

**THE EFFICACY OF ACCELERATED ANALYSIS IN STRATEGIC-
LEVEL ESTIMATIVE JUDGMENTS**

MICHAEL LYDEN

A Thesis

Submitted to the Faculty of Mercyhurst College

In Partial Fulfillment of the Requirements for

The Degree of

MASTER OF SCIENCE
IN
APPLIED INTELLIGENCE

DEPARTMENT OF INTELLIGENCE STUDIES
MERCYHURST COLLEGE
ERIE, PENNSYLVANIA
MAY 2007

DEPARTMENT OF INTELLIGENCE STUDIES
MERCYHURST COLLEGE
ERIE, PENNSYLVANIA

**THE EFFICACY OF ACCELERATED ANALYSIS IN STRATEGIC-LEVEL
ESTIMATIVE JUDGMENTS**

A Thesis
Submitted to the Faculty of Mercyhurst College
In Partial Fulfillment of the Requirements for
The Degree of

MASTER OF SCIENCE
IN
APPLIED INTELLIGENCE

Submitted By:

MICHAEL LYDEN

Certificate of Approval:

Kristan J. Wheaton
Assistant Professor
Department of Intelligence Studies

William Welch
Instructor
Department of Intelligence Studies

Barbara A. Behan
Vice President
Office of Academic Affairs

May 2007

Copyright © 2007 by Michael Lyden
All rights reserved.

ACKNOWLEDGEMENTS

I would like to thank my primary reader, Kristan Wheaton, for his contributions and assistance throughout this research process. I would also like to thank William Welch for his willingness and assistance as my secondary reader.

I would like to thank all the previous students in the Intelligence Studies program whose hard work paved the way, however unknowingly, for the advancement of accelerated analysis.

I would like to thank my friends and family for their support.

Last, but not least, I would like to thank Olga for her assistance and patience throughout this entire process.

ABSTRACT OF THE THESIS

THE EFFICACY OF ACCELERATED ANALYSIS IN STRATEGIC-LEVEL ESTIMATIVE JUDGMENTS

By

Michael Lyden

Mater of Science in Applied Intelligence

Mercyhurst College, 2007

Professor Kristan J. Wheaton, Chair

[This thesis presents the findings comparing the accuracy of strategic-level estimative judgments made under conditions of accelerated analysis by undergraduate analysts at the Mercyhurst College Institute for Intelligence Studies to estimates of similar scope found in declassified National Intelligence Estimates produced by the United States National Intelligence Council. These historical research studies found that not only are the student estimates of greater nuance than their National Intelligence Estimates counterparts, but they were also of statistically equal accuracy.]

TABLE OF CONTENTS

COPYRIGHT PAGE.....	iii
ACKNOWLEDGEMENTS.....	iv
ABSTRACT OF THE THESIS.....	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES.....	vii
LIST OF Figures.....	viii
LIST OF ABBREVIATIONS.....	ix
INTRODUCTION.....	1
Importance.....	2
Purpose Statement.....	3
LITTERATURE REVIEW.....	5
Intelligence Community Reform.....	6
The Role of Alternative Analysis.....	10
Alternatives Solutions for Transforming Analysis.....	17
A Model Found.....	23
Accelerated Analysis.....	27
Accelerated Analysis and the Strategic Estimate.....	31
How You Think Matters.....	35
Alternatives Solutions for Transforming Analysis Revisited.....	41
The Question Begged.....	45
METHODOLGY.....	54
Collection of Sample Data.....	54
Data Collection.....	57
Data Analysis.....	58
RESULTS.....	60
Difference in Nuance between NIC and MCIIS Estimates.....	60
NIC vs. MCIIS Estimative Accuracy.....	63
Accuracy of WEP Compared to WAC Statements.....	66
Summation of Findings.....	68
Tables.....	70
CONCLUSION.....	72
BIBLIOGRAPHY.....	81
APPENDICES.....	85
Appendix A: COS Estimative Judgment Matrix.....	86
Appendix B: NIE Estimative Judgment Matrix.....	96
Appendix C: Words of Estimative Probability.....	117

LIST OF TABLES

		Page
Table 2.1	Coopers Analytic Pathology	19
Table 2.2	Analytic Descriptors	17
Table 4.1	NIE vs. COS Overall Estimative Accuracy Results	62
Table 4.2	NIE vs. COS Accuracy: f-Test Two-Sample for Variance	68
Table 4.3	NIE vs. COS Accuracy: t-Test Two-Sample Assuming Equal Variance	68
Table 4.4	COS Nuance Descriptive Statistics	69
Table 4.5	NIE Nuance Descriptive Statistics	69
Table 4.6	WEP vs. WAC Estimative Accuracy Results	65

LIST OF FIGURES

		Page
Figure 2.1	The Intelligence Cycle	28
Graph 4.1	COS vs. NIE Nuance Levels	61
Graph 4.2	Accuracy of Unclassified NIE Estimates by Decade	63
Graph 4.3	Number of Declassified NIE Estimates by Decade	63

LIST OF ABBREVIATIONS

Assistant Deputy Director of National Intelligence for Analytic Integrity and Standards	ADDNI/AIS
Central Intelligence Agency	CIA
Center for Information Research, Analysis, and Training	CIRAT
Country Outlook Study	COS
Deputy Director of National Intelligence for Analysis	DDNI/A
Director of Intelligence	DI
Director of National Intelligence	DNI
Department of Defense	DoD
Extreme Programming	XP
Extrovert-Intuition-Thinking-Judging	ENTJ
Extrovert-Intuition-Thinking-Perceiving	ENTP
Federal Bureau of Investigation	FBI
International Association for Intelligence Educators	IAFIE
Intelligence Community	IC
Intelligence Community Directive - One	ICD-1
Intelligence Community Directive - 200	ICD-200
Intelligence Reform and Terrorism Prevention Act	IRTPA
Myers Briggs Type Indicator	MBTI
Mercyhurst College Institute for Intelligence Studies	MCIIS
National Counterterrorism Center	NCTC
National Intelligence Council	NIC

National Intelligence Estimate	NIE
Office of the Director of National Intelligence	ODNI
Rapid Prototyping	RP
Short Form Analytic Report	SFAR
Special National Intelligence Estimate	SNIE
United States	US
United States Dollar	USD
Words of Absolute Certainty	WAC
Words of Estimative Probability	WEP
Weapons of Mass Destruction	WMD

INTRODUCTION

The intelligence failures surrounding 9/11 and Iraqi Weapons of Mass Destruction made it clear that the United States Intelligence Community (IC) had serious and perhaps fundamental flaws that would need to be immediately addressed. While a majority of stakeholders agreed that the IC required structural and organizational changes in order to be prepared for the 21st century, there were, and continue to be, critics who believe reconstruction plans and priorities as outlined in the Intelligence Reform and Terrorist Prevention Act of 2004 and Intelligence Community Directives One and 200 are equally, and as fundamentally flawed. This concern is echoed by those who believe that the IC's failure was misattributed to bureaucratic flaws rather than stemming from dysfunctional behaviors and practices within individual agencies. If true, no amount of restructuring or reorganizing of the IC at large will provide the solution. The call for immediate action was deafening, however, so the Government's legislative response, despite its inadequacies, may have been predictable as it would be nearly impossible to legislate or codify cultural change, especially near term change.

No doubt propelled by the ICs repeat failure in Iraq, it was not long before papers like John Cooper's "Curing Analytic Pathologies" began to circulate within the community, detailing alternative solutions for the IC's lingering issues.¹ Armed with six different pathways to improved intelligence analysis, Cooper outlined a system that reflects the current state of alternative thinking and is very much in accord with the

¹ John Cooper, *Curing Analytic Pathologies: Pathways to Improved Intelligence* (Center for the Study of Intelligence, 2005), <http://www.fas.org/irp/cia/product/curing.pdf> (accessed April 2, 2007).

parallel evolution of Mercyhurst College Institute for Intelligence Studies' (MCIIS) take on intelligence analysis.

Originally, a by-product of academic necessity, an alternative method of analysis emerged at Mercyhurst over several years. It was facilitated by the large number of students and several funded research projects, most notably for the United States Department of Defense. Over time, MCIIS has fostered the development of new analytic process based upon a rapid production schedule, increased accountability, and structured analysis dubbed "accelerated analysis". Accelerated analysis addresses many of the concerns voiced by those who disagree with a structural and organizationally focused IC reform process. This then begs the question of whether or not the alternative, accelerated analysis at MCIIS, produces analysis of comparable quality to that of the IC?

Importance

The current reform process being undertaken by the IC certainly does not guarantee success, especially if the response is based upon a misdiagnosis of what actually ails it. However, the IC is such a large entity (comprised of 16 agencies, approximately 100,000 employees, and commanding an estimated USD 44 billion budget²) that the easiest way to affect system-wide change is organizationally, as Peter Senge notes about cultural shifts, "people don't resist change. They resist being changed."³

² Michael Hayden, "Q&A with General Michael Hayden," Q&A episode 1123 originally airing April 15, 2007, <http://www.q-and-a.org/Transcript/?ProgramID=1123> (accessed April 17, 2007).

³ Todd Johnston, "Creating a Cultural Shift," Tomorrow Makers Electronic Journal, <http://www.tomorrowmakers.org/journal/2007/2/28/creating-a-cultural-shift.html> (accessed April 24, 2007).

Therefore, an alternative analytic system like MCIIS's accelerated analysis which is not overly foreign in its collective practices and requires minimal organizational or structural accommodations may provide a surprisingly simple solution to the IC's analytic woes. Despite comparatively Spartan resources compared to the IC, if it can be demonstrated, even weakly, that accelerated analysis at MCIIS produces estimates of roughly comparable quality to that of the leading IC estimates, then there is an impetus for the IC to commit to further exploration of alternative analytic solutions to its shortcomings.

MCIIS would also benefit from the knowledge that a core philosophy of its project management style is correct. This would help MCIIS manage distribution of limited resources in a more effective manner and aid in promoting accelerated analysis' adoption in other branches of intelligence, most notably law enforcement and business intelligence.

Purpose Statement

The purpose of this research is to compare the accuracy of strategic level estimates produced under accelerated analysis at MCIIS with their counterpart National Intelligence Estimates (NIE) produced by the National Intelligence Council (NIC), considered the most authoritative written judgments of the IC regarding the likely course of future events.

To counter the argument that MCIIS estimates are not comparable in nuance or scope to the NIEs and therefore have an unfair advantage in any kind of accuracy rating, this researcher will also examine the level of nuance in each estimative statement using

the basic journalistic criteria of “who, what, where, when, why, and how?” If the two groups of estimates are roughly equal in their answers to those six questions, then they are likely of similar nuance and a comparison of accuracy is reasonable. Furthermore, given that each group of strategic estimates concern the outlook for individual countries over roughly equal periods, then a qualitative assessment of scope will ensure parity.

LITTERATURE REVIEW

[It was] much easier *after* the event to sort the relevant from the irrelevant signals. After the event, of course, a signal is always crystal clear; we can now see what disaster it was signaling since the disaster has occurred. But before the event it is obscure and pregnant with conflicting meanings.

–Roberta Wohlstetter, commenting on Pearl Harbor⁴

The following literature review is comprised of three interrelated narratives whose convergence will ultimately make the case for an alternative root cause and subsequent solution for the United States Intelligence Community’s analytic failures in the first half of the 21st century. While these three topics evolved over roughly the same period, they will be discussed sequentially in order to best make their association clear.

The literature review begins with the United States Government’s response to the intelligence failures surrounding 9/11 and Iraqi weapons of mass destruction. This topic will be discussed in the two subsections titled “Intelligence Community Reform” and “The Role of Alternative Analysis.”

The second narrative details solutions for reform based on an alternative diagnosis of the root cause of the Intelligence Community’s failures. This discussion is detailed in the next subsection, “Alternative Analysis for Transforming Analysis.”

The final narrative details the evolution of accelerated analysis at the Mercyhurst College Institute for Intelligence Studies and its potential as new conceptual model for Intelligence Community analytic reform. These five sections that address this final narrative are “A Model Found,” “Accelerated Analysis,” “Accelerated Analysis and the

⁴ Roberta Wohlstetter, *Pearl Harbor: Warning and Decision* (Stanford: Stanford University Press 1962), 4.

Strategic Estimate,” “How You Think Matters,” and “Alternative Solutions for Transforming Analysis Revisited.”

The literature review concludes with “The Question Begged,” a hypothesis concerning the accuracy of estimative judgments produced by the Intelligence Community compared with those produced under accelerated analysis conditions at the Mercyhurst College Institute for Intelligence studies.

While much of the following discussion is rooted in decades of analytic tradition, the recounting begins with the events surrounding September 11, 2001.

Intelligence Community Reform

In the months that followed the tragic terrorist attacks against the United States on September 11, 2001, politician and citizen alike sought an explanation for both how and why the United States (US) as a whole, and the US Intelligence Community (IC) in particular, were caught off guard. US intelligence agencies, in particular the Central Intelligence Agency (CIA) and Federal Bureau of Investigation (FBI), were used to working with minimal public oversight. They now faced near universal second-guessing as to how they performed in virtually all aspects of their operations. On September 12, 2001, these agencies’ inability to prevent the attacks was met with a common declaration from prominent politicians, citizens, and academics. This declaration is exemplified by these sentiments of a university professor: “This one is a spectacular intelligence failure. I think it will go down in history as the United States’ 21st-century Pearl Harbor.”⁵

⁵ Wesley K. Wark quoted by M. Mittelstaedt, “Spy cloak Left in Shreds,” *Globe and Mail*, September 12, 2001, p. A2

The contentious debate over the US government's perception of national security threats prior to 9/11 had begun, and would ultimately spawn a discourse over the operations of the IC that would then be further fueled by uneven performance on Iraq, initially characterized by the infamously inaccurate National Intelligence Estimate (NIE) "Iraq's Continuing Programs for Weapons of Mass Destruction," published in October 2002.⁶

2004 and 2005 were landmark years for IC reform. The Office of the Director of National Intelligence (ODNI) emerged from the Intelligence Reform and Terrorism Prevention Act (IRTPA) of 2004 laden with recommendations for improving internal processes and overall organization. The IRTPA, in effect, legislated many of the National Commission on Terrorist Attacks upon the United States (also known as the 9/11 Commission) recommendations.⁷ The work of the Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction (popularly known as the WMD Commission) further highlighted the necessity for change. The WMD Commission culminated in 2005's Report to the President highlighting the continuing intelligence errors surrounding the buildup to the Iraq war and firmly placing a large portion of the blame on intelligence analysis:

We conclude that the Intelligence Community was dead wrong in almost all of its pre-war judgments about Iraq's weapons of mass destruction. This was a major intelligence failure. Its principal causes were the Intelligence Community's inability to collect good information about Iraq's WMD programs, serious errors in analyzing what information it could gather, and a failure to make clear just how much of its analysis was based

⁶ Richard Kerr et al., "Issues for the US Intelligence Community," *Studies in Intelligence* 49, no. 3 (2005), https://www.cia.gov/csi/studies/vol49no3/html_files/Collection_Analysis_Iraq_5.htm

⁷ Michael Jacobson, "The Intelligence Reform and Terrorism Prevention Act: Addressing Controversies, Expanding Powers," *Policy Watch* no. 929 (2004), <http://www.washingtoninstitute.org/templateC05.php?CID=2206> (accessed April 1, 2007).

on assumptions, rather than good evidence. On a matter of this importance, we simply cannot afford failures of this magnitude.⁸

While both the 9/11 and WMD commissions and the IRTPA highlighted the fact that a wide range of problems had contributed to the failures of the IC, the majority of recommendations for change were structural as explained by John Cooper in “Analytic Pathologies”:

These recommendations usually emphasized the need for significant modifications in organizational structure of the Intelligence Community and for substantial enhancements of centralized authorities in order to better control and coordinate the priorities and funding of community entities.⁹

This was, in fact, not a wholly novel idea. In a 1997 paper, “The Coming Intelligence Failure,” Defense Intelligence Agency analyst Russ Travers infamously predicted the results of ignoring what he characterized as an un-integrated and dysfunctional IC:

The year is 2001 ... Bureaucratic politics have forced a division of analytic labor. ... We do not provide sufficient warning of a... terrorist attack. The data were there, but we had failed to recognize fully their significance and put them in context. No agency was postured to conduct truly integrated analysis.¹⁰

Travers urged immediate “consolidation and centralization” of intelligence against terrorism, weapons of mass destruction, and other nonconventional threats.

Unless these steps were taken, he argued,

[F]rom the vantage point of 2001, intelligence failure is inevitable. ...By operating under the premise that we can... parcel out discrete

⁸ The Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction, “Report to the President,” March 31, 2005, http://www.wmd.gov/report/wmd_report.pdf (accessed April 4, 2007).

⁹ Jeffrey Cooper, *Curing Analytic Pathologies: Pathways to Improved Intelligence Analysis*, (Washington DC: Center for the Study of Intelligence, 2005), <http://www.fas.org/irp/cia/product/curing.pdf> (accessed April 3, 2007).

¹⁰ Russ Travers, “A Blue Print for Survival: The Coming Intelligence Failure,” *Studies in Intelligence* Semi-Annual Edition no. 1 (1997), <https://odci.gov/csi/studies/97unclass/failure.html> (accessed March 13, 2007).

responsibilities to various agencies, we are, in essence, getting the deck chairs on the Titanic nice and neat.

Regrettably, Travers' urgings would only be proved prophetic with hindsight. Perhaps they were too dramatic for what now might be recalled as the "halcyon days" of late 1990's intelligence characterized by conflict over manpower cuts rather than the new century's allegations of systemic failure.

Creation of the ODNI in 2004 became symbolic of a bureaucratic response to what many perceived as a bureaucratic problem. However, not all of the recommendations called for restructuring at such a grand level; some dealt with analysis itself at the tradecraft and managerial levels. Speaking in mid 2005, then Principal Deputy Director of National Intelligence, General Michael Hayden, in prepared comments before the House Permanent Select Committee Subcommittee on Oversight, remarked:

On analysis, Director Negroponte and I count as one of our highest priorities ensuring that our finished intelligence products are timely, objective, accurate, actionable, and based on all sources of available information. Using the National Intelligence Officers as the senior analytic experts within the Community, we are working to coordinate better the efforts of all of the analytic components to meet our customers' needs. We are creating a Strategic Analytic Unit in the National Intelligence Council to foster long-term research and coordinate strategic research agendas. Our DDNI for Analysis, Dr. Thomas Fingar, is committed to ensuring the integrity and credibility of our analytic products by rebuilding the in-depth expertise of our intelligence analysts and fostering centers of excellence that facilitate alternative analysis. Under his direction, we are implementing new procedures to review and evaluate the analytic tradecraft and soundness of finished intelligence products, both before they go out the door as well as retroactively to identify best practices and lessons learned.¹¹

¹¹ General Michael Hayden, "Statement for the Record," House Permanent Select Committee, Subcommittee on Oversight, July 28, 2005, http://merln.ndu.edu/merln/mipal/crs/RL32600_6Oct04.pdf (accessed March 14, 2007).

Subsequent Intelligence Community Directives were likely to have been at least partially influenced by official progress reports on the 9/11 and WMD commission recommendations as well as progress reports on IRTPA mandates. These directives detail an interesting trend concerning the relative importance of improving analytic tradecraft, specifically the mandated use of “alternative analysis,” on the list of IC reform priorities over the next three years.

The Role of Alternative Analysis

Following General Hayden’s 2005 remarks, Intelligence Community Directive Number One (ICD-1), a policy directive for intelligence community leadership, was issued effective May 1, 2006. ICD-1 actually codifies the specific use of competitive analysis as well as alternative analysis in general when outlining the authorities and responsibilities of the Director of National Intelligence (DNI).¹²

Alternative analysis is a broad-based concept defined as “tools designed to help analysts and decision makers employ rigorous self-review, question judgments, and explore alternative outcomes.”¹³ A 2004 occasional paper published by the Sherman Kent Center for Intelligence Analysis titled “Making Sense of Transnational Threats” describes in great detail early government studies on the use of competitive analysis (and its most prolific subcategory, red teaming). Despite the title, the paper actually addresses possible solutions to the unique analytic challenges posed by “complex and fast-moving

¹²United States, Office of the Director of National Intelligence. “Policy Directive for the Intelligence Community Leadership (2006),” Intelligence Community Directive Number One, May 1, 2006, <http://www.fas.org/irp/dni/icd/icd-1.pdf>.

¹³ Warren Fishbein, “Making Sense of Transnational Threats,” The Sherman Kent Center for Intelligence Analysis Occasional Papers: Volume 3, Number 1, Oct. ’04, https://www.cia.gov/cia/publications/Kent_Papers/vol3no1.htm (accessed April 11, 2007).

transnational threats such as terrorism, WMD proliferation, and organized crime” that came about from ideas generated by a series of “unclassified, multidisciplinary workshops with outside experts convened by GFP and RAND during 2003 to explore ‘Developing Alternative Analysis for Transnational Issues.’”

Shortly after the release of the May 1, 2006 ICD-1, the ODNI released an official report on the progress of implementing the IRTPA that made no specific reference to alternative analysis techniques. The report instead focuses on “analytic dissents and alternative views in analysis” and the evaluation of “methodological rigor of IC intelligence products.”¹⁴ Interestingly enough, of the two paragraphs devoted to the improvement of analysis in this twelve-page report, one of them deals almost entirely with the establishment of a digital library of all new intelligence products while the discussion on analytic techniques is relegated to just a few sentences.¹⁵

A second progress report was released in July of 2006 and was a follow up to 2005’s WMD Commission recommendations. Much like the 9/11 Commission findings, the WMD Commission’s original report had focused on organizational and structural changes while also addressing the need to “remedy specific tradecraft or methodological problems” (listed third out of five recommendations, the first two of which deal with structural, organizational, and leadership issues). The WMD Commission had proposed that the “DNI foster diverse and independent analysis throughout the IC by encouraging alternative hypothesis generation.” It would appear that the DNI took this to mean the

¹⁴ Director of National Intelligence, “Report on the Progress of the Director of National Intelligence in Implementing the ‘Intelligence Reform and Terrorism Prevention Act of 2004’,” Office of the Director of National Intelligence, May 17, 2006, http://www.dni.gov/reports/CDA_14-25-2004_report.pdf (accessed March 13, 2007).

¹⁵ Ibid.

establishment of analytic units to conduct this kind of analysis, not to foster its use by “rank and file” analysts.

Various agencies have acted on this recommendation, incorporating alternative analysis into their research plans and analytic units. The CIA, for instance, has developed alternative analysis cells in every office in the Directorate of Intelligence. DIA has encouraged debate through its “Devil's Advocate Program.” DHS has established an Alternative Analysis Division and an analytic Red Cell unit. Meanwhile, the ODNI is working with IC partners to promulgate Community standards for diverse and independent analysis and has expanded the NTIC associates program to include experts in analytic methodology.

Approximately six months later, in January of 2007, Intelligence Community Directive Number 200 (ICD-200) on the management, integration, and oversight of Intelligence Community analysis was released. This capstone ICD for analysis established the policy framework for the management of national intelligence analysis and the analytic community by the Deputy Director of National Intelligence for Analysis (DDNI/A). ICD-200 reemphasized the role alternative analysis should play in the IC, assigning responsibility for “fostering regular production of independent, alternative, and competitive analyses” to the Assistant Deputy Director for Analytic Integrity and Standards (ADDNI/AIS).¹⁶ ICD-200 further emphasizes the need for increased transparency, recognition of source reliability, and increased decisionmaker-analyst collaboration.¹⁷ While critics of the IC’s analytic process were encouraged by the emphasis on creativity, the document does not convey the sense that alternative analysis is, as of yet, an integral or even routine part of the IC analytic process. However, ICD-200 does strongly affirm that the ONDI did recognize the need for an evolution in the

¹⁶ Office of the Director of National Intelligence, Intelligence Community Directive Number 200, Management, Integration, and Oversight of Intelligence Community Analysis, January 8, 2007.

¹⁷ Ibid.

way analysis was performed; a systemic flaw in the analytic process hampered the IC's performance and these mandates on transparency, reliability, and collaboration were a serious step towards addressing this concern.

The 2006 Annual Report of the United States Intelligence Community highlighted the role, or lack-there-of, that alternative analysis would play in the IC. The report notes, under the mission objective of defeating terrorism, that the Director of the National Counterterrorism Center (NCTC) built new "Community processes to enhance analytic cooperation and integration."¹⁸ This included the DNI approved "Analytic Framework for Counterterrorism," that defines the "roles and relationships for counterterrorism analysis and provides for planned competitive analysis on the most critical issues."¹⁹ The "We must build analytic expertise, methods, and practices; and help IC professionals to tap expertise wherever it resides and to explore alternative analytic views" objective in the "What We Will Achieve" section of the report highlights the point that these operations are only planned.²⁰ The report makes no further mentions of either alternative analysis, in general, or competitive analysis, specifically.

These reports provide clear insight into the IC's reform priorities. Heavy emphasis was placed on a structural response to the IC's analytic failures prior to 9/11, and while the use of alternative analysis was legislated in the IRTPA in 2004, its use still appeared sporadic as of early 2007. In contrast, the traditional method of intelligence analysis, particularly in regards to estimative writing, tends to rely on the methods outlined below.

¹⁸ Office of the Director of National Intelligence, The 2006 Annual Report of the United States Intelligence Community, Office of the Director of National Intelligence, February 2007

¹⁹ Ibid.

²⁰ Ibid

According to Rob Johnston, director of the CIA's lessons learned program, IC analysts could choose from over 200 available analytic methods.²¹ Regrettably, the IC lacks either the interest or resources, or alternatively, there is an insufficient academic support base, to broadly and scientifically test these methodologies. Therefore, it could be hypothesized that analysts do not know if any one particular method is better than another is. Such confusion may thus hinder their widespread use.²² Multiple comments on this very subject were proffered as part of an International Association For Intelligence Educators (IAFIE) listserv discussion including one that quickly brought echoes of agreement by other listserv members. To paraphrase the discussion, the traditional CIA method of analysis is comprised of three steps: First, read as much as you can, then think about it as much as you can, and finally write it down in as crisp a manner as possible. The listserv comment on this "read, think, and write" methodology continues:

Unfortunately, at CIA most of our energy and on-the-job training as analysts traditionally has gone into phase three—learning how to capture the essence of our analysis in a paragraph or page. Substantial resources also have been devoted to phase one, but we remain woefully behind what technology offers. And, until recently, we have largely ignored the need (or used the excuse we don't have the time) to develop the necessary skills to ensure more rigor and scientific method in our analytic process.²³

This basic lack of analytic structure is a fundamental theme permeating descriptions of the analytic report writing process. A renowned CIA analytic trailblazer and the namesake of CIA's school for intelligence analysis, Sherman Kent's greatest contribution to the quality of analysis was "to define an honorable place for the analyst--

²¹ Rob Johnston. "Integrating Methodologists into Teams of Substantive Experts," *Studies in Intelligence*. Vol. 47. No. 1. <http://www.cia.gov/csi/studies/vol47no1/article06.html>

²² Stephen Marrin, *Analytic Techniques: To Structure or Not to Structure*, International Association For Intelligence Educators Listserv, April 4, 2007.

²³ Randy Pherson, e-mail message to the IAFIE Listserv, April 4, 2007.

the thoughtful individual ‘applying the instruments of reason and the scientific method’-- in an intelligence world then as now dominated by collectors and operators.”²⁴ Kent’s 1965 edition of *Strategic Intelligence*, contains a quote long acknowledged as true:

Whatever the complexities of the puzzles we strive to solve and whatever the sophisticated techniques we may use to collect the pieces and store them, there can never be a time when the thoughtful man can be supplanted as the intelligence device supreme.²⁵

Kent’s influence on analysis was so great that if one was to look at the “Analytic Methodologies” section of the NIC website, two of three estimative tradecraft essays are works by Kent; 1964’s “A Crucial Estimate Relived” discusses the estimative process in general through reflection on 1962’s erroneous NIE on Cuba and 1968’s “Estimates and Influence,” considered a classic of estimative intelligence, considers epistemology and its importance to the policymaker. The third essay, titled “The Primary Purpose of National Estimating” by Harold Ford was published in 1989 and is a theoretical estimate that might have been issued three days prior to the Japanese attack occurred. This counterfactual NIE concluded with a section titled “Current Relevance of the 1941 [Special National Intelligence Estimate] SNIE,” that contends the exercise is important not so much for its relevance to 1941, but as for their instructive guidance for national estimating today. The essay goes on to outline the principle lessons for “us estimators a half-century later,” which include fundamental pieces of advice of the order of “clarity is a virtue” and estimators “must be candid.”

²⁴ Richard J. Heuer, Jr., *Psychology of Intelligence Analysis*. (Washington, DC: Center for the Study of Intelligence, 1999), 15-16.

²⁵ Sherman Kent, *Strategic Intelligence for American World Policy*, preface to the 1965 edition, as quoted by Jack Davis in “Sherman Kent and the Profession of Intelligence Analysis,” *Occasional Papers*1, No. 5, November 2002, The Sherman Kent Center for Intelligence analysis, https://www.cia.gov/cia/publications/Kent_Papers/vol1no5.htm#_ftn2.

What is so striking about these three essays is not necessarily what they include, but when it was included. The essays range in publication date from 1968 to 1989, but are cited as the major principle sources on estimative tradecraft. It is not that essays on alternative tradecraft do not exist (many can be found publicly on the CIA’s own website), but the emphasis is placed on what can be considered the traditional method of writing analysis with modifications primarily in the use of words of estimative probability.

According to Carmen Medina in “The Coming Revolution in Intelligence analysis,” a CIA Directorate of Intelligence (DI) analyst from several decades ago would recognize the daily routine of the typical analysts today.²⁶ Medina hypothesizes that this is due in part to the fact that during the CIA’s more than five decades of operation, it evolved a model that “needed only successful execution to produce quality analysis,” and when it faltered, analysts or collectors were blamed, but never the model itself.²⁷

Medina goes on to describe what she believes will be the next evolutionary step for IC analysis. Medina’s thesis is that modern decision makers are increasingly sophisticated in their ability to independently collect and analyze their own information and that analysts must be increasingly consumer focused in their analysis. Medina’s model is best described using her own side-by-side comparison of words currently used to describe the analytic process with those that might be used in the 21st century (*See Table 2.2: Analytic Descriptors*):

Table 2.2: Analytic Descriptors	
20th Century Analysis	21st Century Analysis

²⁶ Carmen Medina, “The Coming Revolution in Intelligence Analysis: What to do When Models Fail,” *Studies in Intelligence* 46, no 3 (2001), <https://www.cia.gov/csi/studies/vol46no3/article03.html> (accessed April 11, 2007).

²⁷ Ibid.

Cautious/Careful	Aggressive/Bold/Courageous
Fact-based	Intuitive
Concrete/Reality-based	Metaphor-rich
Linear/Trend-based	Complex
Expert-based	Humble, Inclusive, Diverse
Hierarchical	Collaborative
Precedent-based	Precedent-shattering
Worst-case/Warning-focused	Opportunistic/Optimistic
Text-based	Image-rich
Detached/Neutral	Customer-driven/Policy-relevant

While no single adjective from the above list taken alone would be particularly groundbreaking, as a group, they begin to describe a process that would be an undeniable evolutionary step and possibly even a revolutionary cultural change.

Alternatives Solutions for Transforming Analysis

The emphasis on a primarily structural response to IC failures has not been without its detractors. There were those that disagreed with, and were skeptical of, the premise that structure was the root cause of failure, noting a growing conviction within the IC that, in Jeffrey R. Cooper's words, "improving the analytic products delivered by Intelligence Community components had to begin with a critical and thorough appraisal of the way those products are created."²⁸ Cooper was previously a professional staff

²⁸ John Cooper, *Curing Analytic Pathologies: Pathways to Improved Intelligence* (Center for the Study of Intelligence, 2005), <http://www.fas.org/irp/cia/product/curing.pdf> (accessed April 2, 2007).

member of the Presidential Commission on Future Intelligence Capabilities (the Silberman-Robb Commission) and is the current Vice President for Technology, Chief Scientist of Strategies, and Director of the Center for Information Strategy and Policy at Science Applications International Corporation. He published “Curing Analytic Pathologies: Pathways to Improved Intelligence Analysis” at the CIA’s Center for the Study of Intelligence in December, 2005. While it is certain a wide range of problems affect the morale of the IC,²⁹ Cooper echoes Henry Kissinger’s observation³⁰ that, “... a significant number of the most serious [IC problems] result from shortcomings in intelligence analysis rather than from defects in collection, organization, or management.”³¹ The logic of Cooper’s study points to a fundamentally different direction for both the root cause of the IC failures and for fixing the resultant issues. He concludes that

[These] serious shortcomings—with particular focus on analytic failures—stem from dysfunctional behaviors and practices within the individual agencies and are not likely to be remedied either by structural changes in the organization of the community as a whole or by increased authorities for centralized community managers.³²

Cooper’s overall conclusion is based on an examination of the IC as if it were undergoing a medical diagnosis. He theorizes that any detailed propositions about effective remedies must be preceded by agreement on the basic diagnosis. The resultant analytic pathology is based on a set of six observations, the resultant conclusions (or diagnoses) about the effect these observations have on the current state of the IC, and

²⁹ See The 9/11 Commission Report: Final Report of the National Commission on Terrorist Attacks Upon the United States (also known as the 9/11 Commission Report) and Report on the U.S. Intelligence Community’s Prewar Intelligence Assessments on Iraq by the US Senate Select Committee on Intelligence, 7 July 2004.

³⁰ Henry A. Kissinger, “Better Intelligence Reform,” *Washington Post*, 16 August 2004: 17.

³¹ John Cooper, *Curing Analytic Pathologies: Pathways to Improved Intelligence* (Center for the Study of Intelligence, 2005), <http://www.fas.org/irp/cia/product/curing.pdf> (accessed April 2, 2007).

³² *Ibid.*

finally, and his recommendations for change (*See Table 2.1: Cooper’s Analytic Pathology, page 19*).

In effect, Cooper is calling for a top-to-bottom transformation of the analytic process in the development of a new concept for analysis. He says that the challenge has two major facets; discouraging analysts from being confidently wrong by staying closer

Table 2.1: Cooper’s Analytic Pathology		
Observations	Conclusions	Recommendations
There has been a series of serious strategic intelligence failures.	The dysfunctional practices and processes that have evolved within the culture of intelligence analysis go well beyond the classic impediments highlighted by Richard Heuer in <i>The Psychology of Intelligence Analysis</i> .	A reconceptualized set of processes and procedures (including tools, methods, and practices) for analysis.
These failures each have particular causes, but the numerous individual problems are interrelated.	More corrosively, the individual impediments form interrelated, tightly-linked, amplifying networks that result in extremely dysfunctional analytic pathologies and pervasive failure.	An integrated process for recruiting, training, educating, and professionalizing analysts based on a traditional graduate education model emphasizing close mentoring.
The Intelligence Community still relies on the same collection paradigm created for “denied areas.”	The new problems and circumstances call for fundamentally different approaches in both collection and analysis, as well as in the processing and dissemination practices and procedures that support them.	A new, more interactive process for communication between users and intelligence analysts throughout the intelligence cycle.
Analytic methods also have not been updated from those used to fight the Cold War.	Accurate diagnosis of the root causes of problems “inside the boxes” is required; otherwise remedies will be merely “band-aids.”	A fundamentally revised process for establishing “proof,” validating evidence and judgments, and reviewing those judgments.

The Intelligence Community presently lacks many of the scientific community's self-correcting features.	The Intelligence Community must bring more perspectives to bear on its work and create more effective "proof" and validation methods in constructing its knowledge.	A process for capturing the lessons of experience and advancing organizational Learning.
Intelligence analysis remains a "craft culture," operating within a guild structure and relying on an apprenticeship model that it cannot sustain.	Whatever the details of structures or authorities, the new Director of National Intelligence (DNI) leadership must assure that the corrective measures are implemented within each agency and across the community.	A process for continual collaboration and sharing.

to available information (as in the NIE on Iraqi WMD) while facilitating clear judgments on complex and often unfamiliar adversaries and their likely behavior based on fragmentary and ambiguous information (as in the circumstances leading up to the 9/11 attack).³³ Cooper goes on to say that the result of improperly addressing this challenge is an IC that "has still not made the shift to recognizing that the dominant intelligence problems are not penetrating 'denied areas,' but rather understanding 'denied minds.'"

He continues:

"[A]nalysis" needs to be construed broadly and not solely in a narrow, "reductionist" context that seeks to "know" by decomposing a phenomenon into its constituent parts and approaching it analytically only on the basis of induction from detailed evidence. Many complex phenomena may be better comprehended by approaches that are based more on synthesis—that is, understanding the larger picture—by focusing on the relationships among the parts and on the emergent behavior produced by such interactions.³⁴

Cooper's recommendations are about fostering cultural over organizational change in an attempt to affect how analysts do their job. As previously discussed, it appears that attempts to formalize the use of alternate forms of analysis through legislation and mandate has, at the very least, been challenging to institutionalize,

³³ Ibid.

³⁴ Ibid.

especially in agencies already saddled with profound structural and organizational changes. If then, for just a moment, we accept Cooper's basic premise as correct, current attempts to "fix" the IC only address part of the problem and may have only a marginal impact on improving the quality of the analysis produced. This then begs the greater question of whether or not the IC is even capable of making such a dramatic cultural shift. By best estimate, the IC has approximately 100,000 employees spread over sixteen agencies;³⁵ it is thus safe to assume that any kind of change will take considerable time. Reexamination of Cooper's six recommendations (*See table 2.1: Cooper's Analytic Pathology*) shows that, when taken individually, none of them are overly radical. Nevertheless, taken as a whole, they represent a fundamental cultural shift away from the system described in the 9/11 and WMD commissions.

Cooper's 2005 recommendations were legitimized by 2007 release of ICD-200, which shows an increasing recognition of alternative solutions to the IC's analytic shortcomings. The DDNI/A's policies and procedures as outlined in ICD-200 are based on several tenets, including the following:

The analytic process must be as transparent as possible. IC analysts must support their judgments and understand the reliability of the sources upon which they depend. Further, analysts must engage with their customers early on, and remain engaged throughout the analytic process.³⁶

ICD-200 specifies what the DNI thinks analysis should look like and it broadly matches many of Cooper's recommendation. The ICD-200 also includes the following two guiding tenets:

³⁵ Michael Hayden, "Q&A with General Michael Hayden," Q&A episode 1123 originally airing April 15, 2007, <http://www.q-and-a.org/Transcript/?ProgramID=1123> (accessed April 17, 2007).

³⁶ Office of the Director of National Intelligence, Intelligence Community Directive Number 200, Management, Integration, and Oversight of Intelligence Community Analysis, January 8, 2007.

Collaboration must become the IC norm, not the exception. Technical, policy, and cultural impediments to collaboration among analysts and between analysts and collectors must be reduced as much as possible

Collaboration must become the IC norm, not the exception. Technical, policy, and cultural impediments to collaboration among analysts and between analysts and collectors must be reduced as much as possible.

In the high stakes game of intelligence, failure to take corrective action could have reprehensible effects. But with no hard evidence that a cultural shift would positively affect change any more so than the current structural approach (which, at the very least, has an immediate and visible effect that serves as proof that the government took corrective action), is the IC at an impasse?

Perhaps theorists need to broaden their search to include an examination of systems that already adhere to a process that addresses Cooper's six recommendations and that meets ICD 200's directives in their search for evidence supporting a cultural response to the IC failures. The core of Cooper's philosophy can be found in his first recommendation that champions a "reconceptualized set of processes and procedures (including tools, methods, and practices) for analysis."³⁷ Cooper's revamped analytic process is best described using his own words:

Effective intelligence analysis requires the coupling of deep expertise with innovative approaches and intuition instead of the constraining formalism of "scientism." Although adopting methods of alternative analysis and setting up red teams are a useful start, creating a more coherent structure and a demanding, self-reflective analytic process must also involve more than calls for lateral, out-of-the-box, or non-linear thinking on the part of individual analysts. Real change must alter the very modes of thought that dominate the expectations and practices of today's users, managers, and creators of all-source analysis. Both "sensemaking" and curiosity should be basic elements of this transformed paradigm.

³⁷ John Cooper, *Curing Analytic Pathologies: Pathways to Improved Intelligence* (Center for the Study of Intelligence, 2005), <http://www.fas.org/irp/cia/product/curing.pdf> (accessed April 2, 2007).

Cooper stresses a self-reflective analytic process within cogent structure above all else. Among the basic elements of his paradigm, he cites the importance of curiosity and “sensemaking” which he describes as “the ability to perceive, analyze, represent, visualize, and make sense of one's environment and situation in a contextually appropriate manner.”³⁸

Cooper is not alone in his conclusions regarding the IC at large and analysis specifically. There are centers experimenting with novel approaches to intelligence analysis in academia as a natural outgrowth of academic engagement into the concerns of the 9/11 and WMD commissions. Mercyhurst College Institute for Intelligence Studies (MCIIS) is one such center developing an alternative analytic method. Though its discovery was largely accidental and its support to this point anecdotal, initial observations hint at this methods surprising accurate results. Originally, a by-product of academic necessity, MCIIS’s alternative theory of analysis emerged over several years of academic application. It was facilitated by the large number of students and several funded research projects, most notably for the United States Department of Defense. Over time, MCIIS has nurtured the development of this new analytic system, now known as accelerated analysis, that is characterized by a rapid production schedule, increased accountability, and structured analysis.³⁹

A Model Found

MCIIS, located on the campus of Mercyhurst College in Erie, Pennsylvania, offers undergraduate and graduate studies programs in intelligence analysis. MCIIS

³⁸ Ibid.

³⁹ Conversations between the Author and MCIIS assistant professor Kris Wheaton spanning 2006-2007.

"promotes the study of Intelligence in higher academic settings, while seeking to identify, promote, and employ best practices in the study and application of intelligence studies throughout its various disciplines (national security, law enforcement, business intelligence, and academia).⁴⁰ Originally the only school in the US offering a degree specifically designed for intelligence analysts outside of the government, MCIIS is now one of only a handful of schools committed to intelligence studies as an academic field. Not to be mistaken with programs that offer an intelligence focus as a concentration within a security studies, political science, history, or international relations program, the MCIIS curriculum is specifically designed to prepare students to pursue careers in analysis. As such, students take many classes that involve the production of mock intelligence products similar to those produced by the IC at large.⁴¹ These products range in complexity from learning to draft information summaries of current news, to short form analytic reports (SFARs) that are more or less analogous to the classic "Washington one-pager," and up to what would be considered strategic level estimates in the IC. Students typically complete several strategic-level products, the first of which is a country outlook study (COS) estimate that looks ahead twelve to eighteen months.

Mercyhurst College's involvement with the IC is not limited to academic pursuits. Through the nonprofit Center for Information Research and Training (CIRAT), the college develops contracts, grants, and partnerships that enhance the capabilities of MCIIS students, staff, facilities, and systems. CIRAT has had extensive strategic

⁴⁰ Home page of MCIIS, www.mciis.org, (accessed April 23, 2007).

⁴¹ The following discussion on topics related to MCIIS and CIRAT are based upon ongoing personal conversations between the author and Mercyhurst College Assistant Professor Kristan J. Wheaton during 2006 and 2007.

analysis contracts with the US Department of Defense (DoD), other government agencies, private industry, and law enforcement.

The COS is authored during the undergraduate “Writing for Intelligence” course typically taken by students in their junior year. While they have already been introduced to the fundamentals of research and analysis, this course focuses on writing ability (specifically the crafting of a nuanced estimative statement) while stressing the fundamentals of form, analytic confidence, creativity, accountability, and judgment of source reliability.⁴²

The academic calendar at Mercyhurst College (courses are taught over a ten-week term) artificially restricts the time allowed to students to complete one of these strategic-level products like the COS. Institute professors were forced to modify a process, as is the case for employees in the production of a National Intelligence Estimate (NIE), that analysts typically complete in three to six months while ensuring that students learned all the necessary teaching points.⁴³

Students in the writing course need to constantly create products for review in order to master the subtleties of a well-crafted intelligence estimate. Students write weekly SFARs on topics that would be familiar to any intelligence analyst⁴⁴ and, through constant feedback, they begin to master the writing style. After approximately eight weeks and twelve reports, the students then begin to synthesize that material and ultimately begin work on their overarching estimative conclusions. These conclusions

⁴² It should also be noted that all of these course projects are completed with open-source information, and as such, students become experts in internet searches (though they do have access to such notable subscription services such as Janes and Stratfor).

⁴³ Sharon Otterman, “Intelligence: National Intelligence Estimates Backgrounder” Council on Foreign Relations, <http://www.cfr.org/publication.html?id=7758#6>, (accessed April 20, 2007).

⁴⁴ Topics covered by individual SFARs generally include the government, transnational issues, geography, people, transportation, economy, military, and communications.

will materialize alongside the schema they are developing for the issues facing the country at hand.

Though born out of time constraints and academic necessity, cursory evaluations of past COSs hinted at surprising accuracy in their estimates. The rapid-paced analytic schedule of the COS process was soon thereafter adopted by other project-based term classes, specifically the capstone “Strategic Intelligence” at both the undergraduate and graduate levels. The “Strategic Intelligence” class gives students the chance to work on projects of real consequence for real world decisionmakers.

The 2003/2004 academic year “Strategic Intelligence” undergraduate class was the first class to utilize this new analytic schedule. The anecdotal evidence for this schedule’s efficacy was obvious. A decisionmaker in London’s House of Commons remarked:

“The research carried out by your students was first class, and has been of substantial use to Members of Parliament who are leading on this issue for us. It was comprehensive, well sourced and intelligently put together. I have no hesitation recommending it to our MPs and Lords in the same way that I recommend briefings provided for us by professional research organizations ...”⁴⁵

A second satisfied decisionmaker was a European Parliament member interested in cracking down on organized crime in Europe received work corroborated by a cyber-crime expert in the Netherlands who had reached the same conclusions.⁴⁶ The

⁴⁵ Personal correspondence between MCIIS and Ben Lawrence, Adviser Foreign Affairs and Defense, Liberal Democrat Whip’s Office, House of Commons, London (dated May 20, 2004).

⁴⁶ Kara Rhodes, “College Group Tracks Europe’s Security: Mercyhurst Students Present Findings to Parliament,” *Erie Times news*, March 1, 2004.

decisionmaker went on to credit the MCIIS students in his later publications on the subject.⁴⁷

Given the encouraging nature of this initial feedback, CIRAT adopted the same accelerated schedule of production for its 14-week long DoD contract work in 2004. The analytic model would be refined over the following three years as it was used exclusively in both classroom and DoD contract work. The model ultimately took on the moniker of “accelerated analysis.”

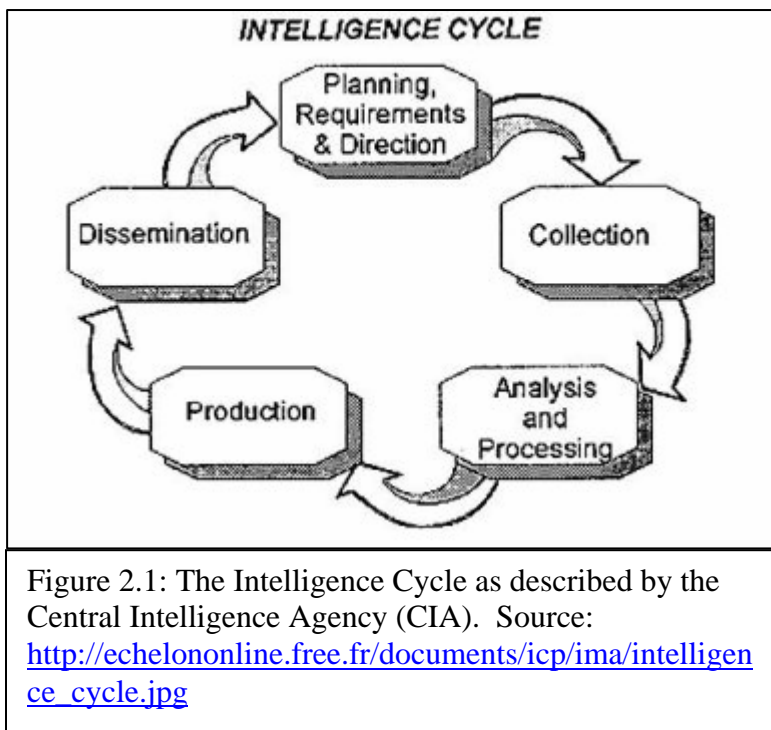
Accelerated Analysis

Born out of academic necessity and raised under the pressure of real-world contract requirements, accelerated analysis is not a specific methodology like analysis of competing hypotheses but rather an alternative analytic process. Traditional project schedules proceed as a series of linear phases, the first of which is to determine the scope of the project and the second is devoted to the project design process.⁴⁸ The third step is execution of the design, followed by final production, and only then testing of the final product (analogous to the intelligence briefing or product publication).

The major flaw in the traditional project schedule is that it assumes that the analytic team knows what it is doing at the very first step, a concept almost antithetical to intelligence analysis. If the intelligence target were clearly understood from the start, there would be no need for additional analysis or estimates. Furthermore, this model is

⁴⁷ Bill Newton-Dunn, “Europe needs an FBI,” Pamphlet by Bill Newton-Dunn, <http://www.newton-dunn.com/press-releases/eu-needs-fbi.htm> (accessed April 23, 2007).

⁴⁸ The following discussion on the traditional project schedule is based upon Leisa Reichelt’s presentation “Waterfalls Bad, Washing Machine Good” at the Information Architecture Summit 2007, <http://www.disambiguity.com/waterfall-bad-washing-machine-good-ia-summit-07-slides/> (accessed April 4, 2007).



constructed out of sequential discrete phases and does not allow for the easy return to the design phase if it was later found to be flawed (i.e., based upon an incorrect initial assumption). It would seem natural that the estimative judgment

process is linear as it reflects the greater intelligence cycle. The cycle is usually explained using a misleading circular diagram, because if you follow the five steps in the traditional model, there is no ready system for feedback or modification once the cycle is initiated.⁴⁹ Therefore, for all intents and purposes, the intelligence cycle is linear.

Perhaps a more illustrative example would be that of a waterfall; once the decision is made to ride your barrel over the edge, there is no turning back. The result of the waterfall schedule can be characterized by comments similar to the following:

‘I never thought I had enough information to do a good job,’ ‘The decisionmaker really didn’t understand the strategy I employed,’ ‘It was a cool idea, but turned out we couldn’t technically do it,’ and the infamous ‘By the time the product was delivered, it looked completely different than the decisionmaker had envisioned.’⁵⁰

⁴⁹ United States Intelligence Community, “The Business of Intelligence,” <http://www.intelligence.gov/2-business.shtml> (accessed May 1, 2007).

⁵⁰ “Waterfalls Bad, Washing Machine Good” at the Information Architecture Summit 2007, <http://www.disambiguity.com/waterfall-bad-washing-machine-good-ia-summit-07-slides/> (accessed April 4, 2007).

Accelerated analysis as an alternative style of project scheduling and structure is more analogous to a washing machine than waterfall.⁵¹ A washing machine operates by repeating the same basic process many times over. While the water temperature or speed of the cycle may vary, the repetitive tumbling ultimately gets the job done. Accelerated analysis is a far more agile and responsive structure characterized by iteration of simple processes that build analysis rather than create it. It utilizes a constant feedback loop between decisionmaker, project management, and analyst that allows for constant re-evaluation and adjustment of the project's course by quickly destroying bad ideas before they gain momentum.

Models already exist that reflect the successes capable under accelerated working conditions. There are two fields in particular that have widely adopted similar schedules and structure. In the world of software programming, the concept is called extreme programming (XP) and is rapidly gaining industry acceptance and momentum. XP differs from traditional programming methodologies primarily by placing a higher value on adaptability than on predictability.⁵² In the software world, XP is noted to have an uncanny ability to jointly “reduce project risk, improve responsiveness to changing/vague requirements, and allow a system to grow naturally while at the same time facilitating an enjoyable development environment.”⁵³

⁵¹ Much like the waterfall analogy, the washing machine illustration is the product of Leisa Reichelt's presentation “Waterfalls Bad, Washing Machine Good” at the Information Architecture Summit 2007, <http://www.disambiguity.com/waterfall-bad-washing-machine-good-ia-summit-07-slides/> (accessed April 4, 2007).

⁵² “Extreme Programming,” Wikipedia, http://en.wikipedia.org/wiki/Extreme_Programming (accessed April 23, 2007).

⁵³ Bill Pyritz, “Extreme Programming in the Telecommunications Domain,” *Bell Labs Technical Journal* 8 (2003): p97-100, <http://web.ebscohost.com.ezproxy.mercyhurst.edu/ehost/pdf?vid=7&hid=108&sid=d61246d1-60e7-4cde-877b-c495c0c57392%40sessionmgr107> (accessed April 17, 2007).

XP consists of twelve practices derived from four values that can be summarized as follows:

- *Communication.* Direct personal communication is valued over more impersonal forms. This does not imply that documentation is ignored or not produced where required; rather, it refers to the fact that personal communication is the preferred mode.
- *Feedback.* Concrete feedback is valued over optimism or intuition. For example, working code provides much better feedback than a documented model or a set of Unified Modeling Language (UML) diagrams packaged with the latest modeling and drawing tools.
- *Simplicity.* The simplest thing that can work is valued over complex, clever solutions that attempt to plan for future possibilities. XP values making what is known about the system work in the simplest way possible and refactoring when new requirements emerge.
- *Courage.* Developers can feel free to go fast, throw code away, and/or restructure because the system is designed in the simplest way possible and a set of automated tests is always at hand for validation.⁵⁴

The twelve practices are summarized by the following associative terms: planning, small releases, metaphor, simple design, testing, refactoring, pair programming, collective code ownership, continuous integration, 40-hour week, on-site customer, and coding standard.⁵⁵

The second industry beginning to adopt accelerated scheduling is manufacturing. Rapid prototyping (RP) is a way to help get products to market faster and has seen considerable use within the medical device manufacturing industry. RP specifically helps achieve faster design cycles by speeding up prototype part fabrication:

[D]riven by the need to reduce product development time and cost while providing critical performance feedback and documentation during

⁵⁴ Ibid.

⁵⁵ Ibid.

virtually every phase of development and production—from design to review to manufacture.⁵⁶

RP enables engineers to assess critical design factors such as ergonomics and aesthetics early in the process while decreasing the time spent in the modeling process.⁵⁷ RP is also cited as helping the non-technical side of production by “improving communication between design teams and management as well as with customers.”⁵⁸

While software engineering and medical device manufacturing are worlds distant to that of intelligence analysis, a number of core tenets carryover from XP and RP to accelerated analysis. All three are based on iterative rather than sequential steps, aid in facilitating communication between interested parties (specifically when stressing the importance of feedback), and decrease the time spent on task while improving quality.

Accelerated Analysis and the Strategic Estimate

Strategic level intelligence projects have proven ideal for the use of accelerated analysis by MCIIS and CIRAT. Because accelerated analysis is an iterative process, analysts typically spend approximately the first 80 percent of their time on the project conducting a series of “analytic wind sprints” wherein they produce short form reports on different, though ultimately interrelated, topics. In the MCIIS example, students are working on individual COSs; they receive feedback on analytic rigor and the rationality of their analysis after each cycle, a process that forces early analytic judgments. While these early estimates may never be included in the final estimate they serve the very real

⁵⁶ Jeff Kane, “The Art and Science of Rapid Prototyping,” *Medical Design Technology Magazine* (September 2006), <http://www.mdtmag.com/scripts/ShowPR.asp?PUBCODE=046&ACCT=0005182&ISSUE=0609&RELTYP=PR&PRODCODE=0400&PRODLETT=A> (accessed April 19, 2007).

⁵⁷ Ibid.

⁵⁸ Ibid.

purpose of establishing points of reference while avoiding the pitfall of “confirmation bias.” Furthermore, the iterative process helps prevent the analyst from misinterpreting the estimative question itself or avoiding a scenario in which the decisionmaker is not sure of the exact question them self. A clear estimative question serves as the focusing tool for the analyst so that they know information is relevant and interesting, while not being distracted by equally interesting, but irrelevant information.

While it may sound counter-intuitive, studies suggest that after a certain point of collecting information, analysts start to see all information as confirmatory and disregard alternative information as irrelevant.⁵⁹ This effect is called “confirmation bias” in the study of heuristics and biases in cognitive psychology, and it describes how people tend to seek confirming but not falsifying evidence.⁶⁰ When a belief is “emotionally charged,” such as in a political argument, the effect is larger and more resistant to change than if it involved a neutral topic:

Clearly, in many circumstances, the desirability of believing a hypothesis may markedly influence its perceived support... Kunda (1990) discusses how people who are motivated to reach certain conclusions attempt to construct (in a biased fashion) a compelling case for their favored hypothesis that would convince an impartial audience. Gilovich (2000) suggests that conclusions a person does not want to believe are held to a higher standard than conclusions a person wants to believe. In the former case, the person asks if the evidence *compels* one to accept the conclusion, whereas in the latter case, the person asks instead if the evidence *allows* one to accept the conclusion.⁶¹

Towards the end of the first eight weeks, analysts typically will have dug just deep enough into the various facets of the country at hand to be comfortable with a

⁵⁹ Elizer Yudkowsky, “Cognitive Biases Potentially Affecting Judgment of Global Risks,” forthcoming in *Global Catastrophic Risks*, eds. Bostrom, Nick and Cirkovic, Milan, <http://www.singinst.org/ourresearch/publications/cognitive-biases.pdf> (accessed April 24, 2007).

⁶⁰ Ibid.

⁶¹ Ibid.

collection of approximately twelve estimative reports. From here, the student looks across these completed estimates and determines whether there is a ninth and emergent capstone finding. In the case of the COS, this is a general estimate regarding the probable course of the country over the next twelve to eighteen months. Because this final analysis draws from research and analysis covering a wide range of interrelated topics, the student is expected to appropriately nuance the estimate to reflect the constituent “who, what, where, when, why, and how” and thus giving the decisionmaker specific and actionable intelligence.

That being said, nuance is a difficult concept to pin down. Most commonly defined as a “subtle difference or distinction in expression, meaning, response, etc.,”⁶² nuance, or lack thereof, is what allowed an estimate like “Bin Laden Determined to Strike in US”⁶³ go, arguably, unheeded. So then, what is nuance? Specifically, estimative nuance? Perhaps it is like Potter Stewart’s famous definition of pornography: “I know it when I see it.” Accepting that definition for the arguments sake could the following hypothetical estimate be considered well nuanced? “US GDP is likely to increase.” If you were to follow the six principle tenets of good journalism, ““who, what, where, when, why, and how” the “who” is GDP (allowing for some degree of personification), the “what” is its increase, and US is “where.” Adding “when” to the estimate certainly increases its nuance (US GDP is likely to increase in the fourth quarter of 2006), but tells the decision maker nothing about why or how this will occur, which arguably is every bit as important as the core estimate. A final incarnation of a well-nuanced estimate that includes the “why” and “how” might read like this Bolivian COS example from 2005:

⁶² Dictionary.com, “Nuance,” <http://dictionary.reference.com/browse/nuance> (accessed April 18, 2007).

⁶³ U.S. Department of state, “Declassified Intelligence Briefing- PDB of August 6, 2001,” <http://fpc.state.gov/fpc/31435.htm> (accessed April 18, 2007).

“It is likely that Bolivian oil and natural gas exports will significantly decrease through the next year greatly affecting the Gross Domestic Product (GDP), despite discovery of new reserves. The decrease is due to political parties influencing a discontented population to support national control of oil and natural gas production”

Now the decision maker can anticipate a specific amount of growth (the how) and its cause (the why).

Of course, the estimate simply predicting growth compared to its fully nuanced version has a much greater probability of proving accurate, introducing one of the greatest challenges of writing an estimate that provides both actionable and accurate information. Thanks to the multiplicative law of probability, adding caveats to an estimate decreases the likelihood of it being accurate, however those caveats are exactly the information decision makers want.

As analysts add nuance to their estimates, they are by definition forced to move away from making predictions that are so vague as to ensure accuracy. The ability, then, to capture the level of nuance in an estimative statement allows for some broad comparisons of accuracy between groups of analytic products with some minimal assurance that vague estimates are not unfairly skewing the results of one group over another.

The six-point nuance scale is fully explained in Chapter III: Methodology, though the scale itself is rather simple. As previously mentioned, a working definition of a well nuanced estimate is one that contains the six principle tenets of good journalism. In this research, an estimative statement was awarded one point for each “who, what, where, when, why, and how?” question it answered.

Though the hypothetical “US GDP” example of an estimative statement that scored a six on the nuance scale was discussed earlier in this chapter, comparison of actual estimates may help further clarify the point at hand (please note that the estimative time frame for all COS is always twelve months). The following excerpt was taken from a COS on Liberia dated November 5, 2004:

It is highly likely that the Ministry of Post and Telecommunication (MPT) will continue to use its regulatory framework to hinder any private attempts to develop Liberia’s cellular telephony market.

This estimate addresses each of the six questions and reads much differently than one that scores a three out of six (from the same estimate on Liberia):

It is also highly likely that religious conflict, most notably between Christians and Muslims, will sharply increase in the next year.

This is the point where an astute critic might recognize the potential for a serious flaw in the accelerated analysis: How could a student, who is not an expert in the given country (let alone any other subject matter), possibly learn enough about the topic to make a truly nuanced, and subsequently useful, strategic estimate?

How You Think Matters

According to research conducted by Philip Tetlock analyzing geopolitical predictions, experts are surprisingly dismal at correctly estimating the likelihood of future events.⁶⁴ Beginning in the 1980s, Tetlock surveyed professional experts (people who “made their living by commenting or offering advice on political and economic trends of

⁶⁴ Philip Tetlock, *Expert Political Judgment* (Princeton: Princeton University Press, 2005), 2.

significance to the well-being of particular states, regional clusters or states, or the international system as a whole”⁶⁵) and asked them to make predictions about future events both within and outside their area of expertise. The results were humbling: the experts did no better at predictions in their field of study than “dilettantes,” experts from other fields who were just drawing on their general knowledge.⁶⁶ Amazingly enough, some experts did substantially worse than the dilettantes.⁶⁷ Tetlock found that:

The moderately attentive reader of good newspapers can do as well as someone who devotes many years of study to predicting whether, say, Chinese growth rates will continue or Japan's Nikkei index is going up.⁶⁸

Additionally, experts fall victim to confirmation bias just as readily as anyone else does. As experts, they simply have more information and are thus able to more readily weave a more convincing yarn.⁶⁹

The effect of confidence bias is quantifiable in experts. In a preliminary study released six years before the landmark “Expert Political Judgment,” Tetlock found that “Across all seven predictions, experts who assigned confidence estimates of 80 percent or higher were correct only 45 percent of the time.”⁷⁰ Similarly, the predictions made with 90 percent confidence were correct only 59 percent of the time, while the predictions that the experts made with absolute certainty were correct only 70 percent of the time.⁷¹

⁶⁵ Ibid, 252.

⁶⁶ Ibid, 54

⁶⁷ Ibid, 56

⁶⁸ Ibid, 56.

⁶⁹ Pat Regnier, “Why You Can’t Believe Predictions,” CNNMoney, http://money.cnn.com/magazines/moneymag/moneymag_archive/2006/07/01/8380756/index.htm (accessed April 21, 2007).

⁷⁰ Philip Tetlock, “Theory-Driven Reasoning about Plausible Past and Probably Futures in World Politics: Are We Prisoners of Our Preconceptions?” *American Journal of Political Science* 43 (1990): 335-366.

⁷¹ Tetlock, personal communication to Steven Reiber, “Intelligence Analysis and Judgmental Calibration,” *International Journal of Intelligence and Counterintelligence* 17 (2004): 97-112.

Tetlock found that those experts who were more accurate than others were “not clustered along the lines that partisans of the left or right, or of fashionable academic schools of thought, expected. *What* experts think matters far less than *how* they think.”⁷²

Then what characterizes someone who is proficient in his or her political judgment?

Tetlock offers the following hypothesis:

If we want realistic odds on what will happen next, coupled to a willingness to admit mistakes, we are better off turning to experts who embody the intellectual traits of Isaiah Berlin’s prototypical fox—those who “know many little things,” draw from an eclectic array of traditions, and accept ambiguity and contradictions as inevitable features of life—than we are turning to Berlin’s hedgehogs—those who “know one big thing,” toil devotedly within one tradition, and reach for formulaic solutions to ill-defined problems.⁷³

How does this apply to MCIIS students? Would fox-like cognitive styles account for any of the anecdotal evidence supporting the quality of their strategic estimates? One thing can be readily agreed upon: MCIIS students are unlikely to be considered hedgehogs. Some of them may have amassed a relatively large amount of knowledge in certain areas though most have celebrated fewer birthdays by double digits than the average respondent in Tetlock’s study has had years of relevant work experience (12.2 years with a standard deviation of 4.7).⁷⁴

Unfortunately, determining MCIIS’ aggregated “fox” or “hedgehog” status requires more than a simple process of elimination; however, closer examination of the Institute’s guiding philosophy will indicate a possible connection. Firstly, MCIIS’ goal is not to graduate subject matter experts. As described on the Institute’s home page, the undergraduate program:

⁷² Philip Tetlock, *Expert Political Judgment* (Princeton: Princeton University Press, 2005), 2

⁷³ Ibid.

⁷⁴ Philip Tetlock, *Expert Political Judgment* (Princeton: Princeton University Press, 2005), 239

Combines a liberal arts core with a foreign language requirement, national and international studies, multiple internships, and ten intelligence-related courses to provide its graduates with an advanced level of analytical skills. The Intelligence Studies degree is designed to provide the necessary background for students to pursue careers as research and/or intelligence analysts in government agencies and private enterprise. The work of these analysts, whether relating to national security or criminal investigative activities, involves the preparation of assessments based on the collection, correlation, and analysis of intelligence data.

Accordingly, successful Intelligence Studies candidates are described as having:

- An inquiring mind, an interest in history, government and world around them and be an avid reader and have the ability to communicate.
- A desire for a career which will permit an outlet for interests and knowledge while allowing active participation in issues of our time as a well-paid professional.
- An attitude of self motivation and a commitment to personal development and knowledge necessary to attain professional skills.
- The willingness to work successfully alone and/or in a team environment.
- The ability to gain and maintain a 3.0 average by the sophomore year.
- The willingness not abuse alcohol, stay drug and crime free and be financially responsible.

Upon graduation; Intelligence Studies students will possess:

- Analytical skills that are applicable to the national security, law enforcement, and business communities.
- Reading competency in a foreign language.
- A broad understanding of world and American history and politics.
- The ability to produce written and oral reports and assessments based on research, correlation, and analysis.
- A familiarity with computer operations, database management, and analytical software.
- General understanding of statistics, finance, and general techniques.

The graduate program reflects a similar philosophy in its recruitment and curriculum:

The Master of Science in Applied Intelligence is a thirty-three credit program designed to provide a theoretical and practical framework for the study of intelligence and its application in a wide variety of contexts. This is accomplished through a rigorous curriculum that includes a basic core, which exposes students to the fundamental and advanced concepts and analytic techniques related to intelligence, and a set of elective courses that allows the student to pursue study in areas of law enforcement,

national security, and competitive intelligence. The ideal candidate for the Applied Intelligence program possesses some formal training in foreign languages, political science, history, statistics, and computer applications.

Upon completion of the Master of Science degree program in Applied Intelligence, students will be expected to:

- Demonstrate a broad understanding of the intelligence cycle. Students will be expected to prepare numerous assessments based on the collection, correlation, and analysis of intelligence data.
- Perform extensive research using print and open source materials that require collection, correlation, and analysis.
- Communicate through written and oral reports and assessments based on the research and analysis they have conducted.
- Demonstrate the ability to use statistical research techniques.
- Demonstrate a familiarity with computer operations and database management as related to the intelligence cycle.
- Make sound decisions based on analytical ability, critical thinking, and understanding of situational complexity and historical perspective.
- Demonstrate an appreciation for cultural, political, and philosophical difference.
- Possess a reading competency in a foreign language.

MCIIS recruitment focuses on wide range of candidates while its curriculum continues a philosophy that stresses how to conduct broad-based analysis over educating experts in any one arena. This qualitative evidence supports that notion that MCIIS students are more likely to exemplify fox-like characteristics on average. Tetlock expands on the prototypical fox-hedgehog dichotomy by noting that:

The intellectually aggressive hedgehogs knew one big thing and sought, under the banner of parsimony, to extend the explanatory power of that big thing to “cover” new cases; the more eclectic foxes knew many little things and were content to improvise ad hoc solutions to keep pace with a rapidly changing world.⁷⁵

Tetlock determined where an expert fell on the fox-hedgehog scale style by administering a 13-question cognitive style test.⁷⁶ Unfortunately, this data is unavailable for current MCIIS students. However, a 2007 experiment identified the personality types of MCIIS

⁷⁵ Philip Tetlock, *Expert Political Judgment* (Princeton: Princeton University Press, 2005), 21

⁷⁶ Philip Tetlock, *Expert Political Judgment* (Princeton: Princeton University Press, 2005), 74

students using the Myers-Briggs type indicator (MBTI) and found that the program does attract some certain personality types more than others do:

Essentially, the program attracts individuals who are sociable, have broad interests, and take initiative (Extraversion qualities). They also tend to be imaginative, pattern-oriented, and have an inclination to focus on the big picture (Intuition qualities). Moreover, they are naturally analytic, logical, and objective, with a desire to critique situations and solve problems (Thinking qualities). It seems appropriate that individuals with these characteristics are attracted to, and remain in, the Intelligence Studies program since much of the existing literature describes the “ideal” analysts having these qualities, particularly the qualities associated with the Thinking preference.⁷⁷

The MBTI measures personality type by assessing an individual’s preference across the four dichotomies that, according to Myers-Briggs typology, comprise the human personality: Extraversion versus Introversion (E–I), Sensing versus Intuition (S–N), Thinking versus Feeling (T–F), and Judging versus Perceiving (J–P).⁷⁸ MBTI theory states that everyone has a natural tendency for one of the two opposites for each dichotomy,⁷⁹ creating an overall personality type that tends to stay constant throughout life.⁸⁰

On average, the Intelligence Studies program is populated with students who are best described as ENTP or ENTJ personality types.⁸¹ According to the *MBTI Manual: A*

⁷⁷ Stacy Gilchrist, “Identifying Personality Types of Intelligence Analysts Using the Myers-Briggs Type Indicator” (MA thesis, Mercyhurst College, 2007), 61-71.

⁷⁸ Otto Kroeger and Janet M. Thuesen, *Type Talk at Work*. (New York, NY: Delacorte Press, 1992), 16.

⁷⁹ Isabel Briggs Myers, *MBTI Manual: A Guide to the Development and Use of the Myers Briggs Type Indicator* (Palo Alto, CA: Consulting Psychologists Press, Inc., 1998), 6.

⁸⁰ Naomi L. Quenk, *Essentials of Myers-Briggs Type Indicator Assessment*. (New York, NY: John Wiley & Sons, Inc., 2000), 79.

⁸¹ Stacy Gilchrist, “Identifying Personality Types of Intelligence Analysts Using the Myers-Briggs Type Indicator” (MA thesis, Mercyhurst College, 2007), 61-71.

Guide to the Development and Use of the Myers-Briggs Type Indicator,⁸² these personality types can best be described as:

ENTP – Quick, ingenious, stimulating, alert, and outspoken. Resourceful in solving new and challenging problems. Adept at generating conceptual possibilities and then analyzing them strategically. Good at reading other people. Bored by routine, will seldom do the same thing the same way, apt to turn to one new interest after another.

ENTJ – Frank, decisive, assume leadership readily. Quickly see illogical and inefficient procedures and policies, develop and implement comprehensive systems to solve organizational problems. Enjoy long-term planning and goal setting. Usually well informed, well read, enjoy expanding their knowledge and passing it on to others. Forceful in presenting their ideas.

While neither the ENTP nor ENTJ personality type descriptions corresponds perfectly to the prototypical cognitive style of a fox, they are the closest fit of the sixteen possible personality types scored in the MBTI. The parallels include being resourceful in solving new and challenging problems (by drawing on their “eclectic array” of resources), adept at producing conceptual possibilities, and quickly sees illogical and inefficient procedures and policies (as opposed to expanding the explanatory power of one big thing).

Alternatives Solutions for Transforming Analysis Revisited

Accelerated analysis meets the requirements mandated by 2007’s ICD-200 and detailed by Cooper’s in his first of six recommendations for restoring the IC’s capability to perform effective analysis, i.e. establishing a “reconceptualized set or processes and procedures (including tools, methods, and practices) for analysis” characterized by a

⁸² Myers, *MBTI Manual*, 64.

“coherent structure and a demanding, self-reflective analytic process.”⁸³ If accelerated analysis addresses the five remaining recommendations, then this should serve as still further evidence that accelerated analysis is a possible alternative to the current ad hoc system governing the majority of IC strategic analysis (*see the “Recommendation” column in Table 2.1: Cooper’s Analytic Pathologies*).

Cooper’s second recommendation stresses the importance of “an integrated process for recruiting, training, educating, and professionalizing analysts based on a traditional graduate education model emphasizing close mentoring.”⁸⁴ This recommendation generally describes the MCIIS academic program as previously outlined in this chapter. The Intelligence Studies curriculum is far more similar to the graduate style of education, with students routinely working on project-based courses under the close watch of professors, than to the more traditional lecture-based undergraduate curriculum. Through CIRAT, the research and contracting arm of the institute, students get exposure to real-world contracts and research in the burgeoning academic field of intelligence studies.

The third recommendation calls for “a new, more innovative process for communication between users and intelligence analysts throughout the intelligence cycle.”⁸⁵ Accelerated analysis allows for the integration of user feedback for successful product development at any point in the iterative process, and in that spirit, MCIIS has made considerable use of “wikis” for sharing intelligence. During the winter of 2006/2007, graduate students under contract with the NIC produced the 2007 National

⁸³ John Cooper, *Curing Analytic Pathologies: Pathways to Improved Intelligence* (Center for the Study of Intelligence, 2005), <http://www.fas.org/irp/cia/product/curing.pdf> (accessed April 2, 2007).

⁸⁴ Ibid.

⁸⁵ Ibid.

Intelligence Estimate on Chronic and Infectious Disease exclusively in “wiki” form.

MCIIS products have also responded to decisionmaker’s increasing preference for visual products and move away from purely text-based reports.⁸⁶ This shift can be seen in products as simple as one-page reports that include applicable graphics all the way up to electronic graphical user interfaces for the navigation of larger strategic level products. Beyond the obvious inclusions of maps or photographs, other steps have been taken to make documents as readable as possible and those include the choice of specific fonts, text sizes, and margins that all maximize readability.⁸⁷

A fourth key recommendation is to include “a fundamentally revised process for establishing ‘proof,’ validating evidence and judgments, and reviewing those judgments.” The existing IC model relies primarily on analyst self-checking followed by a hierarchical review process. Accelerated analysis differs in that the system is iterative. The product is reviewed and any flawed analysis requires only that individual cycle to be repeated. Most serious flaws in judgment are likely to be caught before they can escape that cycle and overwhelm the system.

Furthermore, accelerated analysis requires analysts to be accountable to their estimates by explicitly ranking (typically on a scale of one to ten (one being the lowest)), their analytic confidence and source reliability in an effort to reinforce transparency in analysis. Analytic confidence represents the analyst’s confidence in his or her own conclusions. Source reliability ranks confidence in the quality of the evidence. This creates less ambiguous standards for accountability and subsequently increases quality. This heavy emphasis on transparency was the centerpiece of an influential 2005 article

⁸⁶ Michael Schrage, “What Percent is ‘Slam Dunk’?” *Washington Post*, February 20, 2005, B01.

⁸⁷ Conversations between the Author and MCIIS assistant professor Kris Wheaton spanning 2006-2007.

written by Michael Schrage in the Washington Post titled “What Percent Is ‘Slam Dunk’?” Schrage argues that:

These two little numbers would provoke intelligence analysts and intelligence consumers alike to think extra hard about analytical quality, creativity and accountability. Policymakers could swiftly determine where their analysts had both the greatest -- and the least -- confidence in their data and conclusions. Decision-makers could quickly assess where "high confidence" interpretations were based on "low-confidence" evidence and vice versa. That's important information for decision-makers to have. Then their ability to push, prod and poke the intelligence community would be firmly grounded in their own perception of the strength and weakness of the work coming out of it.⁸⁸

Further support for transparency in analysis comes courtesy of ICD-200 which states:

Sound tradecraft, such as transparency and logical argumentation, is essential; without it, collaboration will be difficult and customers will lack confidence in IC judgments ... The analytic process must be as transparent as possible. IC analysts must support their judgments and understand the reliability of the sources upon which they depend.⁸⁹

The fifth recommendation calls for “a process for capturing the lessons of experience and advancing organizational learning.” Most strategic level estimates produced under the accelerated analysis system at MCIIS include a process report as part of the deliverable to the decisionmaker. The process report captures lessons learned and explains the analytic methodology to the decisionmaker while providing a reference and guide to future projects. These additional reports also “furnish objective evidence of the utility of tools and methodologies and their suitability for addressing various kinds of problems.” As a former analyst and thoughtful observer of the analytic process has written:

⁸⁸ Michael Schrage, “What Percent is ‘Slam Dunk’?” *Washington Post*, February 20, 2005, B01.

⁸⁹ Intelligence Community Directive Number 200, Management, Integration, and Oversight of Intelligence Community Analysis, January 8, 2007.

The identification of causes of past failure leads to kernels of wisdom in the form of process modifications that could make the intelligence product more useful. A more effective, more accurate intelligence capability may still be vulnerable to the cognitive and institutional pathologies that cause failure, but a self-conscious and rigorous program based on the lessons derived from the existing literature would strengthen the intelligence product.⁹⁰

The final recommendation advocates for the “continual collaboration and sharing.” Not surprisingly, the suggested remedies for improving collaboration have thus far been centered on the establishment of new directive authorities to mandate coordination and collaboration (generally through building or improving supporting technical information infrastructure).⁹¹ Effective collaboration, though, is “fundamentally a matter of culture and values.”⁹² MCIIS recognizes the importance of this value and agrees that effective collaboration is an integral component of any student’s success in the Intelligence studies program. Course curriculums reinforce the importance of these skills through seminar and lecture while many of the projects are team-based.

The Question Begged

There was general agreement between politician and citizen alike that the intelligence failures surrounding 9/11 and Iraqi WMD made it clear that the IC had serious and perhaps fundamental, flaws that would need to be immediately addressed. While a majority of stakeholders agreed that structural and organizational changes would prepare the IC for the 21st century, there were, and continue to be, critics who believe the

⁹⁰ Stephen Marrin, “Preventing Intelligence Failures by Learning from the Past,” *International Journal of Intelligence and Counterintelligence*, 2004.

⁹¹ John Cooper, *Curing Analytic Pathologies: Pathways to Improved Intelligence* (Center for the Study of Intelligence, 2005), <http://www.fas.org/irp/cia/product/curing.pdf> (accessed April 2, 2007).

⁹² Ibid.

focus on structure in the IRTPA and ICD-1, is equally, and as fundamentally, flawed. The common concern is that the IC's illness was misdiagnosed as a primarily bureaucratic flaw when in fact the correct pathology stems from dysfunctional behaviors and practices within individual agencies. Therefore, no amount of restructuring or reorganizing of the IC at large will provide a cure.

At least partly inspired by the ICs repeat failure in Iraq, papers like Cooper's "Curing Analytic Pathologies," offered an initial concept for incorporating alternative solutions into the cure for the IC's ailments. The DNI mandated these changes in ICD-200 with its broad call for transparency, recognition of reliability, and collaboration. Armed with six different pathways to improved intelligence analysis, Cooper outlined a system that reflects the current state of alternative thinking and is very much in harmony with the parallel evolution of MCIIS on intelligence analysis.

This then begs the question of whether accelerated analysis, with its restrictions and limits (including time, money, and subject matter expertise) when compared to the NIE., suggests a way forward, a way to actually do what Cooper is talking about in theory?

The most obvious way to answer this question would be to compare the accuracy of each group of estimates. There are surprisingly few attempts at measuring accuracy in the IC. Firstly, the vast majority of the intelligence products are classified. There are, however, several hundred NIEs spanning nearly six decades that were declassified in 2006 and 2007, without which this project would have been impossible. They are almost entirely single-country focused and are comparable in scope to the COSs produced by MCIIS. Their consistency across time is also remarkable as an estimate from an NIE

from 1948 on China reads similarly to one written in 1990 on Yugoslavia and both read like a COS estimate written in 2005. As evidence of these similarities across COSs and NIEs and between NIEs, please see the following examples:

2005	COS	Kazakhstan	Based on the finding of the Kashagan oil field and depths of the Tengiz and Karachaganak oil fields, it is probable that foreign investments into Kazakhstan's oil sector will increase throughout the next ten to fifteen years despite investor clashes with the Kazakh government.
2005	COS	Bolivia	It is likely that Bolivian oil and natural gas exports will significantly decrease through the next year greatly affecting the Gross Domestic Product (GDP), despite discovery of new reserves. The decrease is due to political parties influencing a discontented population to support national control of oil and natural gas production.
2004	COS	Liberia	Demand for cellular services in Liberia will likely increase in the next few years because of the end of the civil war, Liberia's inadequate fixed line facilities, international aid, and recent international investments in Liberian cellular facilities
2004	COS	Uzbekistan	It is highly likely that the Uzbek government will continue to suppress the media despite a law passed in 2002 banning censorship. Factors contributing to increased media suppression include journalists increasingly face danger when reporting critical information about Uzbekistan, the Uzbek government is tightening its grip on various forms of media, and self-censorship remains prevalent due to state-controlled media
1949	NIE	China	In addition, US interests probably will be affected adversely by the expansion of Communist influence throughout the Far East, particularly if a Chinese Communist regime gains seats on the Far Eastern Commission and the Allied Council for Japan, and acquire China's claims regarding a future Japanese Peace treaty.
1954	NIE	Vietnam	Communist activities in North Vietnam will be concentrated upon consolidation of Communist control, with their efforts in this respect probably appearing moderate at the outset.
1961	NIE	Yugoslavia	While cautious experimentation will continue, the distinctive internal system which the Yugoslavs have developed is unlikely to undergo substantial changes in the next several years.
1979	NIE	Yugoslavia	We remain fairly confident that Tito's passing, in and of itself, will not during the first six months or so pose a threat to the integrity or independence of the Yugoslav state.
1983	NIE	Yugoslavia	But, short of the worst case, the Soviets will not pull out all the economic stops to destabilize the country because it would almost certainly be seen by the Yugoslav people, its leaders, and its military forces as an act of de facto aggression against Yugoslavia.

1990	NIE	Yugoslavia	Although elsewhere in Eastern Europe economic and political reform will be interdependent, Yugoslavia's future will be decided by political and ethnic factors.
2002	NIE	Iraq	Iraq is continuing, and in some areas expanding, its chemical, biological, nuclear and missile programs contrary to UN resolutions.

However, there are several challenges to measuring accuracy in intelligence estimates and the consensus has thus far been near universal in denying even the possibility that it could be accurately done. Neither the ODNI's analytic integrity and standards staff nor the Undersecretary of Defense/Intelligence uses it as a metric for analytic quality. One common argument against measuring accuracy is that:

Intelligence analysis can influence what American national security policymakers decide to do, and what they do has the potential to prompt or preclude actions of other international actors, an accuracy yardstick would not effectively capture the quality of the analysis. For example, if CIA predicts that a terrorist bombing is imminent and policymakers implement security procedures to deter or prevent this incident based on CIA warnings, then the intelligence prediction will be inaccurate even though it helped prevent the bombing. This causal dynamic exists for all intelligence issues—including political, economic, and scientific--due to the nature of the intelligence mission. Therefore, post-hoc assessment of intelligence accuracy may not provide a true sense of the accuracy of the intelligence.⁹³

While this is a compelling argument, it makes more sense when evaluating the accuracy of a single estimate as opposed to the aggregate accuracy of a group of estimates. How then do other industries measure quality, specifically those that employ knowledge workers? According to Babson College professor and Accenture Fellow Thomas

⁹³ Stephen Marrin, "CIA's Kent School: A Step in the Right Direction" (MA thesis, University of Virginia, 2002).

Davenport, “the only means of assessment are typically subjective—asking other people to assess quality.”⁹⁴

Output measures have become the classic approach to evaluating process. However, Davenport believes that it is too easy for organizations to refer “vaguely to improved knowledge work performance” without also giving any specific measures or numerical targets. Here, the researcher can rely upon the law of large numbers to cancel out the idiosyncratic case-specific causes for evaluation or objectivity errors.⁹⁵ The law of large numbers is a foundational principle of statistics and can be traced back to the eighteenth century and such noteworthy mathematicians as Bernoulli and Poisson, who wrote “All manner of things are subject to a universal law that we may call the law of large numbers ... :if we observe a large number of events of the same nature, dependent upon constant causes and upon causes that vary irregularly ... we will find the ratios between the numbers of these events are approximately constant.”⁹⁶

The overwhelming rationale in this research for allowing the measurement of accuracy is that the actual accuracy of the estimates is unimportant. While the percentages reflecting who got what wrong or right will certainly be intriguing, there is no denying that a considerable amount of error will undoubtedly creep into the process. What are important, then, are the differences between the two sets of measurements.⁹⁷ Assuming that the researcher made comparable errors of evaluation for both groups and any inconsistencies specific to individual estimates are balanced out by the law of large numbers, the telltale sign that accelerated analysis is an appropriate method for

⁹⁴ Thomas Davenport, *Thinking for a Living* (Boston: Harvard Business School Press, 2005), 48-52.

⁹⁵ *Ibid.*

⁹⁶ As quoted by Philip Tetlock, *Expert Political Judgment* (Princeton: Princeton University Press, 2005), 239.

⁹⁷ Thomas Davenport, *Thinking for a Living* (Boston: Harvard Business School Press, 2005), 48-52.

conducting strategic level analysis would be finding a level of accuracy in the COSs comparable to the NIC's NIEs.

One of the most important similarities between COS and NIE estimates are their use of either words of estimative probability (WEPs) or words of absolute certainty (WACs). These are the only statements in which a researcher can measure accuracy because they contain true estimative judgments intended to be understood as such by decisionmakers. Despite their utilitarian nature, WEPs have always held a tenuous position in the repertoire of intelligence analysis:

More than 40 years ago, Sherman Kent—the godfather of the vital National Intelligence Estimates and the man for whom the CIA's analyst school is named -- penned a classified memo attempting to describe how vague words like "probable" and "serious probability" could be translated into meaningful numbers. His "Words of Estimative Probability" proved a rhetorically awkward and ultimately futile exercise in encouraging more disciplined discussions of probability in the analytic community.⁹⁸

Unfortunately, the passage of time has not made the acceptance of WEPs by the IC any easier as the debate continues to this day:

Passive-aggressive organizational resistance to quantitative rigor continues to this day. Former acting CIA director and longtime analyst John McLaughlin tried to promote greater internal efforts at assigning probabilities to intelligence assessments during the 1990s, but they never took. Intelligence analysts "would rather use words than numbers to describe how confident we are in our analysis," a senior CIA officer who's served for more than 20 years told me. Moreover, "most consumers of intelligence aren't particularly sophisticated when it comes to probabilistic analysis. They like words and pictures, too. My experience is that [they] prefer briefings that don't center on numerical calculation. That's not to say we can't do it, but there's really not that much demand for it."⁹⁹

⁹⁸ Michael Schrage, "What Percent is 'Slam Dunk'?" *Washington Post*, February 20, 2005, B01.

⁹⁹ *Ibid.*

When decisionmakers read an intelligence estimate, they do not want to be bogged down in probabilities; they want the bottom-line up front (BLUF).¹⁰⁰ The BLUF is a concept originating in military intelligence and founded on the fact that decisionmakers have limited time so it is best to give them the most important information first, and in most cases, this means the estimative judgment. These judgments, if they are to be useful, are based on either a WEP or WAC.¹⁰¹ To quote Sherman Kent in his famous treatise “Words of Estimative Probability:”

Concern over these qualifiers is most characteristic of that part of the intelligence production business known as estimates. This is no small recondite compartment; it extends to almost every corner of all intelligence research work, from the short appraisals or comments of a reports officer to the full-dress research study of the political or economic analyst. Practically all substantive intelligence people constantly make estimates.¹⁰²

Other more ambiguous phrases can be used; words like “could” and “may” still populate IC estimates, but they convey no sense of the probability of an event occurring, just that it is possible. Sherman Kent demonstrates this concept when he opens the above referenced paper using an example of a reconnaissance officer giving a brief about an airfield in which he points to a map and begins with three statements:

1. "And at this location there is a new airfield. [He could have located it to the second on a larger map.] Its longest runway is 10,000 feet."
2. "It is almost certainly a military airfield."
3. "The terrain is such that the Blanks could easily lengthen the runways, otherwise improve the facilities, and incorporate this field into their system of strategic staging bases. It is *possible* that they will." Or, more

¹⁰⁰ Martin Krieger, “This Week’s Finds and Plans,” USC School of Policy, Planning, and Development, <http://www.usc.edu/schools/sppd/krieger/2002/121802.html> (accessed May 1, 2007).

¹⁰¹ Steven Rieber, “Intelligence Analysis and Judgmental Calibration,” *International Journal of Intelligence and Counterintelligence* 17, 97-112.

¹⁰² Sherman Kent, “Words of Estimative Probability,” *Studies In Intelligence* 1964, <https://www.odci.gov/csi/books/shermankent/6words.html> (accessed May 1, 2007).

daringly, "It would be logical for them to do this and *sooner or later they probably will.*"

The first statement is based entirely in fact, it describes something knowable and knowable to a high degree. The second is a judgment or estimate. According to Kent, "It describes something which is knowable in terms of the human understanding but not precisely known by the man who is talking about it" Kent continues:

Convincing as it is, this evidence is circumstantial. It cannot justify a flat assertion that this is a military airfield. It makes the case, say, 90 percent of the way. And some sort of verbal qualifier is necessary to show that the case is a 90-percenter, not a 100. This is why the briefer said "*almost certainly.*"

The third statement is another judgment or estimate, this one made almost without any evidence, either direct or indirect and may be an estimate of something that no man alive can know. But as Kent explains:

Still the logic of the situation as it appears to the briefer permits him to launch himself into the area of the literally unknowable and make this estimate. He can use *possible* to indicate that runway extension is neither certain nor impossible, or he can be bolder and use *probably* to designate more precisely a degree of likelihood, a lower one than he had attached to his estimate regarding the character of the airfield.

Kent would further explain the necessity for the use of WEPS by insisting that analysts make it clear what is certain knowledge and what is estimate. Regrettably, the use of WACs as widely evidenced in NIEs blur these lines making it difficult to discern between fact and judgment, even when the WAC is clear contained in an estimative judgment.

Take the 2002 NIE on Iraqi WMD that nearly opens with the sentence "Iraq is continuing, and in some areas expanding, its chemical, biological, nuclear and missile programs

contrary to UN resolutions.” This sentence reads like fact, but is, in fact, the bottom line of the NIE, a report that is, by definition, estimative.

It is for this reason exactly that both WEPs and WACs need to be examined in any study of accuracy in judgments. Statements that contain these words are the core reason a decisionmaker reads what the IC produces. Statements that contain “could” or “may,” are only conjectures based so loosely in fact that an analyst consciously chooses not to qualify it with a WEP or WAC.

Following these literature review findings, this researcher would hypothesize that WEP and WAC containing estimative judgments from MCIIS COSs produced under the conditions of accelerated analysis would be of comparable accuracy and nuance to their counterpart NIC NIEs estimative judgments containing either WEPs or WACs.

Accelerated analysis allows student-analysts to overcome what might be perceived as exceptional odds and compete against an IC that, despite having a USD 44 billion dollar advantage, is hamstrung by a dysfunctional analytic culture.

METHODOLOGY

A descriptive historical design was the base research methodology established to perform a comparison of accuracy and nuance between declassified National Intelligence Estimates (NIEs) written by the National Intelligence Council (NIC) and Country Outlook Studies (COSs) written at Mercyhurst College Institute for Intelligence Studies (MCIIS) as this is the only method suitable for hypothesis testing using historical data.¹⁰³ The purpose of the historical design was to assess the probable relationships among variables using primary source documents. In this research, it was hypothesized that MCIIS COSs produced under the conditions of accelerated analysis would be of comparable accuracy to their counterpart NIC NIEs.¹⁰⁴

A secondary research focus in this study was to examine the level of nuance present in each group's estimative statements. Equal levels of nuance between the two groups would suggest that they are of comparable scope and would therefore weaken the argument that one of the two groups has made estimative judgments so broad as to artificially increase their accuracy scores in comparison to the other.

Collection of Sample Data

The research exclusively used two sets of primary source documents. Collected data was entered into an Excel spreadsheet that included: the title of the original report, the estimative statement itself, the date the estimate was published, the timeframe of the

¹⁰³ It is a common misconception that hypothesis testing cannot be used with historical data. Hypothesis testing may be used with data that are generated during the research project or data which already exists. See Sproul, *The Handbook of Research Methods* (Metuchen, NJ: The Scarecrow Press, 1988).

¹⁰⁴ Ibid.

estimate, whether the estimate made use of a WEP or WAC, the outcome of estimate, and the “who, what, where, when, why, and how” of the estimate.

The first sample was composed of 116 estimative statements made across 20 randomly selected NIEs (*See Appendix A and B: COS and NIE Estimates Judgment Matrices for the complete collection of estimative judgments including accuracy and nuance levels*). The 116 estimates were an approximately 50/50 mix of estimative statements including Words of Estimative probability (WEP) and Words of Absolute Certainty (WAC), reflecting the approximate overall mix of WEPs and WACs in the population.

The total population of declassified NIE estimative judgments was approximately 960 across 96 declassified NIEs. The population was approximate because the process of determining whether a statement is estimative in nature is judgmental. The number 960 was determined by, again, taking a random sample of 10 NIEs, totaling the number of estimative judgments (conveniently 100), and extrapolating that out to the total number of estimates. Given the imprecision inherent in this system, the sample size was calculated using a 95 percent confidence level and a confidence interval of 8.54 (calculated at a 95 percent confidence level and assuming the worst-case percentage of 50 percent).

The NIE’s themselves were all declassified between 2004 and 2007 as a result of a joint effort between the NIC and the Central Intelligence Agency’s (CIA) Information Management Service (IMS). The aim was to declassify Estimates that tracked the general trends of internal politics, foreign relations, national economy, and the growth of

the military establishment.¹⁰⁵ The NIEs are available on the NIC website along with various other declassified or unclassified NIC products including historical memoranda, speeches, and 2020 Project reports.¹⁰⁶

The study also used a 123 individual estimative statements spread across 11 COSs (*See Appendix A: COS Estimates Judgment Matrix for the complete collection of estimative judgments including accuracy and nuance levels*). This was the only population eligible for evaluation because these are the first group of estimates produced under accelerated analysis conditions where the window for estimates to have been proven accurate has closed. The only caveat in the selection of those COSs was that they were authored by students who received an A or B in the class. The rationale behind this was that students were graded based upon their mastery of the process, not on the accuracy of their estimates (something that was indeterminable given that COS projects are graded as they are produced).

After the two sets of estimates were selected, they were each coded for nuance. Nuance coding was based on the six tenets of good journalism, “who, what, where, when, why, and how?” An estimative statement would be awarded one point for each question answered, for a possible cumulative maximum score of six points. This researcher was solely responsible for coding the estimative statements to maximize consistency, though the process was subjective. The guidelines for coding these questions were as follows:

Who: are the primary actors specified?

What: is the estimate event?

Where: does the estimate pertain to?

When: will the estimate take place?

¹⁰⁵Tracking the Dragon: Selected National Intelligence Estimates on China 1948-1976, http://www.dni.gov/nic/NIC_foia_china.html, United States National Intelligence Council (accessed April 1, 2007).

¹⁰⁶ See the NIC’s website at http://www.dni.gov/nic/NIC_home.html for additional readings.

Why: is the estimate going to take place?
How: will the estimate occur?

Data Collection

After the estimates had been selected and the nuance levels coded, the next step was to determine the accuracy of the estimative statements. The primary source for historical data relevant to the COS estimates was Jane's Sentinel Country Risk Assessments. These assessments generally include a country profile, Internal and external political affairs, defense reports, demography, infrastructure, main economic indicators, natural resources, geography, and additional related daily news summaries and analysis.¹⁰⁷ No single historical source was best for determining the accuracy of the NIE's given the estimates time frame. The most useful resources included, but were not limited to, the ubiquitous NationMaster.com (a massive central data source for country statistics), CIA World Factbook,¹⁰⁸ United States Department of State country pages,¹⁰⁹ BBC News country profiles,¹¹⁰ and Wikipedia.¹¹¹

As with the nuance coding, this researcher was solely responsible for determining whether the estimative judgment was correct or not. For an estimative statement to have been judged accurate, it had to have exactly met the criteria outlined in the estimate itself. Therefore, if an estimate predicted something to occur within twelve months and it

¹⁰⁷ Jane's Information Group is a world-leading provider of intelligence and analysis on national and international defense, security, and risk developments. Jane's is an independent organization with an unrivalled reputation for accuracy, authority, and impartiality. Jane's services are subscription based, but their homepage provides additional insight into their various intelligence-related products. See www.janes.com for additional information.

¹⁰⁸ See <https://www.cia.gov/cia/publications/factbook/>.

¹⁰⁹ See <http://www.state.gov/countries/>.

¹¹⁰ See http://news.bbc.co.uk/1/hi/country_profiles/default.stm.

¹¹¹ See www.wikipedia.org.

occurred twelve months and one day later, then it was judged to be inaccurate. This method was intended to limit bias to the minimum possible.

It should be noted that not every estimate could be adjudicated accurate or not. There were eight NIE and fifteen COS estimates that were unverifiable for reasons generally associated with the estimate being so specific that information was unavailable to determine accuracy. An example of an unverifiable NIE was found in 1967's "The Yugoslav Experiment."

Younger men of the establishment, bred in an independent Yugoslavia, are likely to believe that the economic and political values of a unified federation outweigh the emotional appeal of secession.

A COS example comes courtesy of 2005's Kyrgyzstan study:

Opening a business in Kyrgyzstan requires fewer days and fewer steps than other countries in the region while offering below average strictness for employment, which is likely to attract more businesses.

Data Analysis

The first phase in the data analysis was to establish that both groups were of equal nuance to ensure that like-groups were being compared during the subsequent comparisons of accuracy. The first step in determining this was to ensure that the two groups were of equal variances using the Two-Sample f-Test. Once equal variance was established, a Student t-Test Assuming Equal Variances was used to determine if there was a significant difference between the two groups.

Additionally, statistical testing was run to determine the difference in nuance levels between estimates that used WEPs versus WACs. Much like the inter-group analysis, the intra-group testing began with Two-Sample f-Test that established equal

variances followed by a Student t-Test Assuming Equal Variance to determine if the difference was significant.

The second phase compared the accuracy between the two groups of estimates. The first step was to determine the variance using a Two-Sample f-Test for Variance. Once it was established that the two groups were of equal variance, a Student t-Test Assuming Equal Variances was used to determine if the difference in accuracy was significant.

Additionally, an intra-group comparison of accuracy between NIE estimative statements with WEP and WAC was conducted. Again, the level of variance in each group was established with an f-Test and whether or not the difference was significant was tested using the Student t-Test Assuming Equal Variance.

The complete results of these and other statistical tests discussed here can be found in the Chapter IV: Results.

RESULTS

Research on the eventual outcomes of estimative statements made in declassified National Intelligence Estimates (NIE) written by the United States National Intelligence Council (NIC) compared to those of the unclassified Country Outlook Studies (COS) written by undergraduate students enrolled at the Mercyhurst College Institute for Intelligence Studies (MCIIS) revealed several noteworthy similarities and differences. The first of this chapter's three parts will deal with trends involving the differences in the level of nuance in estimative statements. The second part of the chapter will compare the level of nuance between the accuracy of the two groups and discusses any relevant trends or patterns extracted from the data. The third and final section will specifically address the connection between the use of words of estimative probability (WEP)¹¹² and estimative accuracy. Although the following sections contain in-text tables and graphs to accompany the written explanations, the complete collection of tables for each group and group comparison are included in full at the end of the chapter (*See Tables 4.2-4.5*). Full analysis of the data presented can be found in Chapter V: Conclusions.

Difference in Nuance between NIC and MCIIS Estimates

Analyzing the nuance levels of NIE and COS estimates reveal a statistically significant difference between the two: COS estimates are more nuanced than their

¹¹² As discussed in previous chapters, words of estimative probability (WEP) were first proposed by Sherman Kent at the Central Intelligence Agency (CIA) in the late 1940s. WEPs assign a rough range of probability to a word and thus an estimate. NIC NIEs also make extensive use of the word "will" in the writing of estimates. The word "will" is taken to mean absolute certainty in an estimative outcome and, while not historically included as a WEP, its prolific use begs its inclusion in this study. Please see *Appendix B: Words of Estimative Probability* for a complete list of WEPs.

counterparts produced by the NIC. The two groups are of comparable variance,¹¹³ thus a subsequent two-sample t-test assuming equal variance results in a t stat (5.28) that exceeds the two-tailed t critical value (1.97), proving the difference is significant at the $p < .05$ level. These findings effectively counter one of the single strongest arguments that detractors could use to criticize the equivalently accurate MCIIS analysts: that they have reached 67 percent accuracy mark by not taking analytic risks and making vague estimates rather than through thorough analysis in conjunction with well-nuanced estimates.

Unfortunately, it is nearly impossible to conduct an accurate ex post facto examination of analytic rigor, particularly for those written in a classified work environment. However, an analysis of the overall accuracy of estimates in combination with an assessment of their nuance is likely to give a clear indication of how comparable MCIIS estimative quality is to that of the NIC.

Assuming that the six tenets of good journalism (“who, what, where, when, why, and how?” as discussed in Chapter III: Methodology) have some potential as a measure of nuance this test should be applied to the accuracy findings discussed in the first section of this chapter. Analyzing the nuance levels of NIE and COS estimates reveal a statistically significant difference between the two: COS estimates are more nuanced than their counterparts produced by the NIC. COS estimates average nuance score was 4.9 out of five, while the NIEs’ average was 4.33. The two groups are of comparable variance,¹¹⁴ thus a subsequent two-sample t-test assuming equal variance results in a t

¹¹³ In this case, the calculated F is 1.13 which did not exceed the tabulated F value 3.9 at the $P < 0.05$ level.

¹¹⁴ In this case, the calculated F is 1.13 which did not exceed the tabulated F value 3.9 at the $P < 0.05$ level.

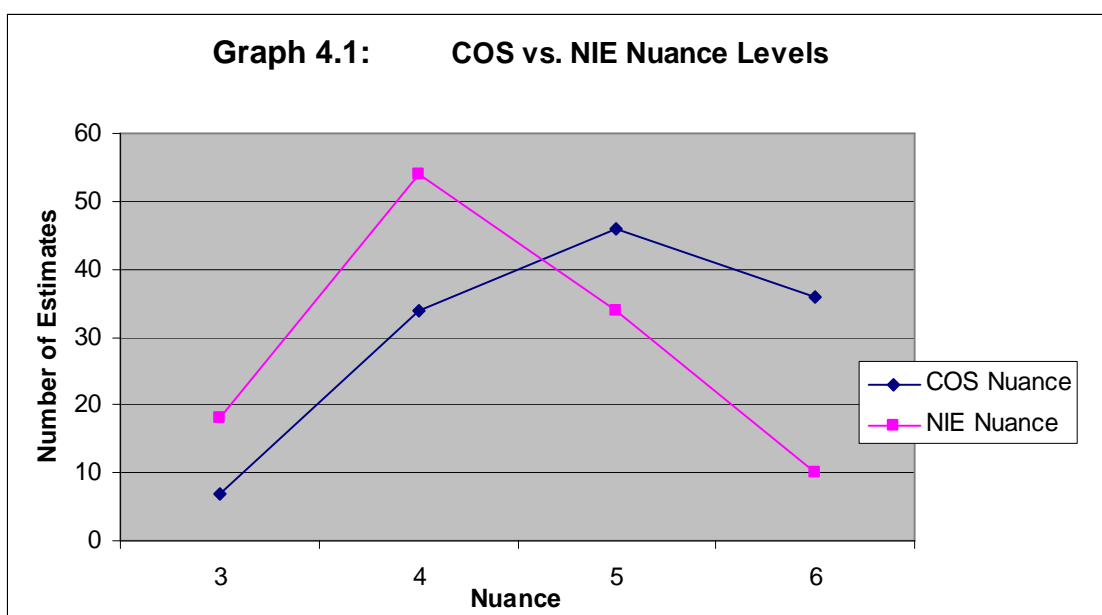
stat (5.28) that exceeds the two-tailed t critical value (1.97), proving the difference is significant at the $p < .05$ level.

As discussed in the Chapter II: Literature Review, the use of Words of Estimative Probability (WEP) is what makes an estimate an estimate. Analysts are not clairvoyants and therefore should refrain from making statements that are anything other than estimates of future events. Despite this seemingly obvious construct, the NIC consistently uses phrasing in its NIEs that convey absolute certainty. Approximately half of their estimative statements use the word “will” instead of an established WEP such as “unlikely,” “likely,” or “all but certain,” though interestingly enough, there is no significant difference in the level of nuance between the two kinds of estimative statements. WAC statements score an average nuance level of 4.4 verse 4.2 for WEP statements. However, they have equal variance (the calculated f is .59, which does not exceed the tabulated value 3.9 at $p < .05$) and a t stat of -1.49, which does not exceed the two-tailed t critical score of 1.98. In the NIEs examined, statements that used words of absolute certainty (WAC) like “will” included no greater level of support or justification than WEP estimates on the six-point nuance scale. This then implies that the NIC placed no special weight on estimates that used WACs over those that used WEPs.

This becomes more evident when both NIE and COS estimates are broken down by level of nuance. While the two groups’ variance is equal, basic descriptive statistics paint a vivid picture of their differences (*See Table 4.4: COS Nuance Descriptive Statistics and Table 4.5: NIE Nuance Descriptive Statistics*). For COS estimates, the median score is 4.9 out of six and both the mean and mode are five. For their NIE counterparts, the mean is a lower 4.3 and both median and mode are four (*See Graph 4.1:*

COS V. NIE Nuance Levels). The next most telling comparison is at either end of the nuance spectrum; less than six percent of COSs score a three while just over 29 percent score a six compared to the NIE scores of 15 percent and just under nine percent for the same two levels.¹¹⁵

Not only are MCIIS COS estimates significantly more nuanced than NIC NIE estimates, the COSs have 72 percent more estimates that have a perfect six out of six nuance level score while having 61 percent fewer estimates that have the lowest possible score of three.



NIC vs. MCIIS Estimative Accuracy

The ability to effectively measure estimative accuracy may be one of the more contentious ideas in the Intelligence Community. There is one camp of theorists who

¹¹⁵ It should be noted that no estimates in either group scored below a three. This is purely an artifact of the scoring system, as a statement scoring a two would not, by definition, be an estimative statement. Please see the Chapter III on methodology for an expanded explanation and examples of nuance levels.

maintain that the entire process of measuring accuracy is too complicated to get right, while a second has gone to great difficulties creating complex statistical measures to disprove just that. There is no definitive conclusion to that debate, but in the context of this research, it need not be solved. This analysis is not to be used to declare an estimative winner or loser. It is about comparing the differences between the final results. The accuracy measurement results outlined below, therefore, should not be taken out of context. In and of themselves, they are not a measurement of success or failure; they are a means to compare two groups of estimates.

Analyzing estimative statements made in NIEs and COSs and making both inter- and intra-group group comparisons, uncovered two sets of interesting and potentially surprising data. Researching the overall

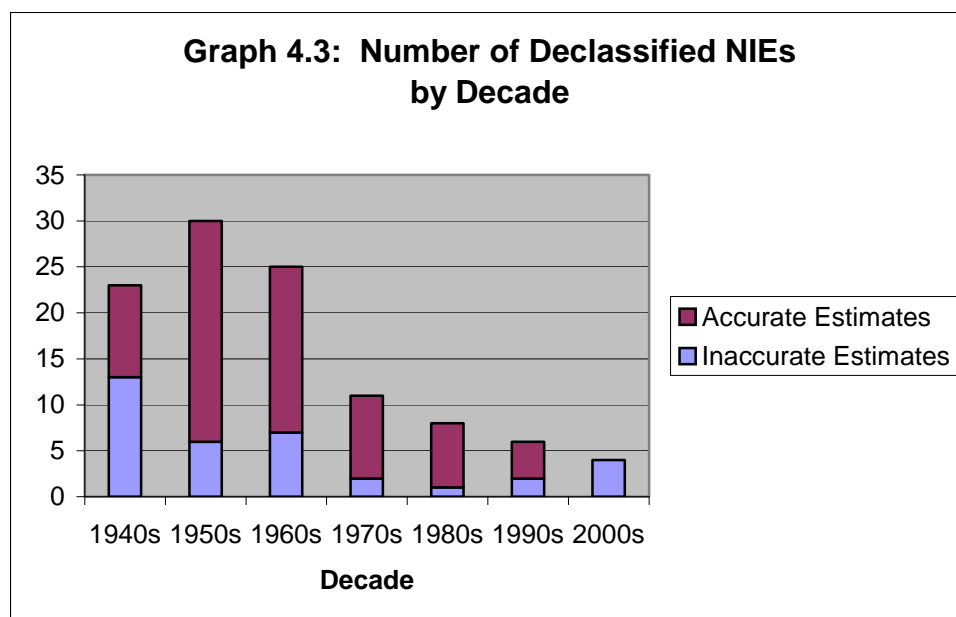
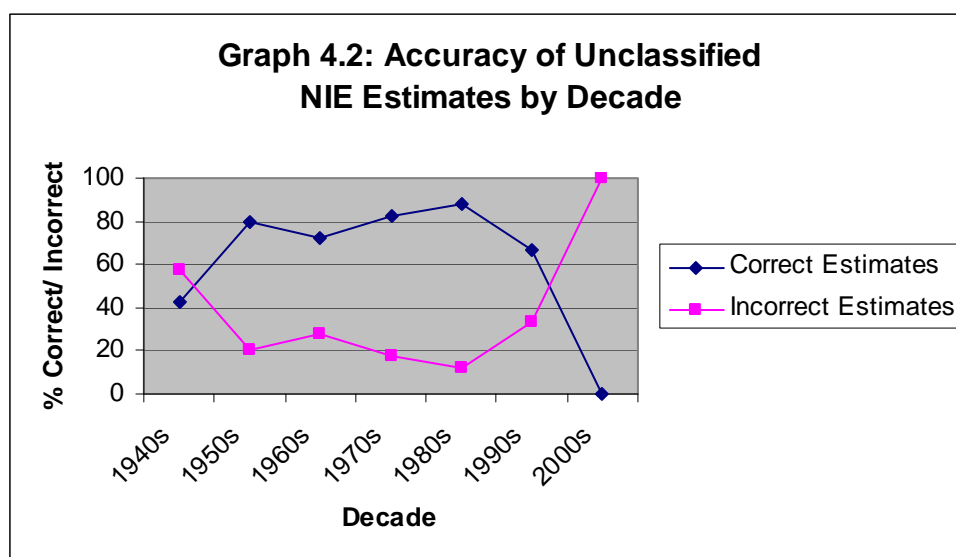
	Correct	Incorrect
NIE (n=108)	72%	28%
COS (n=102)	67%	33%

accuracy of estimates by both groups revealed an overwhelming similarity (*See Table 4.1: NIE vs. COS Overall Estimative Accuracy Results*). There is no significant difference between the predictive accuracy of undergraduate MCIIS students and NIC analysts. The two groups are of almost equal variance,¹¹⁶ thus a subsequent two-sample t-test assuming equal variance results in a t stat (.87) that does not exceed the two-tailed t critical (2.60), thus proving the difference is insignificant even at the $p < .01$ level. (*See Table 4.2: F-Test Two-Sample for Variances and Table 4.3: t-Test: Two-Sample Assuming Equal Variances*).

The accuracy of NIEs themselves, however, has varied over time (*See Graph 4.1: Accuracy of Unclassified NIE Estimates by Decade*). Accuracy increased through

¹¹⁶ A significant difference between treatments is suggested if your calculated F value exceeds the tabulated F value. In this case, the calculated F is .90 which did not exceed the tabulated F value 3.9 at the $P < 0.05$ level.

the 1980s, and then quickly dropped off. These fluctuations, particularly post 1960s are likely due to a small sample size rather than any gross malfunction in the NIE production process (See Graph 4.3: Number of Declassified NIEs by Decade).



More simply put, there are fewer declassified NIEs from the 1970s on than from the 1940s, 1950s, or 1960s, with only one country-focused NIE from the 1990s and 2000s.

Compounding the effect, these two solitary estimates are notorious in the US Intelligence Community for their inaccuracy. The 1990 estimate on Yugoslavia titled “Yugoslavia Transformed” managed to predict the break-up of the Socialist Federal Republic of Yugoslavia, but grossly underestimated the extent of the conflict and misestimated the antagonists as a whole by placing considerable weight on the possibility of an early Albanian uprising.¹¹⁷ The representative twenty-first century estimate is 2002’s infamous “Iraq's Continuing Program for Weapons of Mass Destruction” NIE.¹¹⁸ The declassified portions included only five true estimative statements (those estimates that actually contain a WEP), none for which the passage of time has proven friendly.

MCIIS analysts’ and NIC analysts’ estimates are statistically equal in their predicative accuracy. While a longitudinal analysis of predictive and estimative trends is impossible for COSs, this analysis for the NIEs reveals a fluctuation in accuracy that is most likely due to an inconsistent sample size across decades.

Accuracy of WEP Compared to WAC Statements

Some famously inaccurate declassified NIEs make liberal use of individual estimative statements that convey absolute certainty, not the least of which was 2002 “Iraq’s Continuing Program for Weapons of Mass Destruction” which relies heavily on the WAC family of words like “is” and “has” that make an estimate read like a statement of fact rather than a estimate of probability. This then begs the question, are NIE

¹¹⁷ National Intelligence Council, “Yugoslavia Transformed,” http://www.dni.gov/nic/foia_yugoslavia_chrono.html (accessed March 17, 2007).

¹¹⁸ National Intelligence Council, “Iraq’s Continuing Program for Weapons of Mass Destruction,” http://www.dni.gov/nic/special_keyjudgements.html (accessed March 17, 2007).

estimative statements of absolute certainty more accurate than their probability-constrained brethren?

The answer is surprisingly counterintuitive. The WAC estimates are actually significantly less accurate than the WEP estimates (*See Table 4.6: WEP vs. WAC Estimative Accuracy Results*).¹¹⁹ Much like the overall

	Correct	Incorrect
WEP (n=48)	77%	23%
WAC (n=54)	57%	43%

accuracy numbers reported in the chapter's first section, the actual accuracy is secondary to the difference between the results. It would seem logical that intelligence estimate authors would use words of absolute certainty only when they were firmly convinced of the complete predictive accuracy of the estimate, but this is clearly not the case. The NIC often uses WACs in a manner that appears to imply they are interchangeable with WEPs. However, given the process in which the NIC writes NIEs, it can hardly be proposed that careful thought did not go into the WAC or WEPs appropriate selection and use. That being said, there is evidence that, at least in the 1950s, a debate was held at the NIC's predecessor, the Office of National Estimates (ONE), where some analysts argued for artistic elegance and against what they considered the constraining nature of WEPs.¹²⁰

An example of a WAC statement from the October 18, 1990 NIE "Yugoslavia Transformed" is that "There will be a protracted armed uprising by Albanians in Kosovo." The carryover of WAC estimates into the twenty-first century NIEs signals that the debate has not yet been settled. The 2007 NIE titled "Prospects for Iraq's

¹¹⁹ The two groups are of statistically equivalent variance and have a t stat of 2.10 which exceeds the two-tailed critical score of 1.98 at p<0.05.

¹²⁰ Sherman Kent, *Sherman Kent and the Board of National Estimates Collected Essays* (Center for the Study of Intelligence: Central Intelligence agency), <https://www.odci.gov/csi/books/shermankent/toc.html> (accessed March 11, 2007).

Stability”¹²¹ opens with a one-page explanation of estimative language explaining the use of WEPS, though the very first estimate in the report inexplicably reverts to the use of WACs and reads thus:

Iraqi society’s growing polarization, the persistent weakness of the security forces and the state in general, and all sides’ ready recourse to violence are collectively driving an increase in communal and insurgent violence and political extremism. Unless efforts to reverse these conditions show measurable progress during the term of this Estimate, the coming 12 to 18 months, we assess that the overall security situation will continue to deteriorate at rates comparable to the latter part of 2006.

Given the comparative inaccuracy of the WAC estimates, there is support for their use being purely artistic, however, it would seem irrational to not give the institution credit for having thoroughly evaluated their writing and purposefully chosen its estimative words.

Summation of Findings

Using the processes outlined in Chapter III: Methodology, the research indicates that MCIIS student-analysts are writing products that are likely to be roughly equivalent to their NIC counterparts in terms of estimative accuracy and nuance. While the two sets of reports may be of different species, it is hard to argue that they are of a different genus, and as such comparisons between the two groups seems warranted. While the overall accuracy results may be startling to some, the real findings are how statistically similar the COSs are to the NIEs. While the argument will be made by uninformed detractors that the COS estimates could only be of inferior estimative quality, a basic analysis of nuance between the two groups shows that the COS estimates are statistically more

¹²¹ National Intelligence Council, “Prospects for Iraq’s Stability: A Challenging Road Ahead,” http://www.dni.gov/press_releases/20070202_release.pdf (accessed April 20, 2007).

nuanced than the NIE estimates. This strongly counters any charges that COSs are accurate by way of vague estimates.

Research also yielded an interesting secondary finding. MCIIS estimates rely exclusively on the use of WEPs while NIE estimates use an approximately 50/50 mix of WEP and WAC statements. This then begs the questions of comparing the accuracy between the two sets of estimates, which leads to the counterintuitive finding that NIE estimates containing WACs are statistically less accurate than those that instead use WEPs.

Tables

Table 4.2: MCIIS vs. NIC Accuracy f-Test Two-Sample for Variance		
	<i>Variable 1</i>	<i>Variable 2</i>
Mean	1.722222	1.666667
Variance	0.202492	0.224299
Observations	108	108
df	107	107
F	0.902778	
P(F<=f) one- tail	0.298874	
F Critical one-tail	0.726552	

Table 4.3: MCIIS vs. NIC Accuracy t-Test: Two- Sample Assuming Equal Variances		
	<i>Variable 1</i>	<i>Variable 2</i>
Mean	1.722222	1.666667
Variance	0.202492	0.224299
Observations	108	108
Pooled Variance	0.213396	
Hypothesized Mean Difference		0
df		214
t Stat	0.883754	
P(T<=t) one-tail	0.18891	
t Critical one-tail	2.343899	
P(T<=t) two-tail	0.377821	
t Critical two-tail	2.598998	

Tables Continued

Table 4.4: COS Nuance Descriptive Statistics	
Mean	4.902439
Standard Error	0.080329
Median	5
Mode	5
Standard Deviation	0.890889
Sample Variance	0.793683
Kurtosis	-0.79961
Skewness	-0.30103
Range	3
Minimum	3
Maximum	6
Sum	603
Count	123
Confidence Level(95.0%)	0.159019

Table 4.5: NIE Nuance Descriptive Statistics	
Mean	4.310344828
Standard Error	0.077839832
Median	4
Mode	4
Standard Deviation	0.838360648
Sample Variance	0.702848576
Kurtosis	-0.432232515
Skewness	0.259472919
Range	3
Minimum	3
Maximum	6
Sum	500
Count	116
Confidence Level(95.0%)	0.154185721

CONCLUSION

This research hypothesized that the strategic estimative judgments in Country Outlook Studies (COSs), produced under conditions of accelerated analysis at Mercyhurst College Institute for Intelligence Studies (MCIIS), are of comparable accuracy to strategic estimative judgments offered in the National Intelligence Council's (NIC) National Intelligence Estimates (NIEs).

A key component of this research was to first establish that the two groups of estimates were of comparable nuance, a term used to describe the level of detail included in an estimative judgment. One of the possible counter arguments to the validity of this study is that the COS were making estimative judgments so broad that, to quote Philip Tetlock's first of five challenges in the gauntlet of comparative judgment:

We risk making false attributions of good judgment if some forecasters have been dealt easier tasks than others. Any fool can achieve close to 100 percent accuracy when predicting either rare outcomes, such as nuclear proliferation or financial collapse, or common ones, such as regular elections in well-established democracies. All one need do is constantly predict the higher base rate outcome and—like the proverbial broken clock—one will look good, at least until skeptics start benchmarking one's performance against simple statistical algorithms.¹²²

Regrettably, this researcher was unable to assign questions to either group, so there needed to be a system to retroactively quantify the level of nuance for each estimate.¹²³

Nuance is the level of detail in an estimate. A well nuanced estimative judgment would include answers to “who, what, where, when, why, and how?” and would read like this

¹²² Philip Tetlock, *Expert Political Judgment* (Princeton: Princeton University Press, 2005), 11.

¹²³ Issues of access and security clearances aside, strategic estimates generally take many months and upwards of years to be proven accurate given their very nature. Additionally, given restrictions in the time available to complete this research, this option was not feasible.

hypothetical estimate: “US GDP likely to increase in the fourth quarter of 2006 slightly faster than the previous quarter due to higher prices for trucks that boost vehicle inventories.” While any process for social science research coding is subjective, this researcher devised a simple system outlined in Chapter III: Methodology, which limited any subjective bias by providing clear outlines for coding scores.

As noted earlier, Philip Tetlock outlined a gauntlet of five challenges to comparing judgment in his landmark book, *Expert Political Judgment*. The first and arguably most important challenge was previously addressed by ensuring equal nuance between estimates. The second hurdle is “Challenging whether forecasters’ ‘hits’ have been purchased at a steep price in ‘false alarms.’”¹²⁴ Tetlock warns evaluators about fixating solely on success by “crediting forecasters for spectacular hits but not debiting them for false alarms.”¹²⁵ This concern was addressed by using quantitative as opposed to qualitative hypothesis testing with a randomized sample as a research design model.

However, challenge three points out a potential weakness in this research, though it is an artifact of the data available and not the design itself. In his third challenge, Tetlock advocates, “challenging the equal weighting of hits and misses.” The argument goes that sometimes forecasters are forced to make a trade-off between errors induced by false alarms and those induced by misses. That is, assigning high probabilities to events that do not occur or conversely, assigning low probabilities to events that do occur. Tetlock had the luxury of asking experts to assign probabilities to the likelihood of their estimates (therefore taking them in to consideration), while the historical data in this research does not contain specific probabilities. Analysts routinely use words of

¹²⁴ Philip Tetlock, *Expert Political Judgment* (Princeton: Princeton University Press, 2005), 11.

¹²⁵ Ibid.

estimative probability (WEPs) or words of absolute certainty (WACs) in their estimative judgments; however, there is no set standard for their exact meaning. For one analyst, the word “likely” may convey a probability greater than 50 percent, while another may use the more restrictive probability range of 60 to 85 percent. Furthermore, there is no routinely used scientific system for assigning probability to an estimate, so the very act of doing so is estimative. That said, a word such as “likely” does clearly imply odds greater than 50% and something less than “highly likely” and certainly something less than “nearly certain”. The mere fact that the words are imprecise does not, in turn, indicate that they are meaningless. Given the nature of the evidence available for this study, the value of the results herein rest, in part, on this distinction.

The single greatest shortcoming in this study was addressed by Tetlock’s fourth warning: “Challenges of scoring subjective probability forecasters.” In a continuation of the previous point on probability, “wayward forecasters can argue that we stumbled into improbable worlds: low-probability events sometimes happen and high-probability events sometimes do not.”¹²⁶ So in fairness, if an analyst assigned a low probability (as in “highly unlikely”) to an event that an omniscient judge would have also rendered as being “highly unlikely,” but then it actually occurred, was the analyst completely incorrect? The response is the same as outlined under Challenge Three: Tetlock was able to ask experts to assign probabilities to the likelihood of their estimates (therefore taking them in to consideration), while the historical data in this research does not contain specific probabilities. Simply put, the research design used was the only way to measure accuracy given an historical data set (the only data set available for measuring Intelligence Community (IC) accuracy).

¹²⁶ Ibid, 13.

Of course, this calls in to question the validity of the results to some degree; however, we can call upon two simple counterarguments. Firstly, both sets of data were likely subject to the same limiting effects. Since this study was about measuring the difference between groups and not measuring absolute accuracy, then as long as the groups are equally affected, the difference between groups should theoretically remain constant. Secondly, there was the assumption that the “law of large numbers” would help balance out any other discrepancy between groups, including those that were subjective.¹²⁷

The fifth challenge was that researchers risk making false attributions of good judgment if they fail to recognize the existence of “legitimate ambiguity about either what happened or the implications of what happened for the truth or falsity of particular points of view.”¹²⁸ In other words, there can never be perfect consensus on the historical outcome of all events. This is an inherent flaw in any historical study, but its presence must nevertheless be admitted.

Given the inherent limitations of the study, primarily because of the historical data, the research yielded several interesting findings. Using the processes outlined in Chapter III: Methodology, the findings indicates that MCIIS student-analysts are writing products that are likely to be generally equivalent to their NIC counterparts in terms of estimative accuracy and greater in terms of nuance. While the two sets of reports may be differ in certain technicalities, it is difficult to argue that they are incomparable. Whether

¹²⁷ The law of large numbers is a foundational principle of statistics and can be traced back to the eighteenth century and such noteworthy mathematicians as Bernoulli and Poisson, who wrote “All manner of things are subject to a universal law that we may call the law of large numbers ... :if we observe a large number of events of the same nature, dependent upon constant causes and upon causes that vary irregularly ... we will find the ratios between the numbers of these events are approximately constant.” (as quoted by Philip Tetlock, *Expert Political Judgment* (Princeton: Princeton University Press, 2005), 239).

¹²⁸ Philip Tetlock, *Expert Political Judgment* (Princeton: Princeton University Press, 2005), 13.

driven by brute intellectual curiosity or motivated to help improve the system at large, such comparison between the two groups is warranted. While the overall accuracy results may be surprising if not startling, the truly interesting findings are how statistically similar the COSs are to the NIEs. While the argument may be made by the student-produced COS estimates must be of inferior estimative quality, a basic analysis of nuance between the two groups suggests that the COS estimates are actually more nuanced than their NIE estimative counterparts. This strongly counters any charges that COSs are accurate by way of vague estimative judgments alone.

Research also yielded an interesting secondary finding. MCIIS estimates rely exclusively on the use of WEPs while NIE estimates use an approximately 50/50 mix of WEP and WAC statements. This then begs the questions of comparing the accuracy between the two sets of estimates, which leads to the counterintuitive finding that estimates containing WACs are statistically less accurate than those that instead use WEPs.

Given the differences between the NIE and COS production process as outlined in the literature review. The NIC NIE is, at the very least, representative of the average IC estimative product, if not the gold standard (as outlined in Chapter II: Literature Review), then what variable or combination of variables in the COS production process account for the similarity in accuracy between a student and top-shelf IC product? While the production process is similar in many ways, there are three noteworthy distinctions.

The first, and perhaps most obvious difference, is that the COS is the product of an individual undergraduate student while the NIEs are the “DNI’s [Director of National Intelligence] most authoritative written judgments concerning national security issues.

They contain the coordinated judgments of the IC ...”¹²⁹ and are thus presumably written by a group of substantive experts easily labeled as masters of the analytic and estimative tradecraft.¹³⁰ While possible, it is not plausible that this difference alone would account for the comparative accuracy of COSs.

The second blatant differences between the two products are that MCIIS uses entirely open-source information while the NIC has access to classified sources. Again, while possible, it would seem implausible to assume that open-source intelligence is the primary variable raising the MCIIS analysts to the predicative levels of the NIC.

The third substantial difference is the analytic process. There is little public review of the specific analytic process as it pertains to the NIC other than anecdotal evidence from IC alumni and circumstantial evidence derived from the recommendations set forth in the Intelligence Reform and Terrorism Prevention Act of 2004 along with IC Directives One and 200. These limited sources indicate the popularity of the “read, think and the write” process along with inconsistent and seemingly rare use of alternative analytic techniques. Furthermore, according to the Vice Chairmen of the NIC, an NIE “prepared in 60 days would be considered a very fast schedule and that NIEs typically take three to six months to complete.”¹³¹

¹²⁹ National Intelligence Council, “NIC Mission,” http://www.dni.gov/nic/NIC_about.html (accessed April 16, 2007).

¹³⁰ National Intelligence Council, “Overview: History of Intelligence Estimates,” http://www.dni.gov/nic/NIC_tradecraft_overview.html (accessed April 16, 2007).

¹³¹ Sharon Otterman, “Intelligence: National Intelligence Estimates,” Council on Foreign Relations, <http://www.cfr.org/publication.html?id=7758#6> (accessed April 16, 2007). It should be noted that there is no available information on the production schedule for the individual NIEs reviewed for this research, though there is evidence that suggests that most draft NIEs written under the leadership of the CIA’s Office of National Estimates (ONE) between 1950 and 1973 (when approximately half of the reviewed NIEs were written) were done so in six to eight weeks at which time they went through a subsequent formal review for concurrence before final drafting took place over an unspecified amount of time. For further information, see the National Intelligence Council, “Overview: History of Intelligence Estimates,” http://www.dni.gov/nic/NIC_tradecraft_overview.html (accessed April 16, 2007).

In comparison, MCIIS analysts completed their COSs under conditions of accelerated analysis during a ten-week term using strict research, analysis, and writing guidelines characterized by an iterative analytic cycle and condensed production schedule.¹³² While the methodology does not allow for the drawing of conclusions about associations, it does allow the assessment of probable relationships among variables. This researcher theorizes that accelerated analysis is the greatest probable factor contributing the surprisingly competitive accuracy achieved by MCIIS.

The results of the study are counterintuitive; undergraduate students no matter how well educated or versed in the art of analysis should not be making strategic level estimative judgments at a predictive accuracy rate equal to the very best in the business. A lot has been made of IC analytic failures over the last several years. The debate carries on over whether or not these issues arose from structural or cultural deficiencies, but despite these shortcomings, the IC still has an approximate USD 44 billion budget and upwards of 100,000 employees.¹³³ Given the obvious inequalities evident in this comparison, it suggests that there are alternative base analytic strategies that produce better results than the traditional “read a lot, think a lot, and write” process. Accelerated analysis could be an example of just such a strategy. Regrettably, the only way to prove a causal relationship exists between increased estimative accuracy and accelerated analysis would be for the IC itself to run an experiment testing just that. Testing would be low risk because the process is a philosophy that requires no monetary investment, little training on its use, and, by design, less time than standard strategic estimates take to produce.

¹³² Described in detail in Chapter II: Literature Review.

¹³³ Michael Hayden, “Q&A with General Michael Hayden,” Q&A episode 1123 originally airing April 15, 2007, <http://www.q-and-a.org/Transcript/?ProgramID=1123> (accessed April 17, 2007).

Even if critics of the IC do not agree that the root cause of analytic failure was cultural, all can agree that shifting a culture is an immensely difficult task. Assuming for one moment that the cause is in fact cultural, then accelerated analysis is likely to aid in promoting transparency, accountability, and reliability. Even if the IC's structure is flawed and the current path of reorganization solves this, accelerated analysis still has the ability to improve strategic estimates by promoting the goals of increasing both transparency and the use of alternative analysis as outlined in the IRTPA, ICD-1, and ICD-200.

A grand scheme of adoption aside, the research does present several opportunities for both improvement and expansion on the basic model for testing this hypothesis. The simplest step would be to test additional samples. Another class of COS studies will be available for study in the fall of 2007 along with the potential for additional declassified NIEs. There is also an opportunity for the long-term study of accelerated analysis under experimental conditions at MCIIS using either the production of strategic estimates or something more akin to Tetlock's survey system to capture data. Of course, various technical aspects have the potential for improvement, including the process for coding nuance. Regrettably, there is little in the way of previous literature that provides any adequate guidelines for any of these activities, let alone for measuring and comparing the level of detail in an estimative judgment.

In summary, this research supports that there is a probable relationship between accelerated analysis and increased efficacy in making strategic-level estimative judgments. COSs produced by undergraduate students at MCIIS were equally accurate in their predictions to those made in NIEs produced by the NIC. Furthermore, it was found

that the COS estimates were statistically more nuanced than their NIE counterparts. It also provides relevant and insightful information for both MCIIS and the IC; however, there are recognized limitations and multiple areas for potential improvement for future experimental or theoretical research.

BIBLIOGRAPHY

- The Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction. "Report to the President." March 31, 2005, http://www.wmd.gov/report/wmd_report.pdf.
- Cooper, Jeffrey R. *Curing Analytic Pathologies*. Washington DC: Center for Intelligence, 2007.
- Davenport, Thomas. *Thinking for a Living* (Boston: Harvard Business School Press, 2005).
- Fishbein, Warren. "Making Sense of Transnational Threats." The Sherman Kent Center for Intelligence Analysis Occasional Papers: Volume 3, Number 1 (October 2004), https://www.cia.gov/cia/publications/Kent_Papers/vol3no1.htm.
- Gilchrist, Stacy. "Identifying Personality Types of Intelligence Analysts Using the Myers-Briggs Type Indicator." MA thesis, Mercyhurst College, 2007.
- Hayden, Michael. "Statement for the Record." House Permanent Select Committee, Subcommittee on Oversight, July 28, 2005, http://merln.ndu.edu/merln/mipal/crs/RL32600_6Oct04.pdf.
- Heuer, Richard. *Psychology of Intelligence Analysis*. (Washington, DC: Center for the Study of Intelligence, 1999).
- Jacobson, Michael. "The Intelligence Reform and Terrorism Prevention Act: Addressing Controversies, Expanding Powers." *Policy Watch* no. 929 (2004), <http://www.washingtoninstitute.org/templateC05.php?CID=2206>.
- Johnston, Todd. "Creating a Cultural Shift." *Tomorrow Makers Electronic Journal* (April 24, 2007), <http://www.tomorrowmakers.org/journal/2007/2/28/creating-a-cultural-shift.html>.
- Johnston, Rob. "Integrating Methodologists into Teams of Substantive Experts." *Studies in Intelligence* 47, no. 1. <http://www.cia.gov/csi/studies/vol47no1/article06.html>.
- Kane, Jeff. "The Art and Science of Rapid Prototyping." *Medical Design Technology Magazine* (September 2006), <http://www.mdtmag.com/scripts/ShowPR.asp?PUBCODE=046&ACCT=0005182&ISSUE=0609&RELTYPE=PR&PRODCODE=0400&PRODLTT=A>
- Kissinger, Henry. "Better Intelligence Reform." *Washington Post*, 16 August 2004: 17
- Kent, Sherman. *Sherman Kent and the Board of National Estimates Collected Essays*

Washington DC: Center for the Study of Intelligence,
<https://www.odci.gov/csi/books/shermankent/toc.html>.

- Kerr, Richard, Thomas Wolfe, Rebecca Donegan, and Aris Pappas. "Issues for the US Intelligence Community." *Studies in Intelligence* 49, no.3 (2005),
https://www.cia.gov/csi/studies/vol49no3/html_files/Collection_Analysis_Iraq_5.htm.
- Kroeger, Otto and Janet M. Thuesen, *Type Talk at Work*. (New York, NY: Delacorte Press, 1992).
- Lyden, Michael. "Web Logs as a Medium for Intelligence Sharing," *The Proceedings of the 47th Annual Meeting of the Institute for Nuclear Materials Management* 47 (2006).
- Marrin, Stephen. *Analytic Techniques: To Structure or Not to Structure*, International Association For Intelligence Educators Listserv E-mail, April 4, 2007.
- Marrin, Stephen. "CIA's Kent School: A Step in the Right Direction." MA thesis, University of Virginia, 2002.
- Marrin, Stephen. , "Preventing Intelligence Failures by Learning from the Past." *International Journal of Intelligence and Counterintelligence*, 2004.
- Medina, Carmen. "The Coming Revolution in Intelligence Analysis: What to do When Models Fail." *Studies in Intelligence* 46, no 3 (2001),
<https://www.cia.gov/csi/studies/vol46no3/article03.html>
- Mittlestaedt, M., "Spy Cloak Left in Shreds." *Globe and Mail*, September 12, 2001, A2.
- Myers Briggs, Isabel. *MBTI Manual: A Guide to the Development and Use of the Myers Briggs Type Indicator* (Palo Alto, CA: Consulting Psychologists Press, Inc., 1998).
- Newton-Dunn, William. "Europe needs an FBI," Pamphlet by Bill Newton-Dunn,
<http://www.newton-dunn.com/press-releases/eu-needs-fbi.htm>.
- Otterman, Sharon. "Intelligence: National Intelligence Estimates Backgrounder." Council on Foreign Relations, <http://www.cfr.org/publication.html?id=7758#6>.
- Pherson, Randy. E-mail message to the IAFIE Listserv, April 4, 2007.
- Pyritz, Bill. "Extreme Programming in the Telecommunications Domain." *Bell Labs Technical Journal* 8 (2003): p97-100,
<http://web.ebscohost.com.ezproxy.mercyhurst.edu/ehost/pdf?vid=7&hid=108&sid=d61246d1-60e7-4cde-877b-c495c0c57392%40sessionmgr107>.
- Q&A. "Q&A with General Michael Hayden." Q&A Episode 1123 originally airing

April 15, 2007, <http://www.q-and-a.org/Transcript/?ProgramID=1123>.

Quenk, Naomi. *Essentials of Myers-Briggs Type Indicator Assessment*. (New York, NY: John Wiley & Sons, Inc., 2000).

Reicht, Lisa. "Waterfalls Bad, Washing Machine Good." Information Architecture Summit 2007, <http://www.disambiguity.com/waterfall-bad-washing-machine-good-ia-summit-07-slides/>.

Reiner, Pat. "Why You Can't Believe Predictions," CNNMoney.com, http://money.cnn.com/magazines/moneymag/moneymag_archive/2006/07/01/8380756/index.htm.

Rhodes, Kara. "College Group Tracks Europe's Security: Mercyhurst Students Present Findings to Parliament." *Erie Times news*, March 1, 2004.

Schrage, Michael. "What Percent is 'Slam Dunk'?" *Washington Post*, February 20, 2005, B01.

Staff Writer, Market Watch. "Fourth-quarter GDP revised up to 2.5%." Marketwatch.com, <http://www.marketwatch.com/news/story/us-fourth-quarter-economic-growth-revised/story.aspx?guid=%7BCCA69754-E531-4D49-BB4A-EADD64E4D6D9%7D&dist>.

Tetlock, Philip. *Expert Political Judgment* (Princeton: Princeton University Press, 2005).

Tetlock, Phillip. "Theory-Driven Reasoning about Plausible Past and Probably Futures in World Politics: Are We Prisoners of Our Preconceptions?" *American Journal of Political Science* 43 (1990).

Travers, Russ. "A Blue Print for Survival: The Coming Intelligence Failure." *Studies in Intelligence* Semi-Annual Edition no. 1 (1997), <http://www.fas.org/irp/cia/product/curing.pdf>.

United states, Department of state. "Declassified Intelligence Briefing- PDB of August 6, 2001." <http://fpc.state.gov/fpc/31435.htm>.

United States, National Intelligence Council. "Iraq's Continuing Program for Weapons of Mass Destruction." http://www.dni.gov/nic/special_keyjudgements.html.

United States, National Intelligence Council. "NIC Mission," http://www.dni.gov/nic/NIC_about.html.

United States, National Intelligence Council. "Overview: History of Intelligence Estimates," http://www.dni.gov/nic/NIC_tradecraft_overview.html.

- United States, National Intelligence Council. "Prospects for Iraq's Stability: A Challenging Road Ahead."
http://www.dni.gov/press_releases/20070202_release.pdf.
- United States, National Intelligence Council. "Tracking the Dragon: Selected National Intelligence Estimates on China 1948-1976."
http://www.dni.gov/nic/NIC_foia_china.html.
- United States, National Intelligence Council, "Overview: History of Intelligence Estimates," http://www.dni.gov/nic/NIC_tradecraft_overview.html.
- United States, National Intelligence Council. "Yugoslavia Transformed."
http://www.dni.gov/nic/foia_yugoslavia_chrono.html.
- United States, Office of the Director of National Intelligence. "The 2006 Annual Report of the United States Intelligence Community." February 2007.
- United States, Office of the Director of National Intelligence. "Management, Integration, and Oversight of Intelligence Community Analysis (2007)." Intelligence Community Directive Number 200, January 8, 2007.
- United States, Office of the Director of National Intelligence. "Policy Directive for the Intelligence Community Leadership (2006)." Intelligence Community Directive Number One, May 1, 2006, <http://www.fas.org/irp/dni/icd/icd-1.pdf>.
- United States, Office of the Director of National Intelligence. "Report on the Progress of the Director of National Intelligence in Implementing the 'Intelligence Reform and Terrorism Prevention Act of 2004'." Office of the Director of National Intelligence, May 17, 2006, http://www.dni.gov/reports/CDA_14-25-2004_report.pdf.
- Wikipedia. "Extreme Programming." Wikimedia Foundation,
http://en.wikipedia.org/wiki/Extreme_Programming,
(Accessed April 23, 2007).
- Wohlstetter, Roberta . *Pearl Harbor: Warning and Decision* (Stanford: Stanford University Press 1962).
- Yudlowsky, Elizer. "Cognitive Biases Potentially Affecting Judgment of Global Risks." forthcoming in *Global Catastrophic Risks*, eds. Bostrom, Nick and Cirkovic, Milan,
<http://www.singinst.org/ourresearch/publications/cognitive-biases.pdf>

APPENDICES

Appendix A: COS Estimative Judgment Matrix

Country	Estimate	WEP	Date	Outcome	Who	What	Where	When	Why	How	Score
Armenia	Despite statements made by Armenian officials, it is likely that Armenia deployed troops to Iraq in order to gain U.S. monetary assistance and favor concerning border disputes.	Likely	2/11/2005	Unverifiable	1	1	1	1	1	1	6
Armenia	The railway ferry running from Georgia to Russia is likely to benefit Armenia by increasing the transit of goods while lowering transportation costs.	Likely	2/11/2005	Unverifiable	1	1	1	1	0	1	5
Armenia	It is likely that Armenian foreign debt will increase by USD 250 million within the next three years.	Likely	2/11/2005	Unverifiable	1	1	1	1	0	0	4
Armenia	Despite the adoption of a resolution denouncing the use of military action between Armenia and Azerbaijan, it is likely conflict will erupt as Armenia breaches ceasefire agreements and Azerbaijan loses patience with peace talks.	Likely	2/11/2005	FALSE	1	1	1	1	1	0	5
Armenia	It is likely that Armenia will continue to depend on Russia as Armenia looks for allies in the region and Russia continues to influence sectors of the Armenian sphere.	Likely	2/11/2005	TRUE	1	1	1	1	1	0	5
Armenia	With increased cooperation in the energy, labor and transit fields, it is likely that Armenian-Iranian relations will progress.	Likely	2/11/2005	TRUE	1	1	1	1	0	1	5
Armenia	Without the establishment of consequences for human rights offenders, it is likely that Armenian law enforcement officials will continue to abuse the human rights of Armenian citizens.	Likely	2/11/2005	TRUE	1	1	0	1	0	1	4
Armenia	Armenia's desire to increase Internet Technology (IT) will likely result in the increased growth of telecommunication companies within the next year.	Likely	2/11/2005	TRUE	1	1	0	1	1	0	4
Bolivia	It is likely that Bolivian oil and natural gas exports will significantly decrease through the next year greatly affecting the Gross Domestic Product (GDP), despite discovery of new reserves. The decrease is due to political parties influencing a discontented population to support national control of oil and natural gas production.	Likely	2/11/2005	FALSE	1	1	1	1	1	1	6
Bolivia	It is likely that, because of Bolivia's continued support for rainforest protection, the deforestation rate of Bolivian rainforests will decrease over the next year.	Likely	2/11/2005	FALSE	1	1	1	1	1	0	5
Bolivia	It is likely that Evo Morales, candidate of the Movement Towards Socialism Party, will win the upcoming December 18, 2005 elections, due to forceful campaigning coupled with strong public and international support	Likely	2/11/2005	TRUE	1	1	1	1	1	1	6
Bolivia	Although coca is illegal in Bolivia, it is likely that coca cultivation will continue in	Likely	2/11/2005	TRUE	1	1	1	1	1	1	6

	2006 due to support by leading political candidates in the upcoming election, a history of production, and minimal resistance from anti-drug programs.										
Bolivia	It is unlikely that ongoing discussion between the Bolivian and Chilean Presidents will reach an agreement allowing Bolivian access to the Pacific Ocean in the next year	Unlikely	2/11/2005	TRUE	1	1	1	1	0	1	5
Bolivia	Bolivia's relations with China are likely to continue developing in the next year, due to increased Chinese interest in Latin America and Bolivia's need to update and train their army.	Likely	2/11/2005	TRUE	1	1	1	1	1	0	5
Bolivia	In the last decade, Bolivia passed important legislation to counter dropout rates and illiteracy. This legislation, coupled with increased educational support and new programs is highly likely to continue increasing the literacy rate within the country.	Highly Likely	2/11/2005	TRUE	1	1	1	1	0	1	5
Bolivia	It is likely that the Bolivian market for telecommunication will continue to grow, due to recently opened markets and healthy corporate competition.	Likely	2/11/2005	TRUE	1	1	1	1	1	0	5
Brazil	Brazilian efforts to build a trans-South American highway will likely contribute to the deforestation problem.	Likely	11/6/2005	Unverifiable	1	1	0	1	0	0	3
Brazil	It is likely that Agência Brasileira de Inteligência (ABIN – Brazilian Agency of Intelligence) is not a major threat to the United States in the intelligence sector.	Likely	11/6/2005	Unverifiable	1	1	1	1	0	0	4
Brazil	Brazil likely focuses moderate resources with moderate to high intent on the United States.	Likely	11/6/2005	Unverifiable	1	1	1	1	0	0	4
Brazil	Brazil likely relies on open sources and proprietary subscription databases for most of its intelligence gathering	Likely	11/6/2005	Unverifiable	1	1	1	1	0	1	5
Brazil	It is all but certain that the political corruption scandals under investigation in Brazil will negatively affect President Luiz Inácio Lula da Silva's (Lula) performance in the October 2006 presidential elections.	All But Certain	11/6/2005	FALSE	1	1	1	1	0	0	4
Brazil	Brazil's left leaning president Luiz Inácio Lula da Silva is likely to continue Brazil's good relations with Venezuela, especially in the areas of trade and oil.	Likely	11/6/2005	FALSE	1	1	1	1	0	1	5
Brazil	It is likely that Amazon logging over the next year will increase, despite government and private attempts to limit deforestation	Likely	11/6/2005	FALSE	1	1	1	1	0	1	5
Brazil	It is likely that estimates of past deforestation levels by research and environmental groups will raise over the next year.	Likely	11/6/2005	FALSE	1	1	1	1	1	1	6
Brazil	Embraer is Brazil's top military aircraft supplier and is likely to increase its foreign military sales	Likely	11/6/2005	FALSE	1	1	1	1	1	1	6
Brazil	It is likely that China and Brazil will negotiate a resolution to their current trade disagreements within the next year.	Likely	11/6/2005	TRUE	1	1	1	1	0	0	4

Brazil	It is unlikely that Brazil will lean on Venezuela to stop the latter country's anti-American political positions	Unlikely	11/6/2005	TRUE	1	1	1	1	1	0	5
Brazil	though it is also unlikely that Brazil will directly or strongly support the same positions	Unlikely	11/6/2005	TRUE	1	1	1	1	0	0	4
Brazil	Brazil is likely to pursue WiMax as part of the country's efforts to go along with its inexpensive computer program	Likely	11/6/2005	TRUE	1	1	0	1	1	0	4
Brazil	it is unlikely that WiMax will become Brazil's exclusive wireless system in the next year	Unlikely	11/6/2005	TRUE	1	1	1	1	0	0	4
Brazil	It is also unlikely that Brazil's inexpensive internet access computer will be available at the desired low cost in the next year.	Unlikely	11/6/2005	TRUE	1	1	1	1	0	0	4
Brazil	It is likely that anti-poverty programs will continue to be the focal point of Brazilian domestic policy over the next year.	Likely	11/6/2005	TRUE	1	1	1	1	0	0	4
Brazil	It is highly likely that Brazil's Air Force can perform only modest air defense missions for the next two years	Highly Likely	11/6/2005	TRUE	1	1	1	1	0	0	4
Brazil	Selective and illegal logging is likely the cause behind the low estimation, and will likely continue to damage the rainforest.	Likely	11/6/2005	TRUE	1	1	1	1	1	1	6
Brazil	Brazilian aircraft manufacturer Empresa Brasileira de Aeronautica S.A. (Embraer) is likely to remain profitable and competitive in the aggressive international aviation industry.	Likely	11/6/2005	TRUE	1	1	1	1	1	1	6
Brazil	but is likely attempting to develop abilities with more technical means, such as satellites	Likely	11/6/2005	TRUE	1	1	1	1	0	1	5
Cambodia	Cambodian government intelligence units are likely to seek out relatively unprotected information due to a low level of available resources and pose little threat to the United States.	Likely	11/6/2005	Unverifiable	1	1	1	1	1	1	6
Cambodia	Severe Drought is likely leading to a decrease in the agricultural production, a leading industry in Cambodia.	Likely	11/6/2005	FALSE	1	1	0	1	1	1	5
Cambodia	It is likely that international contributions will lead to the funding of a United Nations-sponsored Khmer Rouge trial despite some delays and criticism	Likely	11/6/2005	FALSE	1	1	1	1	0	1	5
Cambodia	It is likely Cambodia's economy will remain stagnant despite increases in foreign based businesses and tourism	Likely	11/6/2005	FALSE	1	1	1	1	1	0	5
Cambodia	It is likely Cambodian military operations will remain focused on domestic issues.	Likely	11/6/2005	FALSE	1	1	1	1	0	0	4
Cambodia	It is likely that allegations of corruption of high ranking government officials will continue throughout 2005	Likely	11/6/2005	TRUE	0	1	1	1	0	0	3
Cambodia	It is likely the allegations will focus on Prime Minister Hun Sen and relate to the abusing of powers.	Likely	11/6/2005	TRUE	0	1	1	1	1	0	4
Cambodia	Cambodia's focus on increasing tourism will also lead to an expanding air industry in 2005 and beyond.	N/A	11/6/2005	TRUE	1	1	1	1	1	1	6
Cambodia	It is likely donations from private companies will help bring modern technology to	Likely	11/6/2005	TRUE	1	1	1	1	0	1	5

	rural schools in Cambodia.										
Cambodia	It is likely that regional agreements will aid in the construction and improving of major roadways.	Likely	11/6/2005	TRUE	0	1	1	1	0	0	3
Cambodia	It is likely that programs to lead to the decline of human and drug trafficking will remain the focus throughout 2005	Likely	11/6/2005	TRUE	1	1	1	1	0	1	5
Georgia	Based on an energy crisis, the installation of a new pipeline, and substandard natural resources, Georgia is likely to head in the direction of environmental degradation.	Likely	2/11/2005	Unverifiable	1	1	1	1	1	1	6
Georgia	These environmental concerns, if left untreated, will most likely threaten national stability	Likely	2/11/2005	FALSE	1	1	1	1	0	0	4
Georgia	As a result of US financial support and training initiatives, the Georgian military is likely to expand and increase in strength, with the development of a 15,000-member army, becoming more independent and less reliant on outside nations.	Likely	2/11/2005	FALSE	1	1	1	1	1	1	6
Georgia	However, treaties and business acquisitions are likely to strengthen economic ties.	Likely	2/11/2005	FALSE	1	1	1	1	0	1	5
Georgia	Based on the implementations of The Action Plan to Combat Trafficking, Georgia is likely to continue as a Tier 2 country in the fight against human trafficking	Likely	2/11.2005	TRUE	1	1	1	1	1	1	6
Georgia	The recent death of Georgian Prime Minister Zurab Zhvania, who was one of the nation's major architects of policy, means likely changes in the Georgian politics.		2/11/2005	TRUE	1	1	1	1	1	0	5
Georgia	It is almost certain the Georgia's Gross Domestic Product (GDP) will continue to rise in 2005, boosting its economic standing and will considerably benefit from the opening of the Baku-Tbilisi-Ceyhan (BTC) oil pipeline.	Almost Certain	2/11/2005	TRUE	1	1	1	1	1	1	6
Georgia	The introduction of new policies and Georgia's recent membership in two telecommunications projects is likely to become the major factor of Georgian foreign political and economic development.	Likely	2/11/2005	TRUE	1	1	1	1	1	1	6
Georgia	The policies are highly likely to strengthen the communications infrastructure between Asian, Caucasian, and European nations.	Likely	2/11/2005	TRUE	1	1	1	1	0	1	5
Georgia	The future of Georgian-Russian political relations is threatened and will likely weaken as a result of the recent death of Georgia's Prime Minister and recent terrorist threats.	Likely	2/11/2005	TRUE	1	1	1	1	1	0	5
Kazakhstan	Based on the finding of the Kashagan oil field and depths of the Tengiz and Karachaganak oil fields, it is probable that foreign investments into Kazakhstan's oil sector will increase throughout the next ten to fifteen years despite investor clashes with the Kazakh government.	Likely	2/11/2005	Unverifiable	1	1	1	1	1	1	6

Kazakhstan	It is almost certain that the Kazakh government's relations with neighboring China will continue to develop within the next eight to twelve months.	All But Certain	2/11/2005	TRUE	1	1	1	1	0	0	4
Kazakhstan	It is highly likely that Kazakhstan's military will continue to undergo gradual reform and improve relations with NATO within the next twelve months, despite Russia's traditional opposition to NATO	Highly Likely	2/11/2005	TRUE	1	1	1	1	0	0	4
Kazakhstan	It is likely that Kazakhstan will continue training workshops, receiving aid to fight human trafficking and implementing programs that aim to combat human trafficking through the country	Likely	2/11/2005	TRUE	1	1	1	1	0	1	5
Kazakhstan	It is likely that the Kazakhstan's media outlets (internet, print, radio, and television) will face increased censorship within the next six to twelve months due to the presidential election planned for early 2006	Likely	2/11/2005	TRUE	1	1	1	1	1	0	5
Kazakhstan	It is likely that Kazakhstan will continue to develop railway transport within the country and across its borders	Likely	2/11/2005	TRUE	1	1	1	1	0	0	4
Kazakhstan	Although the Kazakh government plans to toughen the enforcement of current environmental regulations, it is unlikely that Kazakhstan's poor environment conditions will improve in the next six to twelve months due to the drying of Lake Balkhash and Caspian Sea pollution	Unlikely	2/11/2005	TRUE	1	1	1	1	1	1	6
Kazakhstan	It is likely that Kazakhstan will experience population growth in the next twelve months and the long term	Likely	2/11/2005	TRUE	1	1	0	1	0	0	3
Kazakhstan	Kazakh government will likely continue work to better understand migration and ways to prevent it	Likely	2/11/2005	TRUE	1	1	0	1	0	0	3
Kyrgyzstan	Opening a business in Kyrgyzstan requires fewer days and fewer steps than other countries in the region while offering below average strictness for employment, which is likely to attract more businesses	Likely	2/11/2005	Unverifiable	1	1	1	1	1	1	6
Kyrgyzstan	Relations between the United States (US) and Kyrgyzstan are likely to deteriorate as relations between Kyrgyzstan and Russia improve.	Likely	2/11/2005	FALSE	1	1	1	1	0	0	4
Kyrgyzstan	Tension in the Central Asian region is likely to increase unless the countries begin to cooperate on water sharing issues		2/11/2005	FALSE	1	1	1	1	1	0	5
Kyrgyzstan	In Kyrgyzstan, human trafficking remains a large industry and problem despite recent government attempts to combat the practice. However, the problem is likely to slow down within the next year because of the implementation of a new national passport and passport obtaining system	Likely	2/11/2005	FALSE	1	1	1	1	0	1	5
Kyrgyzstan	Border disputes between Kyrgyzstan and Uzbekistan, specifically around the Ferghana Valley (also commonly known as	Likely	2/11/2005	FALSE	1	1	1	1	0	0	4

	Fergana Valley), are likely to evolve into military clashes.											
Kyrgyzstan	Political tensions in Kyrgyzstan continue to grow prior to the 27 February 2005 elections. This is likely due to government crackdown on opposition parties, which are dangerously weakening President Askar Akayev's authoritarian rule	Likely	2/11/2005	TRUE	1	1	1	1	1	1	6	
Kyrgyzstan	A recent meeting between Kyrgyzstan officials and Pakistan officials ended in an agreement to improve road links between the countries, which is likely to increase friendly relations.	Likely	2/11/2005	TRUE	1	1	1	1	0	1	5	
Kyrgyzstan	In the weeks prior to Kyrgyzstan's parliamentary elections, the mass media of the country, especially government supported and independent media sources are likely to lose their freedom to report democratically about the elections.	Likely	2/11/2005	TRUE	1	1	1	1	0	0	4	
Liberia	It is highly likely that DDDR will bring about a new, though smaller Liberian military within the next three years	Highly Likely	11/5/2004	Unverifiable	1	1	1	1	0	0	4	
Liberia	While it is virtually certain that this will slow the process and increase the cost of cellular penetration in Liberia, MPT's efforts alone will not likely prevent cellular market expansion.	Virtually Certain	11/5/2004	Unverifiable	1	1	1	1	0	1	5	
Liberia	Liberia's mineral resources likely represent a significant source of economic capital. Diamond mining will likely yield profit when the UN lifts sanctions against Liberian export of the stones, which will likely occur with the next six to eighteen months.	Likely	11/5/2004	FALSE	1	1	1	1	0	1	5	
Liberia	It is also highly likely that religious conflict, most notably between Christians and Muslims, will sharply increase in the next year	Highly Likely	11/5/2004	FALSE	1	1	0	1	0	0	3	
Liberia	Work training and education programs for disarmed ex-combatants, however, will likely decrease unemployment somewhat by increasing practical employment skills	Likely	11/5/2004	FALSE	1	1	1	1	1	1	6	
Liberia	It is also likely that corruption will limit Liberia's potential for increased international aid and may even cause such aid to decrease in the next year	Likely	11/5/2004	FALSE	1	1	1	1	1	0	5	
Liberia	It is highly likely that Liberia's unemployment level will remain high and provoke more destructive rioting in the next year	Highly Likely	11/5/2004	TRUE	1	1	1	1	0	0	4	
Liberia	Corruption will likely limit the effectiveness of the National Transitional Government of Liberia (NTGL) at least until national elections are held in October, 2005	Likely	11/5/2004	TRUE	1	1	1	1	0	1	5	
Liberia	It is highly likely that the development of Liberia's iron ore resources will also bring capital and employment to Liberia in the next several years	Highly Likely	11/5/2004	TRUE	1	1	1	1	0	1	5	
Liberia	It is highly likely that conflict between various rebel factions will decrease in the next year	Highly Likely	11/5/2004	TRUE	1	1	1	1	0	0	4	

Liberia	The UN Mission In Liberia (UNMIL) will likely finish the disarmament/demobilization phase within the next three months and begin implementing the reintegration phase on a large scale within the next six months	Likely	11/5/2004	TRUE	1	1	1	1	1	0	5
Liberia	The United States will likely train the new Liberian military during the remobilization phase	Likely	11/5/2004	TRUE	1	1	1	1	0	0	4
Liberia	It is highly likely that international development aid will advance economic opportunities by increasing economic capital in the next 1-3 years though not by as much as had originally been expected	Highly Likely	11/5/2004	TRUE	1	1	1	1	1	1	6
Liberia	It is virtually certain that national elections scheduled for October, 2005 will determine Liberia's political future for the near term.	Virtually Certain	11/5/2004	TRUE	1	1	1	1	0	0	4
Liberia	Refugees who sought shelter in neighboring countries during the civil war will likely begin returning to Liberia in larger numbers in the next 1-3 months	Likely	11/5/2004	TRUE	1	1	1	1	1	0	5
Liberia	It is unlikely that former Liberian President Charles Taylor will be tried within the next year	Unk	11/5/2004	TRUE	1	1	1	0	0	0	3
Liberia	It is highly likely that the Ministry of Post and Telecommunication (MPT) will continue to use its regulatory framework to hinder any private attempts to develop Liberia's cellular telephony market	Highly Likely	11/5/2004	TRUE	1	1	1	1	1	1	6
Liberia	Demand for cellular services in Liberia will likely increase in the next few years because of the end of the civil war, Liberia's inadequate fixed line facilities, international aid, and recent international investments in Liberian cellular facilities	Likely	11/5/2004	TRUE	1	1	1	1	1	0	5
Liberia	It is highly likely that the National Transitional Government of Liberia (NTGL) will improve Liberia's roads, after they suffered nearly fifteen years of neglect.	Highly Likely	11/5/2004	TRUE	1	1	1	1	1	0	5
Liberia	Roads will most likely be improved through the combined efforts of international aid and direct efforts by international donors	Likely	11/5/2004	TRUE	1	1	1	1	1	1	6
South Korea	South Koreans are unlikely to tolerate any illegal or undemocratic moves of the government	Unlikely	5/13/2005	Unverifiable	1	1	1	1	0	0	4
South Korea	South Korea is not a threat for the US security and is unlikely to become one in the near future. However, American entities in South Korea are likely to be endangered by foreign terrorist espionage	Unlikely	5/13/2005	Unverifiable	1	1	1	1	0	0	4
South Korea	Through various measures including humanitarian aid, economic cooperation and diplomacy, inter-Korean relations will likely strengthen in the next few months.	Likely	5/13/2005	FALSE	1	1	1	1	0	1	5
South Korea	With rising prices of petroleum, South Korea is likely to slow down the growth of oil imports as a	Likely	5/13/2005	FALSE	1	1	1	1	1	1	6

	major source of energy and focus on other sources, including nuclear power.											
South Korea	It is highly likely that further increase in oil prices will continue to slow down Korea's economic progress and lower its purchasing power, providing that the Korean government does not implement alternative sources of energy	Highly Likely	5/13/2005	FALSE	1	1	1	1	1	1	6	
South Korea	South Korea is likely to maintain its top position in the international ranking of countries penetrated by broadband technology and providing fast Internet	Likely	5/13/2005	FALSE	1	1	1	1	0	0	4	
South Korea	The US is likely to remain the most significant ally for South Korea.	Likely	5/13/2005	TRUE	1	1	1	1	0	0	4	
South Korea	However, South Korea will likely seek more independence in both strategic decision making and by involving in new alliances	Likely	5/13/2005	TRUE	1	1	1	1	0	1	5	
South Korea	Its army will likely continue to cooperate with US military suppliers	Likely	5/13/2005	TRUE	1	1	1	1	0	0	4	
South Korea	The stable democracy is likely to continue, as the public holds the politicians accountable for their actions	Likely	5/13/2005	TRUE	1	1	1	1	1	0	5	
South Korea	Seoul is likely to remain the capital city	Likely	5/13/2005	TRUE	1	1	1	1	0	0	4	
South Korea	It is unlikely that South Korea will give up its control of the islands, which are important for both political and economic reasons- even at the cost of further upsetting relations with Japan.	Unlikely	5/13/2005	TRUE	1	1	1	1	1	0	5	
South Korea	The South Korea's broadband industry is likely to continue its success by introducing new WiBro technology by mid- 2006	Likely	5/13/2005	TRUE	1	1	1	1	0	1	5	
South Korea	South Korea has recently introduced many internal anti- trafficking solutions. Its government has shown a commitment to support victims, prosecute traffickers, and improve national laws to fight trafficking of persons. It is likely to increase international cooperation with other South- East Asian countries to eliminate this problem	Likely	5/13/2005	TRUE	1	1	1	1	1	1	6	
South Korea	It is unlikely that the inter-Korean railways will be open for use at least in the next 2 years. Despite the fact that the construction has been almost finished, the railways on the North Korean side still need upgrading	Unlikely	5/13/2005	TRUE	1	1	1	1	0	0	4	
Syria	It is likely that Syrian President Bashar al- Assad's agreements with Russia will give Syria a chance to survive the economic and social problems it faces. Syria was able to write off a substantial part of its debt to Russia. This coupled with other agreements with Russia gives Syria a chance to survive its lack defensive capabilities, economic growth, and influence on the world scene.	Likely	2/11/2005	FALSE	1	1	1	1	1	1	6	

Syria	It is unlikely that Syria will completely remove its military presence from Lebanon in the next 12 months. This is due to that warming of relations between Syria and Russia, the strategic importance of southern Lebanon to Syria, and the lack of implementation of United Nation (UN) Resolution 242	Unlikely	2/11/2005	FALSE	1	1	1	1	1	1	6
Syria	It is likely that Syria's GDP growth rate will decline in the next year. This is due to the fact that there is a decline in Syrian oil reserves, the United States (US) will levy more economic sanctions against Syria in 2005, and that Syria is failing in its attempt to move to a market economy.		2/11/2005	FALSE	1	1	1	1	1	1	6
Syria	It is unlikely that Israel and Syria will reach a peace agreement including an agreement over the Golan Heights during the next 12 months. This is due to the fact that Syria demands that the Golan Heights be completely returned by Israel, Israeli Prime Minister (PM) Ariel Sharon shows an unwillingness to negotiate with the Syrians, and Israel is unwilling to give up the strategic land and water near the Golan Heights.	Unlikely	2/11/2005	TRUE	1	1	1	1	1	1	6
Syria	It is likely that the military cooperation agreement signed between Syria and Russia on the 26th January 2005 includes an arms deal that would increase Syria's current defensive military capabilities by supplying Syria with advanced weapons including the surface-to-air (SA) 18 missile	Likely	2/11/2005	TRUE	1	1	1	1	0	1	5
Syria	It is likely that human rights abuses will continue to take place in Syria during the next 12 months. This is due to the fact that Syria does not recognize Article 20 of the "Anti-torture" agreement that it ratified and that was adopted by the United Nations (UN), reports indicate that Syria conducts human rights abuses on suspected criminals, and the Syrian government is a military dictatorship.	Likely	2/11/2005	TRUE	1	1	1	1	1	1	6
Uzbekistan	Uzbek border disputes with neighboring Kazakhstan, Kyrgyzstan, and Tajikistan are likely to increase in the next three months. This mounting tension is likely the result of the bulldozing of border settlements, landmines planted along borders, and the ongoing corruption of border guards.	Likely	2/11/2005	TRUE	1	1	1	1	1	0	5
Uzbekistan	The completion of transportation projects linking Uzbekistan, Afghanistan, and Iran will likely increase the flow of illegal drugs and other smuggled goods passing through Uzbekistan. The construction of both a roadway and railway will further connect the Central Asian countries.	Likely	2/11/2005	TRUE	1	1	1	1	1	1	6

Uzbekistan	It is likely that the United States (US) will continue to fund projects in Uzbekistan aimed at securing the country's biological weapons stockpile despite Uzbekistan's failure to improve its human rights record. One can attribute the US's urgency to reduce biological weapons in Uzbekistan to the increasing threat of terrorist theft and transmission of diseases by animals.	Likely	2/11/2005	TRUE	1	1	1	1	1	1	6
Uzbekistan	It is likely that Uzbekistan's military reform will help to modernize its existing army as long as the country appropriates adequate time and financial resources for implementation of the reform. Despite some problems already emerging, the continual offering of financial aid from countries such as the United States (US) and Russia will ensure that Uzbekistan's reform progresses	Likely	2/11/2005	TRUE	1	1	1	1	0	1	5
Uzbekistan	It is highly unlikely that Uzbekistan's political situation will improve over the next year. Uzbek President Islam Karimov's habit of extending his term in office, officials refusing representation by opposition groups in elections, and uninformed voters facing intimidation when casting their ballots contribute to this trend.	Unlikely	2/11/2005	TRUE	1	1	1	1	1	1	6
Uzbekistan	Human rights abuses in Uzbekistan are likely to continue throughout 2005 and beyond despite limited attempts at reform of torture policies following criticism from the international community. Fueling the abuses are an increased persecution of independent Muslims, a crackdown on human rights defenders, and the Uzbek courts' acceptance of evidence obtained by torture.	Likely	2/11/2005	TRUE	1	1	1	1	1	1	6
Uzbekistan	The Uzbek economy will likely remain stagnant throughout 2005. This is due to lack of reform and conditions that discourage foreign investment including human rights abuses, government corruption, and strict governmental regulations.	Likely	2/11/2005	TRUE	1	1	1	1	1	1	6
Uzbekistan	It is highly likely that the Uzbek government will continue to suppress the media despite a law passed in 2002 banning censorship. Factors contributing to increased media suppression include journalists increasingly face danger when reporting critical information about Uzbekistan, the Uzbek government is tightening its grip on various forms of media, and self-censorship remains prevalent due to state-controlled media	Highly Likely	2/11/2005	TRUE	1	1	1	1	0	1	5

Appendix B: NIE Estimative Judgment Matrix

Country	Title	Estimate	WEP	Date	Time Frame	Outcome	Who	What	Where	When	Why	How	Score
China	The Current Situation in China	The position of the present National Government is so precarious that its fall may occur at any time. It is quite likely, however, that it may survive with diminishing power for some time, but soon become only one of the several regimes exercising governmental powers independently in Nationalist China.	Quite Likely	7/22/1948	"Some Time"	FALSE	1	1	1	0	0	0	3
China	The Current Situation in China	Furthermore, the military forces of the Chinese Communists have been able to seize the tactical initiative on an increasingly large scale. Even with current US assistance, it is improbable that the National Army can successfully defend all of its present territories.	Improbable	7/22/1948	Not Specified	TRUE	1	1	1	0	1	1	5
China	Prospects for a Negotiated Peace in China	A negotiated peace would have real advantages for the Communists, but since they	Probably	8/3/1948	Not Specified	Unverifiable	1	1	1	0	1	1	5

		hold the military imitative and feel sure of final victory, they would probably insist on terms that would ensure their ultimate control of China.												
China	Prospects for a Negotiated Peace in China	So long as Chiang Kai-shek remains in office, however, compromise between the National Government and the Communists appears virtually impossible, Chiang being opposed to negotiations with the Communists and they with him.	Virtually Impossible	8/3/1948	Not Specified	TRUE	1	1	1	0	1	1	5	
China	Chinese Communist Capabilities for Control of All China,	It is almost certain, however, that Communist officials will dictate the policies of such a government.	Almost Certain	12/10/1948	Not Specified	Unverifiable	1	1	1	0	0	0	3	
China	Chinese Communist Capabilities for Control of All China,	While there is no guarantee that the USSR will always find the Chinese Communists dependable, there appears to be no chance of a split within the Party or between the Party and the USSR until the time of Communist domination of China.	No Chance	12/10/1948	Not Specified	FALSE	1	1	1	1	0	0	4	
China	Chinese Communist Capabilities for Control of All China,	This government will probably be proclaimed as a "coalition," and it will include many non-Communists, among members of the present National Government.	Probably	12/10/1948	Not Specified	FALSE	1	1	1	0	1	0	4	
China	Chinese Communist Capabilities for Control of All China,	While the obligation of feeding these additional cities will strain the Communists' food resources, the standard of living in the cities will probably not be reduced under	Probably	12/10/1948	Not Specified	FALSE	1	1	1	0	0	0	3	

		communist rule.											
China	Chinese Communist Capabilities for Control of All China,	... and it will include many non-Communists, among members of the present National Government.	Will	12/10/1948	Not Specified	FALSE	1	1	1	0	0	0	3
China	Chinese Communist Capabilities for Control of All China,	As a "coalition: it will have the advantage of not necessarily forfeiting international recognition.	Will	12/10/1948	Not Specified	FALSE	1	1	1	0	0	1	4
China	Chinese Communist Capabilities for Control of All China,	The problem of feeding the large cities which have come under Communist control, or which will fall to the Communists in the near future, will be offset by possession of through rail connections which will permit transportation of food from surplus regions.	Will	12/10/1948	Not Specified	FALSE	1	1	1	0	1	1	5
China	Chinese Communist Capabilities for Control of All China,	The rapid disintegration of the Nationalist Army indicates that organized resistance to the military forces of the Chinese Communist Party will probably cease within a few months.	Probably	12/10/1948	"a few months"	TRUE	1	1	1	1	1	0	5
China	Chinese Communist Capabilities for Control of All China,	A Communist-dominated government will probably come to power as a result of what is in effect the surrender of the National Government.	Probably	12/10/1948	Not Specified	TRUE	1	1	1	0	1	1	5
China	Chinese Communist Capabilities for Control of All China,	The strength and the tactical success of the Chinese Communist Forces have been the chief instruments in the ascent of the Communist Party, and will continue to be so until all organized resistance by the Nationalist Army has	Will	12/10/1948	Not Specified	TRUE	1	1	1	0	0	1	4

		been overcome.											
China	Chinese Communist Capabilities for Control of All China,	The Chinese Communist Party will not be faced with any economic problems which in scope or kind will prevent it from attaining its immediate military and political goals.	Will	12/10/1948	Not Specified	TRUE	1	1	1	0	0	1	4
China	Prospects for Soviet Control of a Communist China	It is the intention of the Soviet Union to advance toward its goal of eventual world domination by adding to the soviet orbit the enormous territory and population of China, and by employing China to facilitate Soviet expansion into other Far Eastern areas.	Will	4/15/1949	Not Specified	FALSE	1	1	1	0	0	1	4
China	Prospects for Soviet Control of a Communist China	The Soviet Union will attempt to use the CCP as its chief instrument to consolidate control over China as it has successfully used the various national Communist parties of Eastern Europe.	Will	4/15/1949	Not Specified	FALSE	1	1	1	0	0	1	4
China	Prospects for Soviet Control of a Communist China	The Kremlin will endeavor to prevent possible cleavages in the Party leadership from jeopardizing eventual Soviet control over China.	Will	4/15/1949	Not Specified	FALSE	1	1	1	0	1	0	4
China	Prospects for Soviet Control of a Communist China	In accordance with its strategy of creating on its borders easily dominated political entities, the Soviet Government will probably press for political autonomy in all present Chinese border areas		4/15/1949	Not Specified	FALSE	1	1	1	0	1	1	5

		adjacent to the USSR.											
China	Prospects for Soviet Control of a Communist China	A moderate Chinese Communist policy toward small business proprietors, landowners, and peasants will help to gain popular support, at least until the government feels strong enough to launch into the more vigorous phases of communization.	Will	4/15/1949	Not Specified	TRUE	1	1	1	0	1	1	5
China	Prospects for Soviet Control of a Communist China	The Chinese Communists will support Soviet foreign policy by diplomatic moves calculated to embarrass the Eastern Powers, by blatant anti-western propaganda, and by assistance to the Communist parties and nationalist movements of Asia.	Will	4/15/1949	Not Specified	TRUE	1	1	1	0	0	1	4
China	Probable Developments in China	In addition, US interests probably will be affected adversely by the expansion of Communists influence throughout the Far East, particularly if a Chinese Communist regime gains seats on the Far Eastern Commission and the Allied Council for Japan, and acquire China's claims regarding a future Japanese Peace treaty.		6/16/1949	6 to 12 months	Unverifiable	1	1	1	1	1	1	6

		The Communists principal economic problem in the coming months will be that of acquiring petroleum, machinery, and perhaps cotton. There is little prospect of substantial Soviet aid, and domestic resources must be supplemented by these essential imports. Therefore, China's economic recovery during the next year will probably deepened on active Western trade and close ties with occupied Japan.												
China	Probable Developments in China		Will	6/16/1949	6 to 12 months	FALSE	1	1	1	1	1	1	1	6
China	Probable Developments in China	Incidents involving the mistreatment of foreign nationals and the destruction or seizure of foreign property are likely	Likely	6/16/1949	6 to 12 months	TRUE	1	1	1	1	0	0	0	4
China	Probable Developments in China	The Chinese Communists will probably not be faced with serious food shortages during the next year.	Probably	6/16/1949	6 to 12 months	TRUE	1	1	0	1	0	0	0	3
China	Communist China's Power Potential Through 1957	Barring a major crisis or other unpredictable event, we estimate that China will have attained by 1957 a gross national product of roughly USD 32 billion, an increase of 20-25 percent over the 1952 figure.	Will	6/3/1954	3.5 Years	FALSE	1	1	1	1	0	0	0	4
China	Communist China's Power Potential Through 1957	To this end, they [Communist China] will proceed, as rapidly as possible, through the forced and ruthless measures characteristic of Communist regimes ...	Will	6/3/1954	3.5 Years	TRUE	1	1	1	1	0	1	1	5
China	Communist China's Power Potential Through	The regime will devote substantial resources to modernizing	Will	6/3/1954	3.5 Years	TRUE	1	1	1	1	0	1	1	5

	1957	and strengthening its armed forces as a power base for its foreign policy.											
China	Communist China's Power Potential Through 1957	We estimate that agricultural output will be about 10 percent higher than in 1952 ...	Will	6/3/1954	3.5 Years	TRUE	1	1	1	1	0	0	4
China	Communist China's Power Potential Through 1957	... and the output of the modern industrial sector of the economy to 70-100 percent higher.	Will	6/3/1954	3.5 Years	TRUE	1	1	1	1	0	0	4
China	Communist China's Power Potential Through 1957	Even by 1957, however, the Communists will only have begun the modernization of China's economy.	Will	6/3/1954	3.5 Years	TRUE	1	1	1	1	0	0	4
China	Communist China's Power Potential Through 1957	We believe that by 1957 the Chinese regime will have increased its administrative efficiency and have further tightened its control over its people and resources	Will	6/3/1954	3.5 Years	TRUE	1	1	1	1	0	0	4
China	Communist China's Power Potential Through 1957	Furthermore, we believe that the regime will be able to master leadership problems that are likely to arise, even in the event of the death or retirement of Mao Tse-tung.	Will	6/3/1954	3.5 Years	TRUE	1	1	1	1	0	0	4
China	Communist China's Strategic Weapons Program	Assuming political and economic stability, China will probably have the resources to support a moderate and growing ICBM deployment through 1975.	Probably	8/3/1967	7 Years	FALSE	1	1	1	1	0	0	4
China	Communist China's Strategic Weapons Program	China has shown some interest in nuclear propulsion technology, but even if design on a nuclear submarine is already underway, the first unit probably could not be operational until the late 1970s.	Probably	8/3/1967		FALSE	1	1	1	1	0	0	4

China	Communist China's Strategic Weapons Program	China probably now has a few fission weapons in stockpile deliverable by bomber, and has demonstrated the capability to produce thermonuclear weapons with megaton (mt) yields.	Probably	8/3/1967	"The early 1970s"	TRUE	1	1	1	1	0	0	4
China	Communist China's Strategic Weapons Program	For political effect, China will probably attempt to launch an earth-satellite as soon as possible.	Probably	8/3/1967	"as soon as possible"	TRUE	1	1	1	0	1	0	4
China	The Short-Term Outlook in Communist China	Though Mao was successful in breaking high-level opposition in the old party apparatus [to the Cultural Revolution] in the old party apparatus, in its broader aspects his Cultural Revolution has been a failure and we believe it will be gradually phased out.	Will	5/23/1968	1 Year	FALSE	1	1	1	1	1	0	5
China	The Short-Term Outlook in Communist China	Mao still appears to be the central figure and source of basic policy. Mao and his regime are officially committed to the reconstruction of a new framework for administrative and political control. On balance, we believe that the trend will be toward regaining some stability, in part because of the increased influence of the moderate elements in Peking.	Will	5/23/1968	1 Year	FALSE	1	1	1	1	1	0	5
China	The Short-Term Outlook in Communist China	The military will remain Peking's most reliable instrument over the coming year. As the only cohesive force with a nationwide system of command and control, the military will have to serve a variety of administrative	Will	5/23/1968	1 Year	FALSE	1	1	1	1	1	1	6

		and control functions.												
China	The Short-Term Outlook in Communist China	Mao's legacy is likely to be an enfeebled party, a confused bureaucracy, and a divided and harried leadership. In our view the ultimate result will be to accelerate the rejection of Mao's doctrines and policies.	Will	5/23/1968	1 Year	FALSE	1	1	1	1	1	0	5	
China	The Short-Term Outlook in Communist China	But there still will be sharp twists and turns, occasional crises, and disorder and turmoil at various levels which will reflect strong differences among factions and leaders over policies and tactics.	Will	5/23/1968	1 Year	TRUE	1	1	1	1	1	0	5	
China	The Short-Term Outlook in Communist China	The cumulative damage to the economy of prolonged political turmoil will not be easily or quickly repaired.	Will	5/23/1968	1 Year	TRUE	1	1	1	1	0	0	4	
China	Possible Changes in the Sino-Soviet Relationship	War between Moscow and Peking is a possibility, but we rate the odds as low--no higher than 1 in 10.	"1 in 10"	10/25/1973	Not Specified	TRUE	1	1	1	0	0	0	3	
China	Possible Changes in the Sino-Soviet Relationship	Even in this contingency [a disarming soviet nuclear strike], however, the counter-arguments would seem far more compelling. Thus, it is likely that Moscow will hold to a more measured course, one which does not foreclose the possibility of some accommodation over the longer term.	Likely	10/25/1973	Long Term	TRUE	1	1	1	1	0	1	5	
China	Possible Changes in the Sino-Soviet Relationship	Significant improvement in Sino-Soviet relations is unlikely in the next year or two-	Unlikely	10/25/1973	2 Years	TRUE	1	1	1	1	1	0	5	

		particularly if Mao survives.											
China	Prospects for Soviet Control of a Communist China	A coalition government formed by the Chinese Communists, while representing a temporary tactical maneuver, will contain no elements capable of offering real opposition to the Communists.	Will	4/15/1949	Not Specified	FALSE	1	1	1	1	0	0	4
Iraq	Iraq's Continuing Program for Weapons of Mass Destruction	Iraq is continuing, and in some areas expanding, its chemical, biological, nuclear and missile programs contrary to UN resolutions.	Will	10/1/2002	Not Specified	FALSE	1	1	1	0	0	0	3
Iraq	Iraq's Continuing Program for Weapons of Mass Destruction	... biological ...	Will	10/1/2002	Not Specified	FALSE	1	1	1	0	0	0	3
Iraq	Iraq's Continuing Program for Weapons of Mass Destruction	... nuclear ...	Will	10/1/2002	Not Specified	FALSE	1	1	1	0	0	0	3
Iraq	Iraq's Continuing Program for Weapons of Mass Destruction	... missile ...	Will	10/1/2002	Not Specified	FALSE	1	1	1	0	0	0	3
Iraq	Iraq's Continuing Program for Weapons of Mass Destruction	Iraq possesses proscribed chemical and biological weapons and missiles.	Will	10/1/2002	Not Specified	FALSE	1	1	1	0	0	0	3
Vietnam	Probable Military and Political Developments in Indochina Over the Next 30 Days	... and to cut temporarily the lines of communication between Hanoi and Haiphong.	Probably	5/21/1954	30 Days	Unverifiable	1	1	1	1			4
Vietnam	Probable Military and Political Developments in Indochina Over the Next 30 Days	In addition, they will probably continue to augment their capabilities for sabotage and terrorism to the full during the next two weeks except in the event of	Probably	5/21/1954	30 Days	Unverifiable	1	1	1	1	0	1	5

		large-scale military operations in this area.												
Vietnam	Probable Military and Political Developments in Indochina Over the Next 30 Days	We consider that, despite the defeat at Dien Bien Phu, the French Union forces still retain the will to defend key points. In the Delta, the French almost certainly will possess for at least the next two weeks the capability to hold major positions.	Almost Certain	5/21/1954	2 Weeks	TRUE	1	1	1	1	1	0	5	
Vietnam	Probable Military and Political Developments in Indochina Over the Next 30 Days	In the Delta, the Viet Minh over the next two weeks will probably continue to mount attacks against French strong points ...	Probably	5/21/1954	30 Days	TRUE	1	1	1	1	0	0	4	
Vietnam	Probable Military and Political Developments in Indochina Over the Next 30 Days	Outside the Delta, the Viet minh will probably launch raiding operations in Laos, and increase guerrilla operations in Cambodia.	Probably	5/21/1954	30 Days	TRUE	1	1	1	1	0	1	5	
Vietnam	Probable Military and Political Developments in Indochina Over the Next 30 Days	Outside the Delta, the French will probably have the capability to hold most positions during the next two weeks although they may abandon certain positions in order to concentrate their troops in critical areas elsewhere.	Probably	5/21/1954	2 Weeks	TRUE	1	1	1	1	0	1	5	
Vietnam	Post Geneva Outlook in Indochina	Communist activities in North Vietnam will be concentrated upon consolidation of Communist control, with their efforts in this respect probably appearing moderate at the outset.	Probably	8/3/1954	Not Specified	FALSE	1	1	1	0	0	1	4	
Vietnam	Post Geneva Outlook in Indochina	... and the participation of all political, economic, and religious groups in state activity.	Probably	8/3/1954	Not Specified	FALSE	1	1	1	0	0	0	3	

Vietnam	Post Geneva Outlook in Indochina	Its methods of consolidating control will probably continue for some time to be moderate, and, its internal program together with its military power, will be calculated to make the regime attractive to the remaining peoples of Indochina.	Probably	8/3/1954	Not Specified	FALSE	1	1	1	0	1	0	4
Vietnam	Post Geneva Outlook in Indochina	At the present time, it appears more likely that the situation will deteriorate in South Vietnam and the withdrawal from Tonkin will involve recriminations, distrust, and possibly violence.	Likely	8/3/1954	Not Specified	TRUE	1	1	1	0	0	1	4
Vietnam	Post Geneva Outlook in Indochina	The Viet Minh will probably emphasize social and economic reforms ...	Probably	8/3/1954	Not Specified	TRUE	1	1	1	0	0	0	3
Vietnam	Post Geneva Outlook in Indochina	Thus established firmly in North Vietnam, the Viet Minh regime will probably retain and may increase its symbolic attraction as the base of Vietnamese national independence.	Probably	8/3/1954	Not Specified	TRUE	1	1	1	0	1	0	4
Vietnam	Post Geneva Outlook in Indochina	The severe problem of establishing and maintaining security in South Vietnam will probably be increased by certain provisions of the Geneva agreements which prohibit the import of arms and military equipment, except as replacements, and the introduction of additional foreign military personnel, the establishment of new military bases, and military alliances.	Probably	8/3/1954	Not Specified	TRUE	1	1	1	0	1	1	5

Vietnam	Probable Developments in North Vietnam to July 1956	We believe the DRV will be willing to continue political and economic contacts with the French.	Will	4/18/1955	1 Year	FALSE	1	1	1	1	0	0	4
Vietnam	Probable Developments in North Vietnam to July 1956	We believe that concern for Western, and particularly US reactions, together with general considerations arising from over-all Bloc policy, will prevent the DRV from openly invading the south during the period of this estimate.	Will	4/18/1955	1 Year	TRUE	1	1	1	1	1	1	6
Vietnam	Probable Developments in North Vietnam to July 1956	... and will probably retain a considerable measure of prestige and general acceptance.	Probably	4/19/1955	1 Year	TRUE	1	1	1	1	0	0	4
Vietnam	Probable Developments in North Vietnam to July 1956	We believe that the DRV will experience no great difficulty in maintaining effective control of North Vietnam during the period of this estimate ...	Will	4/19/1955	1 Year	TRUE	1	1	1	1	0	0	4
Vietnam	Probable Developments in North Vietnam to July 1956	It will attempt to appear reasonable in any negotiations concerning procedures for elections.	Will	4/19/1955	1 Year	TRUE	1	1	1	1	0	0	4
Vietnam	Probable Developments in North Vietnam to July 1956	In the Meantime, the DRV will continue its efforts, through subversion, intimidation, and propaganda, and to bring to power in the South one prepared to accept a coalition with the DRV.	Will	4/19/1955	1 Year	TRUE	1	1	1	1	0	1	5
Vietnam	The Situation in South Vietnam	The Likely Pattern of this decay will be increasing defeatism, paralysis of leadership, friction with Americans, exploration of possible lines of political accommodation with the other side, and a general petering out of the war effort.	Likely	10/1/1964	Not Specified	TRUE	1	1	1	0	0	1	4

Vietnam	The Situation in South Vietnam	Although no definite coup plans are known to be afoot at the moment, we believe the further coup attempts are likely, given the ambitions, discouragement, and bitterness prevalent among certain key South Vietnamese military and civilian figures -- and the comparative ease of mounting a coup attempt in the present deteriorating scene.	Likely	10/1/1964	Not Specified	TRUE	1	1	1	0	1	1	5
Vietnam	The Situation in South Vietnam	It is possible that the civilian government promised for the end of October could improve GVN esprit and effectiveness, but on the basis of present indications, this is unlikely	Unlikely	10/1/1964	Not Specified	TRUE	1	1	1	0	0	1	4
Vietnam	The Situation in South Vietnam	Present plans call for the establishment of a new, broadly-based, and predominantly civilian government by the end of October. Such a government might do better than the present one, but the odds are against its having the cohesion and effectiveness necessary to arrest the current declines.	Odds are against	11/1/1964	Not Specified	TRUE	1	1	1	0	1	1	5
Vietnam	Soviet Attitudes and Intentions Toward the Vietnam War	Whether or not there are formal arrangements covering transit of Soviet supplies across China, we believe that Peking will not pose serious obstacles to such transit.	Will	5/4/1967	Not Specified	Unverifiable	1	1	1	0	0	1	4
Vietnam	Soviet Attitudes and Intentions Toward the Vietnam War	We believe that during the coming months they will continue to supply equipment designed to strengthen air and coastal	Will	5/4/1967	Not Specified	TRUE	1	1	1	0	1	1	5

		defenses in North Vietnam and to increase the firepower of both the regular North Vietnamese forces and the Communist forces fighting in the South.												
Vietnam	Soviet Attitudes and Intentions Toward the Vietnam War	But the relations between Moscow and Peking are still fundamentally hostile, and their attitudes toward major issues of war and peace in Vietnam will continue to differ profoundly.	Will	5/4/1967	Not Specified	TRUE	1	1	1	0	0	0	0	3
Yugoslavia	Yugoslavia and its Future Orientation	Yugoslavia's military position will also be benefited by the Balkan Alliance, under which joint military planning has already developed satisfactorily.	Will	2/23/1955	Next Few Years	FALSE	1	1	1	1	1	0	0	5
Yugoslavia	Yugoslavia and its Future Orientation	Although Yugoslavia has largely completed "normalization" of relations with the Soviet Bloc and will probably continue to maintain relations, we estimate that it will not return to the Bloc at least so long as Tito remains in power.	Will	2/23/1955	Next Few Years	TRUE	1	1	1	1	1	1	1	6
Yugoslavia	Yugoslavia and its Future Orientation	Yugoslav leaders will continue to desire an Albanian regime under their influence if not direct control, and will oppose any Western proposals regarding Albania's future which might prejudice these ambitions.	Will	2/23/1955	Next Few Years	TRUE	1	1	1	1	0	0	0	4
Yugoslavia	Yugoslavia and its Future Orientation	Assuming a continuation of some external aid and credits and reasonably good harvests, Yugoslavia's longer-term economic prospects	Will	2/23/1955	Next Few Years	TRUE	1	1	1	1	1	1	1	6

		appear favorable. In the short run, however, Yugoslavia will continue to face the basic problem of how to balance its foreign accounts while pursuing an ambitious development program and making heavy defense outlays.											
Yugoslavia	Yugoslavia and its Future Orientation	Provided that substantial Western arms aid continues, Yugoslav defense capabilities will continue to grow.	Will	2/23/1955	Next Few Years	TRUE	1	1	1	1	1	0	5
Yugoslavia	Outlook for Yugoslavia	Instead, the Yugoslavs will seek discreetly to extend their influence in the communist parties, hoping that the bloc will eventually become a looser grouping of genuinely autonomous states with which they can develop more intimate relations.	Will	5/23/1961	Next Several Years	Unverifiable	1	1	1	1	1	0	5
Yugoslavia	Outlook for Yugoslavia	If present trends continue, Yugoslav agriculture will probably be self-sufficient by 1965 in production of major foods, and Belgrade will increase its exports of meat, meat products, and certain grains.	Probably	5/23/1961	"Next several years"	TRUE	1	1	1	1	0	0	4
Yugoslavia	Outlook for Yugoslavia	While cautious experimentation will continue, the distinctive internal system which the Yugoslavs have developed is unlikely to undergo substantial changes in the next several years.	Unlikely	5/23/1961	"Next several years"	TRUE	1	1	1	1	0	0	4
Yugoslavia	Outlook for Yugoslavia	The doctrinal gap between the Yugoslav Party and the other Communist parties, which made virtually impossible	Unlikely	5/23/1961	"Next several years"	TRUE	1	1	1	1	0	1	5

		the maintained of party ties, is now so great that it is unlikely to be bridged in the absence of fundamental concessions be either side.												
Yugoslavia	Outlook for Yugoslavia	While cautious experimentation will continue, the distinctive internal system which the Yugoslavs have developed ...	Will	5/23/1961	Next Several Years	TRUE	1	1	1	1	0	0	4	
Yugoslavia	Outlook for Yugoslavia	Meanwhile, policy toward Yugoslavia has again become a hotly disputed issue within the Bloc and, so long as Sino-Soviet differences remain unresolved, Yugoslavia's importance as a disruptive element in the Communist movement will continue or even increase.	Will	5/23/1961	Next Several Years	TRUE	1	1	1	1	1	0	5	
Yugoslavia	Outlook for Yugoslavia	Yugoslavia's doctrines and achievements will commend it to many leaders of these states who seek rapid economic growth, wish to avoid entanglement in great-power blocs, and are already inclined toward authoritarianism and central planning.	Will	5/23/1961	Next Several Years	TRUE	1	1	1	1	1	1	6	
Yugoslavia	Outlook for Yugoslavia	Its advocacy of its own methods in these areas will thus tend to work against the political influence of both the Eastern and Western camps.	Will	5/23/1961	Next Several Years	TRUE	1	1	1	1	1	0	5	
Yugoslavia	The Yugoslav Experiment	Younger men of the establishment, bred in an independent Yugoslavia, are likely to believe that the economic and political values of a unified federation outweigh the	Likely	4/13/1967	Not Specified	Unverifiable	1	1	1	0	1	0	4	

		emotional appeal of secession.											
Yugoslavia	The Yugoslav Experiment	He [Tito] may allow individual Republics increased autonomy in the conduct of their economic affairs, but he will probably employ his full strength in putting down acts which tend to heighten regional political, cultural, and linguistic disputes.	Likely	4/13/1967	Not Specified	FALSE	1	1	1	0	0	1	4
Yugoslavia	The Yugoslav Experiment	Although the trend toward further decentralization is probably irreversible, progress will not be smooth, and change in Yugoslavia will continue to be accompanied by dissension over the structure and role of party and government, over nationalities problem, and over the speed with which market forces will be introduced into the economy.	Probably	4/13/1967	Not Specified	TRUE	1	1	1	0	1	1	5
Yugoslavia	Prospects for Post-Tito Yugoslavia Vol. 1-The Estimate	It will, however, reduce the regime's ability to manage domestic and foreign challenges ...	Will	9/25/1979	Not Specified	FALSE	1	1	1	0	0	0	3
Yugoslavia	Prospects for Post-Tito Yugoslavia Vol. 1-The Estimate	In consequence, the country will enter a period, probably prolonged, of great uncertainty and potential instability.	Will	9/25/1979	Not Specified	FALSE	1	1	1	0	0	0	3
Yugoslavia	Prospects for Post-Tito Yugoslavia Vol. 1-The Estimate	... which are likely to be more severe in the post-Tito period than they have been in the 1970s.	Likely	9/25/1979	Not Specified	TRUE	1	1	1	0	0	0	3

Yugoslavia	Prospect s for Post-Tito Yugoslavi a Vol. 1- The Estimate	While these variables are potentially too volatile to permit any confident judgment about Yugoslavia's future in the 1980s, the odds are at least marginally in favor of Yugoslavia's continuing as an integral independent state.	Odds are at least marginall y in favor	9/25/197 9	1980s	TRUE	1	1	1	1	0	0	4
Yugoslavia	Prospect s for Post-Tito Yugoslavi a Vol. 1- The Estimate	The early 1980s will probably be a time of troubles in Yugoslavia.	Probably	9/25/197 9	Early 1980a	TRUE	1	1	1	1	0	0	4
Yugoslavia	Prospect s for Post-Tito Yugoslavi a Vol. 1- The Estimate	Tito can be reasonably confident that his successors will not follow Soviet and Chinese precedents and launch a process of "de- Titoization." On the contrary, he can probably rely on his successors both to profess and to feel a strong loyalty to most of the basic tenets of Titoism.	Probably	9/25/197 9	Not Specifi ed	TRUE	1	1	1	1	0	1	5
Yugoslavia	Prospect s for Post-Tito Yugoslavi a Vol. 1- The Estimate	Moreover, the high degree of internal political solidarity that will probably characterize the immediate post-Tito succession is unlikely to persist.	Unlikely	9/25/197 9	Not Specifi ed	TRUE	1	1	1	0	0	0	3
Yugoslavia	Prospect s for Post-Tito Yugoslavi a Vol. 1- The Estimate	We remain fairly confident that Tito's passing, in and of itself, will not during the first six months or so pose a threat to the integrity or independence of the Yugoslav state.	Will	9/25/197 9	6 Months	TRUE	1	1	1	1	0	0	4
Yugoslavia	Yugoslavi a: An Approach ing Crisis?	Should the civilian leaders continue to function ineffectively, greater involvement in politics by the military is likely.	Likely	1/31/198 3	12-18 Months	FALSE	1	1	1	1	1	0	5

Yugoslavia	Yugoslavia: An Approaching Crisis?	Long-term austerity and growing hardships are likely to be the rule well into the mid-1980s.	Likely	1/31/1983	12-18 months	TRUE	1	1	1	1	0	0	4
Yugoslavia	Yugoslavia: An Approaching Crisis?	The USSR is not likely to see the Western financial imitative as intended or liable to bring about changes so fundamental that they would undermine these Soviet objectives ...	Likely	1/31/1983	12-18 Months	TRUE	1	1	1	1	0	0	4
Yugoslavia	Yugoslavia: An Approaching Crisis?	... consequently, Moscow is not likely to see the imitative as a challenge to which it must react directly.	Not Likely	1/31/1983	12-18 Months	TRUE	1	1	1	1	0	0	4
Yugoslavia	Yugoslavia: An Approaching Crisis?	A major crisis is unlikely within the next year, whether Belgrade makes significant changes or not. Rather, the evolution of the situation is likely to be gradual.	Unlikely	1/31/1983	12-18 Months	TRUE	1	1	1	1	1	1	6
Yugoslavia	Yugoslavia: An Approaching Crisis?	We believe, however, that Belgrade, because of deep differences in the leadership and between Belgrade and the regions, will attempt to muddle through without adequate systemic changes.	Will	1/31/1983	12-18 Months	TRUE	1	1	1	1	1	1	6
Yugoslavia	Yugoslavia: An Approaching Crisis?	But, short of the worst case, the Soviets will not pull out all the economic stops to destabilize the country because it would almost certainly be seen by the Yugoslav people, its leaders, and its military forces as an act of de facto aggression against Yugoslavia.	Will	1/31/1983	12-18 Months	TRUE	1	1	1	1	1	1	6
Yugoslavia	Yugoslavia: An Approaching Crisis?	Yugoslavia will remain troubled and vulnerable to outside pressures for	Will	1/31/1983	12-18 Months	TRUE	1	1	1	1	0	0	4

		at least the next year and a half-- conditions that heighten its potential as a source of great-power rivalry.											
Yugoslavia	Yugoslavia Transformed	There will be a protracted armed uprising by Albanians in Kosovo.	Will	10/18/1990	Not Specified	FALSE	1	1	1	1	0	0	4
Yugoslavia	Yugoslavia Transformed	A full-scale, interrepublic war is unlikely	Unlikely	10/18/1990	Not Specified	FALSE	1	1	1	1	0	0	4
Yugoslavia	Yugoslavia Transformed	The old Yugoslav federation is coming to an end because the reservoir of political will holding Yugoslavia together is gone. Within a year the federal system will no longer exist.	Will	10/18/1990	1 year	TRUE	1	1	1	1	1	0	4
Yugoslavia	Yugoslavia Transformed	... within two years Yugoslavia will probably have dissolved as a state.	Probably	10/18/1990	2 Years	TRUE	1	1	1	1	1	0	4
Yugoslavia	Yugoslavia Transformed	Although elsewhere in Eastern Europe economic and political reform will be interdependent, Yugoslavia's future will be decided by political and ethnic factors.	Will	10/18/1990	Not Specified	TRUE	1	1	1	1	0	0	4
Yugoslavia	Yugoslavia Transformed	Serbia will block Slovene and Croat attempts to form an all-Yugoslav confederation.	Will	10/18/1990	Not Specified	TRUE	1	1	1	1	0	0	4

Appendix C: Words of Estimative Probability

Accelerated Analysis: Words Of Estimative Probability

Source: <https://www.cia.gov/csi/books/shermankent/6words.html>

Italics – Never Use

Bold – Use

Normal – Use with caution

<i>Possible</i>	<i>conceivable</i> <i>could</i> <i>may</i> <i>might</i> <i>perhaps</i>
Almost certain	virtually certain all but certain <i>highly probable</i> highly likely odds [or chances] overwhelming
Probable	likely <i>we believe</i> <i>we estimate</i>
50-50	<i>chances about even</i> chances a little better [or less] than even
Probably not	improbable unlikely <i>we believe that . . . not</i> <i>we estimate that . . . not</i> <i>we doubt, doubtful</i>
Almost certainly not	virtually impossible almost impossible some slight chance highly doubtful