The Egmont Group
of Financial Intelligence Units

Egmont Strategic Analysis Course

SAT Tool Kit

Structured Analytical Techniques

Participant Manual

Structured Analytic Technique Toolkit

The Structured Analytic Techniques covered herein have been derived from the book:

Structured Analytic Techniques for Intelligence Analysis
By Richards J. Heuer Jr, and Randolph H. Pherson

CQ Press
2300 N Street, NW, Suite 800
Washington DC 20037
ISBN 978-1-60871-018-8

This book, among others, has proven to be a superb source of materials in the development of the course and the exercises to be exploited throughout the training.

Some of these techniques will be specifically addressed in the course through examples, discussions, or the global case simulation exercise. Others are provided for reference to be used in your home FIUs as possible tools to explore, develop and expand your own skillsets.

Getting Started Checklist

When should you use the Getting Started Checklist?

At the beginning of a project, analysts can use the Getting Started Checklist to establish important points for exploration and analysis. As a future reference, the Getting Started Checklist is a map to refocus any analyses that may have gone astray. To paraphrase an old saying, "to get to where you want to be, you need to know where you've come from".

The Method

In order to establish a direction for the project and focus the analysis, it is essential to develop a set of questions that will guide the research process. Heuer provides a number of starter questions in his book (Structured Analytic Techniques for Intelligence Analysis, henceforth referred to as SATFIA), some are listed here for convenience:

- What has prompted the need for the analysis?
- Why is the issue important, and how can analysis make a meaningful contribution?
- Who are the principal customers?
- Are the principal customers' needs well understood?
- Are there other stakeholders who would have an interest in the answer to this question?

Analysts may also develop their own questions using techniques such as Structured Brainstorming and Starbursting (covered later in this text and further in the Strategic Analysis Course materials) at the beginning of their projects.

The technique, fundamentally, focuses the analyst(s) task by introducing a moment's pause before beginning to reflect on what really needs to be accomplished, as opposed to what may be assumed needs to be accomplished.

In the SAC course we refer to the Terms of Reference (ToR), which is an expansion of the Getting Started Checklist.

Customer Checklist

The Customer Checklist focuses the analysis on the needs of the ultimate customer of the analysis product.

An FIU's CEO's needs are different from the needs of a regional manager, which are different from the needs of field operatives, which are different from the needs of policy-makers at the governmental administrative level. Certainly some of these needs may overlap, but an *effective* analysis must be made-to-order for the intended audience.

When do you use the Customer Checklist Technique?

At the beginning of the analysis project, the analysts will usually be tasked by someone to produce an analytical report. Before any development of this analysis can occur, the wants and needs of the consignee of the analysis product must be taken into account. (Note: it is possible that the customer may ask for or want one thing, but this process may uncover a customer's need for something else)

The Method

Prior to beginning the analysis, ask the following questions:

Heuer and Pherson list the following questions in SATFIA:

- ✓ Who is the key person for whom the product is being developed?
- ✓ Will this product answer the question the customer asked or the question the customer should be asking? (If necessary, clarify this before proceeding)
- ✓ What is the most important message to give this customer?
- ✓ How is the Customer expected to use this information?
- ✓ How much time does the customer have to digest this product?
- ✓ What format would convey the information most effectively?
- ✓ Is it possible to capture the essence in one or a few key graphics?
- ✓ What classification is most appropriate for this product? It is necessary to consider publishing the paper at more than one classification level?
- ✓ What is the customer's level of tolerance for technical language? How much detail would the customer expect? Can the details be provided in appendices or backup papers, graphics, notes, or pages?
- ✓ Will any structured analytic technique be used? If so, should it be flagged in the product?
- ✓ Would the customer expect you to reach out to other experts within or outside the Intelligence Community to tap their expertise in drafting this paper? If this has been done, how has this contribution of other experts been flagged in the product? In a footnote? In a source list?
- ✓ To whom or to what source might the customer turn for other views on this topic? What data or analysis might others provide that could influence how the customer reacts to what is being prepared in this product?

Structured Brainstorming

When do you use structured brainstorming?

A structured brainstorm is a powerful tool that may be used at any time during a project. Its benefit lies in its ability to allow participants to generate ideas.

Whenever possible one should start a project with a structured brainstorm in order to develop hypotheses, and other relevant ideas for analysis with one's colleagues.

Why does it work?

Structured brainstorming works because it allows for the free flow and exchange of ideas (free from interruption), while allowing a group to leverage its combined experience, points of view and mindsets in order to form a volume of ideas, which can then be refined into usable lists for action.
It is a creative endeavor, and begins the process of "thinking outside the box".

The Method

Tools:

- Post its (or index cards and tape)
- Pass out one pad to each team member
- Sharpie Markers
- Pass out one marker to each team member
- Flip Chart, White Board or other Display Space
- One team member is charged with managing the Display Space

7 basic rules:

1. Specify the purpose and topic of the session (focal question)
2. All ideas are accepted
3. One speaker at a time, Everyone speaks
4. Take appropriate time
5. Where possible, include outsiders (different viewpoint)
6. Write everything down
7. Summarize key findings

Structured Brainstorming (cont.)

The Process:

Creative Phase

1. Pass out tools
2. Select display space manager
3. Display focal question on display space
4. Team members write down keyword responses to question on Post-Its
    a. Participant reads aloud their response
    b. There is NO SPEAKING other than these responses
5. Response is placed on display space in the order they are written
6. ALLOW PAUSES IN RESPONSES TO OCCUR
7. After 2 or 3 long pauses move on to the evaluation phase

Evaluation Phase

8. Participants silently rearrange and organize the Post-Its on the Display Space (no talking) into groups with some common characteristic
    a. Sequence, priority, scenarios, etc. at each participant's discretion
    b. Post-Its may be copied/duplicated
9. After Post-Its are arranged the group selects a word or phrase for each group (speaking is now allowed)
10. Identify outliers (Post-Its not in groups) and assess their validity
    a. Useless noise?
    b. Idea to be explored?
11. Assess the ideas
    a. New concepts?
    b. Key issues
    c. More work?
12. Rank and score the ideas

Based on the Brainstorm, decide on the course of action.

Starbursting

When do you use Starbursting?

Starbursting is a visual idea generation technique very closely linked to brainstorming. Starbursting can often be used in conjunction with a structured brainstorming session to generate ideas and stimulate creativity.

Why does it work?

Starbursting can help focus the user when ideas are scarce, or difficult to come by. It stimulates creativity by encouraging the asking of relevant questions related to the topic.

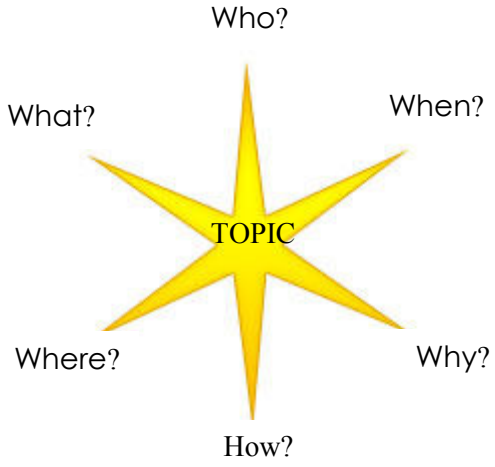
The Method

Using a template or drawing a six pointed star by hand:

Write the topic or problem to be examined in the middle of the star.

Label each star "point" with a single word question:

- Who?
- What?
- Where?
- When?
- Why?
- How?



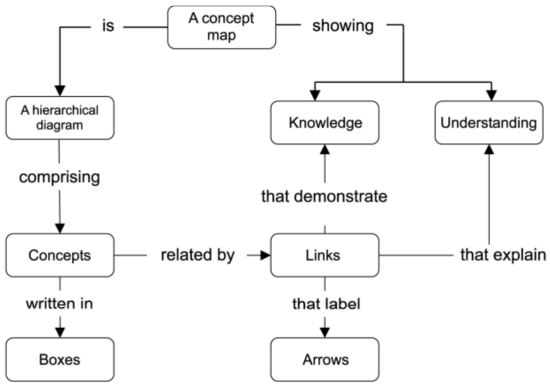
Use this starburst as a guide for brainstorming.

Use the single word "guide" questions, one at a time, to develop your own, more detailed questions referring to the central topic. Use these as your guide in brainstorming sessions, and to inspire creativity.

Mind Mapping

Mind Maps and Concept Maps are visualization techniques that illustrate thought processes in a concise, readable manner. Any mind map or concept map is really made up of only two parts, an idea, and the connection (with descriptor) between two or more ideas.

A concept map is usually represented in a top-down approach, where a topic (idea) is placed at the top of a page and branching ideas are place below the topic, resulting in a diagram that looks very much like the root system of a plant. The image below is a simple Concept map reprinted from the website www.emeraldinsight.com (http://www.emeraldinsight.com/journals.htm?articleid=1550200&show=html)



Note: Concept maps are defined by specific methods of construction. Concepts are placed in boxes and linked (with labelled arrows) to form propositions. Each concept can be used only once but as many links as desired

It demonstrates, very concisely what a concept map is. By following the flow of the diagram, a reader can quite effectively discern what a concept map is. In the traditional saying "a picture is 1,000 words", we can see how a concept map can replace paragraphs of text in a simple, elegant way.

A mind map differs in that is is usually centrally constructed, with ideas and links radiating from the central idea or topic. Here is a mind map reprinted from the website www.mind-mapping.co.uk

(http://www.mind-mapping.co.uk/_images/_Images/EXAMPLES/Mind-Mapping-Overview/whymindmap.jpg)

Again, in an elegant, concise manner this mind map demonstrates the reasons one might use a mind map. Where the Concept Map resembles a root system, a mind map begins to mirror a neural network.

Mind Mapping (cont.)

Much research indicates that the use of, and communication through mind maps and concept map aids retention, and improves creativity.

A concept map or mind map is, fundamentally, a visual model of a complex system. Just as we may use link charts or flow charts do demonstrate complex systems, these maps simplify the process and, while they may not communicate every detail, effectively communicate the overall idea being presented very effectively.

When do you use Concept Mapping or Mind Mapping?

There are two main reasons to create such maps:

1. To communicate and illustrate a complex system in a concise manner
2. As an explorative tool to uncover avenues of investigation, clarify concepts and identify problems before too much effort has been put into writing a report.

There are a number of free web-based tools available for concept mapping and mind mapping. Any Google search on either of these topics will reveal these.

The Method

Any map begins with a central concept or question (it should be clear, now, that Starbursting is, in reality, a sub-set of mind mapping).

1. Create a list of related concepts that tie in to the central question/concept
2. Sort the concepts into related groups, and map them onto the diagram in a logical manner. Radiating from the center for mind maps, descending from above for a concept map.

a. Groupings can be based on any number of common factors as decided by the map creators (geography, gravity, scale, similarity etc.)

3. Link (and label the links) related concepts, beginning with the most general, then moving on to the more specific. Use arrows to show the flow of the relationship.

    a. Relationships may be uni-directional or bi-directional
    b. These relationships should have specific names or labels

Mind Mapping (cont.)

i. Appropriately naming the links is often difficult and will be cause for much debate. Do not ignore the possibility that there may be more than one valid reason to label a relationship inn a particular way. Focus on the most important, and duplicate only if truly necessary.

4. Keep an eye open for any cross-links between concepts and the central idea or question.

5. As the map develops, you will often realize you are now dealing with a different issue altogether. THIS IS NOT A BAD THING! In fact, this can be a very good exercise to redefine what is truly important. A map is a dynamic document, used not only to communicate but generate ideas. Do not be shy about exploring new avenues revealed in the mapping process.

6. Reposition, expand, and refine the map as needed.

Simple Hypothesis Generation

A hypothesis is a proposed explanation for some phenomenon.

For our purposes, a hypothesis is a potential explanation or conclusion to be answered by the analysis product being created.

A hypothesis should:

- Be a clear, concise, very definite statement.
- Be based on observations, knowledge and information on hand (not a guess)
- Be testable (that is can be true or false)
- Is predictive
- Is comprised of a dependent variable (the phenomenon being analyzed) and an independent variable (that which is the explanation for the phenomenon)
    - Effectively, a hypothesis should state "X occurs because of Y", or "If Y occurs, X will follow".

When do you use Simple Hypothesis Generation?

It is important to establish at the beginning of a project some hypotheses to be tested. It (or they) acts as the goal when performing the analysis when:

- A systematic analysis of alternatives is required because of the sheer importance of the subject matter
- A large number of variables are included, and therefore need to be explored/tested in the analysis
- The outcome is uncertain (the hypothesis provides focus)
- There are competing views amongst analysts and/or decision makers.

The Method

First and foremost, the problem to be explored must be defined, and the analyst(s) should determine how the hypotheses will be used at the beginning of the project.

- As a team (of diverse backgrounds wherever possible), review the problem at hand and have each member of the group write up to three explanations or hypotheses on index cards or post-it notes.
- Consider:
    - Situational Logic: the known facts and understanding of the underlying forces at work at that particular time and place.
    - Historical analogies: examples of the same type of phenomenon.

Simple Hypothesis Generation (con't)

    - Theory: theories based on many examples of how similar types of situations have played out
- Collect the cards/post-its and display for all to see.
    - Consolidate the same ideas to eliminate duplicates
- Brainstorm (Structured Brainstorming) or employ Starbursting to further identify key factors and forces
- Collect hypotheses into affinity groups or groups of similar nature.
- Test the hypotheses by restating the problem, and considering the opposite of the hypothesis
- Update the list of possible hypotheses, attempting, where possible, to keep the hypotheses mutually exclusive (only one hypothesis should be true)
- Clarify each hypothesis by Starbursting, asking Who, What, Where, When, Why, How?
- Select the most appropriate hypothesis for testing, and exploring through the analysis.

Key Assumptions Check

Any analysis must be based on certain assumptions. We cannot, as human beings, eliminate all assumptions from our conscious thought. Some assumptions are extremely helpful (I must not step in front of moving cars or I assume I will get hurt), while others can lead to wrong conclusions as evidence may be misinterpreted based on certain assumptions or bias.

As analysts must resort to making certain assumptions in order to bridge pieces of incomplete (or possibly unreliable) information or data, it is especially important to note, and take into specific account these assumptions.

When do you use Key Assumptions Check?

As early in the analysis project as possible, analysts should perform a key assumptions check where data is incomplete, or some interpretation of evidence and information is required. That is, a key assumptions check is almost always useful in identifying potential areas of influence made by assumption or even bias.

While it is almost always best to do this early in the process, at the beginning of a project, a key assumptions check can also be useful when performed at any point before the final product is presented.

While seemingly straightforward, listing ones key assumption can be a difficult task, simply because they are assumptions. Sometimes, for cultural, experiential or other valid reasons, assumptions are formed and accepted as facts. This process brings these assumptions to light, and scrutinizes them to ensure data is not misinterpreted or misconstrued.

The Method

1. Gather a group of individuals involved in the analysis as well as some outsiders (where possible), to provide a different perspective.
2. Run a full structured brainstorming session to identify assumptions made in developing the analysis
    a. Develop further assumptions during further rounds of this process
        i. Ask the Starbursting questions (Who, What, Where, When, Why, How?) ex:
            1. Are we assuming we know who all the key players are?

Key Assumptions Check (con.t)

2. Are we assuming that we know what the goals of the key players are? etc.

b. Challenge statements that include "always", "must", "never", "has to" etc. to ensure they are not just assumptions

c. Ask "What else seems so obvious that one would not normally think about challenging it?"

3. With a full set of assumptions in place, ask:
   a. Why am I confident that this assumption is valid?
   b. In what circumstances might this assumption be invalid?
   c. Could it have been valid in the past but no longer valid today?
   d. How much confidence do I have that this assumption is valid?
   e. If it turns out to be invalid, how much impact would this have on the analysis?

4. Sort each assumption into one of three categories
   a. Basically solid
   b. Correct with some caveats
   c. Unsupported or questionable

5. Refine the list, removing those assumptions that are shown to be invalid. Emphasize those assumptions that would, if wrong, lead to changing the analytic conclusions.

6. Consider whether the unsupported or questionable assumptions should be converted into further research, or become the target of information gathering.

7. Review all assumptions, quality of evidence and reliability of sources while considering the overall complexity of the analysis. Estimate, based on these factors, the probability that any conclusions could be wrong, and note the probability of successfully developing a correct conclusion. This focus allows the analyst to scrutinize him/herself and overcome the human reluctance to admit we are wrong.

Diagnostic Reasoning

Diagnostic reasoning structures the evaluation process of intelligence, source reliability, and new developments in the analysis process.

It is used to slow down the thinking process in order to off-set, and hopefully mitigate bias.

When do you use Diagnostic Reasoning?

Whenever assessing information that the analyst may accept as intuitively true, diagnostic reasoning should be performed to validate (or invalidate) their acceptance of this data as true. Effectively, this technique is particularly useful to challenge any piece of information one *assumes* to be true, at face value.

Diagnostic reasoning forces the analyst to make an assessment on information to determine if said information is consistent with alternate conclusions or hypotheses.

The Method

1. Note what any given piece of information (data) seems to mean. (i.e. an explanation of why something happened or what it predicts for the future). Make an intuitive judgment based on the current model in mind (how you are currently thinking about the project).
2. Brainstorm reasonable alternate judgments, trying to view the information from a different perspective (imagine yourself in another analysts shoes).
    a. If the information is particularly important a group structured brainstorm may be called for
    b. Mind maps can be used to facilitate an individual brainstorm process, or enhance a group brainstorm.
3. For each alternate judgment ask:
    a. If this alternative were true, how likely is it that I would see this new information?
4. Make a tentative judgment based on the consideration of these alternatives. If the information is equally likely with each of the alternatives, the information has no diagnostic value and may be ignored. If the information is clearly inconsistent with one or more alternatives, those alternatives might be ruled out. Following this mode of thinking for each of the alternatives, decide which alternatives need further attention and which can be dropped from consideration.
5. Seek evidence to refute the remaining alternatives.