CHAPTER 1
INTRODUCTION AND OVERVIEW

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Analysis as practiced in the intelligence, law enforcement, and business communities is steadily evolving from a mental activity done predominantly by a sole analyst to a collaborative team or group activity.[1] The driving forces behind this transition include the following:

- The growing complexity of international issues and the consequent requirement for multidisciplinary input to most analytic products.[2] The need to share more information quickly across organizational boundaries.

- The dispersion of expertise, especially as the boundaries between analysts, collectors, operators, and decision makers become blurred.

- The need to identify and evaluate the validity of alternative mental models.

- The need to counter the use of social media to distribute Digital Disinformation or fake news.

This transition is being enabled by advances in technology, such as new collaborative networks, artificial intelligence, and blockchain as well as the mushrooming growth of social networking practices among the upcoming generation of analysts. The use of Structured Analytic Techniques facilitates the transition by guiding the exchange of information and reasoning among analysts in ways that identify and eliminate a wide range of cognitive biases and other shortfalls of intuitive judgment.

1.1 OUR VISION

This book defines the role and scope of Structured Analytic Techniques as a distinct analytic approach that provides a step-by-step process for dealing with the kinds of incomplete, ambiguous, and sometimes deceptive information with which analysts must work. Structured analysis is a mechanism by which internal thought processes are externalized in a systematic and transparent manner so that they can be shared, built

on, and easily critiqued by others. Each technique leaves a trail that other analysts and managers can follow to see the basis for an analytic judgment. These techniques are used by individual analysts but are perhaps best utilized in a collaborative team effort in which each step of the analytic process exposes participants to divergent or conflicting perspectives. This transparency helps ensure that differences of opinion among analysts are heard and seriously considered early in the analytic process. Analysts tell us that this is one of the most valuable benefits of any structured technique.

Structured analysis helps analysts ensure that their analytic framework—the foundation upon which they form their analytic judgments—is as solid as possible. By helping break down a specific analytic problem into its component parts and specifying a step-by-step process for handling these parts, Structured Analytic Techniques help organize the amorphous mass of data with which most analysts must contend. Such techniques make our thinking more open and available for review and critique by ourselves as well as by others. This transparency enables the effective communication at the working level that is essential for intraoffice and interagency collaboration.

We call the various approaches described in this book "techniques" because they usually guide the analyst in thinking about a problem rather than provide the analyst with a definitive answer, as one might expect from a predictive tool. Structured techniques help analysts think more rigorously about a problem; they do not solve it. Structured Analytic Techniques, however, do form a methodology—a set of principles and procedures for qualitative analysis of the kinds of uncertainties that many analysts must deal with daily.

1.2 ROLE OF STRUCTURED ANALYTIC TECHNIQUES

Structured Analytic Techniques are debiasing techniques. They do not replace intuitive judgment. Their role is to question intuitive judgments by identifying a wider range of options for analysts to consider. For example, a Key Assumptions Check requires the identification and consideration of additional assumptions. Analysis of Competing Hypotheses requires identification of alternative hypotheses, a focus on refuting rather than confirming hypotheses, and a more systematic analysis of the evidence. All structured techniques described in this book have a "Value Added" section that describes how this technique contributes to better analysis. Structured Analytic Techniques help mitigate cognitive biases, misapplied heuristics, and intuitive traps that analysts often fall victim to when relying only on expert-aided judgment. For many techniques, the benefit is self-evident. None purports to always give the correct answer; instead, they identify alternatives that merit serious consideration.

No formula exists, of course, for always getting it right, but the use of structured techniques can reduce the frequency and severity of error. These techniques can help

analysts deal with proven cognitive limitations, sidestep some of the known analytic biases, and explicitly confront the problems associated with unquestioned mental models or mindsets. They help analysts think more rigorously about an analytic problem and ensure that preconceptions and assumptions are explicitly examined and, when possible, tested.[3]

The most common criticism of Structured Analytic Techniques is "I don't have enough time to use them." The experience of many analysts shows that this criticism is not justified. All the techniques will save an analyst time, on balance, when considering the entire arc of the analytic production schedule. Anything new does take time to learn; however, once learned, the incorporation of Structured Analytic Techniques into the analytic process saves analysts time over time. They enable individual analysts to work more efficiently, especially at the start of a project, when the analyst may otherwise flounder trying to figure out how to proceed. Structured techniques also aid group processes by improving communication as well as enhancing the collection and interpretation of evidence. And, in the end, use of a structured technique results in a product in which the reasoning behind the conclusions is more transparent and more readily accepted than one derived from other methods. Transparent reasoning expedites review by supervisors and editors while also compressing the coordination process.[4]

Analytic methods are important, but method alone is far from sufficient to ensure analytic accuracy or value. Method must be combined with substantive expertise and an inquiring and imaginative mind. And these, in turn, must be supported and motivated by the organizational environment in which the analysis is done.

1.3 HISTORY OF STRUCTURED ANALYTIC TECHNIQUES

The term "structured analytic techniques" was first used in the U.S. Intelligence Community in 2005. The concept originated in the 1980s, when the eminent teacher of intelligence analysis, Jack Davis, first began teaching and writing about what he called "alternative analysis."[5] The term referred to the evaluation of alternative explanations or hypotheses, better understanding of other cultures, and analysis of events from the other country's point of view rather than by Mirror Imaging. In the mid-1980s, some initial efforts were made to initiate the use of more alternative analytic techniques in the Central Intelligence Agency's Directorate of Intelligence. Under the direction of Robert Gates, then CIA Deputy Director for Intelligence, analysts employed several new techniques to generate scenarios of dramatic political change, track political instability, and anticipate military coups. Douglas MacEachin, Deputy Director for Intelligence from 1993 to 1996, supported new standards for systematic and transparent analysis that helped pave the path to further change.[6]

The term "alternative analysis" became widely used in the late 1990s after (1) Adm. David Jeremiah's postmortem analysis of the U.S. Intelligence Community's failure to foresee India's 1998 nuclear test, (2) a U.S. congressional commission's review of the Intelligence Community's global missile forecast in 1998, and (3) a report from the CIA Inspector General that focused higher-level attention on the state of the Directorate of Intelligence's analytic tradecraft. The Jeremiah report specifically encouraged increased use of what it called "red team analysis."

> *The beginning of wisdom is the definition of terms.*
>
> —Socrates, Greek philosopher

When the Sherman Kent School for Intelligence Analysis at the CIA was created in 2000 to improve the effectiveness of intelligence analysis, John McLaughlin, then Deputy Director for Intelligence, tasked the school to consolidate techniques for doing what was then referred to as "alternative analysis." In response to McLaughlin's tasking, the Kent School developed a compilation of techniques that the CIA's Directorate of Intelligence started teaching in a course that later evolved into the Advanced Analytic Tools and Techniques Workshop. The Kent School subsequently opened the class to analysts from the Defense Intelligence Agency and other elements of the U.S. Intelligence Community.

The various investigative commissions that followed the surprise terrorist attacks of September 11, 2001, as well as the erroneous analysis of Iraq's possession of weapons of mass destruction, cranked up pressure for more rigorous approaches to intelligence analysis. For example, the Intelligence Reform Act of 2004 assigned to the Director of National Intelligence (DNI) "responsibility for ensuring that, as appropriate, elements of the intelligence community conduct alternative analysis (commonly referred to as 'red-team' analysis) of the information and conclusions in intelligence analysis."

Over time, analysts who misunderstood, or resisted the call for more rigor, interpreted alternative analysis as simply meaning an alternative to the normal way that analysis is done. For them the term implied that alternative procedures were needed only in exceptional circumstances when an analysis is of critical importance. Kent School instructors countered that the techniques were not alternatives to traditional analysis but were central to good analysis and should become routine—instilling rigor and structure into the analysts' everyday work process.

In 2004, when the Kent School decided to update its training materials based on lessons learned during the previous several years and publish *A Tradecraft Primer*,[7] Randolph H. Pherson and Roger Z. George were the primary drafters. As George observed at the time, "There was a sense that the name 'alternative analysis' was too limiting and not descriptive enough. At least a dozen different analytic techniques were all rolled into one term, so we decided to find a name that was more encompassing

and suited this broad array of approaches to analysis."[8] Randy Pherson credits his wife, Kathy, with creating the name "Structured Analytic Techniques" during a dinner table conversation. George organized the techniques into three categories: Diagnostic Techniques, contrarian techniques, and imagination techniques. The term "Structured Analytic Techniques" became official in June 2005, when the Kent School formally approved the updated training materials.

The use of the term "alternative analysis," however, persists in official directives. The DNI is tasked under the Intelligence Reform Act of 2004 with ensuring that elements of the U.S. Intelligence Community conduct alternative analysis, which it now describes as the inclusion of alternative outcomes and hypotheses in analytic products. We view "alternative analysis" as covering only a subset of what now is regarded as Structured Analytic Techniques and recommend avoiding use of the term "alternative analysis" to forestall any confusion. We strongly endorse, however, the "analysis of alternatives"—be they hypotheses or scenarios—as an essential component of good analysis.

1.4 THE EXPANDING USE OF STRUCTURED ANALYTIC TECHNIQUES

Intelligence community analysts in the United States and in foreign intelligence services have used structured techniques for over a decade, but the general use of these techniques by the typical analyst is a relatively new phenomenon. Most analysts using the techniques today were not exposed to them when they were college students. The driving forces behind the development and use of these techniques in the intelligence profession, and increasingly in the private sector, are (1) an increased appreciation of cognitive limitations that make intelligence analysis so difficult, (2) prominent intelligence failures that have prompted reexamination of how intelligence analysis is generated, (3) increased policy support and technical support for intraoffice and interagency collaboration, and (4) a desire by policymakers to make analytic conclusions more transparent.

In the early 2000s, the Directorate of Intelligence's senior management, which strongly supported using Structured Analytic Techniques, created Tradecraft Cells in its analytic units to mentor analysts in how to use structured techniques and to facilitate the integration of the techniques into ongoing projects. The Federal Bureau of Investigation (FBI), the Defense Intelligence Agency (DIA), and the Department of Homeland Security (DHS) were the next agencies to incorporate structured techniques formally into their training programs followed by the National Security Agency (NSA), the National Geospatial-Intelligence Agency (NGA), and the Office of Naval Intelligence (ONI). Structured techniques are now used throughout the entire U.S. Intelligence Community.

The U.S. Intelligence Community's adoption of structured techniques spurred many academic institutions to incorporate training in the techniques into their homeland security and intelligence studies programs, which were quickly propagating across the United States. Foreign universities also incorporated instruction on structured techniques into their undergraduate and master's degree programs, including institutions in Spain, Canada, the United Kingdom, Denmark, Germany, and Australia, followed by other universities on six continents.

Publication of the first edition of this book in 2011, followed by an expanded second edition in 2015, and discussions of their utility in various annual international conferences helped propagate the use of Structured Analytic Techniques initially in the intelligence services of the Five Eyes countries (United States, Canada, United Kingdom, Australia, and New Zealand). Use of this book and the techniques has expanded over the years to almost all European intelligence services and other services around the world. The book is now being used by analysts in intelligence services, businesses, universities, and nongovernmental organizations in at least two dozen countries.[9]

Structured Analytic Techniques for Intelligence Analysis has been translated into Spanish, Chinese, and Korean. The publisher has received inquiries about translations into several other languages. A companion volume, *Critical Thinking for Strategic Intelligence*, has also been translated into Chinese and Polish.

1.5 SELECTION OF TECHNIQUES FOR THIS BOOK

The techniques described in this book are limited to those that meet our definition of Structured Analytic Techniques, as discussed earlier in this chapter. Although the focus is on techniques for strategic intelligence analysis, many of the techniques described in this book have wide applicability to tactical military analysis, law enforcement intelligence analysis, homeland security, business consulting, the medical profession, financial planning, cyber analysis, and complex decision making in any field. The book focuses on techniques that can be used by a single analyst working alone or, preferably, with a small group or team of analysts. We excluded techniques that require sophisticated computing or complex projects of the type usually sent to an outside expert or company. Several promising techniques recommended to us were not included for this reason.

From the several hundred techniques that might have been included in this book, we selected a core group of sixty-six techniques that appear to be most useful for the intelligence profession as well as analytic pursuits in government, academia, and the private sector.[10] We omitted techniques that tend to be used *exclusively* for a single type of analysis in fields such as law enforcement or business consulting.

This list is not static, and we expect it to increase and decrease as new techniques are identified and others are tested and found wanting. In the second edition, we dropped two techniques and added five new ones. In this edition, Devil's Advocacy, Red Team Analysis, Role Playing, and Virtual Brainstorming were dropped for reasons explained in later chapters. A suite of techniques that relate more to analytic production—Getting Started Checklist, Client Checklist, AIMS (**A**udience, **I**ssue, **M**essage, and **S**toryline), and Issue Redefinition—were also dropped because they are described fully in Pherson and Pherson's *Critical Thinking for Strategic Intelligence*. Nine new techniques were added: Inconsistencies Finder™, Key Uncertainties Finder™, Key Drivers Generation™, Reversing Assumptions, Analysis by Contrasting Narratives, Counterfactual Reasoning, Opportunities Incubator™, Bowtie Analysis, and Critical Path Analysis.

Some training programs may have a need to boil down the list of techniques to the essentials required for a given type of analysis. No one list will meet everyone's needs. However, we hope that having one reasonably comprehensive list and lexicon of common terminology available to the growing community of analysts now employing Structured Analytic Techniques will help to facilitate discussion and use of these techniques in projects involving collaboration across organizational boundaries.

This collection of techniques builds on work previously done in the U.S. Intelligence Community. We also have included several techniques developed and used by our British, Canadian, Spanish, Dutch, and Australian colleagues. To select the most appropriate techniques for the initial edition of this book, Richards J. Heuer Jr. reviewed a large number of books and websites dealing with intelligence analysis methodology, qualitative methods in general, decision making, problem solving, competitive intelligence, law enforcement intelligence, strategic foresight or futures research, and social science research in general. In preparation for writing the third edition, Pherson interviewed managers of intelligence programs in over a dozen agencies and foreign intelligence services to identify which techniques could be dropped and which should be added. Given the immensity of this literature, there can be no guarantee that nothing was missed.

Almost half of the techniques described in this edition have become "standard fare" in training materials used by the CIA, DIA, Office of Intelligence and Analysis in the DHS, or other intelligence agencies. Over half were newly created or adapted to the needs of intelligence analysts by Richards Heuer or Randolph H. Pherson to fill perceived gaps. Several of the techniques that were originally created by Randolph H. Pherson, while teaching structured techniques to intelligence analysts, students, and private-sector clients, have since been revised, reflecting lessons learned when applying the techniques to current issues.

Specific guidance is provided on how to use each technique, but this guidance is not written in stone. Many of the techniques can be implemented in more than one

way, and some techniques have several different names. An experienced government analyst told one of the authors that he seldom uses a technique the same way twice. He adapts techniques to the requirements of the specific problem, and his ability to do that effectively is a measure of his experience.

In the popular literature, the names of some techniques are normally capitalized, but many are not. We have chosen to capitalize the names of all techniques for consistency's sake and to make them stand out.

1.6 QUICK OVERVIEW OF CHAPTERS

Chapter 2 ("The Role of Structured Techniques") defines the domain of Structured Analytic Techniques by describing how it differs from three other major categories of intelligence analysis methodology. It presents a taxonomy with six distinct categories or families of Structured Analytic Techniques. The families are based on how each set of techniques contributes to a different phase of analytic tasks in the intelligence production process. The chapter discusses how structured techniques can help analysts avoid, overcome, or at least mitigate the cognitive biases, misapplied heuristics, and intuitive traps they fall prey to every day. It concludes with a discussion of how perpetrators of Digital Disinformation leverage these cognitive limitations to promote their agendas and how structured techniques can help counter this phenomenon.

Chapter 3 ("Choosing the Right Technique") describes the criteria we used for selecting techniques, discusses which techniques might be learned first and used the most, and provides a guide for matching techniques to analysts' needs. The guide asks twelve questions about what the analyst wants or needs to do. An affirmative answer to any question directs the analyst to the appropriate chapter(s), where the analyst can quickly zero in on the most applicable technique(s). It concludes with a description of the value of instilling five core habits of thinking into the analytic process.

Chapter 4 ("Practitioner's Guide to Collaboration") builds on our earlier observation that analysis done across the global intelligence community is in a transitional stage from a mental activity performed predominantly by a sole analyst to a collaborative team or group activity. The chapter discusses, among other things, how to expand the analytic process to include rapidly growing social networks of area and functional specialists who often work from several different geographic locations. It proposes that most analysis be done in two phases: a divergent analysis or creative phase with broad participation by a social network, followed by a convergent analysis phase and final report done by a small analytic team.

Chapters 5 through 10 each describe a different family of structured techniques, which taken together cover sixty-six structured techniques (see Figure 1.6).[11] Each of these chapters starts with a description of the specific family and how techniques in

FIGURE 1.6 ■ **Six Families of Structured Analytic Techniques**
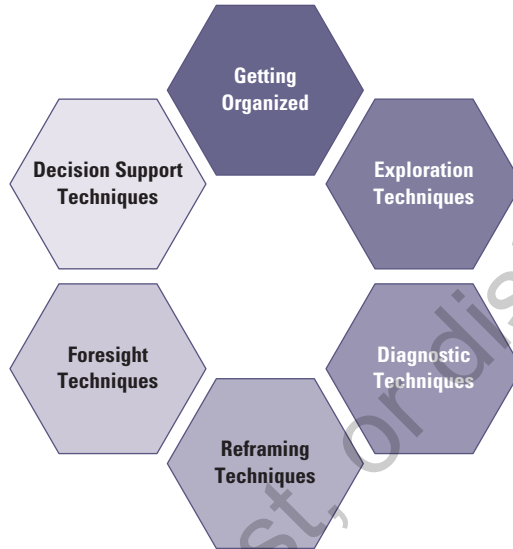
that family help to mitigate known cognitive biases, misapplied heuristics, or intuitive traps. A brief overview of each technique is followed by a detailed discussion of each, including when to use it, the value added, description of the method, potential pitfalls when noteworthy, relationship to other techniques, and origins of the technique.

Readers who go through these six chapters of techniques from start to finish may perceive some overlap. This repetition is for the convenience of those who use this book as a reference guide and seek out individual sections or chapters. The reader seeking only an overview of the techniques can save time by reading the introduction to each family of techniques, the brief overview of each technique, and the full descriptions of only those specific techniques that pique the reader's interest.

Highlights of the six chapters of techniques are as follows:

- **Chapter 5: Getting Organized.** The eight techniques cover the basics, such as checklists, sorting, ranking, and organizing your data.

- **Chapter 6: Exploration Techniques.** The nine techniques include several types of brainstorming, including Circleboarding™, Starbursting, and Cluster Brainstorming, which was called Structured Brainstorming in previous

editions. The Nominal Group Technique is a form of brainstorming that is appropriate when there is concern that a brainstorming session might be dominated by a particularly aggressive analyst or constrained by the presence of a senior officer. It also introduces several mapping techniques, Venn Analysis, and Network Analysis.

- **Chapter 7: Diagnostic Techniques**. The eleven techniques covered in this chapter include the widely used Key Assumptions Check and Chronologies and Timelines. The Cross-Impact Matrix supports group learning about relationships in a complex system. Several techniques fall in the domain of hypothesis generation and testing (Multiple Hypothesis Generation, Diagnostic Reasoning, Analysis of Competing Hypotheses [ACH], Argument Mapping, and Deception Detection), including a new technique called the Inconsistencies Finder™, which is a simplified version of ACH.

- **Chapter 8: Reframing Techniques**. The sixteen techniques in this family help analysts break away from established mental models by using Outside-In Thinking, Structured Analogies, Red Hat Analysis, Quadrant Crunching™, and the Delphi Method to reframe an issue or imagine a situation from a different perspective. What If? Analysis and High Impact/Low Probability Analysis are tactful ways to suggest that the conventional wisdom could be wrong. Two important techniques developed by the authors, Premortem Analysis and Structured Self-Critique, give analytic teams viable ways to imagine how their own analysis might be wrong. The chapter concludes with a description of a subset of six techniques grouped under the umbrella of Adversarial Collaboration and an original approach to Structured Debate.

- **Chapter 9: Foresight Techniques**. This family of twelve techniques includes four new techniques for identifying key drivers, analyzing contrasting narratives, and engaging in Counterfactual Reasoning. The chapter also describes five methods for developing scenarios and expands the discussion of Indicators Validation and evaluation by presenting several new techniques for generating indicators.

- **Chapter 10: Decision Support Techniques**. The ten techniques in this family include three new Decision Support Techniques: Opportunities Incubator™, Bowtie Analysis, and Critical Path Analysis. The chapter also describes six classic Decision Support Techniques, including Decision Matrix, Force Field Analysis, and Pros-Cons-Faults-and-Fixes, all of which help managers, commanders, planners, and policymakers make choices or trade-offs between competing goals, values, or preferences. The chapter concludes with a description of the Complexity Manager, which was developed by Richards J. Heuer Jr.

How can we know that the use of Structured Analytic Techniques does, in fact, improve the overall quality of the analytic product? Chapter 11 ("The Future of Structured Analytic Techniques") begins with a discussion of two approaches to answer this question: logical reasoning and empirical research. The chapter then employs one of the techniques in this book, Complexity Manager, to assess the prospects for continued growth in the use of Structured Analytic Techniques. It asks the reader to imagine it is 2030 and answer the following questions based on an analysis of ten variables that could support or hinder the growth of Structured Analytic Techniques during this time period: Will structured techniques gain traction and be used with greater frequency by intelligence agencies, law enforcement, and the business sector? What forces are spurring the increased use of structured analysis? What obstacles are hindering its expansion?

NOTES

1. *Vision 2015: A Globally Networked and Integrated Intelligence Enterprise* (Washington, DC: Director of National Intelligence, 2008).

2. National Intelligence Council, *Global Trends 2025: A Transformed World* (Washington, DC: U.S. Government Printing Office, November 2008).

3. Judgments in this and the next sections are based on our personal experience and anecdotal evidence gained in work or discussion with other experienced analysts. As we will discuss in chapter 11, there is a need for systematic research on these and other benefits believed to be gained by using Structured Analytic Techniques.

4. Again, these statements are our professional judgments based on discussions with working analysts using Structured Analytic Techniques. As discussed in chapter 11, we strongly recommend research by both academia and the intelligence community on the benefits and costs associated with all aspects of the use of Structured Analytic Techniques.

5. Information on the history of the terms "structured analytic techniques" and "alternative analysis" is based on information provided by Jack Davis, Randolph H. Pherson, and Roger Z. George, all of whom were key players in developing and teaching these techniques at the CIA.

6. See Richards J. Heuer Jr., *Psychology of Intelligence Analysis* (Washington, DC: CIA Center for the Study of Intelligence, 1999; reprinted by Pherson Associates, LLC, Reston, VA, 2007), xvii–xix.

7. *A Tradecraft Primer: Structured Analytic Techniques for Improving Intelligence Analysis*, 2nd ed. (Washington, DC: Central Intelligence Agency, 2009), https://www.cia.gov/library/center-for-the-study-of-intelligence/csi-publications/books-and-monographs/Tradecraft%20Primer-apr09.pdf

8. Personal communication to Richards Heuer from Roger Z. George, October 9, 2007.

9. This number was derived by examining the addresses of individuals or institutions purchasing the book from shop.globalytica.com and adding countries where workshops using the techniques have been taught.

10.   Although the table of contents lists seventy techniques, three of them (Key Assumptions Check, Analysis of Competing Hypotheses, and Argument Mapping) are listed twice because they can be used to perform different functions and a fourth (Indicators Generation) is a compendium of techniques described elsewhere in the book.

11.   Previous editions of this book listed eight categories of techniques based on the analytic function being performed: Decomposition and Visualization, Idea Generation, Scenarios and Indicators, Hypothesis Generation and Testing, Assessment of Cause and Effect, Challenge Analysis, Conflict Management, and Decision Support. In this edition, the techniques were re-sorted into six families that mirror the analytic production process to make it easier to locate a technique in the book.