

How Intelligence Analysts Experience Threats to Rigor

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This article is extracted from Dr. Wolfberg's research monograph, In the Face of Ambiguity: How Intelligence Analysts Experience Threats to Rigor, based on his work as a senior research fellow at the National Intelligence University (2020–22). The full report, with citations, as well as his previous monographs on artificial intelligence and the challenges of analytic insights, can be found in the NIU Caracristi Monograph collection at <https://ni-u.edu/wp/caracristi/caracristi-monographs/>. The views expressed are those of the author and do not reflect the official policy or position of the National Intelligence University, Office of the Director of National Intelligence, or any other US government entity.

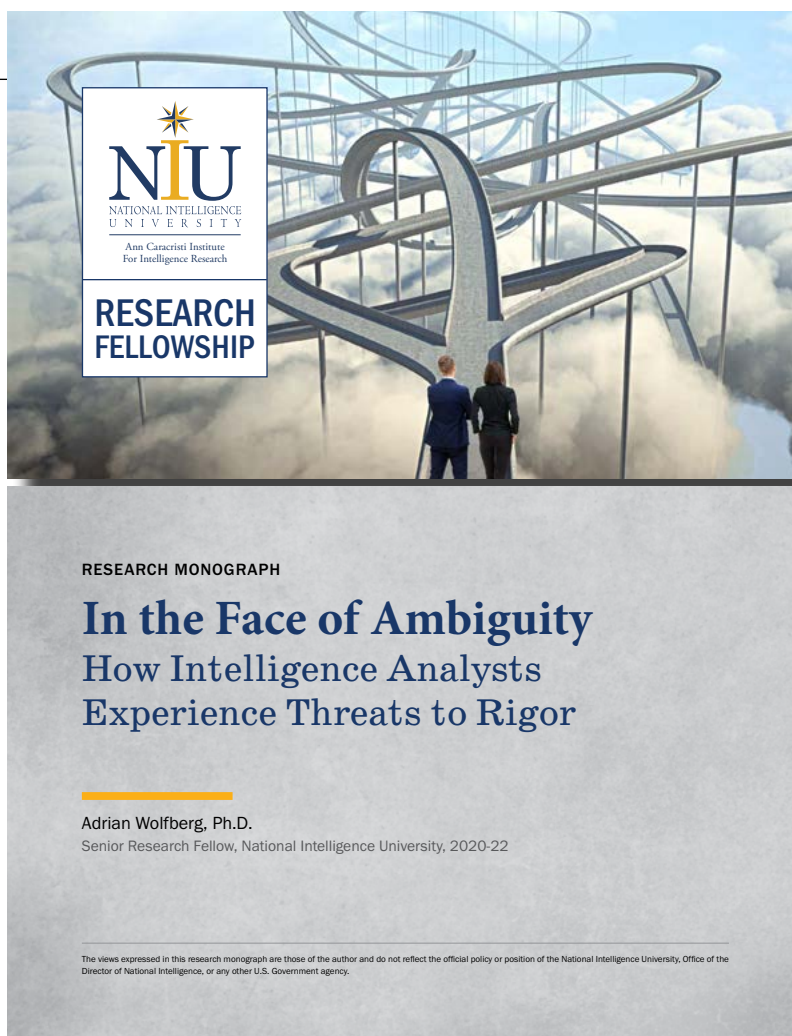
Key Findings

This study of 26 intelligence analysts reveals that ambiguity is ubiquitous in the worklife of imagery-based analysts who conduct foundational military intelligence (FMI). Yet, imagery-based products are expected to be precise and accurate in order to support military targeting and provide military commanders and policy-makers with faultless situational awareness of adversaries. This is the wicked twofold nature of the problem: ambiguity is a threat to rigor and to the conclusions drawn by analysts about the adversary.

Analysts experience ambiguity through a three-step process: first, they are exposed to sources of ambiguity; then they confront barriers to overcoming the sources of ambiguity; and last, they leverage individual actions to surmount those barriers. Even if analysts can identify and understand sources of ambiguity, various individual and organizational barriers divert or prevent them from focusing

on ways to mitigate ambiguity. Yet, the analysts interviewed for this study have found they can sometimes successfully act in the face of ambiguity to overcome barriers and to mitigate or resolve ambiguity.

Ambiguity arises from various sources, challenging analysts to accurately perceive causality and strategize effective actions to overcome



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ambiguities. This study integrates disparate theoretical and empirical concepts of ambiguity into a holistic model, beginning with the three types of sources of ambiguity: individual, organizational, and combined individual/organizational. In the third type, also called dilemma-induced, the organization originates the dilemma of deciding between two choices, and the individual must then determine how to navigate between these two choices. Although these sources are the triggers for analysts to take mitigating actions, individual, organizational, and societal barriers to overcoming ambiguity may get in the way of completing the identified actions.

Analysts experience a diverse set of cognitive, emotional, and social effects when exposed to ambiguity, and organizations should be aware of their nature. Implementing solutions that target a cognitive issue may not work, and may even backfire, if the issue is emotional or social, for example. Of the three categories of ambiguity addressed in this study—sources, barriers, and actions—sources of ambiguity generate cognitive and social responses, barriers produce social and emotional responses, and actions are built on cognitive, social, and emotional behaviors.

Consequently, organizations may benefit from developing a three-legged strategy to reduce the risk of ambiguity so that it does not thwart the advancement of rigor. One leg of the strategy is to know the sources of ambiguity, and the second is to be aware of barriers to overcoming ambiguity. Barriers originate within the individual and within the

organization and society. The third leg of the strategy is to take appropriate, realistic, and effective actions to overcome ambiguity. Organizational leadership is key to improving rigor by mitigating ambiguity, and the role of management is equally important to ensuring implementation.

This study provides three contributions to the research on ambiguity within the IC context.

- The first is practical, by creating a framework that combines sources of ambiguity—within the individual, within the organization and society, and a combined individual/organization dilemma-induced category—with the individual analyst's experience of ambiguity within the cognitive, social, and emotional domains.
- The second is methodological, by moving beyond the theoretical concepts from the literature and introducing empirically demonstrable and specific phenomena experienced by intelligence analysts.
- The third is theoretical, by providing imagery-based intelligence analysts who conduct FMI with a new mediational model of how barriers to overcoming ambiguity affect the relationship between the sources of ambiguity and the actions to overcome ambiguity. This model can be used to guide future research.

Organizations may benefit from professionalizing the workforce of the imagery-based FMI analysts. Key elements of such a policy would include theory, method, and practice.

This study offers a theory of ambiguity as it applies to intelligence analysis: ambiguity has a negative effect on rigor in intelligence analysis because ambiguity and rigor are polar opposites, and—left unresolved—these opposites place the analyst in an untenable situation. The method would use qualitative research when phenomena are not well understood and quantitative research when they are. The practice would involve the effective use of policy and strategy. For example, introduction of specialized training, education, and certification; incorporation of research into the profession; engagement of governing bodies and ethics; and encouragement of forms of self-improvement, such as lessons learned.

The findings of this study, although focused on the ambiguity experience of imagery analysts, may apply to other collection disciplines that cope with ambiguity focused on FMI, such as signals intelligence, measurement and signature intelligence, and open-source intelligence. How imagery analysts cope with ambiguity may also resonate with all-source analysts within all-source intelligence agencies; intelligence directorates within US combatant commands; and allied intelligence organizations, particularly in the United Kingdom, Australia, and Canada.

Ambiguity as the Enemy of Rigor

Intelligence analysts make the effort to employ analytic rigor as part of their tradecraft. Rigor is an important criterion for both producers and consumers of intelligence because it shapes the believability, credibility, and truthfulness of the knowledge produced. For consumers

of intelligence, demonstrated rigor assures national security policymakers and operational commanders that intelligence assessments are credibly accurate and, therefore, can be trusted. However, analytic rigor does not have a clear or widely accepted definition among academics who study foreign intelligence and practitioners of foreign intelligence. For the purposes of this study, analytic rigor is defined as a process employing thoroughness, precision, or exactness.

Yet, a key threat to attaining rigor is ambiguity. The real-world problem with ambiguity is that it can hide the adversary from analysts. The research problem for this study, therefore, is if analytic rigor needs precision and exactness, how do analysts achieve rigor when faced with ambiguity? What makes this an interesting research problem is how ambiguity impedes rigor. Not doing anything or at least not enough to reduce ambiguity obstructs analysts from understanding the adversary—and the adversary's intent and capabilities. Alternatively, efforts resulting in the successful resolution of ambiguity can lead to revealing the adversary.

This study takes one step beyond acknowledging the “fact of” ambiguity to systematically inquire into the types of ambiguity experienced by intelligence analysts. As this study's literature review suggests, how analysts deal with ambiguity while solving an analytical problem directly impacts their ability to achieve product credibility and gain customer trust. The research gap is not knowing the precise role that ambiguity plays. To fill this gap, this study asks the following research question: What kinds of ambiguity do intelligence analysts face?

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Given the need for analytic rigor, the scope of this research study is to understand the analysts' cognitive and emotional interaction with their data as they work on an intelligence problem. To further limit the scope of the research, the study specifically focuses on the nature of analysts' interactions with data when facing ambiguity.

Research efforts have primarily focused on measuring or devising measures to assess the outputs of analysis, such as rigor in the intelligence product. However, none of the policy documents and very little of the existing literature on analytic rigor describe how individual analysts interact with their data during the process of analysis—before a product is created and with the organizational goal of achieving a rigorous assessment. Hence, the purpose of this research is to shed light on the role that ambiguity plays in the pursuit of rigor.

Analytic Reform Produces Standards But Not a Definition of “Rigor”

Since the surprise foreign terrorist attacks on US soil on September 11, 2001, the US government has focused on improving the credibility of the IC's analytic products. These reform efforts have been designed with the assumption that improving analytic credibility will lead directly to improved consumer trust. One of the first policy efforts to address the credibility of intelligence analysis in response to the 2001 terrorist attacks was the creation of the Intelligence

Reform and Terrorism Prevention Act of 2004, which sought to improve the rigor of intelligence analysis.

Informed by this legal precedent, the IC has conceptualized rigor from an output- and compliance-based perspective. Executive Order (EO) 12333 on “United States Intelligence Activities,” as amended in 2008, requires analysts to meet rigorous analytic standards in order to assist policymakers in the development of national security policies and the identification of foreign adversaries to the United States, but it does not define what rigorous means or the process of being rigorous. The Intelligence Community Directive (ICD) 203 on Analytic Standards goes on to specify nine assessment criteria—called “tradecraft standards”—that are indicative of a rigorous product.

Like EO 12333, however, ICD 203 neither defines rigor nor the process of how one is rigorous. The ICD 203 standards are focused on outputs of analysis, i.e., the rigor as might be measured in finished intelligence products. The ICD 203 analytic standards are:

- Describe quality and credibility of underlying sources, data, and methodologies;
- Express and explain uncertainties associated with major analytic judgments;
- Distinguish between underlying intelligence information and analysts' assumptions and judgments;

The IC needs to understand the process in order to systematically achieve and improve the output. Hence, understanding the role ambiguity plays in producing analysis is a worthwhile research pursuit for scholarship and for the IC.

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| <ul style="list-style-type: none">• Incorporate analysis of alternatives;• Demonstrate customer relevance and address implications;• Use clear and logical argumentation;• Explain change to or consistency of analytic judgments; | <ul style="list-style-type: none">• Make accurate judgments and assessments;• Incorporate effective visual information where appropriate. <p>The Office of the Director of National Intelligence <i>Rating Scale for Evaluating Analytic Tradecraft Standards</i> provides guidance for evaluating the nine standards in ICD 203, but the rating scale does not define rigor or the process of being</p> |
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rigorous. Measuring the process of being rigorous is much harder than measuring rigor in the output of an intelligence product. Focusing on analytic rigor, like focusing on analytic insight, has emphasized the need for improving an output—the product read by consumers—rather than understanding the process leading to that output. The IC needs to understand the process in order to systematically achieve and improve the output. Hence, understanding the role ambiguity plays in producing analysis is a worthwhile research pursuit for scholarship and for the IC.



The author: Adrian Wolfberg is a member of the National Academies of Sciences, Engineering, and Medicine staff, a non-profit organization that provides evidence-based, scientific knowledge to policymakers in the US government. His empirical research work has concentrated on the challenges within large, complex organizations of knowledge exchange between intelligence analysts and senior-level decisionmakers.