Part I

Problems and Possible Solutions

THERE ARE MANY DEFINITIONS OF INTELLIGENCE ANALYSIS, OFTEN USING as a starting point the views of Sherman Kent, the founder of the profession of intelligence analysis in the United States, who wrote that that it can be an organization, a process, or a product. Others see intelligence analysis as solving puzzles. Grappling with conundrums is part of what analysts do, but just finding a solution is not the main goal. Still others emphasize that dealing with secret and tightly controlled information, such as from spies or satellites, is what is important about intelligence analysis. This may have been true during the Cold War but is much less so in the age of the Internet, when vast amounts of data that could be useful are readily available. Moreover, many people in business and law enforcement use analytic techniques effectively without recourse to secret sources or methods.

The perspective in *Challenges in Intelligence Analysis: Lessons from 1300 BCE to the Present*, therefore, is that what is unique and important about intelligence analysis is that it supports decision making. This is especially the case when the decision maker is dealing with difficult problems, high stakes, and intense pressure to get it right. Although having quality data, including possibly secret data, is important, analyses can be effective without any secret input. What is really crucial about intelligence analysis is how one thinks about the problem, including factors such as the identifying the main issues, evaluating the evidence, and laying out the options and risks. Effective intelligence analysis is a complex process and therefore is extremely difficult.

Intelligence analysis as support to high-level decision making has taken place throughout history, and there have been both successes and failures along the way. Indeed, given the difficulties, the analyst is probably more likely to get it wrong than right. There are no guarantees or silver bullets, and the role of luck should not be discounted. For all of its shortcomings, however, intelligence analysis is certainly better than alternatives such consulting an oracle, trusting fate, or ignoring the problem.

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The Main Challenges in Intelligence Analysis

DECIDING CAN OFTEN BE HARD; THERE ARE SO MANY POSSIBILITIES. What do I want for dinner, or what movie do I want to see? Making a decision can be even more difficult when there are high emotional or financial stakes. Whom do I want to marry? What is the best house or career? Even in marriage, housing, or careers, however, there is usually a finite number of options and a reasonable amount of information about them. How challenging is it, then, when the stakes are huge, the information confusing, the deadlines short, and the outcomes momentous, such as when a law enforcement officer is determining which suspect to arrest, a company is considering a new product, or, even worse, a government is trying to decide whether to go to war?

There are four interrelated aspects of decision making that are particularly troublesome: the uncertainty of the current situation, the unpleasant fact that from time to time there are surprises, the strong possibility that someone is trying to deceive, and the imponderable future.

Uncertainty

One of the main reasons why decisions are so hard to make is the nature of the situation in which choices are made. This is especially the case in the three areas in which intelligence analysis is most widely used: national security, law enforcement, and business. For even a simple decision, the environment can be complex, shifting, and uncertain. There is so much information to consider and so little time to deal with it. What is the situation in a foreign country? What are the capabilities of a new technology? When will an enemy strike or surrender? How many nuclear weapons are there, and where are they? What are the vulnerabilities, if any, of a terrorist group or

an international criminal organization? Can we really understand a different culture, society, or viewpoint? In addition to the difficulty of these and similar questions, some crucial things are just unknowable, especially in advance: What is really the motivation or breaking point of a terrorist leader or foreign dictator?

In an effort to cope with uncertainty we seek facts, data that we believe to be true. "Facts" may not always be helpful, however. A search on the Internet yields more than a million hits; what are we supposed to do with that? Even with a flood of data, we often seem not to have the one piece we really need. What if one reliable newspaper says the stock market is about to go up, but another says it is about to go down? How do we understand and defeat an enemy who might have a value system different from our own? All of this is maddening enough in our private lives; what about a military commander or law enforcement officer who is trying to save lives, or CEO of a major corporation who has thousands of jobs at stake and millions of dollars in investment committed?

Accuracy alone is not enough, however; analysts and decision makers also want data that are clear and relevant – that is to say, evidence. The concept of evidence, compelling support for a particular point, is borrowed from the legal world. A court of law has high standards for what constitutes evidence and is able to take the time to get it right. Intelligence analysts, in contrast, rarely have unlimited time and usually have to work with data that do not meet legal standards. As a result, some analysts are reluctant to use the term "evidence." Nonetheless, the idea that some data are better than other data and that analysts should seek the best data available to alleviate uncertainty is a useful one.

Surprise

To deal with uncertainty and take advantage of the information that they do have, people, especially leaders, also make plans. They decide to increase the budget, purchase a new weapons system, or line up a new ally in the hope that such measures will help them to sleep at night. Then comes the surprise – the unanticipated, major discontinuity – the attack, the new weapon, the stock market crash, the hurricane, or some other catastrophe that changes everything. Consideration of trends often helps in understanding what is going on; every now and then it does not. Situations and trends that have been going on for years or even decades shift direction and speed overnight. How does one recognize and assess something new, a situation in which past experience is of little help in understanding what is happening?

One of the main reasons for uncertainty is that situations are often interactive; there is someone else out there trying to accomplish his or her goals, which may not be the same as yours. As soldiers sometimes like to say, "The enemy has a vote." The fact that other active, smart, and probably scheming individuals are involved means that they will be changing their minds and adjusting their actions in response to your actions. An accurate fact or guess about what they will do quickly becomes irrelevant or even harmful when they change their minds in response to evolving circumstances.

Deception

This interactive nature of decision making is particularly dangerous when the adversary is trying to deceive. Intelligence analysts believe that there are two aspects of the problem: denial and deception. Denial is trying to limit the opponent's access to accurate information, and deception is trying to direct their attention elsewhere. An example of denial is commanders camouflaging their tanks or hiding them in a cave. An example of deception is those commanders placing dummy tanks at a point where they did not intend to attack. Denial and deception are especially attractive to the weaker side as a force multiplier. A cloak of denial and deception is even more effective if it appeals to the target's preconceptions, prejudices, and fears and if the denial and deception contains a core of truth. Deception is also integral to the work of spies and terrorists. How do we detect such dangerous deceivers?

The Future

All of this – uncertainty, surprise, and deception – does little to prepare us for one of the great imponderables: the future. The future is, by its very nature, unknowable. There are so many possibilities and so little evidence; again, the situation is shifting as others respond to our actions. Will a military campaign succeed? What will be the impact of a new technology? Can we accurately anticipate how an opponent will respond? What will we do if something unexpected happens?

More Difficulties in Analysis

All of these challenges would be daunting for anyone, but they are especially demanding for intelligence analysts, whose job it is to cope with them on a daily basis. Some of the difficulties are widely shared by all human beings,

whereas others are particular to working on tough and significant problems in large organizations, such as military units or intelligence agencies.

Faced with a flood of data, the human mind tries to make sense of it all with cognitive shortcuts and filters otherwise it would be overwhelmed. Although this method can be quick and efficient, it can also be inaccurate. Analysts need a framework of understanding, but is it the right framework? Tanks and troops are moving out of their depots and barracks; is it a coup, preparations to attack a neighbor, or just the National Day Parade getting started? The mind could not function without forming such patterns, so the issue is not how to get rid of mental categories or filters, but rather how to understand them and assure that they do not become pitfalls. Often the problem is not just the data that the analyst receives – or does not receive – but what the analyst makes of those data.

The process of analysis is, by its nature, prone to some errors. Psychologists say that accurate judgments are most difficult to make when people have been receiving data of varying degrees of quality, a little at a time, over an extended period, and are then pressed to make an assessment in a hurry. This is exactly the world of the intelligence analyst. Some potential pitfalls for analysts, based on the way the brain functions, include the availability bias, which occurs when analysts give vivid data (such as a good story) more value than unfamiliar or dry data (such as statistics); and the pattern bias, which occurs when analysts assume there is a design or plan when there has actually been randomness or coincidence. It is the pattern bias that produces conspiracy theories. Some biases can affect those who assess analysis after the situation has clarified, such the hindsight bias, which occurs when events in retrospect appear clearer and easier to predict than they originally were.

Other potentially distorting filters are built up over time as a result of an analyst's background such as education, professional experience, and travel. These mindsets or frameworks for understanding how the world works are easy to form but difficult to change, and data – even if accurate – that do not fit into a given mindset are often dismissed or devalued. An example is mirror imaging, which occurs when people assume that others, even in a different culture, would deal with a situation more or less the same way in which they would. Another example is the rational actor model, when analysts believe that decisions in an organization are made on the basis of a logical calculation, such as weighing ends and means or risks and rewards. A particular danger for experienced analysts is the paradox of expertise, which occurs when those who have worked intently on an issue for a long time are least able to detect major changes as they have so much invested

intellectually in their frameworks of analysis. Moreover, their long experience makes them overconfident about the accuracy of their judgments.

There are also challenges in analysis based on the nature of intelligence. The work of professional intelligence analysts is traditionally portrayed as being part of what is known as the intelligence cycle, a model of the intelligence process that tries to capture the various aspects of producing intelligence and emphasizes responsiveness to decision makers. There are a number of different versions of the elements of the intelligence cycle, but they generally include the following:

- Requirements, or what the decision maker wants and needs to know;
- Planning and directing collectors and analysts to respond to those requirements;
- Collection of the data that will fulfill the requirements;
- Processing the data collected to make it more useful through operations such as decryption or translation;
- Analyzing the processed data to give it meaning and context;
- Putting the analysis into a form the decision maker can use;
- Dissemination, in a timely fashion, of the analysis to those who need it, and
- Obtaining feedback on whether the analysis was effective (and, if necessary, turning that feedback into new requirements).

For an intelligence success, everything in the cycle has to go right; a failure, however, can occur even if only one thing goes wrong.

Like all models, the intelligence cycle provides a general picture but does not necessarily describe all cases. In real life, the model is not always accurate in many of the steps of the cycle. Senior decision makers rarely have the time or interest to provide detailed requirements, analysts can be wrong, and accurate analysis can be too late to be helpful. In addition, actual intelligence work is not linear, as portrayed in the model; there are usually some contacts taking place simultaneously between decision makers, collectors, and analysts. Other important things to note are that intelligence analysts are not the only sources of input for decision making and that analysts are not in control of significant aspects of the overall process.

Another set of difficulties specific to intelligence involves collection. Clandestine technical systems collect whatever images, telephone conversations, and other material they can, rather than only what is needed. In the end, there is probably too much classified data to manage effectively. Quality control is difficult given the huge amounts of material that both clandestine and open collection systems produce. Vulnerability to denial and deception

remains significant. The nugget that is both true and illuminating remains elusive.

The final set of challenges is in the wider bureaucratic and political environment in which most analysts work. Although there has been some progress, sharing of information between agencies is not optimal. Budgets for people and equipment increase and decrease, sometimes unpredictably. Concern for security may make it difficult to do things such as approve travel or hire foreign-born linguists. Vertical management review and horizontal coordination of draft products with colleagues certainly takes time, and may result in the lowest common denominator of viewpoint. Criticism from politicians and the press encourages some analysts and managers to play it safe. Analytical assessments might not always be welcomed by decision makers, especially if they differ from strongly held policy preferences. Then, of course, the computer crashes just when the analyst needs it the most.

Given the serious and widespread nature of these problems, is there any hope for dealing with them?

Recommended Reading

Andrew, Christopher, *For the President's Eyes Only: Secret Intelligence and the American Presidency from Washington to Bush*, New York: Harper Perennial, 1996.

Betts, Richard K., *Enemies of Intelligence: Knowledge and Power in American National Security*, New York: Columbia University Press, 2007.

George, Roger Z., and Bruce, James B., eds., *Analyzing Intelligence: Origins, Obstacles, and Innovations*, Washington, DC: Georgetown University Press, 2008.

Kennedy, Robert, *Of Knowledge and Power: The Complexities of National Intelligence*, Westport, CT: Praeger Security International, 2008.

Kent, Sherman, *Strategic Intelligence for American World Policy*, Princeton, NJ: Princeton University Press, 1949.

Lowenthal, Mark, *Intelligence: From Secrets to Policy*, 4th ed., Washington, DC: CQ Press, 2008.

Russell, Richard, *Sharpening Strategic Intelligence: Why the CIA Gets It Wrong, and What Needs to be Done to Get It Right*, New York, Cambridge University Press, 2007.

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Attempts to Deal with the Challenges

Analysis is as much about questions as it is about answers. It is about understanding various ways to think about a problem and realizing that not every analytic method applies to every problem. The effective analyst has a collection of approaches, techniques, and tools, along with the willingness and patience to apply them. These analytic methods have been accumulated over time and from many different sources.

Uncertainty

To deal with uncertainty, analysts seek to provide context, a sense of the bigger picture. A useful first step in understanding context is problem restatement, also known as bounding the problem, which involves making sure that all relevant and important aspects of the issue are taken into account. Virtually every issue has various aspects, such as economic, social, political, and legal; therefore, analysts need to take the various perspectives into account. Analysts also provide context by looking for abstract linkages such as patterns, relationships, and trends. Understanding such linkages involves asking such questions as whether developments are new, accelerated, or having more impact.

A specific tool for providing context is the chronology, or the listing of events in the order in which they happened. This order may well be different from the order in which reports about the events were received; thus it promotes clarity about where individual events fit into the overall pattern. Briefly summarizing the various events, to fit them into a chronology, also helps analysts to focus on the key elements and the relative value of reports.

Table 1, for example, is a chronology of the dates and locations of early attacks carried out by groups or individuals affiliated with the al-Qaeda terrorist group:

Table 1. Early al-Qaeda Attacks

December 29, 1992	Aden, Yemen
October 3, 1993	Mogadishu, Somalia
August 7, 1998	Nairobi, Kenya, and Dar es Salaam, Tanzania
October 12, 2000	Aden, Yemen
September 11, 2001	New York City and Washington, D.C., USA
October 12, 2002	Bali, Indonesia
May 12, 2003	Riyadh, Saudi Arabia
March 11, 2004	Madrid, Spain
July 7, 2005	London, UK

A variation of the chronology is the timeline, which arrays events against a scale, such as days, months, years, or other intervals (see Figure 1). The timeline makes clusters of activity or gaps in the flow of events more readily apparent and may suggest other questions that an analyst may want to pursue, such as whether gaps mean that nothing was really happening or that there was just no reporting. A refinement is to have two or more parallel timelines, on a related subject, in the same graphic. This kind of presentation helps to highlight the interaction between different factors, such as locations or individuals, in the same time frame.

Figure 2 shows exactly the same data as are given in the chronology, but notice how, by arraying the examples against a scale and on multiple tracks (in this case, geographic), the analyst can get a much clearer picture of the acceleration and spread of al-Qaeda operations over a relatively short period of time in the group's early years. Such a graphic presentation goes a long way in explaining the striking impact the group had.

Both chronologies and timelines can be extremely useful in improving the analysis of cause and effect, as the former has to precede the latter. They can also highlight confirming and contradicting data: what fits into the overall picture and what does not. Organization based on time provides the basis for a coherent narrative, especially of a lengthy or complex series of events, and can be used to suggest hypotheses.

Another way to approach problems that reduces uncertainty is to think in terms of models, or generalizations, of activity based on a large number of observations. A model focuses on the aspects of a situation that are fundamental, significant, and widely applicable to other situations. For instance, what does a typical terrorist attack, rigged election, economic recession, murder, successful product, or any other issue look like? After a model is

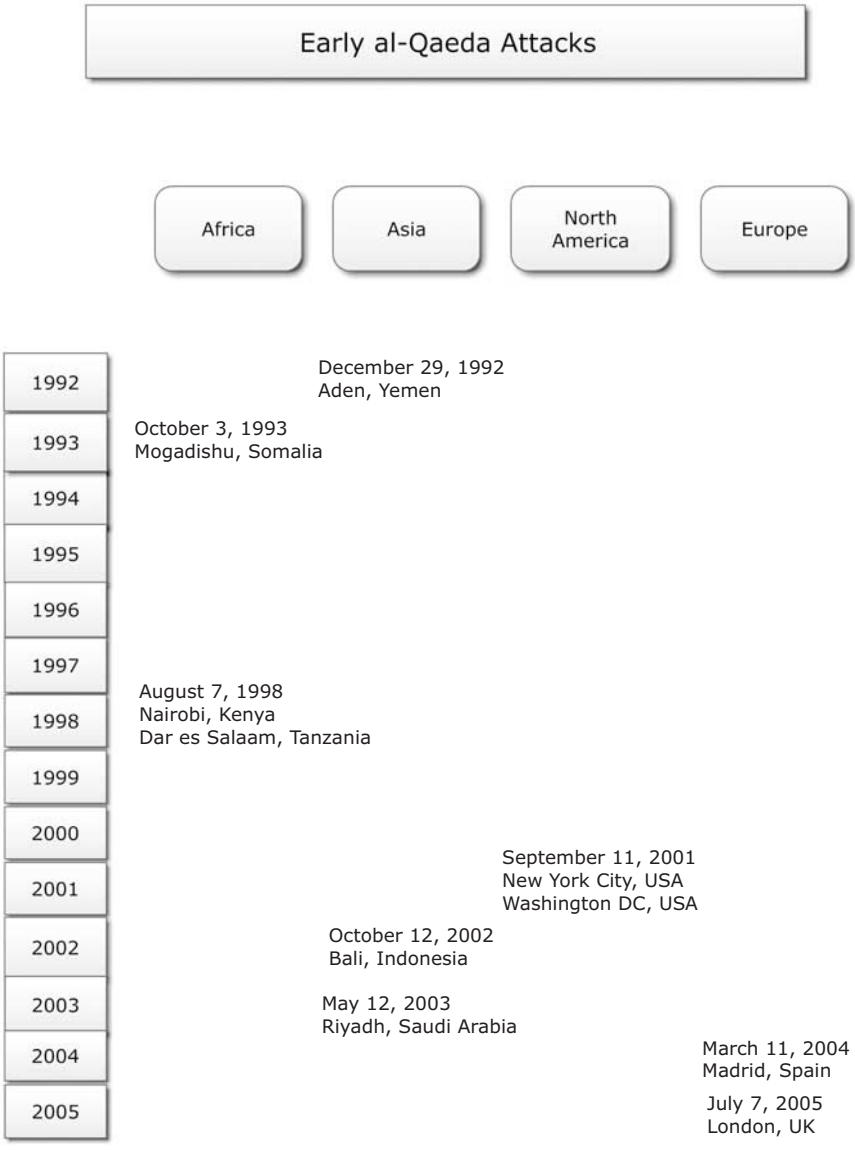

Figure 1. Timeline

constructed, based on known examples, less clear cases can be compared to the model to see if they fit, based on the logic principle of generalization. Generalization is the belief that characteristics that are true of a small, known sample are true of a wider population that may not be as well known or may be more difficult to study. Public opinion polls are examples of using