the second. It's an appeal to believe a cause-and-effect relationship that does not actually occur.
- **Searching for the Perfect Solution**. Falsely assuming that because part of a problem would remain after a solution is tried, the solution should therefore not be adopted.
- **Equivocation.** A key word is used with two or more meanings in an argument such that the argument fails to make sense once the shifts in meaning are recognized.

Notes