

## *Intelligence Analysis: Does NSA Have What It Takes?*

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### INTRODUCTION

Seekers of Wisdom first need sound intelligence. Heraclitus<sup>1</sup>

Do National Security Agency (NSA) intelligence analysts have what it takes to be successful? What is a successful analyst? Indeed, what is analysis?

These questions strike at the heart of NSA's mission to provide intelligence to national leaders and decision makers. The imperative to answer these questions stems from two types of pressures, external and internal. Externally, NSA faces a changed world order that demands responsiveness, agility, and flexibility at a moment's notice in response to diverse transnational threats. Internally, NSA is charged with transforming outdated Cold War organizational structure, mentality, and methods to counter those challenges.

The 21st century is filled with complex, rapidly changing intelligence problems that challenge contemporary intelligence agencies to extend well beyond their traditional purview. Whereas in the 20th century the major threats to American security were considered monolithic, today diverse nonstate or antistate actors deliberately threaten the security of the United States in ways that extend far beyond the traditional political and military realms. Consequently, intelligence consumers need to know about the intentions and actions of what Adda Bozeman refers to as the "other" in her seminal work on strategic intelligence and statecraft.<sup>2</sup> Two examples of the significant threats posed by "others" are terrorism and transnational crime. Religious and ethnic terrorism increased through the 1990s and continues to

increase in the first decade of the new century.<sup>3</sup> Former secretary of state Warren Christopher noted that increasing religious and ethnic terrorism has become "one of the most important security challenges we face in the wake of the Cold War."<sup>4</sup> Similarly, transnational criminal enterprises pose a significant threat. Insinuated into weak governments and nongovernmental institutions, they derive income from "alien smuggling; trafficking in women and children; smuggling toxic materials, hazardous wastes, illicit arms, military technologies, and other contraband; financial fraud; and racketeering."<sup>5</sup> Costing about one percent of global GNP, these enterprises threaten both the American way of life and its quality.<sup>6</sup>

To counter these, and myriad other 21st century threats, policymakers, decision makers, and military leaders require on-time, actionable intelligence. Thus President Bush's directive ordering a comprehensive review of U.S. intelligence begins "[current] and accurate foreign intelligence is essential to the success of our foreign policy, law enforcement, and defense strategies and is critical to protecting and advancing America's vital interests."<sup>7</sup> NSA, along with other agencies within the intelligence community, must adapt to provide that intelligence. To successfully do so requires a new paradigm for intelligence analysis and production.

One of the ways NSA has begun to adapt is by envisioning an organizational model that places all intelligence analysts under the purview of an analytic deployment service, from which individuals are assigned to specific production lines based on the capabilities of the former and the needs of the latter. However, for this model to

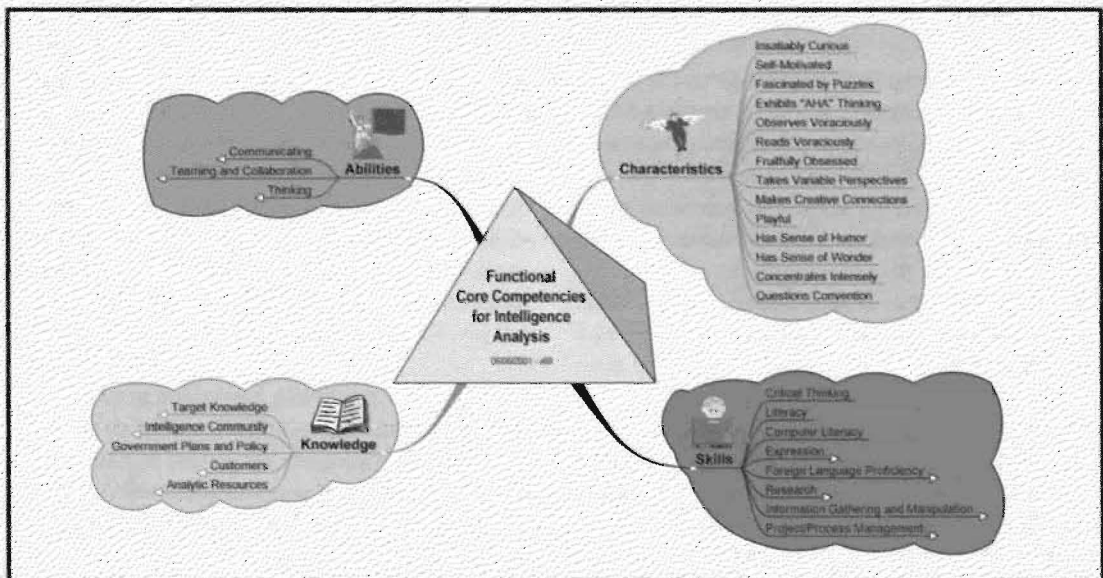
work, staffers need to know who the intelligence analysts in the workforce are, and what assets they bring to the mission. Similarly, when NSA uses its precious few hiring allocations to bring in new intelligence analysts, it must maximize those opportunities and hire only qualified personnel. But what is a qualified intelligence analyst?

In this article the authors propose a set of functional core competencies for intelligence analysis, shown in figure 1, which provide a starting point for answering the fundamental questions about who intelligence professionals are and how these analysts should go about doing their work. Keeping in mind the complex nature of the threats to U.S. national security, we argue that the employment of intelligence analysts and the practice of intelligence must become more rigorous to even keep pace with 21st century foes, much less defeat them. Modern adversaries require modern methods. Therefore, we further propose that NSA apply these core competencies in making decisions about whom to hire and retain, how to train and deploy the analytic workforce, how to structure production itself and the

organizations in which production is done, and indeed, what kind of intelligence NSA provides to its customers.

We began our explorations into the art and science of intelligence analysis as part of a corporate initiative to add rigor to that discipline as it is practiced at NSA. Our efforts to transform analytic thinking, its associated culture and processes, and its related technologies were designed to achieve an end state whereby our larger workforce is enabled to meet the analytic challenges of the 21st century. Drawing on research, conversations with other intelligence experts both within and outside of government, and observation of analysts considered by their peers to be successful, we realized that definitions and descriptions of common characteristics, skills, knowledge, and abilities required for successful intelligence analysis were lacking, not only within our own agency but across the field of intelligence. We developed a set of functional core competencies for intelligence analysis that seem to apply across the intelligence profession, not just for the types of analysis done at NSA. Our work was validated

Fig. 1. Functional core competencies for intelligence analysis



through a series of presentations and discussions held with personnel in our agency as well as with outside government and academic experts on intelligence and intelligence analysis. They confirmed our basic thesis, corroborated our findings, and made helpful suggestions that developed further our model of functional core competencies.

Sherman Kent, one of the founders of the national peacetime intelligence community, argues that intelligence requires its own literature. According to Kent, the purpose of this literature is to advance the discipline of intelligence. Indeed, Kent believed “[as] long as this discipline lacks a literature, its method, its vocabulary, its body of doctrine, and even its fundamental theory run the risk of never reaching full maturity.”<sup>8</sup> Through the publication of articles on analysis and subsequent discussion, “original synthesis of all that has gone before” occurs.<sup>9</sup> In keeping with Kent’s mandate to develop an intelligence literature that provokes discussion and further methodological development, we present our findings in this article. We seek to enable comment and further discussion among the larger intelligence populace. Much more could be said about many of the issues we raise in this brief article. It is hoped that subsequent discussion of these ideas among practitioners can advance community understanding of, and thereby enhance overall performance of, intelligence analysis.

## THE NATURE AND ROLE OF INTELLIGENCE ANALYSIS

Intelligence refers to information that meets the stated or understood needs of policymakers.... All intelligence is information; not all information is intelligence.<sup>10</sup> Mark Lowenthal

Understanding the nature and role of intelligence is a prerequisite to defining the competencies that intelligence analysts must have in order to be successful. The relationship between the

analyst and consumer is also instrumental, as this interplay determines the nature and content of the resultant intelligence as well as when and how it is disseminated.

Intelligence is timely, actionable information that helps policymakers, decision makers, and military leaders perform their national security functions. Intelligence professionals transform myriad bits of information into tailored products for these customers, who in turn develop policy and strategy, to determine how the nation will act in the present and in the future to preserve its security.

The intelligence business itself is about competencies, what John Gannon, former chairman of the National Intelligence Council, refers to as “skills and expertise.” He notes that “this means people – people in whom we will need to invest more to deal with the array of complex challenges we face over the next generation.”<sup>11</sup>

Analysis is the process by which people transform information into intelligence. At the basic level, this analytic process fully describes the phenomenon under study, accounting for as many relevant variables as possible. At the next level, analysis reaches beyond the descriptive to explain fully the phenomenon. Ultimately, analysis leads to synthesis and effective persuasion, often referred to as estimation.<sup>12</sup> Analysis often breaks down large problems into a number of smaller ones, involving “close examination of related items of information to determine the extent to which they confirm, supplement, or contradict each other and thus to establish probabilities and relationships.”<sup>13</sup>

Since the advent of the Information Age, “[collecting] information is less of a problem and verifying is more of one.”<sup>14</sup> Thus the role of analysis becomes more vital as the supply of information available to customers from every type of source, proven and unproven, multiplies exponentially. Intelligence analysts are more than

merely another information source, more than collectors and couriers of information to customers. Further,

“[the] images that are sometimes evoked of policymakers surfing the Net themselves, in direct touch with their own information sources, are very misleading. Most of the time, as [policymakers’] access to information multiplies, their need for processing, if not analysis, will go up. If collection is easier, selection will be harder.”<sup>15</sup>

Intelligence analysts select and filter information, interpret and put it in context, and tailor it to meet their policy-making customers’ needs. In short, analysts, and analysts only, create “intelligence.”

At its best, the results of intelligence analysis provide just the right information permitting national leaders “to make wise decisions – all presented with accuracy, timeliness, and clarity.”<sup>16</sup> The intelligence provided must “contain hard-hitting, focused analysis relevant to current policy issues. Therefore, analysis of raw information has the most impact on the decisionmaker and producing high-quality analytical product should be the highest priority for intelligence agencies.”<sup>17</sup>

Intelligence is judged, then, on its usefulness. But what criteria define “useful”? Amos Kovacs, writing in *Intelligence and National Security*, asserts that useful intelligence makes a “difference” to policymakers.<sup>18</sup> Finally, there is an assumption that intelligence should be unbiased, although it is recognized that analysts with concerns about outcomes do influence the process by selecting which inputs to analyze.<sup>19</sup>

Whose policy should intelligence support? Within the United States government there are numerous loci of the policy process that depend at least in part on intelligence: the President; the Congress; the Executive Branch departments of Defense, State, and Treasury, and to a lesser

degree, Justice, Commerce, or Agriculture; the intelligence community; and the National Security Council (NSC) staff.<sup>20</sup> Overlap of both issues and personnel mitigates the fact that each locus may have different perspectives and different interests from the others. For example, the president, and the secretaries of state and defense are members of the NSC, which carries out presidential policy.<sup>21</sup> All policymakers and their subordinates are free to reject intelligence findings, no matter how persuasively argued they may be.

However, to say that policymakers dismiss intelligence that doesn’t support their presuppositions and policy objectives is to tell only half the story. There are numerous reasons why policymakers do not accept intelligence. Gregory Treverton, former vice-chair of the National Intelligence Council, indicates that intelligence is ignored both when it is inconvenient and when it offers nothing new. In writing about the U.S. policy failures of the first Bush administration during the Balkan crisis, Treverton wonders, “If, in retrospect, the intelligence seems on the mark, did the policy failure derive from intelligence unheeded, or was the intelligence heeded but either not new or not really actionable?”<sup>22</sup>

Treverton adds that intelligence must anticipate the needs of policy. “By the time policy knows what it needs to know, it is usually too late for intelligence to respond by developing new sources or cranking up its analytic capacity.”<sup>23</sup> A former policymaker himself, he asserts that intelligence is useful to policy at three stages during the life of an issue:

- If the policymakers are prescient, when the issue is just beginning; however, there is likely to be little intelligence on the issue at that point.<sup>24</sup>
- When the issue is “ripe for decision.” Here policymakers want intelligence that permits alternatives to be considered; however, intelligence often is at the point of providing background

information necessary for understanding the issue.<sup>25</sup>

- When the policymakers have made up their minds on the issue, but only if intelligence supports their view. They will be uninterested or even hostile when it does not support their view.<sup>26</sup>

These limitations notwithstanding, Treverton suggests that policymakers can and should establish a symbiotic relationship with the intelligence analysts who advise them:

"[If] you call them in, face to face, they will understand how much you know, and you'll have a chance to calibrate them. You'll learn more in fifteen minutes than you'd have imagined. And you'll also begin to target those analysts to your concerns and your sense of the issue."<sup>27</sup>

Similarly, the analyst has responsibilities to the policymaker. In commenting on this relationship, Sherman Kent asserts

[intelligence] performs a service function. Its job is to see that the doers are generally well informed; its job is to stand behind them with a book opened at the right page to call their attention to the stubborn fact they may be neglecting, and—at their request—to analyze alternative courses without indicating choice.<sup>28</sup>

In Kent's view, the intelligence analyst is required to ensure tenaciously that policymakers

view those "right" pages, even when they may not wish to do so.

## MEASURES OF SUCCESS FOR INTELLIGENCE ANALYSIS

Intelligence must be measured to be valued, so let us take the initiative and ask our management, [and] the users, to evaluate us and our products.<sup>29</sup> Jan P. Herring

A successful intelligence analyst will have certain personal characteristics that tend to foster dedication to the work and quality of results. Such an analyst will also have specific abilities, skills, and knowledge to perform intelligence work. Finally, such an analyst will have productive relationships with customers. But how can success in intelligence analysis be measured?

Many past measures of success have been based on job performance, including numbers of reports issued; volumes of raw material processed; or degree of customer reliance on, or satisfaction with, products or services. However, these are measurements of outcome, not necessarily success. When analysis follows a rigorous process that results in timely, actionable information used by customers, then it may be judged successful. Thus, an assessment of success may be made by placing along a scale two basic criteria – intelligence process (doing true analysis) and intelligence product (meeting customer needs). As shown in figure 2, each keeps the other in balance, curbing the tendency toward "analysis

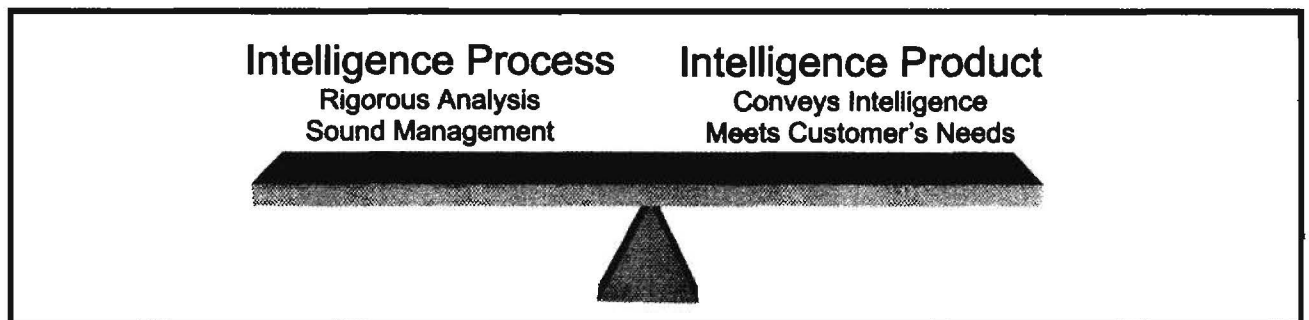


Fig. 2. An intelligence evaluation continuum

paralysis” and countering an assembly line mentality.

### ***Intelligence Process***

Successful intelligence analysis is a holistic process involving both “art” and “science.” Intuitive characteristics, inherent aptitudes, rigorously applied skills, and acquired knowledge together enable analysts to work problems in a multidimensional manner, thereby avoiding the pitfalls of both scientism and adventurism. The former occurs when scientific methodology is excessively relied upon to reveal the “truth”; the latter occurs when “inspiration [is] unsupported by rigorous analysis.”<sup>30</sup>

A vital contributor to the analytic process is a spirit of competition, both within an intelligence-producing agency and especially between intelligence agencies. There is a tendency for analysts working together to develop a common mindset. This trap occurs typically when analysts fail to question their assumptions about their role in the intelligence process and about the target. The Council on Foreign Relations independent task force on the future of U.S. intelligence recommends that “competitive or redundant analysis be encouraged” precisely for these reasons.<sup>31</sup>

Successful analysis adds value – to the information itself, to institutional knowledge, to fellow intelligence professionals, to the process, and to the institution or unit itself, in terms of reputation and the degree to which good analytic practices endure despite changes in target, customer, and personnel. Estimative intelligence is but one way that this may be accomplished. The judgments in such assessments provide the consumer with actionable, useful intelligence, enabling them to make policy and strategy.

Successful analysts are those whose work goes to this highest level whenever possible – by taking risks these analysts go beyond mere description and explanation to make judgments, to estimate.

These risks are carefully calculated, for successful analysts rely on critical thinking. Nor do successful analysts settle for the first answer their analysis reveals. Rather they employ rigorous methods to push beyond the obvious conclusions. However, tendencies towards arrogance in trend-spotting analysis are tempered by self-awareness of biases and assumptions, strengths and weaknesses. And most importantly, successful analysts collaborate at every opportunity. Such partnering ensures that analytic results, even if controversial, remain grounded in reality.

What role does management play in ensuring analytic success? First and foremost, management effectively uses financial and political capital to ensure that analysts have access to customers, and the resources they require to answer those customers’ intelligence needs. This includes the organization of the work itself, allocation of materiel and personnel, and coordination with other producers and with customers. When management is successful, the analyst has the necessary tools and the correct information for successful intelligence analysis. A good indicator that the intelligence process has been effectively managed is high morale among analytic personnel. This includes a high level of satisfaction with mission and the analysts’ own performance, a feeling of empowerment and the belief that the organization places great value on analytic talent.

### ***Intelligence Product***

The products of successful analysis convey intelligence that meets or anticipates the customer’s needs; these products reveal analytic conclusions, not the methods used to derive them. Intelligence products are successful if they arm the decision maker, policymaker or military leader with the information and context – the answers – needed to win on his or her playing field. Such intelligence enables customers to be more effective by making them smarter than they were before, smarter than the people they play with, and smarter than those they play against.

Successful intelligence enables customers to outwit opponents, protect U.S. persons, bring aid to the nation's allies, or to judge levels of trust. It does so by revealing decision points, actions or choices available to customer, and the implications of choosing one over another.

(U) Yet customers rarely explicitly acknowledge the role that good intelligence plays in their own success. While they may be quick to bring intelligence failures to the attention of the producing organization, customers do not always give feedback on successful outcomes enabled by intelligence. Thus intelligence analysts and their management historically have looked within the production organization for ways to measure success, falling into the trap of "bean-counting." But there is a better way.

(U) Six "underlying ideas or core values" for intelligence analysis, identified by William Brei, and shown in figure 3, establish the analyst's "essential work processes."<sup>33</sup> Since they are defined in terms of the customer, they also can be used as a checklist to rate the quality of products provided to the customer. Brei asserts that they "provide specific qualitative objectives for managers and leaders, and a framework for standards against which intelligence services should be judged."<sup>34</sup> While qualitative feedback from customers aids evaluation of some of these objectives, the absence of customer input does not prevent their being used in self-evaluation.

(U) The principles of readiness and timeliness evaluate the intelligence service's basic ability to perform intelligence production. These two principles are limiting factors affecting what the producer can do to "achieve accurate data, objective

judgments, usable formats, and relevant products."<sup>35</sup>

(U) Once production readiness and timeliness are evaluated, the other four of Brei's fundamental principles then can be arranged in a checklist or a series of questions about intelligence products. Typical questions might include these:

- Was the reported intelligence accurate? (*accuracy*)
- Are there any distortions in the reported judgments? (*objectivity*)
- Is the reported intelligence actionable? Does it facilitate ready comprehension? (*usability*)

Fig. 3 Measures of success for intelligence products<sup>32</sup>

**Readiness:** Intelligence systems must be responsive to existing and intelligence requirements of customers at all levels.

**Timeliness:** Intelligence must be delivered while the content is still actionable under the customer's circumstances.

**Accuracy:** All sources and data must be evaluated for the possibility of technical error, misperception, and hostile efforts to mislead.

**Objectivity:** All judgments must be evaluated for the possibility of deliberate distortions and manipulations due to self-interest.

**Usability:** All intelligence communications must be in a form that facilitates ready comprehension and immediate application. Intelligence products must be compatible with the customer's capabilities for receiving, manipulating, protecting, and storing the product.

**Relevance:** Information must be selected and organized for its applicability to a consumer's requirements, with potential consequences and significance of the information made explicit to the customer's circumstances.

• Does it support the customer's mission? Is it applicable to the customer's requirements? Has its significance been made explicit? (*relevance*)

These four principles also overlap, and poor quality in one can affect the quality of another. Brei asserts

accurate data provide the foundation for subsequent objective judgments, and the expression of objective judgments in a usable form provides much of the basis of a relevant product. Thus, unverified data can not only cost an intelligence product its Accuracy, but also damage its Relevance to the customer.<sup>36</sup>

Therefore, the evaluation of an intelligence product needs to include not only qualitative value (or lack thereof) but also quantitative value (e.g., low to high).

While Brei's principles do not require customer input in the evaluation of intelligence, the process of measuring the effectiveness of a product is enhanced with customer participation. Brei considers determining what customers value to be simple. "[L]isten to their complaints," is his prescription.<sup>37</sup> However, this is too simple and does not guarantee that the responses will address the product of interest. Rather, the analyst needs to ask directly for specific feedback from the customer. This is most effective if the analyst (and his or her management) has a collaborative relationship with the customer. Lacking this relationship, intelligence assessments and other products can include qualitative evaluations enabling customers to respond to producing organizations. Admittedly this is of limited value as customers are more likely to respond when they are unhappy with the product. Further, regardless of the assessment of worth or value, some customers will never respond.

Nevertheless, Brei's principles do provide a means for evaluating a given intelligence product based on the intelligence it conveys and the value

of that intelligence to the customer. Coupled with an assessment of the intelligence production process, including analytic methods and management, a comprehensive evaluation of successful intelligence analysis is possible. This success depends on the talents and skills of intelligence personnel who perform analysis and production. Thus personnel, process, and products together define the art and science of intelligence analysis. Core competencies for performing intelligence work are discussed in detail in the following sections. These criteria are summarized in figure 4, for analysts and managers to use in self-evaluation and career development and planning.

### **CHARACTERISTICS OF SUCCESSFUL INTELLIGENCE ANALYSTS**

A sophisticated intelligence analyst is one who is steeped in the history and culture of a region, has lifelong interest in the area, and approaches the study of the region as a professional responsibility, and probably as an avocation as well.<sup>38</sup> Ronald D. Garst and Max L. Gross

Who are the most successful intelligence analysts? What makes them successful? In exploring the functional core competencies for successful intelligence analysis, we observe there are characteristics which, while not necessary for successful intelligence analysis per se, do seem to be associated with analysts considered to be the most successful at their trade (according to the preceding criteria for successful intelligence analysis). It should be noted, however, that not all successful analysts exhibit all these characteristics. The characteristics we list in figure 5 are a representative superset, and while individual analysts do seem to share certain characteristics, they do not share all of them in equal measure.

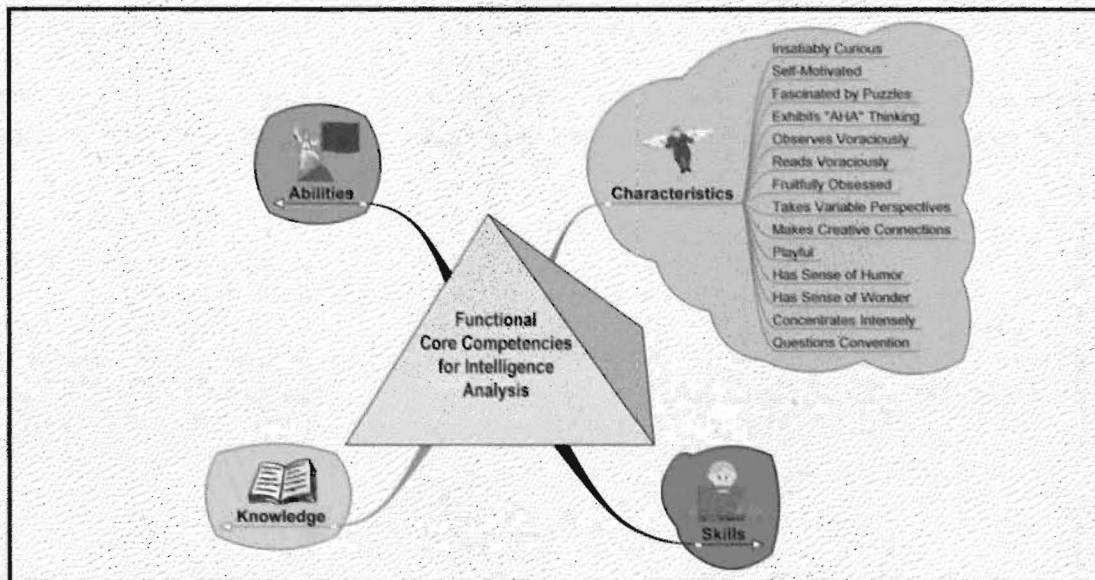
First among the characteristics is that the most successful intelligence analysts are highly self-motivated and insatiably curious. They want to know everything they can about the objects



Fig. 4. Intelligence analysis assessment tool

Intelligence Analysts		Intelligence Process	Intelligence Products
<b>Characteristics</b>	<b>Abilities</b>	<b>Rigorous Analysis</b>	<b>Conveys Intelligence</b>
Curious	Communicating	Holistic	Analytic Conclusions
Self-Motivated	Teaming and Collaborating	Competitive	Decision Points
Fascinated with Puzzles	Thinking	Adds Value	Implications of Choices
Exhibits A-ha Thinking	<b>Skills</b>	Highest Level Possible	<b>Meets/Anticipates Customer Needs</b>
Observant	Critical Thinking	Collaborative	Readiness
Reads	Literacy	<b>Sound Management</b>	Timeliness
Fruitfully Obsessed	Computer Literacy	Customer Relations	Accuracy
Takes Variable Perspectives	Expression	Community Relations	Objectivity
Makes Creative Connections	Foreign Language	Resource Allocation	Usability
Playful	Research	Organization of Work	Relevance
Exhibits a Sense of Humor	Information Gathering and Manipulation	Empowering Analysts	
Exhibits a Sense of Wonder	Project/Process Management	Valuing Analysts	
Concentrates Intensely	<b>Knowledge</b>		
Questions Convention	Target Knowledge		
	Intelligence Community		
	Government Plans and Policy		
	Customers		
	Analytic Resources		

Fig. 5. Characteristics of successful intelligence analysts



under their scrutiny. Reading and observing voraciously, they ferret out every possible piece of information on those objects. Many demonstrate a sense of wonder about what they discover. As new pieces of information are discovered, novel connections between the new and older information occur as a result of intense concentration. These epiphanous moments are often characterized as instances of "Aha!" thinking. The most successful analysts tend to enjoy their work – "It's play, not work," may be how they describe what they do. Indeed they often will stay late in the day to complete a line of reasoning or a portion of an analytic project.

On their own time, many analysts exhibit a fascination with puzzles. Breaks from work may include the solution of a crossword puzzle or similar exercise. Encouragement of such activities by supervisors is a good thing. The solution of puzzles and similar pastimes builds cognitive connections that may be of use against subsequent work-related problems.

When defending their analytic judgments, successful analysts will argue a point of view passionately. However, when asked, the best analysts can adopt alternative viewpoints to play "Devil's Advocate" to their own analysis or that of others. They will also discover alternative ways of doing business. This questioning of convention may lead to previously unobserved analytic results. It also means they can be expected to apply these techniques to the issues posed by corporate reorganizations. They naturally apply rigorous analysis to everything.

These characteristics are also descriptors of the values, standards, and beliefs of a dynamic, living analytic culture. As such, they may be used as preliminary indicators during the hiring process to identify prospective employees. A person with many of these characteristics may be predisposed to being a successful analyst, if the appropriate skills, abilities, and necessary knowledge to perform the work are also present. Employee orientation programs that foster these characteristics may initiate new employees into the analytic culture, providing the appropriate

values, standards, and beliefs that enable successful analysis. When personal characteristics are embodied in compelling “war stories” told by mentors and peers, they can reinforce the cultural values of the agency – building corporate loyalty by reinforcing the sense of membership in the analytic culture.

Analytic culture can also have negative implications. While it builds loyalty, enhances behaviors, and inculcates values, it can, if rigidly structured, prevent objective analysis by enforcing “group” thought patterns and analytic methodologies. The culture must allow for “a spirit of creativity to emerge and prosper.”<sup>39</sup>

These personal characteristics of successful intelligence analysts are but one factor among many in determining success. Abilities and skills provide the tools for performing good intelligence analysis. Knowledge provides material for analysis as well as its context and relevance.

## ABILITIES REQUIRED FOR INTELLIGENCE ANALYSIS

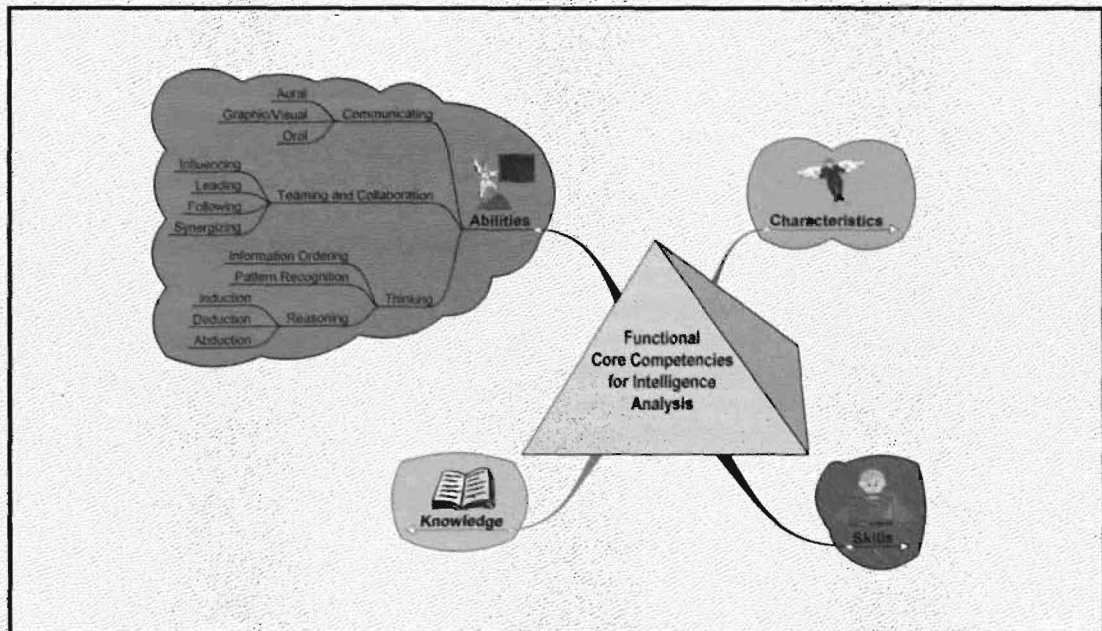
The competent intelligence analyst must have a unique combination of talents....<sup>40</sup> Ronald D. Garst and Max L. Gross

Abilities arise from aptitudes that have developed from innate, natural characteristics or talents. Although aptitudes are largely determined by a person’s genetic background, they may be enhanced through training. We define the following abilities, shown in figure 6, as being necessary for intelligence analysis.<sup>41</sup>

### Communicating

Almost all animate life communicates, but humans are unique in possessing a brain structured to permit abstract, symbolic communication.<sup>42</sup> We identify three communication abilities necessary for various aspects of intelligence analysis:

Fig. 6. Abilities required for successful intelligence analysis



- **Aural:** The ability to hear, listen to, and understand spoken words and sentences is one of the essential means humans employ to take in information. Aural ability can be improved through specific techniques of “active listening.” This ability greatly enhances analysts’ performance of certain technical tasks and their interaction with customers, peers and managers.

- **Graphic/Visual:** The ability to see, view, and understand graphic/visual symbols developed early in human history. Along with the ability to interpret symbols came the ability to present information in a graphic or visual manner so that others could understand. Even when speaking, most humans communicate nonverbally (i.e., graphically or visually).<sup>43</sup> Developing this ability allows for effective graphical presentation of intelligence, which can dramatically heighten its impact.

- **Oral:** The ability to communicate via spoken words and sentences so that others will understand is unique to humans. While the physical capability has evolved over eons, key developmental milestones occur during the first years of life. Oral and aural abilities are closely linked in their development. Effective oral communication directly affects the intelligence analyst’s credibility.

### ***Teaming and Collaboration***

Humans are a social species, and associated abilities have evolved with human development. Teaming and collaborating were essential when proto-humans moved from the relative safety of the trees onto the more dangerous plains of Africa. Their collective lives depended on social abilities to solve problems and overcome threats. While today’s threats have changed, humans retain these abilities in order to live and work together.

Teaming and collaboration abilities enhance intelligence analysis, since the analyst’s relation-

ship with customers, peers, subordinates, and supervisors shapes the intelligence production process. Formalized means of enhancing all these abilities can lead intelligence professionals to considerably greater effectiveness as analysts and leaders of analysts. This is why the Director of Central Intelligence has indicated that collaboration is a cornerstone of strategic intelligence.<sup>44</sup> Such a collaborative environment enables “quicker reaction to fast-moving trends, greater agility in the workplace, the opportunity to save infrastructure costs, and enhanced ability to deliver tailored products and services.”<sup>45</sup> A collaborative environment also minimizes the likelihood of intelligence failures. For example, had imagery analysts communicated with their counterpart area analysts in 1999, the “Yugoslav War Office” bombed by U.S. forces that spring would have been identified as the Chinese embassy in time to avoid the resultant tragedy.<sup>46</sup>

We identify four distinct teaming abilities to show the complexity of the concept. Interestingly, many existing formal training programs foster leadership abilities only in the context of the management function.

- **Influencing:** This ability involves effectively, positively influencing superiors, peers, and subordinates in intelligence work. Analysts often need to persuade others that their methods and conclusions are valid, and they often need to leverage additional resources. The ability to influence determines the level of success they will have in these areas.

- **Leading:** Those who are more senior, more skilled, and more successful in intelligence analysis have an obligation to lead, that is, to direct others and serve as role models. The ability to lead involves working with and through others to produce desired business outcomes. Thus, developing leadership abilities enhances the field of intelligence analysis.

- **Following:** Almost every grouping of humans has a leader. Everyone else is a follower. Analysts must enhance their abilities to work within a team, taking direction, and acting on it, to ensure that the team produces the intelligence the customer requires.

- **Synergizing:** Drawing on the other three teaming abilities, players in the intelligence process cooperate to achieve a common goal, the value of which is greater than they could achieve when working alone. This ability needs to be encouraged and developed further to enable cooperative behaviors within NSA and with its partners. The synergy of cooperation offers one way of coping with the new transnational threats of the 21st century.

### **Thinking**

As our species designation – sapiens – suggests, the defining attribute of human beings is an unparalleled cognitive ability. We think differently from all other creatures on earth, and we can share those thoughts with one another in ways that no other species even approaches.<sup>47</sup>

Intelligence analysis is primarily a thinking process; it depends upon cognitive functions that evolved in humans long before the appearance of language.<sup>48</sup> The personal characteristics of intelligence analysts are manifested behaviors that reflect thinking and/or the inherent drive to think. Thinking also governs the processes our nation's adversaries, competitors, and allies engage in as they pursue their own interests. Our survival may depend on having better developed thinking abilities they do. Three basic thinking abilities are required for intelligence analysis. Given the limitations posed by each one of them, simultaneous application of all three is recommended for successful intelligence analysis.<sup>49</sup>

- **Information Ordering:** This ability involves following previously defined rules or sets

of rules to arrange data in a meaningful order. In the context of intelligence analysis, this ability allows people, often with the assistance of technology, to arrange information in ways that permit analysis, synthesis, and extraction of meaning. The arrangement of information according to certain learned rules leads the analyst to make conclusions and disseminate them as intelligence. A danger arises, however, in that such ordering is inherently limiting – the analyst may not look for alternative explanations because the known rules lead to a ready conclusion.

- **Pattern Recognition:** Humans detect patterns and impose patterns on apparently random entities and events in order to understand them, often doing this without being aware of it. Stellar constellations are examples of imposed patterns, while criminal behavior analysis is an example of pattern detection. Intelligence analysts impose or detect patterns to identify what targets are doing, and to thereby extrapolate what they will do in the future. Patterns let analysts separate “the important from the less important, even the trivial, and to conceptualize a degree of order out of apparent chaos.”<sup>50</sup> However, imposing or seeking patterns can introduce bias. Analysts may impose culturally defined patterns on random aggregates rather than recognize inherent patterns, thereby misinterpreting the phenomena in question.

- **Reasoning:** The ability to reason is what permits humans to process information and formulate explanations, to assign meaning to observed phenomena. It is by reasoning that analysts transform information into intelligence, in these three ways:

1. **Induction:** Inductive reasoning combines separate pieces of information, or specific answers to problems, to form general rules or conclusions. For example, using induction, a child learns to associate the color red with heat and heat with pain, and then to generalize these

associations to new situations.<sup>51</sup> Rigorous induction depends upon demonstrating the validity of causal relationships between observed phenomena, not merely associating them with each other.

**2. Deduction:** Deductive reasoning applies general rules to specific problems to arrive at conclusions. Analysts begin with a set of rules and use them as a basis for interpreting information. For example, an analyst researching the nuclear weapons program of a country might notice that a characteristic series of events preceded the last nuclear weapons test. Upon seeing evidence that those same events are occurring again, the analyst might deduce that a second nuclear test is imminent.<sup>52</sup> However, this conclusion would be made cautiously, since deduction works best in closed systems such as mathematics, making it of limited use in forecasting human behavior.

**3. Abduction:** Abductive reasoning describes the thought process that accompanies "insight" or intuition. When the information does not match that expected, the analyst asks "why?", thereby generating novel hypotheses to explain given evidence that does not readily suggest a familiar explanation. For example, given two shipping manifests, one showing oranges and lemons being shipped from Venezuela to Florida, and the other showing carnations being shipped from Delaware to Colombia, abductive reasoning is what enables the analyst to take an analytic leap and ask, "Why is citrus fruit being sent to the worldwide capital of citrus farming, while carnations are being sent to the world's primary exporter of that product? What is really going on here?"

## SKILLS REQUIRED FOR INTELLIGENCE ANALYSIS

Any institution that relies on professionals for success and seeks to maintain an authentic learning climate for individual growth must require its members to read (to gain knowledge and insight), research (to learn how to ask good

questions and find defensible answers), discuss (to appreciate opposing views and subject their own to rigorous debate), and write (to structure arguments and articulate them clearly and coherently). Gregory D. Foster<sup>53</sup>

Whereas aptitudes and related abilities stem from an analyst's genetic makeup, a skill represents learned expertise or proficiency based on a particular ability or set of abilities. At least eight types of skills, shown in figure 7, are required for successful intelligence analysis.

### Critical Thinking

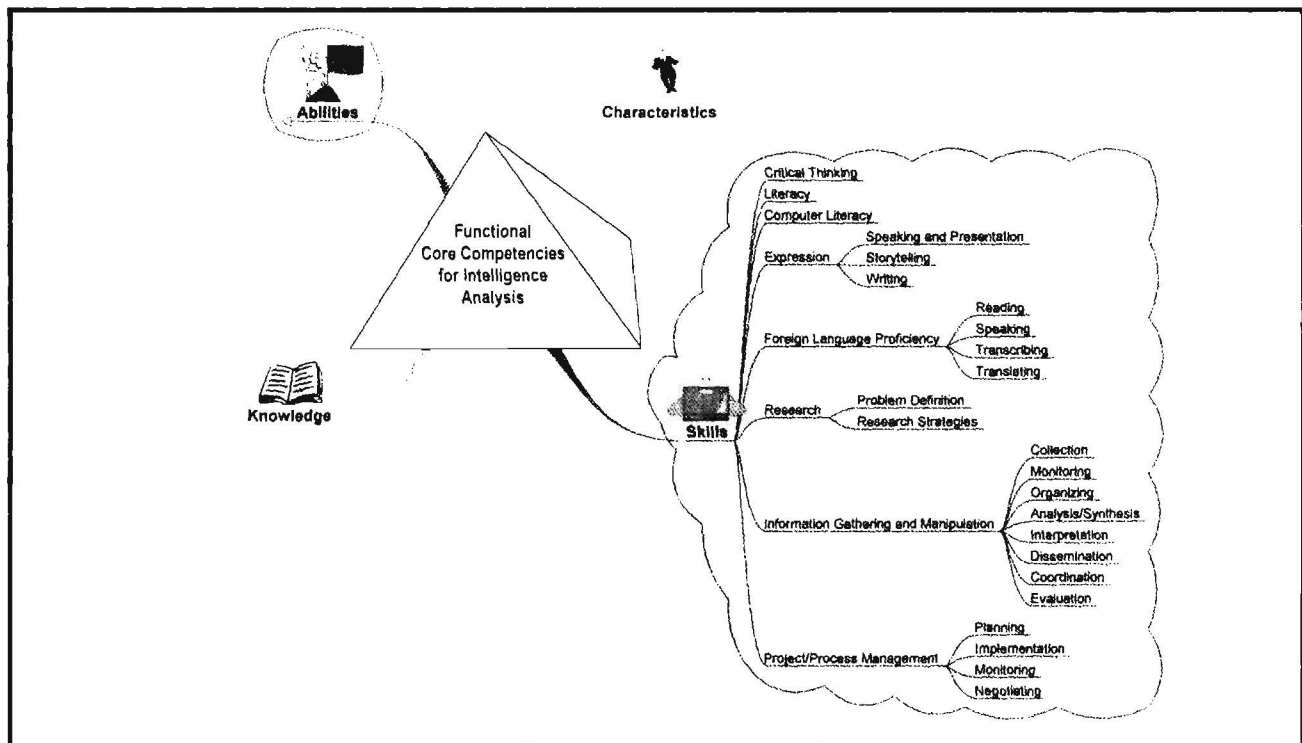
There is a clear need to educate and train intelligence analysts to use their minds...[Only] by raising their awareness can the intelligence unit be assured that the analysts will avoid the traps in being slave to conformist thought, precedent and imposed cultural values – all enemies of objective analysis.<sup>54</sup>

It is by thinking that analysts transform information into intelligence. Critical thinking is the cognitive skill applied to make that transformation. Critical thinking can be defined as

[An] intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating... information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action....Thinking about [our] thinking while [we're] thinking in order to make [our] thinking better.<sup>55</sup>

An ordered thinking process involves careful judgments or judicious evaluations leading to defensible conclusions that provide an audit trail. When the results of analysis are controversial, subject to alternate interpretations, or possibly wrong, this audit trail can prove essential in defending the process used to reach the conclusions.

Fig. 7. Skills required for successful intelligence analysis



Effective critical thinking also includes routine, systematic questioning of the premises upon which decisions are based. Without critical thinking, current beliefs and methods are not questioned, as long as they appear to produce results that can be reasonably explained. Yet they can prevent analysts from making alternative interpretations. Writing rhetorically, Gregory Treverton asks, “If intelligence doesn’t challenge prevailing mindsets, what good is it?”<sup>56</sup>

Intelligence failure can be the result when alternative premises are ignored, as happened from the mid-1970s to the mid-1990s in Sweden. During that time, the Swedish Navy expended considerable effort and ordnance attempting to “destroy” intruding Soviet submarines. Swedish naval analysts (and others) repeatedly acknowledged failure, rationalizing it as a “David versus Goliath” contest: Sweden’s tiny navy was no match for the technologically advanced Soviet submarine fleet. It was not until 1995 that Swedish defense chief Owe Wiktorin revealed the

truth: detected intruders previously believed to be submarines were in fact minke swimming in the waters off the Swedish coast. Blinded by the premise that the Soviets wanted to make war against Sweden, the navy had ignored this possible explanation for their failure to destroy “enemy” submarines, despite the fact that the alternative premise had been suggested as early as 1987.<sup>57</sup> An obvious conclusion from this story is that corporate mechanisms for questioning analytic premises could have resolved this intelligence failure nearly a decade earlier. The lesson for present-day intelligence analysts is clear: corporate processes for intelligence analysis must allow for, and indeed, institutionalize, the questioning of premises.

### *Literacy*

Intelligence analysis requires the reading and comprehension of written sentences and paragraphs, often in multiple languages, at many points in the intelligence process. Prospective

intelligence analysts must be literate in order to perform their work at the most basic level, making this skill a prerequisite for employment. Literacy skills are crucial for understanding the target, the customer and the intelligence process. Literacy is also necessary for conducting research.

### **Computer Literacy**

It is a given that in the 21st century, the computer is an essential tool for intelligence analysis. Today, analysts must be highly skilled in the use of computers themselves and in the use of software that will aid analysis. Word processing, spreadsheet, and presentation programs, as well as specific programs that assist at all stages of the analytic process, are the essential tools that can bolster success. However, tools themselves do not provide “truth” (if such can be said to exist in the intelligence analysis context). Rather, these tools for manipulation, correlation, and presentation of information are a means to an end: the production of intelligence. The analyst’s skillful use of them hastens that end.

The fact that analysts are faced with massive volumes of data also makes use of selection and filtering tools essential. The analyst depends on these tools to make a “first cut” on the collected information. The tools are used to filter nonrelevant information items and retain only those items that are pertinent to the issue being analyzed.

### **Expression**

“The capable analyst must be competent and experienced in presenting analysis both orally and in writing.”<sup>58</sup> The results of analysis are useless if they are poorly presented. Effective oral and written skills are therefore essential for the intelligence analyst. Indeed, failures of intelligence can occur when the results of analysis are inadequately presented. For example, Berkowitz and Goodman note that lengthy daily or weekly

briefings may be inadequate means for informing officials, regardless of their content. Warnings go “unheard because the officials [find] the hour-long briefings to be an inefficient use of their time and [stop] attending.”<sup>59</sup> Similarly, they conclude that inadequate intelligence reporting of unrest in Iran in 1978 contributed to the U.S. intelligence community’s failure to predict the fall of the Shah.<sup>60</sup> These examples also make it clear that whichever method of informing policymakers is selected, the resultant products must be concise, tailored ones that masterfully present the intelligence to the intended customer or in the customer’s frame of reference.

- **Speaking and Presentation:** Intelligence analysts are often expected to present the results of their analysis orally to peers, management, and both internal and external customers. Well-developed speaking and presentation skills are essential if the information is to be communicated in an effective manner. The organization of a presentation, the manner of delivery, and accompanying graphics all contribute to the ultimate effectiveness of the presentation in conveying the intelligence.

A number of computer-based tools exist to aid the creation of presentation graphics, and skillful use of these tools can enhance the presentation. Furthermore, sound graphic design skills can assist the analyst in determining both what to portray graphically and what to convey via the spoken word.

- **Storytelling:** While well-honed speaking and presentation skills allow effective intelligence dissemination, well-developed storytelling skills ensure that intelligence is convincingly conveyed. Storytelling involves more than just creating the story. Its power lies in the way the story is told. In the words of transformational storytelling expert Stephen Denning, “[the] look of the eye, the intonation of the voice, the way the body is held, the import of a subtle pause, and [the storyteller’s] own response to the audience’s responses – all



these aspects make an immense contribution to the meaning of the story for [the] audience.”<sup>61</sup> Too often the customer does not understand a poorly told but important story buried in a sophisticated presentation, making storytelling an essential skill for intelligence professionals.

Storytelling is not about fiction; it is not about “once upon a time.” Rather, intelligence storytelling involves creating scenarios and alternative futures for customers. Intelligence assessments that provide a variety of possible outcomes, recounted in considerable detail, can give the customer clues to the most effective policies or strategies. An example of varying analytic outcomes expressed as scenarios can be found in the National Intelligence Council’s *Global Trends 2015*. Four alternative futures for the next fifteen years are outlined in addition to the principal scenario. These alternatives suggest a variety of possible outcomes based on population trends, resource availability, technological advances, economic conditions, ethnic identity and governance, and local and regional conflicts. The significance for the policy maker is that the future is fluid.<sup>62</sup> While all the alternatives are possible, certain political and strategic decisions by the United States could influence which outcome is most likely to occur. Being prepared for various outcomes enables the United States to be proactive and to respond appropriately as events unfold.

• **Writing:** The basic vehicle by which intelligence historically has been purveyed is the written report. At the beginning of the 21st century this remains the case. Yet many contemporary intelligence analysts lack this basic skill, and improvement “of writing skills, basic though they may be, is often required as part of becoming a competent intelligence analyst.”<sup>63</sup>

### ***Foreign Language Proficiency***

To be truly successful, analysts must be proficient in the language(s) employed by the subjects

of their analysis. Without such proficiency, they cannot completely comprehend target intentions and actions. When analysts misunderstand their targets, the intelligence they provide to customers will thus be inaccurate or misleading.

Once upon a time, many intelligence analysts could rely upon the skills of professional linguists for translation of target information. In the current intelligence community, however, this luxury has been reduced by over a decade of *significant* budget and personnel cuts, rendering dedicated language support unavailable to all but a few intelligence analysts working the largest, best-funded intelligence problems.<sup>64</sup> Foreign language proficiency has thus become a necessity for all who perform intelligence analysis.

If budget and personnel cuts are insufficient reason for seeking foreign language proficiency, changes in intelligence targets provide additional arguments for its necessity. While targets of interest traditionally used their native language(s) for internal communications, many employed non-native languages such as English for international communications and publications. This was especially true of the first decade of the popular use of the Internet, when English was the *lingua franca* of that medium. However, this is changing. The use of native languages in international communications is growing both on and off the Internet. Thus, proficiency in non-English languages is necessary for analysis of information, approximately 80 percent of which “is not secret, is not online, is not in English, is not government associated, but is in the private sector, and is not available locally to the analyst.”<sup>65</sup>

Furthermore, foreign language proficiency provides more than just a translation of non-English materials. The structure of a target’s language and that target’s culture are closely related. One well-known theory of this relationship, by Edward Sapir and Benjamin Whorf, posits that “language is a force in its own right and it affects how individuals in a society conceive and perceive

reality.”<sup>66</sup> Thus concepts essential to understanding the target are communicated by more than just the words used to express them.

For example, the German terms *Gemeinschaft* and *Gesellschaft* both translate into English as “community.” Yet this translation ignores the interpersonal nature of the relationship among the members of the first type of community, and the business context of the second. An analyst relying on translation by another might not be aware of the nature of the “community” in the material being analyzed.

In Somali there are two pronouns for the English “we.” A speaker of Somali uses the pronoun *annagu* when referring to the speaker and someone other than the person being addressed. Conversely, the use of the pronoun *innagu* includes the person being addressed. So if someone says in English, “We are going to the movie,” the question of “Who is ‘we’?” must be asked. In Somali there is no doubt: If *annagu* are going to the movies, the person being addressed is not going; if *innagu* are going to the movies, then the person being addressed is going. Again, an analyst depending on a translation into English must rely on the translator to convey that contextual information. This inclusion or exclusion from a group can be quite significant. There is a considerable difference between “*annagu* are going to blow up the embassy,” and “*innagu* are going to blow up the embassy.” This distinction is especially significant to the intelligence analyst in this case, even if the implications for the embassy remain the same.

Even the distinction between intelligence and information is language-derived. The Sinitic term *qingbao* refers to a concept that can be understood either as “information” or “intelligence.”<sup>67</sup> This distinction is a “Western one not shared by East Asian languages or presumably their speakers,” according to the Foreign Broadcast Information Service editor of the Chinese intelligence collection manual, Guofang Keji

Qingbaoyuan ji Houqu Jishu.<sup>68</sup> Context must determine the translation, and an analyst lacking foreign language skills must trust the linguist to correctly understand that context. The expertise required for that understanding might render the linguist a better intelligence analyst than the original analyst. This begs the question: “Is such duplication of personnel affordable?”

We recognize that certain forms of technical analysis have previously not required foreign language proficiency. We suggest, however, that it is not truly known, nor can we know, whether foreign language proficiency would have enhanced that analysis. Some technical metadata analysis clearly does not require language proficiency. However, analysis of other types of metadata may indeed require foreign language proficiency, and we caution against dismissing out of hand the need for it. Furthermore, staffing cuts require that analysts review both data and metadata. Even if the metadata do not require foreign language competency, the underlying data do require it. In addition, essential technical meaning is lost in the translation between linguist and technical analyst; technical analysts often need that original source and its context. This can be gained only from proficiency in the original language. Ultimately, foreign language proficiency enables the analyst to engage in a holistic, comprehensive analytic process.<sup>69</sup>

We do recommend that the depth at which the analyst must work a target determines the degree of required foreign language proficiency. If analysts work a great many targets at a superficial level, they need only have a casual acquaintance with their language(s). Similarly, when analysts are assigned to an ad hoc crisis cell working a specific target for a finite period, they may also need only superficial language skills. In this latter case, if the crisis is of sufficient importance, dedicated language assets will be assigned to compensate for their ignorance. However, should the crisis become long-term, it is reasonable to expect them to acquire more than a passing skill in the

target's language(s).

### **Research**

Research skills provide discipline and consistency for the creation of value-added intelligence. By providing methodologies for defining the requirement to be answered, as well as methodologies for answering that query, research skills ensure analytic consistency and enable thorough exploration of the issues. Necessary research skills include methods of problem definition that ensure that, in collaboration with the customer, analysts correctly define or redefine the problem in terms of a "research question," so as to understand the customer's and the analyst's own objectives.<sup>70</sup> Research strategies, when based on the issue to be answered, help identify required sources of information, the means of information collection, and the means of analyzing and synthesizing the data.

### **Information Gathering and Manipulation**

Information is the grist for intelligence analysis, and to be successful, analysts must aggressively seek it out. Then, skillful manipulation of information at all stages of the intelligence process helps ensure accurate results that meet the customer's intelligence requirements. Unskilled manipulation can result in ambiguous management of the process and results, providing the customer with incorrect or ambiguous intelligence.

Different information/data manipulation skills are required for the various stages of the intelligence process.

- **Collection:** This stage involves researching and gathering information from all available sources. The intelligence analyst directs the collection process, causing specific resources to be tasked. Related information manipulation skills include selecting and filtering in order to assess whether the information and its sources are of

value in answering the customer's requirement. The analyst determines what information is relevant.

- **Monitoring:** Once sources of information have been selected and an appropriate collection plan put in place, incoming information must be periodically reviewed to ensure that it still provides material pertinent to the customer's requirement. The reliability of the sources and the validity of the information are questioned. Monitoring skills focus on that review, and often may involve analysis of descriptors and summaries of these data. Specific skills such as the use of automatically generated statistics may assist at this point. Additionally, review of scheduled incoming data reveals information on the status of a target. A sudden increase of pertinent information on a target from one source, or a decrease in the number of sources of information pertinent to a certain target, may presage a status change in that target; analysts will want to understand why that change occurred.

- **Organizing:** Skillful arrangement, formatting, and maintenance of data for analysis and technical report generation ensure access to the necessary materials in a usable format. When organization is neglected, intelligence failures can result from lack of ready access to preselected essential information for making informed, accurate judgments.

- **Analysis/Synthesis:** Information manipulation skills required at this point in the process enable intelligence personnel to dissect individual items of information (analyze) as well as combine individual items (synthesize) in order to discover patterns, relationships, anomalies and trends.

- **Interpretation:** This is the stage in the process where information is transformed into intelligence via cognitive manipulation, that is, assigning meaning to analyzed and synthesized information using critical thinking. Leonard Fuld

Associates recently reiterated that this is a uniquely human process. Reviewing the twelve major commercial “analytic” systems tools, the Fuld study concludes “true analysis will remain a people function, assisted by computer technology.”<sup>71</sup>

- **Dissemination:** Intelligence is of no value until it is skillfully disseminated to the appropriate recipients. Information preparation and presentation skills manipulate the results of analysis into formats required by specific customers.

- **Coordination:** Coordination is the process of sharing both information and analytic conclusions with other analysts within and among intelligence production organizations, before and during the production process. It is a vital part of analysis that helps foster teaming and critical thinking.

- **Evaluation:** Once the customer has been provided with intelligence resulting from analysis, a review of the applicability of that intelligence to the customer’s issues must be made. Internal and intracommunity evaluation allows the intelligence to be discussed and placed in larger contexts than that viewed by a single agency. Such collaboration may also identify the additional intelligence required to clarify issues. Evaluation should be a continuous part of the production process.<sup>72</sup>

### ***Project/Process Management***

Few analysts enjoy the luxury of working full time on only one problem or on one aspect of a particular problem. Project/process management skills provide the means of organizing work to effectively satisfy requirements in a timely manner. Effective use of these skills enhances the analyst’s ability to work multiple intelligence issues in a focused, disciplined manner. We distinguish between projects and processes. The former tend to have finite scope and goals whereas the latter are open-ended. Both require planning, imple-

mentation, monitoring, and negotiating skills.<sup>73</sup> A project/process plan defines and clarifies what needs to be accomplished; identifies necessary resources; creates a timeline, including milestones; and makes the analyst accountable for successful completion. There are several components of project/process management skills:

- **Planning:** Project/process planning skills define the means by which the intelligence required to meet the customer’s information need will be captured and interpreted. Effective planning skills ensure that adequate time and funding are allocated for the project or process, sufficient materiel is obtained, and appropriate personnel are assigned to ensure successful completion. They also include the development of challenging but achievable goals, development of contingency plans and identification of their “triggers,” and the identification of critical milestones and viable alternatives to potential risks.

- **Implementation:** Implementation skills ensure the successful execution and timely completion of project and process plans. They also ensure that resources are effectively utilized to answer the customer’s requirement.

- **Monitoring:** Project/process monitoring skills include the continuous review of executed plans with proper identification of progress gaps and the implementation of appropriate solutions. They help keep the analyst focused on specific aspects of the work.

- **Negotiating:** Analysts often have more projects than they can be reasonably expected to complete. Specific processes may require reallocation of resources. To cope with this, analysts must be skilled in interacting with internal and external customers to maximize efficiency, meet deadlines, and contain costs.

## KNOWLEDGE REQUIRED FOR INTELLIGENCE ANALYSIS

Without a solid knowledge base concerning the region or issue to which the analyst is assigned, the individual will not even know what questions to ask. That is, the person will not really be qualified to be called an 'analyst'.<sup>74</sup> Ronald D. Garst and Max L. Gross

Knowledge consists of familiarities, awareness, or understanding gained through experience or study; it includes both empirical material and that derived by inference or interpretation.<sup>75</sup> Depending on the specific target, the knowledge required can vary widely. Our essential subset is shown in figure 8 and discussed below.

### Target Knowledge

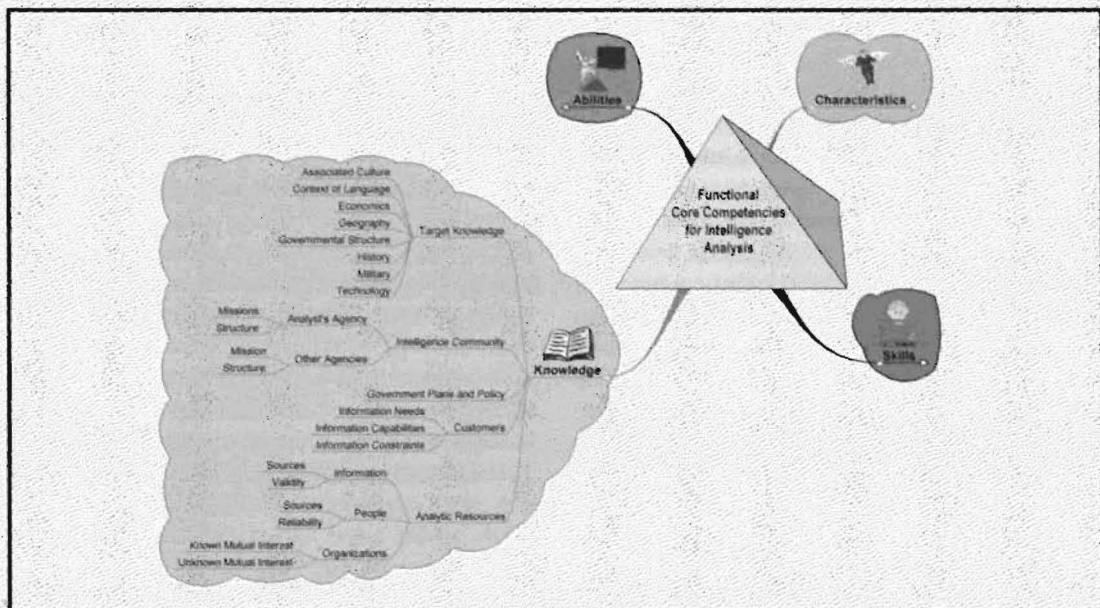
Intelligence analysis in the information age is often like "being driven by someone with tunnel vision."<sup>76</sup> In the quest to answer a customer's questions, the analyst often pushes aside "all the

fuzzy stuff that lies around the edge – context, background, history, common knowledge, social resources."<sup>77</sup> Yet, to do so is perilous, for these provide balance and perspective. They offer breadth of vision and ultimately allow analysts to make sense of the information under study. By providing the context into which analysts place their work, fields of study such as anthropology, comparative religion, economics, geography, history, international relations, psychology, and sociology all interact to contribute vital knowledge about the target, which both analysts and customers need to understand. Changes in the culture, religion, geography, or economic systems (among others) of a target may themselves be subjects of an intelligence requirement.

How much knowledge about a target is necessary for successful intelligence analysis? Ronald D. Garst and Max L. Gross, writing in the *Defense Intelligence Journal*, suggest:

A truly accomplished area analyst will have studied a region, probably will have lived there

Fig. 8. Knowledge required for successful intelligence analysis



and will speak one or more languages of the region. A first-rate analyst will know about the political systems, the biographies of pertinent players, the economy, sociology, and transportation and telecommunications systems.<sup>78</sup>

Gregory Treverton asserts that intelligence “is supposed to have the people who understand Bonn and Delhi better than they do Washington.”<sup>79</sup> Without such understanding, intelligence and policy failures can occur. Treverton blames the failure of the U.S. intelligence community to predict India’s 1998 nuclear test partially on a lack of understanding by U.S. analysts of “true” Indian motivations. Questioning of premises coupled with greater knowledge of the reasons why India would want to conduct a nuclear test should have led U.S. analysts to different conclusions.<sup>80</sup>

We identify the following target knowledge areas as essential for thorough intelligence analysis.

- **Associated Culture:** Culture can be defined as the values, standards, and beliefs within a grouping of people. Indeed, culture defines that grouping of people. The study of culture reveals the roles of individuals in the community, and how they relate to nonmembers of the culture. This provides insights into behaviors that are of value in predicting future behavior. This is true when the target is a people or a nation as well as when the target is a specific subgroup or individual member within a culture. Adda Bozeman, writing in *Politics and Culture in International History*, points out that because political systems are grounded in cultures, “present day international relations are therefore by definition also intercultural relations.”<sup>81</sup> She counsels:

[A]nalysts and policymakers in the West would be more successful in their respective callings if they would examine the cultural infrastructures

of the nations and political systems they are dealing with.<sup>82</sup>

- **Context of Language:** The context of language is a part of culture, and while isolating it makes an artificial distinction, we do so to reiterate its importance for intelligence analysis. What languages are utilized, by whom, and in what context, are essential in understanding the target’s culture. For example, much is revealed if members of an insurgent group communicate using primarily the language of the elite members of their culture. Additionally, what the language indicates about class and personal relationships may provide clues to behaviors.

- **Economics:** The economic structure and systems of a region or country affect its own behavior as well as its relations with other peoples, countries, and regions. For instance, Islamic law’s treatment of usury generally is interpreted as an outright prohibition on loaning money at interest because it is immoral to benefit from a venture without sharing in the risk. Instead, Islamic banks advance funds in exchange for a share of ownership, and the entrepreneur buys back that share over time. The values and the approach are greatly at variance with banking practice in other regions of the world, and pose a formidable barrier to international banking, thereby affecting commerce and trade.

- **Geography:** The natural features of a region affect infrastructure, culture, worldview, and history. Geography influences military operations; thus, an analyst working a military target needs to know how climate will affect military operations or what geographic features create choke points. The analyst also needs to understand how geographic features affect natural resource availability, thereby influencing international relations. For example, Gannon et alia, writing in *Global Trends 2015*, identify water as a key global issue for at least the next fifteen years. They indicate, “[water] shortages occurring in combination with other sources of tension –

such as in the Middle East – will be most worrisome” for the United States.<sup>83</sup> The inhabitants of two Middle Eastern nations, Syria and Iraq, significantly depend on the Tigris and Euphrates Rivers for fresh water. Both rivers originate in, and are dammed by, Turkey, whose government has close military ties to Israel, their enemy. How will these nations respond to a withholding of “their” water as the Turkish and Israeli governments cooperate in opposition to Syrian and Iraqi national interests?<sup>84</sup> NATO currently trains to fight a war in that region – could water issues be a cause of future military conflict?<sup>85</sup>

- **Governmental Structure:** How people govern themselves provides insights into how they will act, and how they interrelate with others. For instance, when strong autocratic governments become weak, as happened in Russia when the former Soviet Union collapsed, criminal elements will rise up and compete with the government for power. Weakly governed states indeed are havens for criminal organizations that represent the real “power behind the throne.” This certainly appears to be the case in the “narcodemocracies” of Mexico and Colombia.<sup>86</sup> Additionally, there is evidence that rogue states restricted from trading internationally will welcome criminal organizations to operate from within their country in exchange for embargoed goods. Serbia and Iraq are two countries suspected of this activity.<sup>87</sup> Knowing this enhances analysis of regions, nations, their leaders, and criminal organizations.

- **History:** History reveals how members of a society previously reacted and related to others, revealing clues of present behavior, and elucidating “the contemporary scene.”<sup>88</sup> For example, the history of the Orthodox Serbian defeat at Kosovo Polje by the Muslim Turks in 1389 is still told today in Serbia. Within Serbia, the defeat remains a very important national commemoration. It affects Serb relations with the Turks’ local descendants, Muslim Kosovar Albanians. Adequately disseminated knowledge of this histo-

ry and its role in Serbian culture could have provided policymakers with a context for Serbian and Albanian behavior in the 1990s in a region where the “predominant cultural force is tradition, which inevitably derives from history, politics, and demographics, as well as religion.”<sup>89</sup>

- **Military:** The military can be an integral partner of a government; it can be the government itself, an external “king maker,” or it may be a subordinate element unable to exert power or control over a government. Regardless, the role of the military and its history affect how a culture views defensive and offensive military operations. A history of invasion by foreigners, as is the case in Russia, creates attitudes that insist on neutral buffer states as neighbors. This in turn shapes where, when, and how the military is deployed.

- **Technology:** Technology itself can be the subject of study by the intelligence analyst. Someone developing a target may analyze specific technologies and their infrastructure as they pertain to that target. Further, the role of technology within a region, nation, or people is an indicator of behavior. The domains of communications, utilities, transportation, manufacturing, and others, as well as the attitudes of the people toward them, are rich sources of study. Technology also can provide insights into sources of information that will be available to the intelligence analyst.

### *Intelligence Community*

Understanding the missions and structures of one’s own agency as well as those of other agencies with similar missions reveals how intelligence work fits into the strategic plans of the nation. Analysts can also develop contacts in the intelligence community to share and acquire information that augments their own work.

### ***Government Plans and Policy***<sup>90</sup>

Analysts need to be aware of the plans and policies of their own government. These may be classified and handled in separate channels from those used to protect intelligence sources and methods. Access to this nonintelligence information assists in the creation of accurate assessments for policy-making officials by helping ensure that analysts understand customer intelligence requirements. Indeed, since intelligence is an adjunct to policy, "intelligence priorities should reflect policy priorities."<sup>91</sup> Conversely, a lack of knowledge about government plans and policies prevents analysts from making accurate assessments. For example, if analysts lack knowledge about U.S. logistic planning, they might not recognize actions taken by foes to counter or disrupt those resupply operations.<sup>92</sup>

### ***Customers***

The intelligence needs of the customer drive the analytic process. Analysts must understand their customers as both individuals and officials. They also must know what the customer wants to know and when and in what form the customer wants it presented. Since customers often want to know everything about a topic, analysts also need to know what is not to be shared. Although sources and methods generally are not shared lest they be compromised, there may be other considerations that weigh in favor of sharing; analysts need to know what those are and when they apply.

## **ANALYTIC RESOURCES**

Broadly considered, intelligence is derived from five resources: intercepted signals, collected imagery, human activity, measured emanations, and open-source materials. Commonly known as SIGINT, IMINT, HUMINT, MASINT and OSINT, none of these, despite the fact that they all share an "INT" suffix, meaning "intelligence," really represent intelligence. Rather they are informa-

tion sources that provide the analyst with raw materials. It is through the analysis, synthesis, and interpretation of information, preferably in collaborative, multiple-source combinations, and in response to customers' requirements, that analysts create intelligence. In so doing, the analyst has two tasks: "Correctly assemble the pieces of the puzzle and, since all of the pieces of the puzzle are never there, correctly guess what the picture is."<sup>93</sup>

Determining what information must be analyzed is a precursor to this analytic process. Berkowitz and Goodman, writing in *Strategic Intelligence for American National Security*, identify "four different types of 'information' [used by intelligence analysts] in preparing reports and estimates: known facts, secrets, disinformation, and mysteries."<sup>94</sup> Known facts and secrets must be placed in context or "revealed," disinformation must be discounted, and customers must be informed that mysteries cannot be answered. For this to occur, the types of information available and their validity, as well as the sources of that information and their reliability, must be determined.

In addition, analysts need to know what specific sources of information relevant to a particular inquiry are available for exploitation or partnering. Knowing which expert sources and subject matter experts can guide the analytic process, or can offer different or additional perspectives, enhances intelligence work. The reliability of these sources is also critical. When different sources provide contradictory information, the reliability of one source versus another may provide insights into which information is accurate; the sources may be open or secret, technical or human.

Finally, others, known and unknown, may be examining similar information for the same or different customers. Awareness that sources of information, possibly vital information, exist, even though they remain undiscovered or



untapped, keeps the analyst constantly seeking out new connections.

## IMPLICATIONS FOR THE INTELLIGENCE ANALYSIS WORKFORCE

Of all the personnel problems the intelligence community will face in the coming years, the most difficult to solve is likely to be maintaining the base of talent the community requires to carry out its mission.... [Much] of the work of the intelligence community is highly specialized and requires exceptional creativity.... It is also safe to say that some of the most pressing analytic skills the community will require are precisely those we cannot even foresee at this time.<sup>95</sup> Bruce D. Berkowitz and Allan E. Goodman

The above quotation from *Strategic Intelligence for American National Security* returns us to our initial questions: "Do NSA analysts have what it takes to be successful? What is a successful analyst? Indeed, what is analysis?" What Berkowitz and Goodman determined in 1989 remains true in 2001. NSA remains significantly challenged to maintain and enhance an analytic talent base against numerous rapidly changing threats to national security. Further, reduced hiring and rising rates of eligibility for retirement mean that the analytic population will continue to dwindle at the lower end and retire from the upper end.<sup>96</sup> Too small an analytic workforce, lacking adequate mentoring and training from senior, expert analysts, will leave NSA unable to meet the century's challenges. While NSA's technological capability remains widely recognized, former director General Kenneth A. Minihan noted, "If we don't win the talent war, it doesn't matter if we invest in the infrastructure."<sup>97</sup> According to the Council on Foreign Relations' independent report on the future of intelligence, "less than a tenth of what the United States spends on intelligence is devoted to analysis; it is the least expensive dimension of intelli-

gence.... This country could surely afford to spend more in those areas of analysis where being wrong can have major adverse consequences."<sup>98</sup> Winning the talent war requires smart investment in the hiring, training, and deployment of analysts.

The analyst's purpose is to create intelligence. To do that requires appropriate abilities, skills, knowledge and personal characteristics for rigorous intelligence analysis and production. Well-honed capabilities to communicate, cooperate, and think, coupled with the skills that ensure technical competency provide the means for intelligence work. Informed, deep knowledge of the issues and their background provides both content and context for analysis. Analysts who are motivated to succeed, to know, and to share that knowledge ensure that customers receive intelligence of the highest possible caliber.

The good news is that many NSA analysts do have what it takes to be successful. Their excellence is evident in the example they set on the job and in the quality of the intelligence they produce. The bad news is that they are not the majority of the analytic workforce. And as has already been noted, many of the most skilled analysts will be eligible to retire in the next several years, further reducing their number.

As a whole, the current analytic workforce lacks many of the core competencies necessary for successful intelligence analysis in the 21st century. Budget and staffing limitations deny NSA the luxury of massive hiring or retraining efforts; the scope of what must be done exceeds available resources. Further, while some experienced analysts do match the ideal described above, others are still operating within the outdated Cold War paradigm. Such entrenched attitudes and methods can be difficult to change. On the other hand, many novice analysts do have the willingness and potential to develop toward the ideal. But they need mentors and teachers in the latest trade-craft. There are not enough expert analysts to do

both the teaching and the performance of sophisticated intelligence production.

Therefore, NSA needs ways to enable intelligence analysts now on the job to enhance their professional skills. One approach to this problem is to provide specialized training in analytic methods through the National Cryptologic School (NCS). In order, however, to ensure that subsequently produced intelligence is accurate and useful, such training must focus on rigorous analytic processes that minimize biases introduced by the analyst, the customer, the sources of the information, or the information itself. Collaborative training efforts such as those proposed in the national Strategic Investment Plan for Intelligence Community Analysis offer another way by which NSA analysts can acquire the skills necessary for rigorous analysis.<sup>99</sup>

One analytic method, "Analysis of Competing Hypotheses," developed by Central Intelligence Agency (CIA) analyst Richards Heuer, provides a structured approach to rigorous intelligence analysis. In Heuer's methodology, which is used at the CIA, the analyst begins with a full set of alternative possibilities rather than the apparent single most likely alternative. The most probable hypothesis is found to be the one with the least evidence against it, not the one with the most evidence for it. This contrasts with conventional analysis, which generally entails looking for evidence to confirm a favored hypothesis. Following the scientific method, Analysis of Competing Hypotheses seeks to eliminate hypotheses, whereas conventional analysis seeks to prove them.<sup>100</sup> The end result is an actionable intelligence product that adds value to the customer's development and execution of policy or strategy.

Robert Folker's recent experiments in Theater Joint Intelligence Centers provide hard evidence that such rigorous methods do foster analytic excellence. In four experiments, Folker provided analysts with one hour of training in Analysis of Competing Hypotheses, then presented them

with two realistic scenarios requiring analytic judgments and conclusions. A significantly greater number of the newly trained analysts derived the correct answers to the scenarios than analysts in a control group that used purely subjective methods. These findings demonstrate that while "exploiting a structured methodology cannot guarantee a correct answer, using a structured methodology ensures that analysis is performed and not overlooked."<sup>101</sup>

Folker therefore recommends widespread teaching of these methodologies during "both initial and subsequent training."<sup>102</sup> However, training is of little value unless it can be immediately applied. Thus NSA organizational structures, culture, and processes must be aligned to permit and to reward rigorous analysis. Unless NSA analysts employ what they learn immediately upon returning to their workplaces, they will forget what they have learned. And unless these same analysts are recognized and appreciated for performing sophisticated analysis, they will not embrace change. Significant recognition for high-level analysis will inspire others to follow, creating a new culture that fosters and sustains excellence in tailored intelligence production.

Even if the entire analytic workforce adopts rigorous analytic techniques, NSA will still lack sufficient resources to meet customer needs. It will still need to hire new analysts, either from outside the agency or from within. However, these new employees must be highly qualified. NSA cannot afford remedial training for prospective new employees lacking the necessary abilities and skills for intelligence analysis. Similarly, employees transferring into the analytic disciplines from other fields must have the prerequisite abilities and skills for analysis before joining this discipline. The field of intelligence analysis is not a catchall for employees transferring from downsized career fields.

Some prospective new hires do come to NSA with an academic background in intelligence, and

many current employees pursue continuing studies related to intelligence. Unfortunately, intelligence studies at the university level tend to focus on intelligence and policy, not on tradecraft. Further, it is questionable whether the fledgling field of intelligence studies by itself yet offers the wherewithal to support a claim of expertise by someone educated in that specialty, except in the narrow, self-assessment areas of intelligence process or organization. Only one nongovernmental institution in the world offers an undergraduate degree in intelligence research and analysis: Mercyhurst College in Pennsylvania; advanced studies are offered in conjunction with a law-enforcement related degree. Within several years, the University of New Mexico is planning to offer undergraduate through doctoral degrees in intelligence; the stated goals of this program are to focus on the tradecraft of strategic intelligence.<sup>103</sup> Other institutions, such as Wright State University in Ohio, are beginning intelligence analysis programs. But these academic programs are too small and too limited to meet the needs of NSA or other intelligence agencies for qualified analysts.

Furthermore, general academic preparation is not enough. Training new and current intelligence analysts in professional tradecraft is NSA's responsibility and obligation. In the 1980s, the NCS filled a vital role of providing analysts with both specific job-related training and enculturation appropriate to NSA's mission. Today, with the investment of adequate resources, including the development of modern curricula in intelligence tradecraft, the NCS can be positioned once again to meet analytic training needs. This investment could include partnering with academic programs offering "distance learning" programs and other means of outsourcing instructional resources.

The Aspin-Brown Commission on the Roles and Capabilities of the United States Intelligence Community identified several additional actions to improve the quality of analysis that apply to

NSA. These include a minimal prerequisite to visit target countries as part of analytic orientation, rewards for acquiring and maintaining foreign language proficiency, encouragement to remain within substantive areas of expertise, and periodic rotational assignments to customer agencies.<sup>104</sup> Enacted as part of employee training and orientation, these measures can substantially enhance analysts' target knowledge and skills.

In combination with the right knowledge, skills, abilities, characteristics, and methodologies, the organizational and structural changes begun in the past year offer a possibility to genuinely transform the analytic work force to meet the challenges of the 21st century. Specific changes in analytic culture, processes, and techniques offer NSA a unique opportunity to rebuild analysis to effectively cope with a changed world. The recognition that technology supports, and is not a replacement for, the mental processes of analysis, highlights this opportunity.

However, for true transformation to occur, much work still must be done. It remains to be seen whether the corporation and its workforce are willing and able to carry out this essential work. Finally, it may be that the organizational changes under way do not go far enough. The proposed structure is still large and centrally planned. Many, if not most, modern intelligence challenges are not. More agile responses to those challenges, as yet undefined, may be required to counter them.<sup>105</sup>

A corporate strategy focusing on both what customers require and how a professional analytic workforce can be developed is a logical follow-on to the transformations NSA already has begun. The results of implementing such a strategy will be profound, if the transformation remains grounded in NSA's mission and is sustained through changes in leadership. In this climate, talented and motivated analysts who are highly knowledgeable about their customers and their targets will apply rigorous analytic tech-

niques to create actionable intelligence for decisionmakers. Under expert management, analysts will apply critical thinking skills in evaluating their own work, ensuring that it is of the highest caliber. As these analysts collaborate extensively with others in the intelligence community, the example they set will inspire others to excellence.

Making this vision a reality requires action. The Intelligence Analysis Assessment Tool provided earlier in this article is meant to be a guide to action and an instrument of change. This tool can be a means for assessing the present state of intelligence analysis; identifying gaps; tailoring the hiring, training, and deployment of analysts to the mission; fine-tuning corporate and analytic processes; and steering management practices in consonance with the corporate strategy. If each analyst and manager takes action according to these guidelines, then NSA will be able to say, "Yes, we have what it takes to succeed in the 21st century."

## ACKNOWLEDGMENTS

Acknowledgments are due to the many personnel within the Department of Defense who challenged our ideas and critiqued our work. Thanks also are due to James Holden-Rhodes, Ph.D., University of New Mexico; Mr. Robert Heibel, Mercyhurst College; Hugo Keesing, Ph.D., Joint Military Intelligence College; Marilyn Peterson, Financial Analysis Coordinator, New Jersey Division of Criminal Justice; Adam Pode, formerly of Mercyhurst College; Robert David Steele, CEO, Open Source Solutions; and Russell Swenson, Ph.D., Joint Military Intelligence College. Colleagues in the international Generic Intelligence Training Initiative, sponsored by the U.S. Drug Enforcement Administration, also provided valuable comments.

## Notes

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16. Loch K. Johnson, "Analysis for a New Age," *Intelligence and National Security*, 11.4, October, 1996, 658.

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21. Ibid., 122. While Lowenthal lists five loci, during the Clinton administration the secretary of the treasury had a seat on the NSC, raising that agency to equal status with State and Defense.

22. Gregory Treverton, *Reshaping National Intelligence for an Age of Information* (Cambridge: Cambridge University Press, 2001), 178.

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