3 CHOOSING THE RIGHT TECHNIQUE

3.1 The Six Families [35]
3.2 Core Techniques [36]
3.3 Selecting the Right Technique [38]
3.4 Projects Using Multiple Techniques [41]
3.5 Common Errors in Selecting Techniques [41]
3.6 Making a Habit of Using Structured Techniques [42]
This chapter provides analysts with a practical guide to identifying the various techniques that are most likely to meet their needs. It also does the following:

- Reviews the reorganization of the book, decreasing the number of families of techniques from eight to six.
- Identifies a set of core techniques that are used frequently and should be part of every analyst’s toolkit. Instructors may want to review this list when deciding which techniques to teach.
- Provides a framework for deciding which techniques to employ for a given problem or project.
- Discusses the value of using multiple techniques for a single project.
- Lists common mistakes analysts make when deciding which technique or techniques to use for a project.
- Describes five habits of thinking that an analyst should draw upon when under severe time pressure to deliver an analytic product.

3.1 THE SIX FAMILIES

Considering that the U.S. Intelligence Community started focusing on structured techniques to enhance the rigor of analysis, it is fitting to categorize these techniques by the various ways they help achieve this goal. Structured Analytic Techniques can mitigate some human cognitive limitations, sidestep some of the well-known analytic pitfalls, and address the problems associated with unquestioned assumptions and outdated mental models. They can ensure that assumptions, preconceptions, and mental models are not taken for granted but are explicitly examined and tested. They can support the decision-making process, and the use and documentation of these techniques can facilitate information sharing and collaboration.
A secondary goal when categorizing structured techniques is to correlate categories with different types of common analytic tasks. These often map to the basic analytic production process: getting started, collecting and organizing your information, developing your conceptual framework, conducting the analysis, challenging your conclusions, estimating future trends, and supporting use of the analysis by decision makers. In this book we have organized sixty-six techniques into six families: Getting Organized, Exploration Techniques, Diagnostic Techniques, Reframing Techniques, Foresight Techniques, and Decision Support Techniques. We have allocated about ten techniques to each family, but several techniques—such as the Key Assumptions Check, Outside-In Thinking, What If? Analysis, and Argument Mapping—fit comfortably in several categories because they serve multiple analytic functions.

The six families of Structured Analytic Techniques are described in detail in chapters 5–10. The introduction to each chapter describes how that specific category of techniques helps to improve analysis.

3.2 CORE TECHNIQUES

The average analyst is not expected to know how to use every technique in this book. All analysts should, however, understand the functions performed by various types of techniques and recognize the analytic circumstances in which it is advisable to use them. An analyst can gain this knowledge by reading the introductions to each of the technique chapters and the overviews of each technique. Tradecraft or methodology specialists should be available to assist when needed in the actual implementation of many of these techniques. In the U.S. Intelligence Community, for example, the CIA and several other agencies support the use of these techniques through the creation of analytic tradecraft support cells or mentoring programs.

All analysts should be trained to use the core techniques discussed here because they support several of the basic requirements of generating high-quality analysis. They are also widely applicable across many different types of analysis—strategic and tactical, intelligence and law enforcement, and cyber and business. Eight core techniques are described briefly in the following paragraphs.

Cluster Brainstorming (chapter 6). A commonly used technique, Cluster Brainstorming (referred to as Structured Brainstorming in previous editions of this book) is a simple exercise employed at the beginning of an analytic project to elicit relevant information or insight from a small group of knowledgeable analysts. The group’s goal might be to identify a list of such things as relevant variables, driving forces, a full range of hypotheses, key players or stakeholders, and available evidence or sources of information. Analysts can also use Cluster Brainstorming to explore potential solutions to a problem, potential outcomes or scenarios, or potential responses by an adversary or competitor to some action or situation. Law enforcement analysts can use the technique...
to brainstorm potential suspects or develop avenues of investigation. Analysts should consider using other silent brainstorming techniques or the Nominal Group Technique (chapter 6) as an alternative to Cluster Brainstorming when there is concern that a senior officer or recognized expert might dominate a regular brainstorming session or that participants may be reluctant to speak up.

Key Assumptions Check (chapter 7). One of the most frequently used techniques is the Key Assumptions Check. It requires analysts to explicitly list and question the most important working assumptions underlying their analysis. Any explanation of current events or estimate of future developments requires the interpretation of incomplete, ambiguous, or potentially deceptive evidence. To fill in the gaps, analysts typically make assumptions about such things as the relative strength of political forces, another country's intentions or capabilities, the way governmental processes usually work in that country, the trustworthiness of key sources, the validity of previous analyses on the same subject, or the presence or absence of relevant changes in the context in which the activity is occurring. It is important that analysts explicitly recognize and question their assumptions.

Analysis of Competing Hypotheses (chapter 7). This technique requires analysts to start with a full set of plausible hypotheses rather than with a single most likely hypothesis. Analysts then take each item of relevant information, one at a time, and judge its consistency or inconsistency with each hypothesis. The idea is to refute hypotheses rather than confirm them. The most likely hypothesis is the one with the least inconsistent information that would argue against it, not the one with the most relevant information that supports it. This process applies a key element of the scientific method to intelligence analysis.

Premortem Analysis and Structured Self-Critique (chapter 8). This pair of easy-to-use techniques enables a small team of analysts who have been working together on any type of analysis to challenge effectively the accuracy of its own conclusions. Premortem Analysis uses a form of reframing, in which restating the question or problem from another perspective enables one to see it in a different way and formulate different answers. For example, analysts could place themselves months or years in the future and imagine that they suddenly learn from an unimpeachable source that their original estimate was wrong. Then imagine what could have happened to cause the estimate to be wrong. Looking back to explain something that has happened is much easier than looking into the future to forecast what will happen.

With the Structured Self-Critique, analysts respond to a list of questions about a variety of factors, including sources of uncertainty, analytic processes, critical assumptions, diagnosticity of evidence, information gaps, and the potential for deception. Rigorous use of both techniques can help prevent a future need for a postmortem.

What If? Analysis (chapter 8). In conducting a What If? Analysis, one imagines that an unexpected event has happened and then, with the benefit of "hindsight,"
analyzes how it could have come about and considers the potential consequences. This reframing approach creates an awareness that prepares the analyst’s mind to recognize early signs of a significant change. It can also enable decision makers to plan for contingencies. In addition, a What If? Analysis can be a tactful way of alerting a decision maker to the possibility that he or she may be wrong.

**Multiple Scenarios Generation (chapter 9).** One of the most commonly used Forecast analysis techniques, Multiple Scenarios Generation, uses key drivers in a 2×2 matrix to generate multiple explanations for how a situation may develop when considerable uncertainty is present. The technique leverages the knowledge and imagination of a diverse group of experts to identify alternative future trajectories that both warn decision makers of downside risks and illuminate new opportunities.

**Indicators Generation, Validation, and Evaluation (chapter 9).** Indicators are observable actions or events that can be generated using a variety of structured techniques. They can be monitored to detect or anticipate change. For example, analysts can use Indicators to measure changes toward an undesirable condition, such as political instability, a pending financial crisis, or a coming attack. Indicators can also point toward a desirable condition, such as economic reform or democratic institution building. The special value of Indicators is that they create an awareness that prepares an analyst’s mind to recognize the earliest signs of significant change that might otherwise be overlooked. Indicators must be validated, and the Indicators Evaluation process helps analysts assess the diagnostic value of their Indicators.

### 3.3 SELECTING THE RIGHT TECHNIQUE

Analysts must be able, with minimal effort, to identify and learn how to use the techniques that best meet their needs and fit their styles. The selection guide provided in Figure 3.3a lists twelve tasks that analysts perform and matches the task to several Structured Analytic Techniques that would maximize their performance. The tasks are organized to conform generally with the analytic production process as represented by the six families of techniques. For the purposes of the graphic, the Getting Organized family was incorporated into the Exploration task.

To identify the structured techniques that would be most helpful in learning how to perform a task with more rigor and imagination, analysts pick the statement that best describes their objectives and then choose one or two of the techniques listed below the task. Analysts should refer to the appropriate chapter in the book and first read the brief discussion of that family of techniques (which includes a short description of each
FIGURE 3.3A  Selecting the Right Structured Analytic Technique

**Exploration**

Get started; gather your data; expand your thinking
- Key Assumptions Check, Simple Brainstorming, Circleboarding, Starbursting, Outside-In Thinking

Make sense of the data; look for linkages, groupings, boundaries, and gaps
- Chronologies, Timelines, Cluster Brainstorming, Concept Maps, Venn Analysis

Explore your ideas; look for relationships, comparisons, and causality
- Mind Maps, Venn Analysis, Structured Analogies, Concept Maps

**Diagnostic**

Explain events; provide answers, identify likely hypotheses, and offer alternatives
- Multiple Hypothesis Generation, Analysis of Competing Hypotheses, Inconsistencies Finder, Diagnostic Reasoning, Structured Analogies

Assess the possibility of deception
- Deception Detection, Analysis of Competing Hypotheses, Multiple Hypothesis Generation, Red Hat Analysis

Challenge preconceived notions, established models, and mental mindsets
- Key Assumptions Check, Premortem Analysis & Structured Self-Critique, Diagnostic Reasoning, Pros-Cons-Faults-and-Fixes, Force Field Analysis

**Reframing**

Reframe your issue; consider a different point of view
- Outside-In Thinking, Red Hat Analysis, What If? Analysis, Deception Detection, Classic Quadrant Crunching

See events from the perspective of an adversary
- Red Hat Analysis, Classic Quadrant Crunching, Multiple Hypothesis Generation, Opportunities Incubator, SWOT Analysis

**Foresight**

Identify key drivers of events; foresee and track future trajectories
- Key Drivers Generation, Key Uncertainties Finder, Multiple Scenarios Generation, Foresight Quadrant Crunching, Indicators

Avoid surprise; provide early warning of change that might affect critical interests
- Indicators, Deception Detection, Classic Quadrant Crunching, What If? Analysis, High Impact/Low Probability Analysis

**Decision Support**

Support a decision maker in drawing actionable conclusions and choosing courses of action
- Decision Matrix, Opportunities Incubator, SWOT Analysis, Impact Matrix, Pros-Cons-Faults-and-Fixes, Force Field Analysis

Present your data in a visual format
- Timelines, Venn Analysis, Mind Maps, Indicators, Pros-Cons-Faults-and-Fixes, Force Field Analysis

FIGURE 3.3B  ■ When to Use Structured Analytic Techniques

This timeline suggests an optimal time to use the techniques rather than a hard and fast temporal rule. Many techniques could be used, or continue to be used, outside of the identified project periods. For example, although Chronologies and Timelines are most useful when organizing your data, if new information became available an analyst might need to update the Chronology or Timeline.

<table>
<thead>
<tr>
<th>TECHNIQUES</th>
<th>Getting Started</th>
<th>Finding and Assessing Information</th>
<th>Building an Argument</th>
<th>Conveying the Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exploration</td>
<td>Simple Brainstorming</td>
<td>Simple Brainstorming</td>
<td>Simple Brainstorming</td>
<td>Simple Brainstorming</td>
</tr>
<tr>
<td></td>
<td>Cluster Brainstorming</td>
<td>Cluster Brainstorming</td>
<td>Cluster Brainstorming</td>
<td>Cluster Brainstorming</td>
</tr>
<tr>
<td></td>
<td>Circleboarding</td>
<td>Circleboarding</td>
<td>Circleboarding</td>
<td>Circleboarding</td>
</tr>
<tr>
<td></td>
<td>Starbursting</td>
<td>Starbursting</td>
<td>Starbursting</td>
<td>Starbursting</td>
</tr>
<tr>
<td></td>
<td>Mind Maps</td>
<td>Mind Maps</td>
<td>Mind Maps</td>
<td>Mind Maps</td>
</tr>
<tr>
<td></td>
<td>Concept Maps</td>
<td>Concept Maps</td>
<td>Concept Maps</td>
<td>Concept Maps</td>
</tr>
<tr>
<td></td>
<td>Venn Analysis</td>
<td>Venn Analysis</td>
<td>Venn Analysis</td>
<td>Venn Analysis</td>
</tr>
<tr>
<td>Diagnostic</td>
<td>Chronologies and Timelines</td>
<td>Chronologies and Timelines</td>
<td>Chronologies and Timelines</td>
<td>Chronologies and Timelines</td>
</tr>
<tr>
<td></td>
<td>Key Assumptions Check</td>
<td>Key Assumptions Check</td>
<td>Key Assumptions Check</td>
<td>Key Assumptions Check</td>
</tr>
<tr>
<td></td>
<td>Multiple Hypothesis Generation</td>
<td>Multiple Hypothesis Generation</td>
<td>Multiple Hypothesis Generation</td>
<td>Multiple Hypothesis Generation</td>
</tr>
<tr>
<td></td>
<td>Diagnostic Reasoning</td>
<td>Diagnostic Reasoning</td>
<td>Diagnostic Reasoning</td>
<td>Diagnostic Reasoning</td>
</tr>
<tr>
<td></td>
<td>Analysis of Competing Hypotheses</td>
<td>Analysis of Competing Hypotheses</td>
<td>Analysis of Competing Hypotheses</td>
<td>Analysis of Competing Hypotheses</td>
</tr>
<tr>
<td></td>
<td>Inconsistencies Finder</td>
<td>Inconsistencies Finder</td>
<td>Inconsistencies Finder</td>
<td>Inconsistencies Finder</td>
</tr>
<tr>
<td></td>
<td>Deception Detection</td>
<td>Deception Detection</td>
<td>Deception Detection</td>
<td>Deception Detection</td>
</tr>
<tr>
<td>Reframing</td>
<td>Outside-In Thinking</td>
<td>Outside-In Thinking</td>
<td>Outside-In Thinking</td>
<td>Outside-In Thinking</td>
</tr>
<tr>
<td></td>
<td>Structured Analogies</td>
<td>Structured Analogies</td>
<td>Structured Analogies</td>
<td>Structured Analogies</td>
</tr>
<tr>
<td></td>
<td>Classic Quadrant Crunching</td>
<td>Classic Quadrant Crunching</td>
<td>Classic Quadrant Crunching</td>
<td>Classic Quadrant Crunching</td>
</tr>
<tr>
<td></td>
<td>Red Hat Analysis</td>
<td>Red Hat Analysis</td>
<td>Red Hat Analysis</td>
<td>Red Hat Analysis</td>
</tr>
<tr>
<td></td>
<td>High Impact/Low Probability Analysis</td>
<td>High Impact/Low Probability Analysis</td>
<td>High Impact/Low Probability Analysis</td>
<td>High Impact/Low Probability Analysis</td>
</tr>
<tr>
<td>Foresight</td>
<td>Key Uncertainties Finder</td>
<td>Key Uncertainties Finder</td>
<td>Key Uncertainties Finder</td>
<td>Key Uncertainties Finder</td>
</tr>
<tr>
<td></td>
<td>Key Drivers Generation</td>
<td>Key Drivers Generation</td>
<td>Key Drivers Generation</td>
<td>Key Drivers Generation</td>
</tr>
<tr>
<td></td>
<td>Multiple Scenarios Generation</td>
<td>Multiple Scenarios Generation</td>
<td>Multiple Scenarios Generation</td>
<td>Multiple Scenarios Generation</td>
</tr>
<tr>
<td></td>
<td>Indicator Generation, Validation and Evaluation</td>
<td>Indicator Generation, Validation and Evaluation</td>
<td>Indicator Generation, Validation and Evaluation</td>
<td>Indicator Generation, Validation and Evaluation</td>
</tr>
<tr>
<td>Decision Support</td>
<td>Opportunities Incubator</td>
<td>Opportunities Incubator</td>
<td>Opportunities Incubator</td>
<td>Opportunities Incubator</td>
</tr>
<tr>
<td></td>
<td>SWOT Analysis</td>
<td>SWOT Analysis</td>
<td>SWOT Analysis</td>
<td>SWOT Analysis</td>
</tr>
<tr>
<td></td>
<td>Impact Matrix</td>
<td>Impact Matrix</td>
<td>Impact Matrix</td>
<td>Impact Matrix</td>
</tr>
<tr>
<td></td>
<td>Decision Matrix</td>
<td>Decision Matrix</td>
<td>Decision Matrix</td>
<td>Decision Matrix</td>
</tr>
<tr>
<td></td>
<td>Force Field Analysis</td>
<td>Force Field Analysis</td>
<td>Force Field Analysis</td>
<td>Force Field Analysis</td>
</tr>
</tbody>
</table>

Choosing the Right Technique

Chapter 3

3.4 PROJECTS USING MULTIPLE TECHNIQUES

Many projects require the use of multiple techniques, which is why this book includes sixty-six different techniques. Each technique may provide only one piece of a complex puzzle; knowing how to put these pieces together for a specific project is part of the art of structured analysis. Separate techniques might be used for organizing the data, evaluating ideas, and identifying assumptions. There are also several techniques appropriate for generating and testing hypotheses, drawing conclusions, challenging key findings, and implementing new strategies.

Multiple techniques can be used to check the accuracy of and increase confidence in an analytic conclusion. Research shows that forecasting accuracy is increased by combining “forecasts derived from methods that differ substantially and draw from different sources of information.” This is a particularly appropriate function for the Delphi Method (chapter 8), which is a structured process for eliciting judgments from a panel of outside experts. If a Delphi panel produces results similar to the initial internal analysis, one can have significantly greater confidence in those results. If the results differ, further research may be appropriate to understand why and to evaluate the differences.

A key lesson learned from mentoring analysts in the use of structured techniques is that major benefits can result—and major mistakes be avoided—if analysts use two different techniques to conduct the same analysis (for example, pairing Cluster Brainstorming with Diagnostic Reasoning or pairing Key Uncertainties Finder™ with Key Drivers Generation™). Two groups can either (1) attack the same problem independently applying the same structured technique or (2) work the same problem independently using a different but complementary technique. They then should share their findings with each other and meld their results into a single more comprehensive solution.

3.5 COMMON ERRORS IN SELECTING TECHNIQUES

The value and accuracy of an analytic product depends in part upon selection of the most appropriate technique or combination of techniques for doing the analysis.
Unfortunately, it is easy for analysts to go astray when selecting the best method. Lacking effective guidance, analysts are vulnerable to various influences:

- **College or graduate-school recipe.** Analysts are inclined to use the tools they learned in college or graduate school regardless of whether those tools are most appropriate for dealing with an intelligence problem.

- **Tool rut.** Analysts are inclined to use whatever tool they already know or have readily available. Psychologist Abraham Maslow observed that “if the only tool you have is a hammer, it is tempting to treat everything as if it were a nail.”

- **Convenience shopping.** The analyst, guided by the evidence that happens to be available, uses a method appropriate for that evidence, rather than seeking out the evidence that is really needed to address the intelligence issue. In other words, the evidence may sometimes drive the technique selection instead of the analytic need driving the evidence collection.

- **Time constraints.** Analysts can easily be overwhelmed by their inboxes and the myriad tasks they must perform in addition to their analytic workload. The temptation is to avoid techniques that would “take too much time.” However, many useful techniques take relatively little time to perform, even as little as an hour or two. This ultimately helps analysts produce higher-quality and more compelling analysis than might otherwise be possible.

### 3.6 MAKING A HABIT OF USING STRUCTURED TECHNIQUES

Analysts sometimes express concern that they do not have enough time to use Structured Analytic Techniques. The experience of most analysts and particularly managers of analysts is that this concern is unfounded. If analysts stop to consider how much time it takes to research an issue and draft a report, coordinate the analysis, walk the paper through the editing process, and get it approved and disseminated, they will discover that the use of structured techniques typically speeds the process.

- Many of the techniques, such as Key Assumptions Check, Circleboarding™, Inconsistencies Finder™, and Indicators Validation and Evaluation, take little time and substantially improve the rigor of the analysis.

- Some take a little more time to learn, but, once learned, often save analysts considerable time over the long run. Cluster Brainstorming, Analysis of Competing Hypotheses (ACH), and Red Hat Analysis are good examples of this phenomenon.
• Most Foresight Techniques, Premortem Analysis, and Structured Self-Critique take more time to perform but offer major rewards for discovering both “unknown unknowns” and errors in the original analysis that can be remedied.

When working on quick-turnaround items, such as a current situation report or an alert that must be produced the same day, one can credibly argue that it is not possible to take time to use a structured technique. When deadlines are short, gathering the right people in a small group to employ a structured technique can prove to be impossible.

The best response to this valid observation is to encourage analysts to practice using core structured techniques when deadlines are less pressing. In so doing, they ingrain new habits of thinking. If they, and their colleagues, practice how to apply the concepts embedded in the structured techniques when they have time, they will be more capable of applying these critical thinking skills instinctively when under pressure. The Five Habits of the Master Thinker are described in Figure 3.6. Each habit can be mapped to one or more Structured Analytic Techniques.

**Key Assumptions.** In a healthy work environment, challenging assumptions should be commonplace, ranging from “Why do you assume we all want pepperoni pizza?” to “Won’t higher oil prices force them to reconsider their export strategy?” If you expect your colleagues to challenge your key assumptions on a regular basis, you will become more sensitive to them yourself and will increasingly question if your assumptions are well-founded.

**Alternative Explanations.** When confronted with a new development, the first instinct of a good analyst is to develop a hypothesis to explain what has occurred based on the available evidence and logic. A master thinker goes one step further and immediately asks whether any alternative explanations should be considered. If envisioning one or more alternative explanations is difficult, a master thinker will simply posit a single alternative that the initial or lead hypothesis is not true. Although at first glance these alternatives may appear much less likely, as new evidence surfaces over time, one of the alternatives may evolve into the lead hypothesis. Analysts who do not generate a set of alternative explanations at the start of a project but rather quickly lock on to a preferred explanation will often fall into the trap of Confirmation Bias—focusing on the data that are consistent with their explanation and ignoring or rejecting other data that are inconsistent.

**Inconsistent Data.** Looking for inconsistent data is probably the hardest of the five habits to master, but it is the one that can reap the most benefits in terms of time saved when investigating or researching an issue. The best way to train your brain to look for inconsistent data is to conduct a series of ACH or Inconsistencies Finder™ exercises.
A good analytic thinker who has mastered the core Structured Analytic Techniques will instinctively . . .

1. Know when to challenge key assumptions—usually far more often than you think!

2. Consider alternative explanations or hypotheses for all events, including, when applicable, the deception hypothesis, which states that what is being hypothesized is not true.

3. Look for inconsistent data that provide sufficient justification to quickly discard a candidate hypothesis.

4. Focus on the key drivers that best explain what has occurred or what is about to happen.

5. Anticipate the clients’ needs and understand the overarching context within which the analysis is being done.

Such practice helps analysts readily identify what constitutes compelling contrary evidence. If an analyst encounters an item of data that is compellingly inconsistent with one of the hypotheses (for example, a solid alibi), then that hypothesis can be quickly discarded. This will save the analyst time by redirecting his or her attention to more likely solutions.

**Key Drivers.** Asking at the outset what key drivers best explain what has occurred or foretell what is about to happen is a key attribute of a master thinker. If analysts quickly identify key drivers, the chance of surprise will be diminished. An experienced analyst should know how to vary the weights of these key drivers (either instinctively or by using techniques such as Multiple Scenarios Generation or Quadrant Crunching™) to generate a set of credible alternative scenarios that capture the range of possible outcomes.

**Context.** Analysts often get so engaged in collecting and sorting data that they miss the forest for the trees. Learning to stop and reflect on the overarching context for the analysis is a key habit to learn. Most analysis is done under considerable time pressure, and the tendency is to plunge in as soon as a task is assigned. If the analyst does not take time to reflect on what the client is really seeking, the resulting analysis could prove inadequate and much of the research a waste of time. Ask yourself: “What do they need from me,” “How can I help them frame the issue,” and “Do I need to place their question in a broader context?” Failing to do this at the outset can easily lead the analyst down blind alleys or require reconceptualizing an entire paper after it has been drafted. Key structured techniques for developing context include Starbursting, Mind Mapping, Outside-In Thinking, and Cluster Brainstorming.

Learning how to internalize the five habits will take a determined effort. Applying each core technique to three to five real problems should implant the basic concepts firmly in any analyst’s mind. With every repetition, the habits will become more ingrained and, over time, will become instinctive. Few analysts can wish for more. If they master the habits, they will produce a superior product in less time.

**NOTES**


4. For a fuller discussion of this topic, see Randolph H. Pherson, “Five Habits of the Master Thinker,” *Journal of Strategic Security* 6, no. 3 (Fall 2013), http://scholarcommons.usf.edu/jss.