

INFORMATION OVERLOAD: IMPACTS ON BRIGADE COMBAT TEAM S-2
CURRENT OPERATIONS INTELLIGENCE ANALYSTS

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General Studies

by

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ABSTRACT

INFORMATION OVERLOAD: IMPACTS ON BRIGADE COMBAT TEAM S-2
CURRENT OPERATIONS INTELLIGENCE ANALYSTS by MAJ Brandon D.
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The availability of information has drastically increased in the Information Age increasing the risk of information overload. Information overload reduces a U.S. Army staff's ability to operationalize intelligence and a commander's capacity to make decisions. The amount of data and information that intelligence analysts must process, exploit, and disseminate has drastically increased over the past 30 years. The primary research question of this thesis is: how does information overload impact the current operations element within a BCT? The U.S. Army Intelligence Community (IC) must find ways to mitigate information overload and prevent intelligence analysts from sharing poorly analyzed data that only degrades the decision-making process. This thesis analyzed five brigades across four case studies including; Operation Desert Storm, Operation Anaconda, Operation Iraqi Freedom, and Operation Rock Move. The results of the study suggest that the information load increased following force modernization in the form of the modular brigade concept and that in the case of Operation Rock Move, information overload was present within the BCT current operations element.

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ACRONYMNS

AI	Artificial Intelligence
AO	Area of Operations
BCT	Brigade Combat Team
BDE	Brigade
CCIR	Commander's Critical Information Requirements
DoD	Department of Defense
GRINTSUM	Graphic Intelligence Summary
HUMINT	Human Intelligence
IC	Intelligence Community
JSTARS	Joint Surveillance Target Attack Radar System
LLVI	Low-Level Voice Intercept
MICO	Military Intelligence Company
PIR	Priority Intelligence Requirement
RCP	Route Clearance Package
RSTA	Reconnaissance, Surveillance, and Target Acquisition
SIGINT	Signals Intelligence
SITREP	Situation Report
S-2	Intelligence Section
TF	Task Force
UAS	Unmanned Aerial System
UAV	Unmanned Aerial Vehicle

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CHAPTER 1

INTRODUCTION

Background

A vital component of the military decision-making process is understanding the problem you are trying to solve. To understand a problem, the staff and commander must have valid, specific, and pertinent data and information about the issue. Army Doctrine tells us, “the sheer amount of obtainable data in the information age complicates the distinction between hasty and deliberate operations and that commanders must discern intelligence from the collected information to shape their decisions.”¹ Not having enough information leads to poor decisions, as does having too much information.

The availability of information has drastically increased in the Information Age. The creation of the internet produced vast databases being easily accessible to the average person. Information flows continuously and in real-time. “The dawn of the Information Age and access to powerful and low-cost data collection on an automated basis have brought us more information than was available at any other point in history.”² The more information available to us, the higher the risk of being overwhelmed by it. Too much information can significantly impact an individual’s ability to manage simple routine activities, such as deciding what to have for lunch or much more complex issues

¹ Headquarters, Department of the Army (HQDA), Army Doctrine Publication (ADP) 3-90, *Offense and Defense* (Washington, DC: Government Printing Office, 2019), 1-5.

² Interactive Design Foundation, “Information Overload,” accessed September 6, 2019, <https://www.interaction-design.org/literature/topics/information-overload>.

that require dedicated problem-solving techniques. This problem of too much information is termed information overload.

The U.S. Army, while not directly defining information overload in existing doctrine, has spent a considerable amount of time and resources attempting to manage it. Most recently, the Department of Defense's (DoD) proposed budget for 2020 "allots \$927 million for artificial intelligence (AI) and machine learning."³ AI, according to the DoD's *Summary Of the 2018 Department of Defense Artificial Intelligence Strategy*, "refers to the ability of machines to perform tasks that normally require human intelligence (HUMINT) – for example, recognizing patterns, learning from experience, drawing conclusions, making predictions, or taking action – whether digitally or as the smart software behind autonomous physical systems."⁴ A specific example of the U.S. Army's focus on AI is Project Maven, a program meant to use AI to automate and speed up the identification of objects from imagery.⁵ The DoD is hopeful that AI can generate and help commanders explore new options so that they can select courses of action that best achieve mission outcomes, minimizing risks to both deployed forces and civilians.⁶ By focusing on AI, the U.S. Army is acknowledging a shortfall intelligence analysts have

³ Will Knight, "Military artificial intelligence can be easily and dangerously fooled," *MIT Technology Review*, October 21, 2019, <https://www.technologyreview.com/s/614497/military-artificial-intelligence-can-be-easily-and-dangerously-fooled/>.

⁴ Department of Defense (DoD), *Summary of the 2018 Department of Defense Artificial Intelligence Strategy* (Washington, DC: Government Printing Office, 2018), 5. <https://media.defense.gov/2019/Feb/12/2002088963/-1/-1/1/SUMMARY-OF-DOD-AI-STRATEGY.PDF>.

⁵ Knight, "Military artificial intelligence."

⁶ DoD, *Artificial Intelligence Strategy*.

when it comes to managing large information loads. Before exploring AI as a tool to manage information overload, the U.S Army developed doctrine that identifies the commander's critical information requirements (CCIR) to prioritize and focus what information is presented to a commander and concentrate an analyst's efforts.

CCIR include essential information a commander needs to make a decision that is pertinent to both the enemy and friendly situations.⁷ First codified in 1997 in Field Manual (FM) 101-5, *Staff Organization and Operations*, CCIR allows the commander to visualize the operational environment and make decisions.⁸ CCIR has been the predominant way intelligence collectors and analysts focus and narrow the information they review. U.S. Army doctrine recommends that commanders establish CCIR as quickly as possible during information collection planning.⁹ Arguably, when doctrine writers developed CCIR and incorporated it into U.S. Army doctrine, organic intelligence collection capability at the brigade (BDE) level was limited to a cavalry squadron and the maneuver battalions. The risk for information overload was likely much lower at the BDE level before the U.S. Army transitioned to a modular force structure. Following modularity, the U.S. Army organized the BCT (BCT) with an organic military

⁷ Headquarters, Department of the Army (HQDA), Army Doctrine Publication (ADP) 6-0, *Mission Command* (Washington, DC: Government Printing Office, 2019), 3-6 – 3-7.

⁸ Headquarters, Department of the Army (HQDA), Field Manual (FM) 101-5, *Staff Organization and Operations* (Washington, DC: Government Printing Office, 1997), 5-7.

⁹ Headquarters, Department of the Army (HQDA), Field Manual (FM) 3-55, *Information Collection* (Washington, DC: Government Printing Office, 2013), 1-5.

intelligence company (MICO), thus significantly increasing the risk of information overload at the BCT level.

The purpose of this thesis is to fill the gap in contemporary information overload literature, specifically as it applies to intelligence analysis within the BDE S-2 current operations element. It attempts to provide an understanding of the information overload problem. However, it is not a study of AI or CCIR as an information management tool. The primary focus is on developing a theoretical framework to help future researchers understand why information overload occurs in the first place and what the impacts are to the intelligence analysts serving in current operations. After identifying those impacts, recommendations are made for managing and mitigating the effects of information overload based on the findings.

Problem Statement

The overabundance of data and information available to intelligence analysts through persistent collection and intelligence databases, coupled with other negative information characteristics, overwhelms current operations intelligence analysts' ability to synthesize information into valuable intelligence products. Information overload reduces a staff's ability to operationalize intelligence and, therefore, a commander's ability to make decisions. The amount of data and information that intelligence analysts must process, exploit, and disseminate has drastically increased over the past 30 years.¹⁰ Additional negative characteristics, such as distraction within the BDE command post,

¹⁰ Thom Shanker and Matt Richtel, "In New Military, Data Overload Can be Deadly," *New York Times*, January 16, 2011, <https://www.nytimes.com/2011/01/17/technology/17brain.html>.

have also considerably increased, expanding the likelihood of information overload. A specific example from the *New York Times* indicated that “since the attacks of 9/11, the amount of intelligence gathered by remotely piloted drones and other surveillance technologies has risen 1,600 percent.”¹¹ Existing literature and doctrine do not direct analysts on how to manage information adequately.

Research Questions

The hypothesis for the research is that intelligence analysts in the current operations element are not thoroughly analyzing information in a detailed enough manner because of information overload to fully support the military decision-making process. The primary research question is, how does information overload impact the current operations element within a BCT? The secondary questions are (1) how do the information load characteristics present in the information load variable impact the current operations element; and (2) how can current intelligence analysts avoid information overload and provide intelligence that is valuable for decision-makers at the BCT level?

The risks associated with information overload can be severe, likely resulting in an inadequate course of action development or poor tactical awareness. Accurately answering the research questions is significant to the military profession. Proving information overload is a genuine problem affecting intelligence analysts serving in current operations is critical. Understanding the impact of too much information on analysts allows leaders to recognize the risks associated with information overload and

¹¹ Shanker and Richtel, “In New Military, Data Overload Can be Deadly.”

ultimately minimize those risks successfully. Eliminating information overload results in an improved situational understanding and decision-making process and potentially improves tactical and operational outcomes.

Assumptions

This thesis contains three fundamental assumptions. These assumptions are believed to be accurate and form the foundation of analysis. These three assumptions also contribute to the reputation of this thesis. The assumptions are:

1. The current operations element is organized with one all-source analyst (35F) and unless otherwise noted in the data it is assumed that they conduct analysis from the Tactical Operations Center (TOC). The TOC is the primary location where real-time intelligence feeds and databases are continuously present and accessible. Historically, all organic intelligence assets and supporting assets from higher report collected pieces of information to the TOC. This assumption is based on historic BDE task organization and U.S. Army Doctrine.

2. The working memory capacity of an intelligence analyst is assumed to be seven. This assumption is based on the widely accepted work of George Miller and his findings published in Psychology Review in 1956.

3. Proving information overload exists within the BDE organizational structure is beneficial to the U.S. Army, tactical commanders, and intelligence analysts.

Definition of Terms

Information Overload: the point when an individual attempting to decide has more pieces of information presented than that individual can process in the time available, resulting in a less than an optimal decision.

Flow: a mental state identified by the work of Mihaly Csikszentmihalyi in 1975, where an individual becomes hyper-focused and perfectly in-tune with their task. Characteristics of this mental state include intense and focused concentration on the present moment, merging of action and awareness, a distortion of temporal experience (or loss of time), and experience of the activity as intrinsically rewarding.¹² For this research, flow is the ideal mental state and preferred in place of information overload.

Working memory capacity: the maximum amount of information an individual can maintain in their temporary memory while working with those pieces of information, generally accepted to be seven pieces of information plus or minus two. Working memory capacity is one of two variables of information overload.

Information load: the compilation of pieces of information containing specific characteristics associated with each piece of information that make up the total quantity of information presented. The information load is the second variable of information overload.

¹² Jeanne Nakamura and Mihaly Csikszentmihályi, “Flow Theory and Research,” in *Handbook of Positive Psychology*, ed. C. R. Snyder Erik Wright and Shane J. Lopez (Oxford: Oxford University Press, 2009), 195–196, https://books.google.com/books?hl=en&lr=&id=6IyqCNBD6oIC&oi=fnd&pg=PA195&dq=cs%20Csikszentmihalyi+flow+theory&ots=IMJ9PF3cqB&sig=6x_1e7XKjOgBRwzCWjseLf0ihgA#v=onepage&q=cs%20Csikszentmihalyi%20flow%20theory&f=false.

Piece of information: a single item, such as a photo, video, report, or communication, obtained through collection or research that provides data or facts within the context of the subject to which it is related. From the U.S. Army perspective, *Army Techniques Publication 2-01, Plan Requirements and Assess collection*, suggest pieces of information should enable better decision-making, expand understanding of the operational environment, and support warfighting functions in decisive action.¹³ An example of a piece of information is a single source intelligence report, such as a Signals Intelligence (SIGINT) tactical report (TACREP).

Class of Information: a class of information is a group of pieces of information organized by their unique characteristics and impacts on an analyst or decision-maker. Three classes of information have been identified for this thesis. These three classes are favorable information, adverse information, and unfavorable information. Pieces of information that support decision-making and have no negative characteristics make up the favorable information class. The adverse information class includes pieces of information that contain the negative attributes of distraction and diffidence and take an analyst's focus away from problem solving or decision making. Finally, the unfavorable class of information contains pieces of information that are either complex or contradictory.

BCT: The BCT includes capabilities across the mission command, movement and maneuver, intelligence, fires, sustainment, and protection warfighting functions. These

¹³ Headquarters, Department of the Army (HQDA), *Army Techniques Publication (ATP) 2-01, Plan Requirements and Assess Collection* (Washington, DC: Government Printing Office, 2014), 1-1.

capabilities are scalable to meet mission requirements. The three types of BCTs are the infantry BCT, the Stryker BCT, and the armored BCT.¹⁴ Prior to BCTs being the primary unit of action, the U.S. Army organized combat operations around division headquarters with three BDEs. These BDEs had no organic enablers such as intelligence or sustainment. The division was responsible for organizing maneuver elements with capabilities they deemed appropriate for the mission, resulting in teams that had very little previous interaction or shared standard operating procedures at the BDE level.¹⁵

BCT S-2 current operations element: The S-2 responsible for analyzing the current situation. Manning of the current operations element is determined by the BDE and not mandated in doctrine. The section is typically composed of at least one all-source analysts (35F) and one intelligence officer (35D). The current operations element is usually responsible for a 24-hour future analytical timeframe. This element is the primary staff section responsible for modifying initial enemy assessments and running estimates during combat and ensuring the BCT commander is aware of the changes. This element has basically retained the same manning numbers as the U.S. Army transitioned from BDEs to BCTs post modularity. However, the quantity of intelligence feeds present and accessible has increased with the addition of a dedicated MICO.

¹⁴ Headquarters, Department of the Army (HQDA), Field Manual (FM) 3-96, *Brigade Combat Team* (Washington, DC: Government Printing Office, 2015), 1-1.

¹⁵ Congressional Budget Office (CBO), *The U.S. Military's Force Structure: A Primer* (Washington, DC: Government Printing Office, 2016), <https://www.cbo.gov/sites/default/files/114th-congress-2015-2016/reports/51535-fsprimerbreakoutchapter2.pdf>, 17-19.

Limitations

This research is limited to unclassified information as original classification authorities currently label it. No attempts are made to declassify information or data that may support or refute the findings. Additionally, the review of the literature focuses only on literature written in English. No translation of source material or documents is conducted, possibly omitting some relevant literature that could be applied from the business, finance, and information systems fields, or even from foreign militaries.

The time limit to complete this research is approximately eight months. Given more time, additional data could be analyzed from across multiple BCT S-2 sections and various echelons, including battalion, division, or Corps S-2s. A limited amount of time requires a focus on a smaller scope of the overall problem and framing the research to one subsection of a BDE S-2, in this case, the BDE S-2 current operations element.

Scope and Delimitations

This thesis exclusively focuses on how the variables of information overload impact intelligence analysts at the BCT level, specifically analysts working in the current operations element. It attempts to identify the impacts of information overload.

The thesis is delimited to the information load variable and the characteristics associated with it based on the researcher's lack of expertise on cognitive function and the assumption that previous research on working memory capacity is fundamentally accepted.

This thesis does not attempt to recommend changes to BDE organizational structure across the U.S. Army. It does not attempt to identify the personal factors

associated with the working memory capacity variable of information overload concerning the sensitivity of that variable.

Significance of Study

This thesis attempts to expand the knowledge of information overload and its impacts on the U.S. Army. It also tries to assist BDE Intelligence Officers in identifying the variables and characteristics of information overload, recognizing if they are present in their current operations element, and mitigating those characteristics to improve intelligence production. The improvement of intelligence production, specifically, being able to provide valuable intelligence to the staff and commander, improves operations and decision making across the organization. Finally, information overload not only impacts the BDE current operations section but also other staff sections within a BDE headquarters. The findings of this thesis can be applied to various U.S. Army staff sections across a variety of echelons.

Chapter Summary

Information overload presents a significant hurdle to modern society and the U.S. Army. The information age has made data collection and storage much more accessible than any other time in the U.S. Army's collective history. The U.S. Army is likely struggling with information overload across many echelons within many command posts and operation centers. At the BCT level, current operations intelligence analysts are at the highest risk for information overload. This high risk is resultant from the large amount of organic collection capability, information processing systems, and modern communications networks given to BCTs. The U.S. Army Intelligence Community (IC)

must find ways to reduce information overload and prevent intelligence analysts from sharing poorly analyzed data that can degrade the decision-making process. It is essential to comprehend the current knowledge on information overload and its connection to the U.S. Army. This comprehension is accomplished through a literature review in Chapter 2.

CHAPTER 2

LITERATURE REVIEW

Introduction

The purpose of this research is to identify the presence of information overload within the BCT S-2 current operations element and identify information overload's impact on decision making. This thesis answers how the characteristics of the information load variable impact analysts and how current operations intelligence analysts can avoid information overload. There has not been substantial research into the impacts of information overload on the U.S. Army. Comparably, the psychology, business, management, and finance fields have conducted multiple studies on information overload.¹⁶ A JSTOR search of the term "information overload" returns 1,697 results on the topic. Within that number, there are 1,523 journals. Narrowing the search dates from 1990 to 2019 further reduces the results to 1,156 journals. To narrow the search even further, selecting only journals within the subject of military studies minimizes the number of journals available to 107. When adding the additional search term, "Army", results are narrowed even further to 68. Of those 68 journals, only a handful are useful to this specific thesis.

Chapter 2 is organized by elements of the theoretical framework and case study literature. The first section describes the theoretical framework and its foundation. The

¹⁶ Martin J. Eppler and Jeanne Mengis, "A Framework for Information Overload Research in Organizations: Insights from Organization Science, Accounting, Marketing, MIS, and other Disciplines" (Paper # 1/2003, The Università della Svizzera italiana, Lugano, Switzerland, September 2003), <https://core.ac.uk/download/pdf/20638636.pdf>.

following sections provide a review of the primary literature that defines each variable, working memory capacity, and information load, focusing on the critical sources identified. The final section identifies the primary literature associated with each case.

Theoretical Framework

It is useful to define information overload as a theoretical framework to accurately examine the impacts on U.S. Army intelligence analysts. Information and decision making are fundamentally linked. Most decision-makers reach a point where too much information results in an unpopular decision. One can visualize this theory using an inverted U graph (Figure 1). Along the Y-axis is decision making performance. The X-axis represents the amount of information or information load. Where the inverted U peaks, is the best possible decision an individual can make.

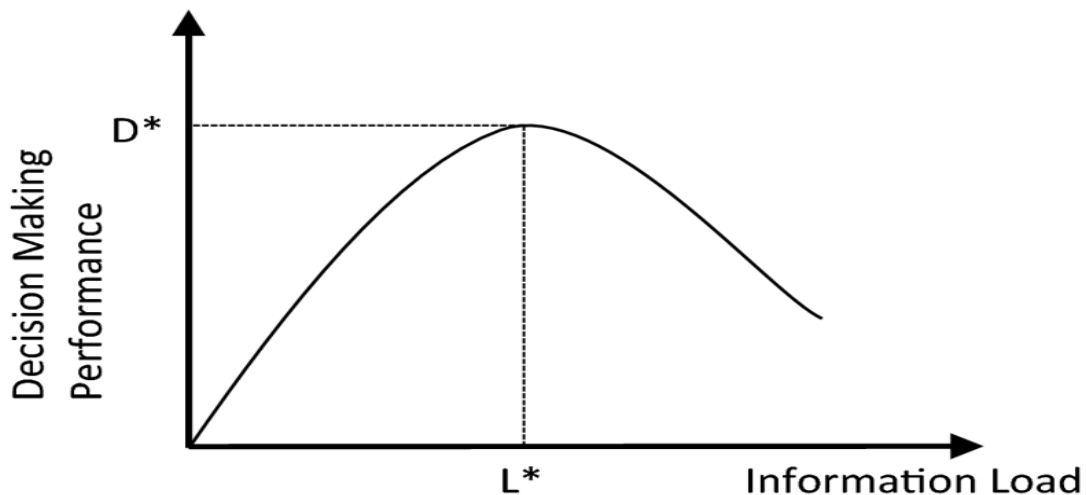


Figure 1. Inverted U, Information Overload Relationship to Decision-making

Source: Peter Gordon Roetzel, "Information Overload in The Information Age: A Review of the Literature from Business Administration, Business Psychology, and Related Disciplines with a Bibliometric Approach and Framework Development," *Business Research* 12 (July 2018): 6, <https://doi.org/10.1007/s40685-018-0069-z>.

The area to the left of the peak is a lack of information. The field to the right when the curve begins to decline is when the decision-maker has reached overload, therefore; decreasing the decision-making performance. Using the visual interpretation of information helps in defining information overload as a theoretical framework. Roetzel defined information overload as a state in which a decision-maker faces a set of data comprising the accumulation of individual informational cues of differing size and complexity that inhibit the decision maker's ability to determine the best possible decision optimally.¹⁷ For this research, information overload is defined as the point when an individual attempting to make a decision has more pieces of information presented than that individual can process in the time available, resulting in a less than an optimal choice.

A founding source within the information overload research field commonly referenced is Bertram M. Gross' *The Managing of Organizations: The Administrative Struggle*. Gross, a social scientist, was one of the first authors credited with coining the term information overload in 1964 and establishing the framework and its impacts on management. Continued research on the theoretical framework results in one finding *Future Shock* by Alvin Toffler published in 1970.

If Gross is credited with coining the term information overload, then Alvin Toffler's *Future Shock*, popularized it. *Future Shock* became a best seller of its time. The book attempts to describe a future where technology and information shape culture. Alvin

¹⁷ Peter Gordon Roetzel, "Information Overload in the Information Age: A Review of the Literature from Business Administration, Business Psychology, and Related Disciplines with a Bibliometric Approach and Framework Development," *Business Research* 12 (July 2018): 6, <https://doi.org/10.1007/s40685-018-0069-z>.

Toffler was quoted in 1994 by *Micro Times*, signifying that he “had to fight to make the case that the pace of life, technology, and social changes were becoming more and more rapid...the study made that case, and it also argued that there’s an upper limit to the capability of any system, whether it’s a computer system or a human biological system, to cope with change”.¹⁸

Many studies have investigated the history, cause, and effects of information overload and what its impact is on decision making. Narrowing information overload search terms to (“information overload” and “study” and “contemporary”) yielded *The Overflowing Brain: Information Overload and the Limits of Working Memory* by Torkel Klingberg. This piece of literature explains how the human mind deals with information.

Klingberg cites George Miller, who established the hypothesis that there is a natural restriction on the human information-processing faculties that leaves us able to keep around seven pieces of information in our working memory.¹⁹ The quantity of information or load, when compared to working memory capacity, is the key to the overall understanding of the theoretical framework.

If one accepts Miller’s and Klingberg’s analysis of the research and agrees that most individuals can, on average, handle about seven pieces of information, then one can start to identify cases where information overload exists within a military context. To

¹⁸ Mary Eisenhart, “Surfing the Third Wave: Alvin and Heidi Toffler On Life and Work in the Information Age,” *Micro Times* 118 (January 1994): www.yoyow.com/marye/tofflers94.html.

¹⁹ George A. Miller, “The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information,” *Psychological Review* 101, no. 2 (1956): 343-352, <https://doi.org/10.1037/0033-295X.101.2.343>.

further understand this correlation, it is useful to use a graphical representation in Figure 2 below, which modifies Klingberg's interpretation of Csíkszentmihályi's map of how different mental states can be conceived.

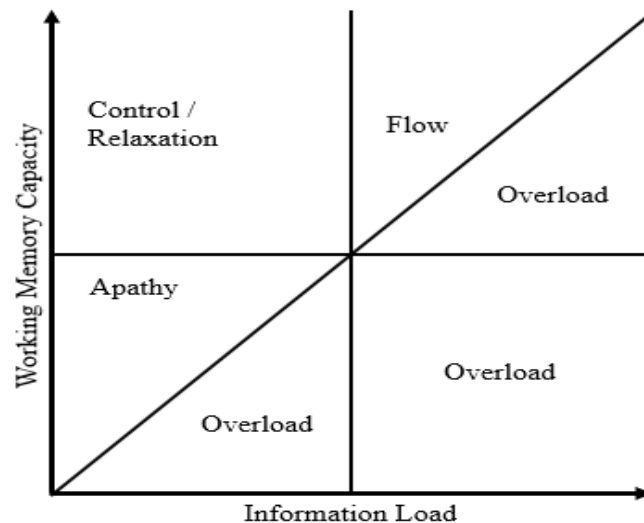


Figure 2. Working Memory Capacity's Relationship to Information Load

Source: Adapted from Torkel Klingberg, *The Overflowing Brain: Information Overload and the Limits of Working Memory* (Cary, NC: Oxford University Press, 2008), 55, ProQuest Ebook Central.

Based on the recommendation of Klingberg, changing skill for working memory capacity, and a challenge for information load promotes an improved understanding of the theoretical framework.²⁰ The two primary axes are working memory capacity on the Y-axis and information load on the X-axis. The four quadrants depict an individual's mental state. Points along the positive slope represent where working memory capacity is

²⁰ Torkel Klingberg, *The Overflowing Brain: Information Overload and the Limits of Working Memory* (Cary, NC: Oxford University Press, 2008), 55, ProQuest Ebook Central.

equal to information load. Information overload is present at any point when the load falls to the right of the slope. To the left of the slope are three areas: apathy, control/relaxation, and flow. Apathy occurs when an individual has a low to average working memory capacity, and the information load they are dealing with is also small, therefore providing no challenge or interest to the individual, resulting in an apathetic state of mind. Control/relaxation occurs when an individual has an average or above-average working memory capacity but is managing a low information load. The individual is not overly challenged mentally and is in a relaxed mental state. Finally, the flow area represents the ideal quadrant. This ideal quadrant is the mental state one finds themselves when the information load is ideally suited to their working memory capacity, providing the right amount of challenge to exercise the mind.

The information overload paradigm and this overall theoretical framework establish the base of knowledge required to assess further the identified variables of working memory capacity and information load in a military setting. Thus, it should promote a successful literary review and methodological design to test the research questions. To gain a deeper understanding of information overload, it is useful to look at the two variables more closely. The first variable researched is the individual capacity of information processing or working memory capacity.

Working Memory Capacity

Understanding how to solve a problem, and ultimately deciding on solutions to the dilemma, requires information and knowledge. The U.S. Army exists solely for solving military issues as directed by civilian leadership through national strategy. Together, commanders and staffs solve problems. The staff's role is to assist commanders

with understanding situations, making decisions, controlling operations, and assessing progress.²¹ At any given time, how much information can an intelligence analyst process to assist in the problem-solving process?

As previously mentioned, one of the most widely accepted studies within the cognitive field analyzing working memory capacity is George Miller's, "The magical number seven, plus or minus two: Some limits on our capacity for processing information." Miller presents multiple experiments in his study. In one such test, individuals were asked to discern between tones across various frequencies. When only two or three tones were used, the listeners never confused them, with four different tones confusions were quite rare. However, with five or more tones, difficulties were frequent, and fourteen different tones resulted in listeners making many mistakes.²² In addition to tones, Miller also referenced an experiment where human subjects were asked to identify different levels of loudness and discernibility between tastes. The capacity for absolute judgments of loudness resulted in about five perfectly discriminable alternatives, and the capacity is about four distinct concentrations for taste.²³ Consequently, taste intensities appeared to Miller to be a little less distinctive than auditory pieces of information, but within the acceptable variant.²⁴ These examples were unidimensional, however. Miller

²¹ Headquarters, Department of the Army (HQDA), Army Doctrine Publication (ADP) 5-0, *The Operations Process* (Washington, DC: Government Printing Office, 2019), 1-5.

²² Miller, *The Magical Number Seven, Plus or Minus Two*, 84.

²³ Ibid.

²⁴ Ibid., 85.

argued that everyday experience teaches us that we can identify accurately any one of several hundred faces, any one of several thousand words, any one of several thousand objects, etc.²⁵

Miller proposed that a possible explanation of the subject's inability to identify more than seven pieces of information was connected to the complexity of the pieces of information that were being judged. Objects, faces, words, and the like differ from one another in many ways, whereas the simple pieces of information considered differed from one another in only one respect.²⁶ James Hulbert, in 1975, expanded on Miller's research, attempting to prove that along with the unidimensional pieces of information associated with the primary senses, subjective dimensions are also limited by working memory capacity. Hulbert concluded that the mean number of categories used by respondents was between 6 and 10, suggesting that a limit in working memory capacity exists. However, it is influenced by the characteristics of both the task and the respondent.²⁷

Around this same time, Jacob Jacoby published *Brand Choice Behavior as a Function of Information Load*. Jacoby agreed with Miller that there appeared to be definite limits to the amount of information that can be accommodated and effectively processed during a limited period by consumers in arriving at purchase decisions.²⁸ In his

²⁵ Miller, *The Magical Number Seven, Plus or Minus Two*, 86.

²⁶ *Ibid.*, 87.

²⁷ James Hulbert, "Information Processing Capacity and Attitude Measurement," *Journal of Marketing Research* 12, no. 1 (1975): 106, <https://doi.org/10.2307/3150668>.

²⁸ Jacob Jacoby, "Information Load and Decision Quality: Some Contested Issues," *Journal of Marketing Research* 14, no. 4 (1977): 570, <https://doi.org/10.2307/3151201>.

study initially conducted in 1975, the results suggested his subjects felt better with more information but made more unfortunate purchase decisions.²⁹

A final study reviewed, and specific to the U.S. Army, is one conducted by Priscilla A. Glasow in the March 2004 edition of *Phalanx, The Bulletin of Military Operations Research*. The study entitled, “How Cognitive and Behavioral Factors Influence Command and Control,” examined key cognitive enablers and constraints with one specific restriction being identified as memory limitations.³⁰ The Synthesis Group noted that the U.S. Army must recognize the integral limitations that humans brought to the table in regards to command and control (C2) and decision making and recommended conducting studies to determine how much information is enough to support decision making and what is the quantity and quality of information that is needed.³¹

There is minimal evidence suggesting individuals can maintain in their short-term memories more than about seven pieces of information. Miller’s original conclusion of about seven pieces of information is in line with the preponderance of research that has followed. It is for this reason that the assumption that the working memory capacity of intelligence analysts is valid. Finally, as previously mentioned within the introduction, the constraint of time on this thesis and the attempt to minimize research on human

²⁹ Jacob Jacoby, Donald E. Speller, and Carol A. Kohn, “Brand Choice Behavior as a Function of Information Load,” *Journal of Marketing Research* 11, no. 1 (1974): 67, <https://doi.org/10.2307/3150994>.

³⁰ Priscilla A. Glasow, “How Cognitive and Behavioral Factors Influence Command and Control,” *Phalanx* 37, no. 1 (2004): 18, <http://www.jstor.org/stable/24908893>.

³¹ Glasow, *How Cognitive and Behavioral Factors Influence Command and Control*, 19.

subjects deter any specific research into the working memory capacity of intelligence analysts within the U.S. Army IC. The other primary variable researched is the information load.

Information Load

Information is the primary tool decision-makers, like the commander and staff, use to improve situational understanding. It is the responsibility of the U.S. Army IC to provide information on the threat and environment. This information is provided through intelligence operations. Intelligence operations are the tasks undertaken by military intelligence units through the intelligence disciplines to obtain information to satisfy validated requirements.³² Intelligence operations provide analysts the pieces of information needed to analyze problems and recommend solutions. Intelligence operations are just one input that contributes to the information load. Pre-existing pieces of information collected before current operations existing within databases also add to the load. Additionally, distractions that are not necessarily even relevant to the problem one is attempting to solve takes a spot within their working memory capacity. A heavy information load makes it more likely for a decision-maker to experience confusion and an inability to prioritize workflow.³³ When studying information load, it is essential to

³² Headquarters, Department of the Army (HQDA), Army Doctrine Publication (ADP) 2-0, *Intelligence* (Washington, DC: Government Printing Office, 2019), 2-5.

³³ Eppler and Mengis, *A Framework for Information Overload Research in Organizations*, 9.

consider the negative characteristics associated with the load that can amplify information overload.

Characteristics of the Information Load Variable

The information load variable has elements, or potentially harmful attributes, that also impact an individual's ability to process information effectively. Distraction is one such relevant negative characteristic. Additionally, the information load also contains negative features, including the amount, complexity, level of redundancy, contradiction, and inconsistency.³⁴ Other characteristics identified through research include the level of uncertainty associated with information, and the level of ambiguity, novelty, or intensity.³⁵ The source of information and the way the data is displayed are additional characteristics that can result in an increased risk of information overload.

This research focuses on five specific characteristics that are most relevant to the U.S. Army and a current operations element; amount, distraction, complexity, contradictory, and source. The various characteristics act as multipliers and negatively influence the information load variable. Applying these characteristics to the theoretical framework results in the information overload slope becoming steeper, working against an individual's working memory capacity, and increasing the area, or probability, that overload occurs. Figure 3 below displays this relationship of negative characteristics to the information load variable.

³⁴ Roetzel, *Information Overload in the Information Age*, 6.

³⁵ Eppler and Mengis, *A Framework for Information Overload Research in Organizations*, 15.

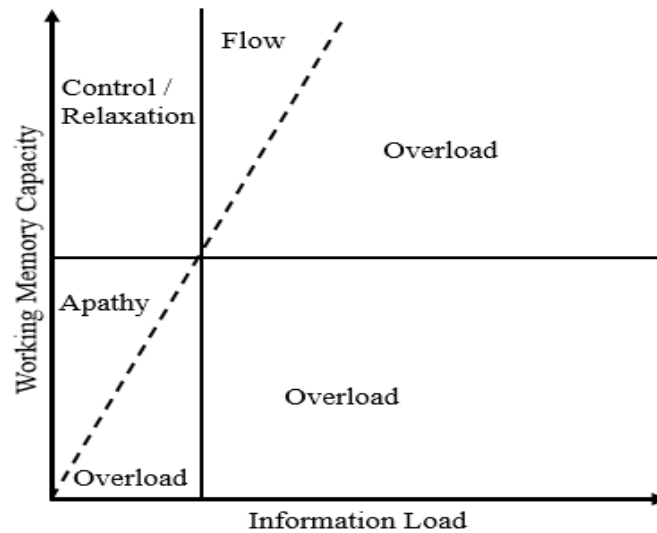


Figure 3. The Impacts of Negative Information Load Characteristics

Source: Adapted from Torkel Klingberg, *The Overflowing Brain: Information Overload and the Limits of Working Memory* (Cary, NC: Oxford University Press, 2008), 55, ProQuest Ebook Central.

Amount of Information

The amount of information is the total number of pieces of information expected to be managed in each amount of time. This characteristic becomes harmful when it exceeds the working memory capacity of the intelligence analyst. That number is assumed to be seven pieces of information. However, as described in the theoretical framework, if any of the subsequently defined characteristics are present within a piece of information, the overload occurs at less than seven pieces of information. The pieces of information can come from a variety of intelligence disciplines, such as, HUMINT, SIGINT, and geospatial intelligence. Other examples include spot and situation reports (SITREPs).

Distraction

Distraction is inherently harmful as it relates to information overload. Distraction can be anything in one's environment that prevents them from focusing on their primary task. Distractions are either internal or external. Internal distractions include wondering thoughts and physiological states, such as hunger or pain. External distraction examples may consist of loud noise, digital stimulation in the form of televisions or cell phones, or social interaction. The environment of a BCT tactical operations center is naturally distracting. Ultimately, distraction takes the focus away from the pieces of information that are relevant to deciding and fills the working memory capacity with useless pieces of information.

Distraction, as a form of information that your brain must process to understand and takes up a set amount of cognitive capacity. In the modern information era, it is said to be an "Age of Distraction" in which the frenzied pace of technological change makes it difficult if not impossible to focus and concentrate on challenging books and texts.³⁶

Four primary forms of distraction identified by Napper and Rao in *The Power of Agency* are baseline distraction, background distraction, distracting complex systems, and digital distraction. Baseline distraction is everyday stimuli. It can present itself as social interactions or simply the tasks of daily living. These types of distraction are not necessarily perceived by an individual as distraction but do require cognitive processing and take up some of the brain's capacity. Background distraction includes things like

³⁶ Frank Furedi, "Information Overload or a Search for Meaning," *The American Interest*, December 17, 2015, <https://www.the-american-interest.com/2015/12/17/information-overload-or-a-search-for-meaning/>.

noise from traffic or machinery, lighting in a room, vibrations or movement of people or vehicles within your surrounding environment. Complex systems are largely technology driven and include things like navigating complex websites or databases and analyzing problem sets or frameworks. Finally, digital distraction is taken into the brain via screens, smartphones, tablets, laptops, TVs, and live feeds. Thinking about the basic forms of information and examining the four primary forms of external distraction one can clearly see that the risk for distraction or overload in a BCT is high.³⁷

Information Complexity

Merriam-Webster defines complex as a group of obviously related units of which the degree and nature of the relationship are imperfectly known.³⁸ This definition is useful in that it adds to the overall understanding of information complexity. The elements of information are related, but to the extent they are related is not clearly understood by the analyst. In Joint Force Quarterly 90, Cortney Weinbaum and John N.T. Shanahan, suggest the complexity of data is a result of unknown veracity. One final definition provided by Dr. Gordon R. Middleton stated in *Avatars or Robots? The Human Factor in Overcoming Information Overload* suggests complexity results from the massive volume of diverse and dynamic data involved in the analysis.³⁹ These three

³⁷ Paul Napper and Anthony Rao, *The Power of Agency* (New York: St. Martin's Press, 2019), 39-43.

³⁸ Merriam-Webster, "Complex," accessed October 27, 2019, <https://www.merriam-webster.com/dictionary/complex>.

³⁹ George R. Middleton, "Avatars or Robots? The Human Factor in Overcoming Information Overload," *American Intelligence Journal* 29, no. 2 (2011): 124.

descriptions of complexity provide the necessary elements to establish a correct definition for this research.

Consequently, information complexity is defined as information that contains known but varied relationships between multiple elements within a single piece of information. The word multiple within the definition is critical. For this study, multiple is assumed to be three or more elements. An example of a complex piece of information that an analyst may be expected to process is an intelligence summary (INTSUM) or graphic intelligence summary (GRINTSUM) from a higher, subordinate, or adjacent headquarters (HQ). A GRINTSUM typically depicts more than three pieces of information being combined into one product. It provides an overall summary and assessment of the different relationships between the enemy situation, elements of the operational environment, and the weather. Every echelon from battalion to the joint headquarters publish some variation of an INTSUM or GRINTSUM daily.

Contradictory Information

Contradictory information occurs when two pieces of information about a similar subject disagree as to the facts about that subject. For example, a piece of information derived from a SIGINT source indicates the enemy is in one location. Then, a piece of information obtained from HUMINT suggests a different place; this information load is now contradictory. Even Carl von Clausewitz, in his analysis of the Napoleonic Wars, was deliberate in pointing out that many pieces of information are conflicting in war and that people tend to believe those pieces of information even after evidence begins to point

out a different reality.⁴⁰ Clausewitz suggested that the simple solution to this type of information is to trust one's judgement.⁴¹ However, contradiction in the context of decision-making can create confusion, doubt and indecision; one's own judgement may not be enough. Unfortunately, intelligence analysts cannot ignore contradictory information or detach it from the information load.

Army doctrine suggests critical thinkers should support their conclusions with relevant information and be opened to actively searching for information that helps as well as contradicts a position.⁴² Through the analysis of contradictory information, analysts can minimize possible confirmation bias. Logically it follows that contradictory information typically results in three total pieces of information to the information load. Conflicting information requires analysts to bring in an additional piece of data into the information load that can either confirm or deny one of the original two contradictory pieces.

Diffident Information

Information collection happens across various sources in the U.S. Army IC and results in a variety of sources being available to analysts, commanders, and staff. The selection of information sources and the decision-makers' source preferences are

⁴⁰ Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 117.

⁴¹ Ibid.

⁴² Headquarters, Department of the Army (HQDA), Army Techniques Publication (ATP) 2-33.4, *Intelligence Analysis* (Washington, DC: Government Printing Office, 2014): 2-4.

fundamental to determining what he or she considers in their information search and information processing.⁴³ Those sources analysts and leaders do not trust, from here on, are classified as diffident information. Roetzel suggests that diffident information increases the risk of information overload.

The subjective perception of the characteristics of the source, for example, trust and reputation, and the characteristics of engaging with the source, such as the convenience of information collection, ease of operation, information provided per query, contribute substantially to the effectiveness of information search and information processing—or information overload.⁴⁴

However, all information sources are not inherently diffident. For them to be diffident, the decision-maker must make the subjective determination of a source as to their trustworthiness. Sources of information each have characteristics that make them appear reliable or trustworthy. For example, SIGINT, which can include enemy communications, may require translation. If the linguist did not accurately translate the data, the piece of information provided to the analyst might be ambiguous or contradictory. After that experience, an analyst may lose trust and confidence in SIGINT and identify those pieces of information as diffident from then on. Other sources, such as Measurement and Signature Intelligence (MASINT), can be much more transparent and simply provide data that is not open to interpretation. Analysts individually assess the amount of confidence they place in sources of information.

This individual assessment can be considered a performance history of that source. Experienced analysts know which collection assets they can rely on to meet the

⁴³ Roetzel, *Information Overload in the Information Age*, 15.

⁴⁴ *Ibid.*, 16-19.

commander's requirements and assesses readiness rates, responsiveness, and accuracy over time, which can reveal the source's reliability factor and its overall performance history.⁴⁵ The performance history also impacts the confidence a commander places in a source of information. Because of the risks associated with diffident information, analysts must identify diffident information sources early in the decision-making cycle.

Open-source intelligence (OSINT) is one intelligence source that joint doctrine identifies as inherently diffident. OSINT is intelligence based on information that anyone can obtain by request, purchase, or observation.⁴⁶ Joint Publication 2-0, *Joint Intelligence*, suggests that "OSINT is susceptible to manipulation and deception, and thus requires tradecraft and review during processing...also, incorrect information may be deliberately planted in public sources."⁴⁷ OSINT is also subject to source bias and inaccuracy."⁴⁸ Therefore, this thesis considers all OSINT pieces of information as diffident and apply them to the adverse class of information.

The second source of information that one could argue is characteristically diffident are walk-in or walk-up HUMINT sources. Walk-in sources are unsolicited personnel who volunteer their information.⁴⁹ When assessing HUMINT sources, the U.S. Army uses the Source and Information Reliability Matrix found in FM 2-22.3, *Human*

⁴⁵ HQDA, FM 3-55, 3-5.

⁴⁶ Joint Chiefs of Staff (JCS), Joint Publication (JP) 2-0, *Joint Intelligence* (Washington, DC: Government Printing Office, 2013), B-7.

⁴⁷ Ibid.

⁴⁸ Ibid.

⁴⁹ Ibid., B-5.

Intelligence Collector Operations. Source reliability is rated on a scale of A through F, where A is considered reliable, and F cannot be judged.⁵⁰ A walk-in source must be rated with an F as no basis exists for evaluating the reliability of the source.⁵¹ Many walk-up sources present themselves during combat patrols or by approaching guards at checkpoints. These sources are typically from the local population.

These types of sources were prevalent in Operation Iraqi Freedom during counter-insurgency (COIN) operations and even sought after. For example, the 2d Battalion, 503d Infantry task-organized under 173rd Airborne BDE operating in Kirkuk, used their companies and platoons to establish relationships with local leaders.⁵² This type of collection resulted from limited HUMINT trained intelligence professionals in Iraq during the early stages of stability operations. This approach can be risky as the providers of information may not be reliable, may present questionable data, or the sources may be intentionally attempting to deceive U.S. Army forces. Consequently, a walk-in source providing HUMINT is assessed as diffident and counted as an adverse piece of information during the case study analysis.

⁵⁰ Headquarters, Department of the Army (HQDA), Field Manual (FM) 2-22.3, *Human Intelligence Collector Operations* (Washington, DC: Government Printing Office, 2006), B-1.

⁵¹ Ibid.

⁵² Donald P. Wright and Timothy R. Reese, *On Point II: Transition to the New Campaign, The United States Army in Operation Iraqi Freedom. May 2003-January 2005* (Fort Leavenworth, KS: Combat Studies Institute, 2008), <https://history.army.mil/html/bookshelves/resmat/GWOT/OnPointII.pdf>, 199.

Case Study Literature

This thesis focuses on four historical cases. These cases demonstrate how information overload has progressed within the U.S. Army over time and what impact information overload has on intelligence analysts in the current operations element. The four cases relevant to the research are Operation Desert Storm, Operation Anaconda, Operation Iraqi Freedom, and Operation Rock Move. These four cases represent the U.S. Army's participation in significant combat operations that include BDE-level actions. The literature reviewed focuses on source documents from units that participated in these operations, as well as historical summaries from external organizations such as the Center for Army Lessons Learned. The case study literature is organized chronologically.

Operation Desert Storm

The first document reviewed was *Operation Desert Storm, The Military Intelligence Story: A View from the G-2, 3rd U.S. Army*. This document provides a baseline of U.S. Army intelligence operations in the information age to be set and compared to future conflict, specifically in Afghanistan and Iraq, more than ten years after Desert Storm. The evidence primarily reviewed in *The Military Intelligence Story* are lessons learned from the integration of new information sources, including unmanned aerial systems (UAS) and the Joint Surveillance Target Attack Radar System (JSTARS). This evidence permits an argument to be made in chapter 4 that even though the sources of information were increasing with technological advances made, they were not resulting in information overload at that time because larger S-2s were managing them at the theatre and corps levels of command. It also allows for a validation of the suspected

increase in the information load and highlights changes between Operation Desert Storm, Operation Anaconda, and Iraqi Freedom.

Additionally, *101st Airborne Division (Air Assault) History for Operation Desert Shield / Desert Storm* was reviewed. The 101st Airborne Division compiled this history following the conclusion of combat operations in July 1991 for the XVIII Airborne Corps commander. The document provides valuable source information on how the division executed intelligence preparation of the battlefield before combat operations. It also offers pre-conflict intelligence analysis and post-conflict assessment, which allows for possible identification of the negative characteristics of the information load. Finally, this historical record provides information as to how intelligence assets were organized and what sources were available to the Division and BDEs conducting operations.

Operation Anaconda

A Different Kind of War: The United States Army in Operation ENDURING FREEDOM (OEF) October 2001–September 2005 is a study of OEF compiled by the Combat Studies Institute. This study reviews primary sources and provides firsthand accounts through interviews of those present in Operation Anaconda. For this thesis, chapter 6 is the main section of the publication that is utilized for the case study. This chapter is an in-depth historical review of Operation Anaconda. Key interviews are those of Lieutenant General Franklin L. Hagenbeck, the commander of Combined Joint TF (CJTF) Mountain, Lieutenant Colonel Stephen Townsend, commander of 4th Battalion, 31st Infantry (4-31 IN), and Colonel Charles A. “Chip” Preysler, commander of 2d Battalion, 187th Infantry (2-187 IN).

The next document reviewed was *Operation Anaconda in Afghanistan: A Case Study of Adaptation in Battle* by Dr. Richard L. Kugler. This document provides the historical background of the operation and details associated with the operation. Of particular use to this thesis is the section entitled The Intelligence Picture: Enemy Forces in the Shah-i-Khot Valley. This section of the Dr. Kugler study presents evidence on the pieces of information available to the BDE TF and the characteristics of those pieces of information. This literature also provides a detailed look at the command structure and flow of information, which is relevant to assessing the amount of information expected at the BDE level.

Operation Anaconda, Shah-i-Khot Valley, Afghanistan, 2 -10 March 2002 published in May-June 2002 edition of *Military Review* by Adam Geibel presents evidence from multiple primary and secondary sources relevant to the analysis of information overload. This document provides data on the pieces of information collection assets utilized at different levels of command and how decision-makers interpreted the information collected from those assets. It also analyzes the impacts of sources of information, specifically HUMINT from Padshah Khan, on 3rd BDE, 101st Airborne Division's actions during Operation Anaconda.

Operation Anaconda: An Air Power Perspective published by Headquarters, U.S. Airforce in 2005 documents the integration of air and ground combat operations. Chapter 2 of this document provides a detailed analysis of the early intelligence assessments of the Khowst-Gardez region and how that intelligence drove the initial

planning and operations process for Operation Anaconda.⁵³ The paper allows for a full understanding of the entire information collection system from both the U.S. Army and U.S. Air Force perspective, and how both services contribute to the current operations element's information load.

Finally, *A Different Kind of War: The United States Army in Operation Enduring Freedom, October 2001 to September 2005* published by the Combat Studies Institute Press, U.S. Army Combined Arms Center is a comprehensive study of the U.S. Army's experience in Afghanistan during the first four years of Operation ENDURING FREEDOM. Chapter 6, Operation Anaconda, is the primary chapter reviewed for this thesis. This chapter provides a historical overview of the operation and interviews from commanders and staff members present in that operation.⁵⁴

Operation Iraqi Freedom

The literature review for Operation Iraqi Freedom focuses on 2004. This limitation allows for a more specific focus on a period in the case when major combat and stability operations at the BCT level were ongoing. This focus makes for a more direct comparison to the two previous cases. The review also focuses on Stryker BDEs, specifically 3rd BDE, 2nd Infantry Division, as this unit was the first the U.S. Army task-

⁵³ Headquarters, United States Air Force, *Operation Anaconda: An Air Power Perspective* (Washington DC: Government Printing Office, 2005), 14.

⁵⁴ Donald P. Wright, "Operation Anaconda," in *A Different Kind of War: The United States Army in Operation Enduring Freedom, October 2001 to September 2005* (Fort Leavenworth, KS: Combat Studies Institute Press, 2010), 127-174, <https://history.army.mil/html/bookshelves/resmat/GWOT/DifferentKindofWar.pdf>.

organized as a BCT, and therefore, operated with a more robust information collection capability.

The first piece of literature reviewed for this case was *The U.S. Army in The Iraq War: Volume 1. Invasion, Insurgency, Civil War, 2003-2006*. This document is a robust review of Operation Iraqi Freedom from 2003 to 2006 with historical analysis conducted by the U.S. Army War College and published in January 2019. This past work provides an in-depth review of the invasion from planning and preparing to execution and provides a valuable context of the overall theater-level operation. Chapter 11 is the focus of the literature review, which specifically looks at the increased risk of the insurgency and the coalitions approach to it. This chapter also provides a specific discussion of the enemy situation and how information collection shaped that understanding. This analysis within Chapter 11 is useful in answering the research questions by providing evidence on the amount of information and confirmation of other possible negative characteristics.

On Point II: Transition to the New Campaign, The United States Army in Operation Iraqi Freedom, May 2003—January 2005 by Dr. Donald P. Wright and Colonel Timothy R. Reese, published in June 2008 by the Combat Studies Institute, also provides valuable first hand reporting from an intelligence perspective on the initial invasion of Iraq. Chapter 5, “Intelligence and High-Value Target Operations,” studies the importance of HUMINT to BDE and below level operations and provides vignettes from various BCTs. These vignettes offer applicable data that lead toward answering the primary research question of how information overload impacts the current operations element.

Also reviewed was *Networked Forces in Stability Operations: 101st Airborne Division, 3/2 and 1/25 Stryker BDEs in Northern Iraq*. This report is a RAND Corporation report that highlights some successes and failures of 3rd SBCT, 2nd ID during their deployment to Iraq in 2004. Specifically, this report examines the network-centric operations capabilities of Stryker BDEs that conducted stability operations in Iraq. As well as, how the SBCT utilized those network-centric capabilities, and other resources available to SBCTs, to conduct stability and counterinsurgency operations and whether these capabilities resulted in improved mission effectiveness.⁵⁵

An additional piece of literature reviewed was *Accelerating Momentum: The Stryker BDE Combat Team as a Learning Organization* from June 2006. This literature discusses the successes and failures of SBCTs in Iraq. It provides context on how the Modular Force Structure pushed by the U.S. Army resulted in a more robust and capable BCT. Of particular use to this thesis is the analysis of this piece of literature provides on the SBCT's reconnaissance, surveillance, and target acquisition (RSTA) squadron. The RSTA squadron is a primary source of information to the current operations element.

Also relevant to the study of Operation Iraqi Freedom is a review of the changes to BDE force structure the U.S. Army implemented between 2003 and 2006. The U.S. Army commonly refers to this change as BDE modularity or the Modular Force Structure. *A Review of the Army's Modular Force Structure*, a technical report presented

⁵⁵ Daniel Gonzales, John Hollywood, Jerry M. Sollinger, James McFadden, John DeJarnette, Sarah Harting, and Donald Temple, *Networked Forces in Stability Operations: 101st Airborne Division, 3/2 and 1/25 Stryker Brigades in Northern Iraq* (Santa Monica, CA: RAND Corporation, 2007), <https://www.rand.org/pubs/monographs/MG593.html>, iii.

by the RAND Corporation in 2012, is reviewed to establish an understanding of BDE modularity. Modularity is relevant to information overload as it is the driving factor that pushed information collection assets to be assigned directly to a BDE.

Operation Rock Move

The primary piece of literature reviewed for this case study was the Combat Studies Institute's published findings on the battle of Wanat, *Wanat: Combat Action in Afghanistan, 2008*. This piece of literature provides a detailed account into the background of 173rd Infantry BCT (Airborne) deployment to Afghanistan, the planning and justifications behind establishing a combat outpost in Wanat, and the actions that occurred at the outpost. This document is a consolidated work of interviews, after action reports, concepts of operations, and other source documents from Chosen Company, 2-502nd Infantry Battalion, the 173rd Infantry BDE, and the Combined Joint Task Force (TF) 101.

Chapter Summary

The literary review established the theoretical framework of information overload. This chapter also defined the two primary variables of information overload. This chapter correspondingly provided the predominant research relevant to the scope of this thesis. This chapter described information overload as the point when an individual attempting to decide has more pieces of information presented than that individual can process in the time available, resulting in a less than ideal decision. The literary review also laid out the negative characteristics impacting the information load variable that are relevant to the U.S. Army and accepted by previous research. Those negative characteristics include

amount, distraction, complexity, contradictory, and diffidence. Finally, the literary review presented the literature associated with four cases for the case study methodology. The next chapter identifies the primary methodology and tools this thesis applies to answer the research questions.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

The primary purpose of this study is to identify how information overload impacts intelligence analysts within the current operations element. This thesis also attempts to answer which information load characteristics are present in a current operations element, their impacts, and what the implications of information overload are on the military decision-making process. There has been a small amount of research conducted that utilizes U.S. Army source data or cases to test information overload variables. This study attempts to fill that gap within the contemporary literature through a qualitative research methodology focusing on a comparative analysis of multiple case studies.

Chapter 3 presents the research methods this study uses to answer the research questions in chapter 4. It also describes the instruments used to analyze the data and the criteria developed to determine the feasibility, suitability, and relevance of that data.

Data Collection and Analysis Methods

The primary methodology utilized to answer the research questions is a comparative analysis of multiple case studies. This thesis analyzes and compares the historical cases of Operation Desert Storm, Operation Anaconda, Operation Iraqi Freedom, and Operation Rock Move utilizing the literature identified in Chapter 2. This methodology requires an understanding of what a case study is. This research uses the case study definition provided below by Russel K. Schutt in *Investigating the Social World: The Process and Practice of Research*.

A case study is not so much a single method as it is a way of thinking about what qualitative data analysis can, or perhaps should, focus on. The case may be an organization, community, social group, family, or even an individual; as far as the qualitative researcher is concerned, it must be understood in its entirety. Central to much qualitative case study research is the goal of creating a full description of the setting studied.⁵⁶

This comparative analysis of multiple case studies shows the progression of information overload through time by comparing the changes in the information load variable among the four cases. The multiple case study approach allows one to focus on two distinct periods; before and after the U.S. Army made significant changes to the BDE structure and organization. The case study methodology also allows for a full understanding of the environment, structure, and capabilities of a U.S. Army BDE. The multiple case studies also permit a detailed analysis of how various BDEs and BCTs, which are the units of analysis within the cases, have or have not been impacted by information overload. Additionally, analysis is executed on how the presence of the negative information load characteristics has impacted those organizations.

The case study methodology provides the necessary data and context to answer the research questions, but there are inherent weaknesses to this methodology. The two primary weaknesses are a limit to the number of units being studied and the likelihood of subjectivity in the selection of those units, or sampling bias.⁵⁷ Several days are analyzed, if possible, to minimize the risk of a limited sample size. This approach allows for an

⁵⁶ Russel K. Schutt, *Investigating the Social World: The Process and Practice of Research* (Boston: University of Massachusetts, 2012), 286.

⁵⁷ Oxford Library of Psychology, *Oxford Handbook of Qualitative Research*, ed. Patricia Leavy, (Cary, NC: Oxford University Press, Incorporated, 2014), 458. ProQuest Ebook Central.

analysis of a different information load. The sampling bias is mitigated by looking at four different BDE types, a combat aviation BDE, light infantry BDE, Stryker BCT, and airborne BCT through three separate lens – support to large scale combat, limited contingency operations, and counter-insurgency operations. The risk of being influenced by personal feelings and experiential bias is mitigated through acknowledging its presence and being self-aware that the researcher’s own experiences and opinions may affect the data.⁵⁸

Within the literature for the four cases, five suitable and relevant BDEs are identified as units of analysis for a full investigation of the information load variable. Those units are the Combat Aviation BDE, 101st Airborne Division and 1st BDE, 101st Airborne Division from the Operation Desert Storm case, 3rd BDE, 101st Airborne Division from the Operation Anaconda case, 3rd Stryker BCT, 2nd Infantry Division from the Operation Iraqi Freedom case, and 173rd Airborne BCT from the Operation Rock Move case.

The primary mode of analysis applied to these five BDEs is document analysis. The document analysis provides a historical context and an understanding of the values for each unit of analysis.⁵⁹ Document analysis also serves as the basis for observation. Direct observation of a BCT conducting combat operations is inherently challenging. Nor is it within the scope and limitations of this research to conduct an ethnographic study of a BCT. Therefore, document analysis as part of a multiple case study approach is the primary way of observing the units of analysis. During the document analysis, historical

⁵⁸ Oxford Library of Psychology, *Oxford Handbook of Qualitative Research*, 459.

⁵⁹ *Ibid.*, 463.

evidence presented in chapter 2 is reviewed and the pieces of information present are identified. The identified pieces of information are grouped into three separate classes of information and weighted appropriately.

The classes of information are identified as favorable information, adverse information, and unfavorable information. Favorable information includes all pieces of information that add to the decision-making process and do not exhibit any negative characteristics. Adverse information is identified as pieces of information that have negative characteristics that are distracting or diffident. Unfavorable information is defined as pieces of information that are contradictory or complex. After grouping the information, a weight is assigned based on the progressive nature of the impacts of the negative characteristics.

One point is allocated to favorable information, two points to adverse information, and three points to unfavorable information. Favorable information is weighted with one point as it is equivalent to a standard piece of information, with no negative information load characteristics. It, therefore, has no additional impacts on the information load. Adverse information is increasingly more impactful to the information load variable, and the negative characteristics associated with this class multiply the risk of overload. The adverse information class, however, is not as detrimental as unfavorable information. The adverse information class is, therefore, justified in being weighted with a median weight of two. The unfavorable information contains data with the most impactful negative characteristics and consequently receives the highest possible weight of three points. After arranging the pieces of information identified from the cases into their respective classes, the weighted score for each example is totaled and then applied

to the theoretical framework determining if information overload is present. This method is a feasible solution for measuring the information load variable with the multiplying properties of the negative characteristics applied.

Table 1 below is the criteria-based matrix example that is utilized in chapter 4. The total weighted score, if more numerous than seven, results in the conclusion that information overload is present within the case.

Table 1. Weighted Criteria Based Matrix Example

Criteria		Occurrences (Weighted Score)				
Classes of Information	Weight	Operation Desert Storm		Operation Anaconda	Operation Iraqi Freedom	Operation Rock Move
		CAB, 101st ABN DIV	1st BDE, 101st ABN DIV	3rd BDE, 101st ABN DIV	3rd SBCT, 2nd IN DIV	173rd Airborne
Favorable Information	1					
Adverse Information	2					
Unfavorable Information	3					
	Total Score					

Source: Modified from Six Sigma Certification Course, "Prioritization Matrix," <http://www.sixsigmacertificationcourse.com/prioritization-matrix/>.

Upon completing the scoring for each unit of analysis and determining the presence of information overload, the impacts of information overload on the current

operations element and the effects of the negative characteristics of the information load are identified and presented.

Threat to Validity

The greatest threat to the validity within this research is drawing an inaccurate conclusion from the data analyzed. According to Schutt, no set of standards exists for evaluating the efficacy of the findings in a qualitative study. Still, the need to carefully consider the evidence and methods on which conclusions are based is just as great as with other types of research.⁶⁰ It is, therefore, the responsibility of the researcher to draw a suitable and valid conclusion from the case study analysis. This conclusion must rely on a strong internal validity that the theoretical framework presented in chapter 2 is appropriate and feasible to answer the research questions. Primarily, the U.S. Army has increased access to information resulting in more than seven pieces of information being presented at any time. Additionally, the presence of negative information load characteristics as part of the information load variable multiplies the effects of information overload within the cases studied.

Chapter Summary

Chapter 3 presents the primary methodology this thesis utilizes to answer the primary and secondary research questions. That specific methodology is a comparative analysis of multiple case studies, specifically, Operation Desert Storm, Operation Anaconda, and Operation Iraqi Freedom. These are the most recent examples of the U.S.

⁶⁰ Schutt, *Investigating the Social World*, 330.

Army executing BDE-level combat and stability operations. This chapter also introduces five U.S. Army units that are analyzed in detail in chapter 4; the Combat Aviation BDE and 1st BDE, 101st Airborne Division from the Operation Desert Storm case, 3rd BDE, 101st Airborne from the Operation Anaconda case, 3rd SBCT, 2nd Infantry Division from the Operation Iraqi Freedom case, and 173rd Infantry BCT (Airborne) from the Operation Rock Move case. Chapter 3 identified the three classes of information that are used to organize the information load. Those classes of information are favorable information, adverse information, and unfavorable information. This chapter also presented the criteria-based matrix example that is used to organize, weigh, and score each class of information as they relate to the three identified BDEs in chapter 4. Finally, chapter 4 provides the data and analysis of the material outlined in the literature review to answer the primary and secondary research questions.

CHAPTER 4

DATA FINDINGS AND ANALYSIS

Introduction

Information overload can degrade decision making. An overwhelming information load can cause confusion, impact a decision-maker's ability to prioritize, and even make it harder to recall previously known facts.⁶¹ Army doctrine tells us that in both the offense and the defense intelligence assists the commander in deciding where and when to place combat power.⁶² The current operations element is the primary S-2 responsible for processing that intelligence and providing timely enemy assessments to the commander during the commander's update briefs.⁶³ If the current operations element is suffering from information overload due to a high information load – greater than seven pieces of information – they are unlikely to provide accurate assessments of the enemy situation. In turn, inexact assessments can result in poor decisions by the commander as to when and where to place combat power. The addition of negative information load characteristics identified in Chapter 2 can also multiply the rate at which information overload occurs, significantly increasing the risk of an inadequate intelligence assessment by the current operations element.

⁶¹ Eppler and Mengis, *A Framework for Information Overload Research in Organizations*, 9.

⁶² Headquarters, Department of the Army (HQDA), Army Techniques Publication (ATP) 2-19.4, *Brigade Combat Team Intelligence Techniques* (Washington, DC: Government Printing Office, February 2015), 1-2.

⁶³ Ibid., 2-4.

Information overload is the basis of the problem this thesis presents. As the purpose of this thesis is to identify the presence of information overload within the current operations element of a BCT and identify information overload's impact on decision making, only the data relevant to that purpose is presented.

This data findings and analysis chapter utilizes the Criteria Based Matrix developed in Chapter 3 as the primary tool to confirm or deny information overload's presence within the unit of analysis. Key data points within the cases include the information load, a reduction in the current operations element's ability to operationalize intelligence, and a commander's ability to make decisions. Additionally, examples of increasing quantities of pieces of information that intelligence analysts must process, exploit, and disseminate must be illuminated and examined. This data allows for a validation of the problem statement identified in Chapter 1 and the basis to begin identifying answers to the primary and secondary research questions.

To best explain the data and progression of information overload, chapter 4 is organized chronologically. The cases are presented in the order they occurred, with a section devoted to each case. The unit of analysis, BDEs, further subdivides each section specifically focused on interpreting a specific date or dates in which those BDEs conducted operations. The chapter concludes with a presentation of the completed Criteria Based Matrix with total occurrences and weighted scores assigned to each BDE as well as presents the answers to the primary and secondary research questions.

Operation Desert Storm

U.S. Army intelligence in Operation Desert Storm experienced many firsts in this historic conflict. These firsts include deploying seven MI Battalions, three MI BDEs,

technological advancements such as JSTARs and UAS, and a communications architecture that provided reach back to the national level IC.⁶⁴ The conflict, initially a defense of Saudi Arabia, ultimately transitioned to the offense and liberation of Kuwait. To prepare for the offensive, the IC, led by the 3rd Army G-2, began the task of building trust with tactical-level commanders.⁶⁵ The trust in the IC was lost during the defense due to a lack of perceived support.⁶⁶ Obviously, it was not the objective of 3rd Army to be unsupportive. However, as the situation in the Persian Gulf transformed and the U.S. military strategy shifted to include offensive operations, VII Corps was deployed. This deployment doubled the intelligence requirements and 3rd Army was not initially prepared to support it. To fix this loss of trust, the 3rd Army G-2 prioritized imagery of enemy positions, increased the number of experienced intelligence analysts, and improved the intelligence dissemination process.⁶⁷ More specifically, the 3rd Army G-2 quickly established working relationships with U.S. Central Command (CENTCOM) tactical commanders. All intelligence assessments that were published by either headquarters were synchronized and agreed upon before publication.⁶⁸ As important as trust with the tactical level commanders and communication with CENTCOM was, the

⁶⁴ John F. Stewart, Jr., *Operation Desert Storm: The Military Intelligence Story, A View from the G-2 3D U.S. Army* (Riyadh, Saudi Arabia: 3rd U.S. Army, 1991), 4, <https://nsarchive2.gwu.edu/NSAEBB/NSAEBB39/document5.pdf>.

⁶⁵ Ibid.

⁶⁶ Ibid.

⁶⁷ Ibid.

⁶⁸ Ibid.

most critical aspect of intelligence 3rd Army highlighted post Desert Storm was pushing intelligence down to the Corps level.⁶⁹

To build trust, the Corps G-2 disseminated information as quickly as possible. This thought process and lesson learned from Desert Storm continues to this day. Corps and higher intelligence staffs work to serve the echelon below them and, ultimately, the warfighter. Brigadier General (BG) John F. Stewart sums it up in his *Operation Desert Storm: The Military Intelligence Story* as,

The single most important objective during the period immediately before Desert Storm and before G-Day (24 February 1991) was to focus all intelligence endeavors downwardly. From the ARCENT view, that was on the Corps, and through it to the Captains, Lieutenants, and Sergeants who fight the war. During peacetime, much intelligence tends to be academic. In Desert Storm, intelligence was real.⁷⁰

Pushing information down is a contributor to the increased information load over the past 30 years at the BDE level. While this process does speed up the flow of information, it also adds to the complexity of the information load. This creates an opportunity for the echelons above corps becoming a diffident source of information as analysts become dissatisfied with the quality of information. An opportunity for overload also existed in terms of managing requests for information (RFI).

Due to the lack of organic collection, BDEs and divisions had to rely heavily on Corps and EAC assets to fill in gaps of knowledge. This process of requesting information is associated with the commander's CCIR and answering priority intelligence requirements (PIR). In Desert Storm, the 3rd Army G-2 received more than 400 RFIs, but

⁶⁹ Stewart, *Operation Desert Storm: The Military Intelligence Story*, 4.

⁷⁰ Ibid., 5.

of those, only about 20 nested with the Corps Commander's PIR. BG Stewart proposes that “perhaps they held some importance at one time or another, but they largely fell into the category of academic curiosity rather than direct intelligence for operations plans, which were imminent in execution.”⁷¹ A lack of ability at the lower level to manage RFIs and submit only those that are relevant to the successful completion of an operation is one contributor to creating an extensive database of mostly irrelevant information. Additionally, just because a subordinate unit submits an RFI, does not necessarily mean that they will receive a precise and complete piece of information in return. This likely adds to the risk of information overload. As analysts search through databases and become distracted by the irrelevant pieces of information it can create a feeling that RFIs are a diffident source due to the information not providing any real value.

A final perspective brought forward by BG Stewart's summary of military intelligence was the application of JSTARS and Unmanned Aerial Vehicles (UAVs). While integrating new technology is not unique to Desert Storm, integrating multi-intelligence targeting platforms such as JSTARS was novel and proved successful. Brigadier General Stewart argues that “the JSTARS was the single most valuable intelligence and targeting collection system in Desert Storm...when it was needed, it was there, in bad weather and during longer hours – more than anyone predicted.”⁷² The UAV, utilized for the first time in combat in Desert Storm, also proved successful in providing IMINT on enemy locations. Seventh Corps utilized UAVs as a targeting

⁷¹ Stewart, *Operation Desert Storm: The Military Intelligence Story*, 10.

⁷² Ibid., 31.

platform to execute air and artillery strikes successfully.⁷³ The success of these platforms in Desert Storm set the groundwork for an increased reliance by analysts and commanders on aerial-based intelligence platforms that could employ multiple intelligence disciplines from a single asset. This success at the Corps and Field Army levels made it easier to justify pushing the capability to the lowest level to enable the tactical commanders in a future conflict.

Brigadier General Stewart concludes that Operation Desert Storm was mostly successful because of MI's commitment to pushing intel to the lowest level, well trained MI Soldiers, and the ability to communicate intelligence at all levels. Stewart suggests,

The old concern that the Soldier could not handle high technology was misplaced. The American images passed digitally to Division TOCs, computer links from remote reaches of southern Iraq to the nation's capital, radar images of the movement of 10-20 enemy divisions, and real-time video from UAVs all portend the kind of intelligence capability we need to build to meet the challenges that face the Army of tomorrow.⁷⁴

Operation Desert Storm proved successful from an intelligence perspective. The 3rd Army G-2 successfully integrated new technology and communications architecture that, in turn, validated the U.S. Army Air-land Battle Doctrine. However, this success also resulted in second and third order effects for the future. One of those effects was the U.S. Army pushing more and more capability down to the lowest level which ultimately culminated with BCT modularity.

To further analyze Operation Desert Storm, it is necessary to analyze operations at the BDE level over multiple days. The next section analyzes the 101st Airborne

⁷³ Stewart, *Operation Desert Storm: The Military Intelligence Story*, 31.

⁷⁴ Ibid., 38.

Division. This section attempts to identify indicators of information overload at the BDE level and the impacts it has on intelligence analysts.

101st Combat Aviation BDE, 101st Airborne Division

The 101st Airborne Division began its deployment in support of operations in the Persian Gulf in August of 1990.⁷⁵ Task organized under the XVIII Airborne Corps; the 101st immediately moved into a defensive posture upon arriving in Saudi Arabia.⁷⁶ Per Division Operation Plan (OPLAN) 90-1, each infantry BDE was prepared to establish anti-armor ambushes along the avenues of approach to King Fahd International Airport and to provide a platoon-sized reaction force in support of Division operations.⁷⁷ As the division built combat power through September 1991, the mission shifted to conduct covering force operations in sector, provide attack helicopter and fire support to disrupt and delay Iraqi forces, and assist in the passage of lines of forces. Also, the division was tasked with an on-order mission to guard in sector to protect the western flank of the XVIII Airborne Corps.⁷⁸ This defense plan of Saudi Arabia continued until early 1991 until the initiation of Operation Desert Storm.

During this initial buildup of forces and the deliberate defense of Saudi Arabia, the 101st Airborne Division Intelligence Staff (G-2) conducted intelligence preparation of

⁷⁵ Headquarters, Department of the Army (HQDA), *101st Airborne Division History for Operation Desert Shield/Operation Desert Storm: Command Report*, (Fort Campbell, KY: 101st Airborne Division, 1991), 2.

⁷⁶ *Ibid.*, 7.

⁷⁷ *Ibid.*, 9.

⁷⁸ *Ibid.*, 12.

the battlefield (IPB). Initially, the G-2 studied and analyzed maps and satellite photography.⁷⁹ They also incorporated the intelligence collected by the 311th Military Intelligence Battalion, specifically enemy radar signatures.⁸⁰ During this time, the staff also developed a reconnaissance plan named G-Minus 7, which proved to be influential to BDE operations.⁸¹ The 101st Combat Aviation BDE (CAB), with general support from the 311th MI BN, was the primary force conducting the 101st Airborne Division's G-Minus 7 plan.

The number of intelligence analysts in the 101st CAB's BDE S-2 shop in 1991, by the table of organization and equipment (TOE), included one Non-Commissioned Officer (Sergeant) intelligence analyst and two junior enlisted intelligence analysts. By doctrine, these analysts would have worked out of the BDE Tactical Operations Center (TOC) and augmented the Tactical Action Center (TAC), which supports the BDE Commander's decision-making closer to the forward edge of the battlefield. Depending on the 101st CAB's tactical standard operating procedure, the senior intelligence officer would have divided the analysts between to 12-hour working shifts, leaving one intelligence analyst working by themselves.

Organic information collection present within the 101st CAB was primarily the 2-17 Cavalry Regiment (CAV). This organization included three Scout Platoons

⁷⁹ HQDA, *101st Airborne Division History*, 31.

⁸⁰ Ibid.

⁸¹ Ibid.

consisting of eight OH-58D Kiowa Warrior each for a total of 24 OH-58Ds.⁸² This platform provided armed reconnaissance, scouting capability, and screening. Also assigned to 2-17 CAV was a long-range surveillance detachment and a pathfinder company capable of providing reconnaissance from the ground.⁸³ The 311th MI BN, while a division-level support asset, would have likely provided some assistance to intelligence operations.

17 February 1991 – G-Minus 7 Plan

The G-Minus 7 plan, or division reconnaissance plan, was initiated on 14 February 1991. The first two days of reconnaissance resulted in little information collected; however, reconnaissance on 17 February was significantly more productive.⁸⁴ The mission consisted of daylight aerial observation conducted by elements the 101st CAB, including 2-229th Attack (ATK) and 2-17 CAV. These units conducted a zone recon, a route recon of MSR Newmarket, and an area recon of a future location for a forward observation base, beginning around 0800 and lasting just a few hours.⁸⁵ These activities quickly resulted in the identification of multiple Iraqi positions and the surrender of more than 40 Iraqi officers, NCOs, and Soldiers.⁸⁶ These prisoners were

⁸² Headquarters, 101st Combat Aviation Brigade, *Executive Summary – Operation Desert Shield/Storm* (Fort Campbell, KY: 101st Combat Aviation Brigade, 1991).

⁸³ Ibid.

⁸⁴ HQDA, *101st Airborne Division History*, 37.

⁸⁵ Ibid.

⁸⁶ Ibid., 38.

transported to the division enemy prisoner of war (EPW) cage, where the 311th MI BN interrogated them. The interrogations resulted in pieces of information on morale, enemy locations, and equipment.⁸⁷ However, the interrogation reports would not have gone directly to the 101st CAB as the 311th MI BN was a division-level asset. These interrogations reports would have likely ended up in the Division GRINTSUM within 24 hours.

At a minimum, the S-2 was processing spot reports from 2-229 ATK and 2-17 CAV executing the zone and area recons, as well as, spot reports from Charlie Platoon, 3rd Battalion, 502nd Infantry Regiment as they conducted EPW searches and a cordon of the enemy bunker. Through the method of chunking information, one can assume that a CAB S-2 analyst could manage multiple spot reports as one piece of information. Therefore, the current operations element was likely dealing with an information load of only one piece of favorable information through their organic intelligence collection.

Additionally, distraction probably existed within the 101st CAB TOC. This day was likely the first moment the TOC dealt with troops in contact. One can assume that radio traffic in the TOC was high, as was the internal stress on the analysts as this was the first day of dealing with sustained enemy contact. One distracting piece of information pushes the information load to a total score of three points after adding the weighting from the methodology.

⁸⁷ HQDA, *101st Airborne Division History*, 39.

Finally, it is plausible that the XVIII Airborne Corps and 101st Airborne Division G2 sections were publishing a daily GRINTSUM. As identified in the literature review, a GRINTSUM typically has a negative characteristic of complexity. Therefore, one can conclude that this piece of unfavorable information was affecting the information load for an additional weighted score of three points. The total weighted score for 17 February is six points, and a conclusion is drawn that information overload was not occurring.

20 February 1991 – G-Minus 7 Plan

As the reconnaissance plan progressed, the 101st Airborne Division became more successful at identifying and eliminating elements of the Iraqi ground forces. On 20 February 1991, the reconnaissance commenced at approximately 0800. Cobra and Apache helicopters from 3rd Battalion, 101st CAB, quickly made contact with Iraqi ground forces.⁸⁸ It appeared that a large number of Iraqis were preparing to surrender, therefore, a psychological operations (PSYOPS) team from the 311th MI BN was sent forward.⁸⁹ The team dropped leaflets and utilized loudspeakers to broadcast surrender instructions.⁹⁰ Following this action, the 1st Battalion, 187th Infantry Regiment, was inserted to clear the enemy positions. The 1-187th Infantry Battalion went bunker to bunker, clearing the enemy receiving small arms fire but taking no friendly casualties.⁹¹ This operation resulted in over 400 Iraqi soldiers surrendering, including an Iraqi

⁸⁸ HQDA, *101st Airborne Division History*, 42.

⁸⁹ Ibid.

⁹⁰ Ibid.

⁹¹ Ibid.

Battalion Commander, eight officers, and one warrant officer.⁹² At this point, realizing they had just captured a battalion-sized element, Major General Peay, the 101st Airborne Division Commander, instructed the CAB to bring back samples of enemy equipment and weapons, as well as exploitable intelligence.⁹³

These events on 20 February resulted in a comparable information load to 17 February. Applying the methodology from Chapter 3, one can assume one piece of favorable information coming into the 101st CAB TOC from the Cobra team's spot reports of enemy locations. 1-187th Infantry Battalion was likely providing spot or SITREPs to the CAB as they were task organized in an operational control command relationship under the aviation BDE. Chunking the spot reports results in one piece of favorable information. The exploitable intelligence resulting from the tactical site exploitation is not counted as impacting the 101st CAB. The justification for not counting it is pieces of exploitable information would have likely gone straight to the 311th MI BN for processing, and any intelligence assessed from that information would then be distributed later as a report or in the division GRINTSUM. As was the case on 17 February, it is likely the current operations elements at both the aviation BDE and division were experiencing distraction in their TOCs accounting for one piece of adverse information. Finally, one can assume the continued publication of a Corps and Division GRINTSUMs that the current operations element would need to analyze and compare to

⁹² HQDA, *101st Airborne Division History*, 42-43.

⁹³ *Ibid.*, 43.

their current situation. For this analysis, only the division GRINTSUM is counted as one piece of unfavorable information.

The total information load being experienced by the Combat Aviation BDE on 20 February is assumed to be three total pieces of information: one favorable piece, one adverse piece, and one unfavorable piece of information. The total weighted score of this information load is six. This score indicates that information overload was likely not impacting the 101st CAB S-2 current operations element on 20 February 1991.

It is unlikely that the 101st CAB S-2 was suffering from information overload during the reconnaissance phase of Operation Desert Storm. It is feasible that the current operations element was able to manage the information load adequately. The 101st CAB was conducting limited organic information collection during this phase. The only internally collected pieces of information flowing were enemy spot reports from 2-17 CAV, their long-range surveillance detachments teams, and pathfinders. Consequently, it is not likely that the current operations element was processing more than three pieces of information at any period.

However, the complex piece of information, by definition, increased the information load by three points. This piece of information likely took the most time to process. A method to minimize the impact of a complex piece of information is to study it as soon as it is received and separately from other pieces of information. This mitigation is an information process-centered view, which Roetzel identifies as one of three possible countermeasures.⁹⁴ By isolating the complex piece of information, an

⁹⁴ Roetzel, *Information Overload in the Information Age*, 31.

intelligence analyst increases the likelihood that they can store the piece of information in their long-term memory. Subsequently, a later obtained piece of information that may verify the unknown links or truths that made INTSUM complex in the first place would be easier to process.

1st BDE, 101st Airborne Division

This section analyzes 1st BDE, 101st Airborne Division and their operations in support of Desert Storm in February 1991. The primary focus of this section is to identify the information load, negative characteristics of that load, and the impacts of the information load on the current operations element and decision-makers.

The initiation of the ground invasion in Desert Storm, or G-Day, began on 24 February 1991. TF 1-101's mission on G-Day was to attack by ground and air assault to secure Objective Cobra, establish a forward operating base to support air assault follow-on forces, and on order, air assault to conduct future operations to interdict enemy forces vicinity Basrah, Iraq.⁹⁵ The TF consisted of the BDE headquarters, three organic infantry battalions, a field artillery battalion, and slice elements from division, including Alpha Company (MICO), 311th MI BN in a direct support role.⁹⁶ The BDE S-2 section likely consisted of four junior intelligence analysts and one E5 sergeant intelligence analysts,

⁹⁵ Headquarters, 1st Brigade, 101st Airborne Division, *TF 1-101, 327th Infantry Regiment, Historical Summary of Desert Rendezvous II: Offensive Operations Against Iraqi Forces* (Fort Campbell, KY: 101st Airborne Division, 1991), 2.

⁹⁶ *Ibid.*, 11-12.

according to the TOE Handbook from August 1991.⁹⁷ There was no organic intelligence collection capability within the BDE. The BDE S-2 section's equipment primarily consisted of communication systems, including cable telephones, non-secure voice telephones, and HF/VHF radio sets. These systems enabled communications with the battalion S-2s, the MICO, and division G-2.

Alpha Company, 311th MI BN, serving in a direct support role, significantly improved TF 1-101's intelligence collection capability. The company consisted of three low-level voice intercept (LLVI) teams with six SIGINT Soldiers each. The company had one TLQ-17A tactical jamming team. Alpha Company provided one counterintelligence team with four agents and one interrogation team to conduct HUMINT. A psychological operations team was available. Finally, a QUICKFIX team, which is a SIGINT system mounted on a UH-60, provided airborne SIGINT to augment the LLVI teams. In all, Alpha Company supported with approximately 125 military intelligence Soldiers.

24 February 1991 – Objective Cobra

On 24 February, TF 1-101 air assaulted from the division tactical assembly area at approximately 0700. Approximately one hour later, elements of TF 1-101 began arriving at Objective Cobra. Elements of 3-327th IN BN made initial contact engaging enemy units with small arms and mortars.⁹⁸ Around this same time, the BDE C2 elements

⁹⁷ Headquarters, Department of the Army (HQDA), *Commanders' TOE Handbook-Headquarters and Headquarters Company, Heavy Separate Brigade* (Washington, DC: Government Printing Office, 1991), 55-56.

⁹⁸ Headquarters, 1st Brigade, 101st Airborne Division, *Historical Summary of Desert Rendezvous II*, 4.

arrived on Objective Cobra and immediately established the BDE TOC.⁹⁹ Elements of 1-327th IN BN encountered enemy contact approximately one hour after insertion into their assault objective with a large enemy bunker complex.¹⁰⁰ The 1st Battalion, 82nd BDE of Iraq's 49th Infantry Division, had entrenched themselves just north of MSR Virginia.¹⁰¹ This engagement at the bunker complex resulted in the BN requesting division to release close air support and TF 1-101 repositioning an artillery battery and firing 96 rounds of 105mm while attack helicopters engaged from a distance.¹⁰² This action led to the surrender of 361 Iraqi Soldiers, including an Iraqi Battalion Commander and his primary staff.¹⁰³ The BDE cleared Objective Cobra around 1039 on 24 February, and activity significantly decreased throughout the remainder of Desert Storm.¹⁰⁴ As the infantry battalions were air assaulting into Objective Cobra, the MICO was concurrently supporting air assault operations.

Alpha Company's LLVI teams were attached directly to the infantry battalions during the air assault into Objective Cobra. Any pieces of information collected were simultaneously sent to the BN S-2 for immediate exploitation and the BDE S-2 for

⁹⁹ Headquarters, 1st Brigade, 101st Airborne Division, *Historical Summary of Desert Rendezvous II*, 4.

¹⁰⁰ Ibid.

¹⁰¹ HQDA, *101st Airborne Division History*, 47.

¹⁰² Headquarters, 1st Brigade, 101st Airborne Division, *Historical Summary of Desert Rendezvous II*, 5.

¹⁰³ Ibid.

¹⁰⁴ HQDA, *101st Airborne Division History*, 48.

further analysis and dissemination..¹⁰⁵ One member of the HUMINT interrogation team air assaulted into Objective Cobra, and the other member convoyed with the intent of having a trained Arabic interrogator on the ground immediately to aid battalions in interrogation effort..¹⁰⁶ According to TF 1-101's historical summary of the offensive operations, "the intent of employing LLVI teams in this manner was to equip each maneuver battalion with the ability to capture, interrogate, and control all EPWs at the lowest level as well as ensure immediate exploitation on all collected enemy radio traffic..¹⁰⁷ The QUICKFIX flew a collection only mission just before and during the air assault into Objective Cobra and then moved up to Forward Operating Base (FOB) Cobra, where they continued to collect as well as jam targets of opportunity..¹⁰⁸ Finally, the MICO headquarters element air-assaulted into FOB Cobra with the TF 1-101 BDE S-2. This co-location of the BDE S-2 and the MICO commander significantly improved reporting into the current operations element as the MICO Commander had direct communications with the LLVI teams and the division G-2.

Applying the methodology to 24 February, there are three favorable pieces of information present. First, the 1-327th IN BN spot reports on enemy activity at the bunker complex counts as one favorable piece of information. It is also likely that 3-327th IN BN was submitting spot reports from their light engagement with Iraqi forces.

¹⁰⁵ Headquarters, 1st Brigade, 101st Airborne Division, *Historical Summary of Desert Rendezvous II*, 7.

¹⁰⁶ Ibid.

¹⁰⁷ Ibid.

¹⁰⁸ Ibid.

However, through the chunking of spot reports, only one favorable piece of information is assessed for both battalions. Second, following the surrender of the Iraqi battalion, an initial interrogation of the Iraqi Battalion Commander would have resulted in the interrogation team sending a HUMINT report to the MICO Commander, and then passed to the current operations element. Finally, one additional piece of favorable information is assessed due to the MICO Commander relaying all other intelligence updates from their organic feeds. During this phase of the air assault between 0700 and 1030 on 24 February, there were no indications of LLVI or QUICKFIX submitting SIGINT reports through the MICO Commander to the BDE S-2. However, those elements of the MICO were likely communicating on the radio and possibly causing distraction within the current operations element. It is also likely that the current operations element had internal distractions during the air assault from possible stress and fatigue. Therefore, one piece of adverse information is assessed as present on 24 February due to distraction. Finally, the Division INTSUM that was assessed as present on previous days in the analysis of the CAB was likely delayed on 24 February due to the Division G-2 staff also conducting an air assault and pushing the TOC and TAC forward. Consequently, there is no evidence that any complex pieces of information were present.

The total information load assessed for 24 February is three favorable and one adverse piece of information. The total weighted score assigned to TF 1-101 for this day is four. During approximately four hours, it is unlikely the TF 1-101 current operations element was suffering from information overload. Through the analysis of a decision made during the operation, it may be more likely that the BDE staff was in a state of flow. This conclusion is deduced from the quick and deliberate decision made by the staff

to reposition Charlie Company, 2-320 Field Artillery, in support of 1-327th IN BN. There was no indecisiveness reported, and it was clear that the TF 1-101 staff had a well-developed situational understanding and visualization of the battlefield. This decision resulted in the successful neutralization of an entire Iraqi Battalion and the surrender of an Iraqi Battalion Commander and more than 350 Soldiers.

Operation Anaconda

Significant U.S. combat operations in Afghanistan, known as Operation Enduring Freedom, began 7 October 2001, less than one month after the 11 September terrorist strikes against the United States.¹⁰⁹ Initially, combat operations were slow to materialize. By 19 October, SOF teams and Central Intelligence Agency (CIA) operatives were in place with Northern Alliance forces, and CENTCOM had enough combat power to conduct operations.¹¹⁰ Over the next two months, coalition-led airstrikes destroyed Taliban targets, and the Northern Alliance was incorporated successfully into ground operations.¹¹¹ Even with the early success, the Taliban and Al Qaeda fighters were able to consolidate in Eastern Afghanistan in the vicinity of the Pakistani border in what is called Tora Bora and the Shah-i-Khot Valley.¹¹² Initial attempts to disrupt forces in this

¹⁰⁹ Richard Kugler, “Operation Anaconda in Afghanistan: A Case Study of Adaptation in Battle” (Case Studies in Defense Transformation Number 5, National Defense University, Center for Technology and National Security Policy, Fort Lesley J. McNair, Washington, DC, 2007), <https://apps.dtic.mil/dtic/tr/fulltext/u2/a463075.pdf>.

¹¹⁰ Ibid., 3.

¹¹¹ Ibid.

¹¹² Ibid.

region were marginally successful, but intelligence assessments published in mid-January 2002 indicated enemy forces, including al Qaeda, were assembling in the valley.¹¹³

The subsequent plan to clear the Shah-i-Khot Valley was named Operation Anaconda and would be executed in March 2002. Operation Anaconda was controlled by Coalition Joint TF (CJTF) Mountain, which comprised of the 10th Mountain Division Headquarters, one organic 10th Mountain light infantry battalion, the Headquarters of 3rd BDE, 101st Airborne Division and two of their infantry battalions, and elements from SOF.¹¹⁴ Of the three infantry battalions at CJTF Mountain's disposal, none of them were deployed with their heavy organic equipment, such as artillery, and were restricted on aviation assets.¹¹⁵

The initial plan called for multiple blocking positions being established by four infantry companies and SOF elements clearing the valley with their Afghan partners.¹¹⁶ Additionally, previously identified targets would be destroyed by U.S. led airstrikes before the ground operation, and close air support would be available during operations.¹¹⁷ However, the information collected in the region was not comprehensive,

¹¹³ Kugler, "Operation Anaconda in Afghanistan," 5.

¹¹⁴ Ibid., 8.

¹¹⁵ Ibid., 10.

¹¹⁶ Ibid., 12.

¹¹⁷ Ibid.

and coalition planners were unable to confirm enemy composition and disposition.¹¹⁸

Although, Dr. Kruger suggests it was not for lack of effort,

U.S. officials relied upon multiple sources of intelligence, including human intelligence, communications intercepts, and overhead reconnaissance...getting accurate and reliable intelligence was a severe problem. The difficulty owed partly to the rugged inaccessible terrain, and partly to the enemy's skill at concealing and camouflaging itself. During the two weeks before the battle, U.S. SOF sent several reconnaissance teams to get as close to the valley as possible without being detected, in the hope of getting a better picture of the enemy. Even this effort failed to produce an accurate, definitive picture.¹¹⁹

Due to a lack of reliable intelligence, the coalition staff made quite a few assumptions during the planning process. The enemy strength was assessed to be between two and three hundred fighters, later proven to be much higher.¹²⁰ The planners also assumed that resistance in the valley would be light and that an Afghan-led force would be enough to destroy any Taliban and Al Qaeda in the area.¹²¹ It is highly likely that these assumptions on enemy sizes, based on faulty intelligence, resulted in contradictory pieces of information later on during the mission. Contradictory information, as a negative characteristic, is also a multiplier on the information load. As identified in chapters 2 and 3, contradictory pieces of information are classified as unfavorable information.

Following the planning, CJTF Mountain published the following mission statement: "On order, CJTF Mountain attacks to destroy (capture or kill) Al Qaeda (AQ)

¹¹⁸ Kugler, "Operation Anaconda in Afghanistan," 5.

¹¹⁹ Ibid., 6.

¹²⁰ Ibid.

¹²¹ Ibid.

vicinity OBJ Remington (Shir Khan Kheyl), and to identify or disrupt AQ insurgency support mechanisms and exfiltration routes into Pakistan. Be prepared to conduct follow-on operations to clear selected objectives and interdict AQ movements in AO Lincoln.”¹²² D-Day was initially planned for 26 February 2002, but due to a severe snowstorm, the operation was delayed for two days.¹²³ This delay also limited the CJTF's ability to initiate reconnaissance before D-Day, and most SOF teams, while planning for 72 hours of reconnaissance before execution, only managed 36 hours.¹²⁴ Operation Anaconda commenced on 1 March 2002.

3rd BDE, 101st Airborne Division

This section analyzes the 3rd BDE, 101st Airborne Division (TF Rakkasan), and their operation to clear the Shah-i-Khot Valley of Taliban and Al Qaeda fighters in March 2002. The focus of this section is to identify the information load, negative characteristics of that load, and the impacts of the information load on the current operations element and decision-makers.

The primary mission assigned to TF Rakkasan, commanded by Colonel (COL) Francis Wiercinski, was to establish seven battle positions that would effectively seal off the valley and isolate the AQ and Taliban fighters. 2nd Battalion, 187th Infantry Regiment (2-187 IN REG) was tasked with establishing four of the northern battle positions, and the three southern battle positions were assigned to 1st Battalion, 87th

¹²² Wright, *A Different Kind of War*, 138.

¹²³ Ibid., 141.

¹²⁴ Ibid.

Infantry Regiment (1-87 IN REG) from 10th Mountain Division.¹²⁵ It is important to note that COL Wiercinski was not the overall ground-force commander for Operation Anaconda. The CJTF Mountain Commander, MG Hagenback, retained that responsibility. Therefore, TF Rakkasan had no C2 relationship with the U.S. Army Special Forces, Rangers, Navy Seal teams, or the 202nd MI BN. TF Rakkasan tasked 1st Battalion, 187th Infantry Regiment (1-187 IN REG) as the quick reaction force, and the BDE reserve.¹²⁶ The BDE TOC was located at Bagram Airfield for the majority of the operation, including the current operations element. A BDE TAC did air assault forward into the Shah-i-Khot Valley, but no references were made in the literature that indicates intelligence analysts were assigned to the TOC or TAC. COL Wiercinski also bounced between Bagram and the Shah-i-Khot throughout Operation Anaconda; therefore, it is likely that the TOC conducted most of the analysis on the current situation.

The BDE S-2 staff section manning is not apparent through the predominant literature and unclassified evidence available. However, according to FM 7-30, *The Infantry BDE*, if the S-2 section were fully staffed, it would have consisted of six intelligence analysts and two officers.¹²⁷ These analysts would have been split between a 12-hour day and night shift to support current and future intelligence operations. In 2001, the U.S. Army had not yet permanently assigned BDEs a MICO, and TF Rakkasan was not task-organized with any external military intelligence capabilities at this point during

¹²⁵ Wright, *A Different Kind of War*, 139.

¹²⁶ Ibid., 141.

¹²⁷ Headquarters, Department of the Army (HQDA), Field Manual (FM) 7-30, *The Infantry Brigade* (Washington, DC: Government Printing Office, 1995), Figure 1-5.

their deployment to Afghanistan. The only organic intelligence collection capability assumed to be present within the TF is the Scout Platoons in each battalion. As noted in chapter 1, the working assumption is the current operations element consists of one intelligence analyst working out of TOC.

There were national and joint level reconnaissance assets conducting information collection during Operation Anaconda. The U.S. Air Force was flying Predator UAS, but there is no indication that this asset was in direct support of TF Rakkasan. On the contrary, an example is presented in *A Different Kind of War*, where 2-187 IN REG was surprised by Predator missile strikes near their BN TAC.¹²⁸ This evidence indicates that, at a minimum, the current operations element was not sending Predator reports down to the BN level. Or, more likely, the Predator UAS was in a general support role to CJTF Mountain and not directly reporting anything to the TF Rakkasan TOC or TAC. The other primary collection capability operating during Anaconda was a variety of Special Forces, including Navy Seals, U.S. Army Special Forces, and 160th Special Operations Aviation Regiment. During an interview with LTC Stephen Townsend, 4th Battalion, 31st Infantry Commander, he remembered that “information was pretty sketchy, which was a surprise because SOF had been up there and the unit had national collection platforms working the area.”¹²⁹ This is another indication that even though collection assets were collecting pieces of information, the TF Rakkasan BDE S-2 was not receiving the pieces of information those platforms were obtaining.

¹²⁸ Wright, *A Different Kind of War*, 147.

¹²⁹ Ibid., 169.

TF Rakkasan, initiated movement into the Shah-i-Khot Valley at approximately 0500 on 2 March from Bagram Air Field, Afghanistan.¹³⁰ The initial deployment included six Chinook helicopters carrying about 200 troops, about one-half of the total invasion force with the remaining Soldiers scheduled to arrive over 3.5 hours.¹³¹ During the insertion of this initial wave, COL Wiercinski was aboard the C2 helicopter and monitoring the radios. He observed the valley and noted, “there were no civilians in the towns. There were no colors, no smoke, no animals, no hanging clothes, nothing to identify it as a populated area, with people living there. I looked down and asked, What's wrong with this picture? There were no civilians there. They had moved them out.”¹³²

This first piece of information, obtained through direct observation by the BDE Commander, was contradictory to what the intelligence preparation of the battlefield (IPB) had assessed about the Shah-i-Khot Valley. The CJTF staff had indicated that resistance should be light, less than a few hundred fighters, and the local population was approximately 800-1000 Afghans living within four cities. CJTF planners assessed that because of the civilian population, preparatory fires would be risky due to the possibility of civilian casualties.¹³³ Had the CJTF planners correctly assessed the operational environment with accurate intelligence, preparatory fires would have been possible and likely improved the success of the initial insertions.

¹³⁰ Wright, *A Different Kind of War*, 142.

¹³¹ Kugler, “Operation Anaconda in Afghanistan,” 16.

¹³² Wright, *A Different Kind of War*, 143.

¹³³ Kugler, “Operation Anaconda in Afghanistan,” 6.

2 March 2002 – Helicopter Landing Zone 13A

First Battalion, 87th Infantry Regiment deployed three companies in support of TF Rakkasan on 2 March. The primary objective, as identified during planning, was for these forces to establish their battle positions to isolate the valley and block and fighters from escaping. Three CH-47s allotted to 1-87 IN REG approached their assigned helicopter landing zones (HLZ), at about 0615 on 2 March with the lead CH-47 carrying the TF 1-87 BN Commander, Charlie Company Commander, Captain Kraft, and Kraft's 1st Platoon to HLZ 13A.¹³⁴ Immediately after landing at HLZ 13A at around 0700, 1st Platoon, Charlie Company took small arms and RPG fire simultaneously at a separate HLZ, 2nd Platoon, Charlie Company, also received machine-gun fire from a terrain feature identified as Takur Ghar.¹³⁵ At about 0730, the 1st Platoon leader called to tell Kraft that their battle position was established.

As Charlie Company was establishing its battle position, Alpha Company, 1-87 IN REG, also entered their battle position and observed Afghans with AK-47s and RPGs.¹³⁶ Immediately after, Alpha Company deployed scouts to the south to establish observation posts between battle positions Eve and Ginger.¹³⁷ Farther to the north at about 0615, the 2-187 IN REG Commander, Lieutenant Colonel Preysler, was landing

¹³⁴ Wright, *A Different Kind of War*, 144.

¹³⁵ Ibid.

¹³⁶ Ibid., 145.

¹³⁷ Ibid.

with the 2-187 TAC and their Charlie Company at three different HLZs.¹³⁸ These forces also received small arms fire from Afghan fighters similarly to the experience of 1-87 IN REG.

At about the same time, 1st Platoon, Charlie Company, 1-87 IN REG was returning fire at battle position Heather; the TF Rakkasan TAC had inserted on a ridgeline overlooking the valley and almost immediately identified suspected fighters to their north moving south toward their position.¹³⁹ The TAC spent more than an hour dealing with this threat and were conceivably distracted by this situation. Within the first hour of Operation Anaconda on 2 March, nearly every Company that had air assaulted into the valley was either in continuous contact or had received contact. However, Charlie Company, 1-87 IN REG, was receiving the most intense action, including well-positioned mortar fire. Captain Kraft determined that the only way to overcome the enemy was to consolidate his platoons into a strong point.

Between 0830 and 0930, Charlie Company continued to exchange fire with the Afghan force. At about 0930, the troops in the Bowl started receiving heavy machine-gun and small arms fire from the north, now fighting in three directions.¹⁴⁰ According to Kraft, “Charlie Company was fighting off, in his best estimate, 50 to 100 enemy fighters in the west, 50 to 100 in the east, and 50 to 100 to our north.”¹⁴¹ Around this time,

¹³⁸ Wright, *A Different Kind of War*, 145.

¹³⁹ Ibid., 148.

¹⁴⁰ Ibid., 151.

¹⁴¹ Ibid.

Charlie Company began receiving close air support and attack aviation support from Bagram. Additionally, the 1-87 IN REG's 120mm mortar crew was conducting counter-fire operations against the enemy mortar teams. A well-aimed enemy mortar round struck the 120mm mortar crew, and they suffered several casualties rendering them combat ineffective.¹⁴²

From 0700 to 0930, TF Rakkasan had elements from two battalions receiving contact and were heavily engaged with the enemy. Charlie Company, 1-87 IN REG, received some of the most intense action on 2 March and suffered numerous casualties. It is likely that both, 1-87 IN REG and 2-187 IN REG, were submitting numerous enemy spot reports and SITREPs to the BDE TOC and TAC over those two and a half hours. Through the chunking of information, only one favorable piece of information is assessed for each IN REG, for a total of two favorable pieces of information. Also, the TAC was probably experiencing distraction due to the enemy activity occurring in their immediate area. This distraction is assessed as one piece of adverse information. Finally, there was contradictory information being reported and observed by both the elements in contact and the TAC itself. The current situation was not matching the intelligence reporting provided to TF Rakkasan by CJTF Mountain during mission planning. Therefore, one unfavorable piece of information is assessed. However, it is unclear if any intelligence analysts were present in the BDE TAC to receive and process these pieces of information. It also highly unlikely that any reports were being sent back to the TF

¹⁴² Wright, *A Different Kind of War*, 152.

Rakkasan TOC located at the Bagram Air Field approximately 120 kilometers from the battlefield.

The total information load present between 0700 and 0930 on 2 March is assessed to be four pieces of information with a weighted score of seven points. However, the evidence is inconclusive as to the presence of a current operations element. There is also no evidence to suggest the 101st Airborne Division or CJTF Mountain provided TF Rakkasan a direct support MICO per Army doctrine in 2002. Therefore, no conclusion can be drawn as to the impacts of this information load on intelligence analysts in Operation Anaconda. Some conclusions can be deduced, however, about the impact of the negative characteristics of the information load, precisely distraction, and contradictory information on decision-makers.

As COL Wiercinski assessed the situation and attempted to gain situational awareness, he realized he needed to change the original plan for dealing with the enemy in the Shah-i-Khot valley. The primary problem facing COL Wiercinski was 1-87 IN REG faced a more significant force with an advantageous position and the initiative. To deal with this problem, COL Wiercinski initially decided to shift the main effort to 2-187 IN REG, have this BN consolidate onto a new HLZ, and ultimately sweep through the valley and destroy the Afghan forces.¹⁴³ After issuing that order to his BN Commanders and those units initiating movement, COL Wiercinski changed his mind. He then decided to extract the elements of 1-87 IN and return them to Bagram, where the wounded could

¹⁴³ Wright, *A Different Kind of War*, 153.

be treated, and to send Alpha Company, 1-87 IN, north to link up with 2-187 IN REG..¹⁴⁴ Throughout this decision-making process, COL Wiercinski demonstrated indecisiveness. While it is not conclusive that COL Wiercinski was suffering from overload, the contradictory pieces of information and distraction from enemy contact were possibly impacting his judgment and intuition. These negative characteristics associated with an ideal amount of information possibly resulted in a blurred visualization of the battlefield and ultimately impaired his rapid decision-making.

The adverse and unfavorable pieces of information in this case could have been mitigated. First, the distraction COL Wiercinski faced could have been handled by quickly deploying a team to minimize the threat allowing him to maintain his focus on the BDE operation. The data suggested that COL Wiercinski spent a considerable amount of time focusing on the problem directly impacting the TAC as opposed to allowing subordinates to solve that problem. Roetzel identifies this mitigation requirement as a human-centered view considering the decision-makers behavior or emotions..¹⁴⁵ COL Wiercinski allowed himself to be distracted by a tactical problem that could have been handled by a decision-maker at a lower level, such as the BDE S-3. Secondly, the contradictory piece of information could have been mitigated through a revision of CCIR, focusing on an information process-centered view of mitigation. The BDE's PIR could have shifted, placing the current enemy situation as the number one priority. The evidence did not specifically present the BDE's PIR. Additionally, as soon as COL

¹⁴⁴ Wright, *A Different Kind of War*, 153.

¹⁴⁵ Roetzel, *Information Overload in the Information Age*, 31.

Wiercinski identified that the enemy situation was different from the initial intelligence estimates, he should have directed the current operations element to focus collection on confirming one of the contradictory pieces of information. Thus, allowing the commander to alter the operational plan nesting it to the actual ground truth more quickly and decisively. As identified in chapter 2, an intelligence analyst cannot simply ignore contradictory pieces of information, as that would lead to confirmation bias. Therefore, as soon as contradictory information presents itself, intelligence analysts must make efforts to confirm the truth and validate one of the pieces of information.

Operation Iraqi Freedom

On 21 March 2003, coalition forces launched their attack into Iraq and so began Operation Iraqi Freedom. U.S. forces entered Baghdad on 10 April with virtually all resistance collapsing and the Ba’athist regime, led by Saddam Hussein, losing control of its capital. With the Iraqi government overthrown the state of Iraq quickly fell into a state of chaos. Once it became clear that Saddam was no longer in power Iraqi citizens began wild celebrations in the streets of Baghdad and other liberated areas and looting began almost immediately.¹⁴⁶ The coalition forces in Iraq were simply not prepared for stability operations following the overthrow of the Ba’athist Regime. Adding to this problem was that in some areas of Iraq combat operations continued while humanitarian support was the primary mission in other areas. Additionally, the rules of engagement remained

¹⁴⁶ Joel D. Rayburn and Frank K. Sobchak, eds., *The U.S. Army in The Iraq War*, vol. 1, *Invasion, Insurgency, Civil War, 2003-2006* (Carlisle Barracks, PA: U.S. Army War College Press, 2019), 335, <https://publications.armywarcollege.edu/pubs/3667.pdf>.

unclear to many troops, especially when dealing with looters and other perceived criminals.¹⁴⁷ As more time passed, indicators were increasing that a possibly insurgency threat was emerging, especially in an area known as the Sunni triangle.

Coalition ground forces began to encounter a type of attack they had not really seen during the invasion—remote-detonated and suicide improvised explosive devices (IED) and vehicle-borne improvised explosive devices (VBIED) with the number of these types of attacks steadily increasing throughout April.¹⁴⁸ These types of attacks increased through the summer and insurgent groups continued to exploit success throughout the year in 2003. By 2004, Al Qaeda and foreign fighters were fully entrenched in the country and committed to Jihad. Insurgent leaders like Muqtada al-Sadr and Abu Musab al-Zarqawi were mobilizing their militias and conducting well organized attacks against both U.S. and Iraqi targets.

The Army's first Stryker BCT, the 3rd BDE, 2nd Infantry Division (3-2 SBCT), deployed to Iraq in December 2003 and formed the core of what would be called TF Olympia with 8,000 Soldiers replacing the 24,000 Soldiers of the 101st Airborne Division in Mosul, Iraq.¹⁴⁹ TF Olympia was a composite unit that included the 3-2 SBCT, an air cavalry squadron, an aviation battalion, two engineer battalions, and other support elements.¹⁵⁰ When the changeover occurred, the significantly smaller TF Olympia took responsibility for a huge geographic area that included the provinces of Ninawa, Dahuk, and Erbil, even though almost all of their combat power resided in

¹⁴⁷ Rayburn and Sobchak, *The U.S. Army in The Iraq War*, 113-115.

¹⁴⁸ Ibid., 125.

¹⁴⁹ Wright and Reese, *On Point II*, 512.

¹⁵⁰ Ibid.

Ninawa Province.¹⁵¹ The primary goal in Iraq between August to December 2004 for coalition forces was a focus on eliminating insurgent sanctuaries in seven key cities so that elections could take place on schedule in January 2005.¹⁵² In Mosul, Tal Afar, north Babil, and Sadr City, the coalition and the Iraqi security forces would continue their ongoing efforts to stabilize the situation and remove the insurgent threat with localized operations.¹⁵³

3rd Stryker BCT, 2nd Infantry Division

This section analyzes 3-2 SBCT and their operation to clear Tal Afar of insurgents in September 2004. The focus of this section is to identify the information load, negative characteristics of that load, and the impacts of the information load on the current operations element and decision-makers. This section also introduces modularity and how that force modernization decision affected 3rd SBCT, all future BCTs, and ultimately contributed to information overload.

A primary difference between the Operation Iraqi Freedom case study and the previous two case studies analyzed is the force structure of the BDEs participating in these cases. Following the initial invasion into Iraq, the U.S. Army began transitioning the force structure to a BDE centered concept. This concept became known as modularity. The primary focus of modularity was moving enablers from the division

¹⁵¹ Rayburn and Sobchak, *The U.S. Army in The Iraq War*, 260.

¹⁵² *Ibid.*, 335.

¹⁵³ *Ibid.*

level to the BDEs resulting in the creation of BCTs.¹⁵⁴ The chief driver for modularity was a requirement to prepare for more complex, less established theaters that required a more capable but still flexible force.¹⁵⁵ Through an understanding of modularity one can start to understand why the risk for information overload was greater during OIF/OEF and after, compared to Operation Anaconda and Operation Desert Storm, and remains high presently.

The first unit the U.S. Army established under the modularity concept was 3-2 SBCT. A primary difference between a pre-modular BDE and post-modular Stryker BDE is the addition of an organic cavalry squadron, MICO, and signals company. According to the RAND Corporation Study, *A Review of the Army's Modular Force Structure*, "the modular BCTs' superior RSTA and communication capacity provides the foundation for improved situational awareness and close integration with other services in a joint operation."¹⁵⁶ While this statement is likely true it does not take into account the impacts of increased information flow on the BCT staff, specifically the current operations element.

The RAND study, while analyzing operational risk of a modular BCT concept, suggested the organization of RSTA and military intelligence and the incorporation of the Future Combat System program render the modular force structure superior in terms of

¹⁵⁴ Stuart E. Johnson, John E. Peters, Karin E. Kitchens, Aaron Martin, and Jordan R. Fischbach, *A Review of the Army's Modular Force Structure* (Santa Monica, CA: RAND Corporation, 2012), iii, https://www.rand.org/pubs/technical_reports/TR927-2.html.

¹⁵⁵ *Ibid.*, 9.

¹⁵⁶ *Ibid.*, 28.

capabilities for counterinsurgency, stability operations, and irregular warfare.¹⁵⁷

However, BCT commanders interviewed for a congressional research service report, published in 2007, suggested that additional intelligence analysis capability was needed in BCTs.¹⁵⁸ This fact was and continues to be the primary restriction with modular BDEs. The enabler's task organized to the BDE can create a large information load that a division staff previously managed with significantly more personnel than a BCT.

An advantage of an organic MICO is additional intelligence analysts to augment the BCT S-2 section. Feasibly, this augmentation has the potential to reduce the overall load any one intelligence analyst would have to process. However, the BCT S-2 intelligence officer typically integrates the MICO analysts by creating a BDE Intelligence Support Element (BISE) allowing for more robust 24-hour intelligence planning capability. The current operations element remains focused on the immediate fight while the BISE continues coordinating the IPB for staff planning, MDMP, and targeting, as well as, coordinating with the entire staff and recommending new PIR for the CCIR.¹⁵⁹

The U.S. Army built the Stryker BDE with a network centered capability. These capabilities include digital communications and battle command systems enabling the

¹⁵⁷ Johnson et al., *A Review of the Army's Modular Force Structure*, 41.

¹⁵⁸ Congressional Research Service (CRS), *U.S. Army's Modular Redesign: Issues for Congress* (Washington, DC: Government Printing Office, 2007)
https://www.everycrsreport.com/files/20070124_RL32476_f4bb9a788e50357eb382c6ce70b1999cfdcb388f.pdf.

¹⁵⁹ Headquarters, Department of the Army (HQDA), Field Manual (FM) 3-21.31, *The Stryker Brigade Combat Team* (Washington, DC: Government Printing Office, 2003), 1-25.

SBCT to employ network-centric operations capabilities down to the company level.¹⁶⁰ One of these battle communication systems new to 3-2 SBCT was the Force XXI Battle Command BDE and Below-Blue Force Tracking (FBCB2-BFT).¹⁶¹ In total, approximately 600 vehicles, including wheeled trucks and Stryker combat vehicles, had FBCB2-BFT systems installed during 3-2 SBCT's deployment to Iraq in 2004.¹⁶² Command vehicles and the BDE and battalion TOCs were equipped with a total of 13 satellite-based FBCB2-BFT units.¹⁶³ These systems allowed commanders at the company level to have real time information as to exactly where their individual mounted infantry squads were located on the battlefield at any given time. The FBCB2-BFT also automatically pushed this vehicle location information up to the battalion and BDE headquarters. Another component of the FBCB2-BFT was its ability to send text messages to higher headquarters. This communication platform while useful at the tactical level meant that Soldiers in the current operations element had an additional communications node that required monitoring.

For the first time at the BCT level, the Trojan SPIRIT SATCOM system linked the 3-2 SBCT TOC to higher echelons and the MICO, providing download speeds of approximately 1.5 megabits per second.¹⁶⁴ The Trojan SPIRIT provides communications

¹⁶⁰ Gonzales et al., *Networked Forces in Stability Operations*, xiii.

¹⁶¹ *Ibid.*, xxiii.

¹⁶² *Ibid.*, xxx.

¹⁶³ *Ibid.*, 41.

¹⁶⁴ *Ibid.*, 43.

to the MICO from higher echelons and allows the MICO to quickly provide information to the SBCT headquarters. In the earlier case studies, divisions retained this capability. As assessed with the FBCB2, the U.S. Army pushing the Trojan SPIRIT to the BCT level contributes to the information load the current operations element must manage. Additional systems utilized by the SBCT S-2 and integrated with FBCB2 and the Trojan SPIRIT include the All-source Analyst System (ASAS) and the Falcon View mapping system. ASAS fuses intelligence from multiple sources and automates the sensor-to-shooter link.¹⁶⁵ Falcon View is a Windows mapping application that displays various types of maps and geographically referenced overlays.¹⁶⁶ To better understand the connection of these communications systems and analytical tools that exist across the BCT, a graphical depiction of their relationship to the battalions and BDE headquarters is useful. Figure 4 below displays these relationships and information flow.

¹⁶⁵ Gonzales et al., *Networked Forces in Stability Operations*, 47.

¹⁶⁶ Ibid.

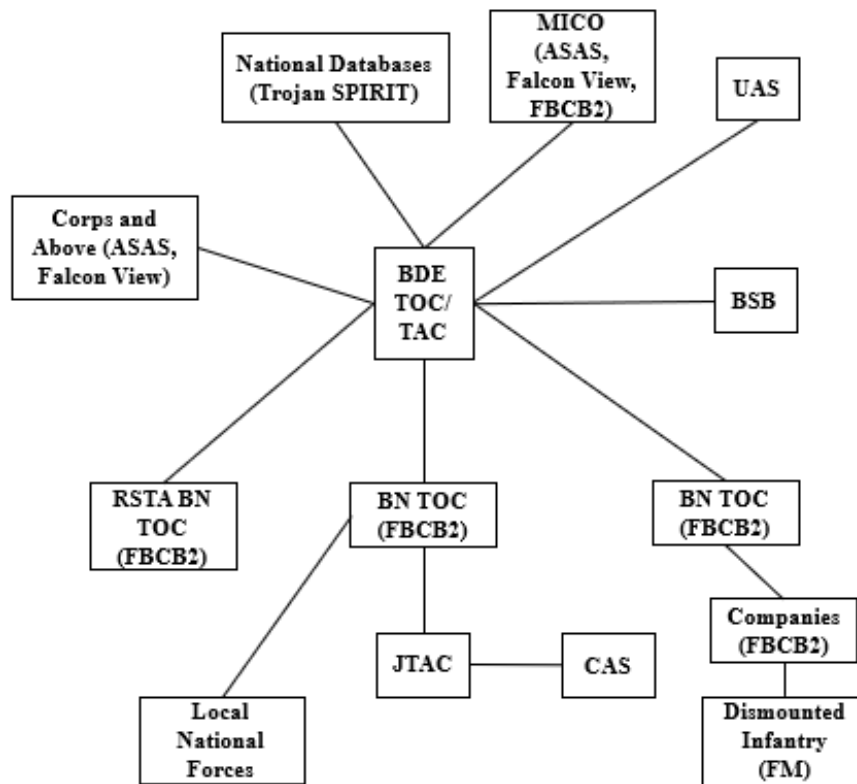


Figure 4. Information Flow in a Stryker BCT

Source: Adapted from Daniel Gonzales, John Hollywood, Jerry M. Sollinger, James McFadden, John DeJarnette, Sarah Harting, and Donald Temple, *Networked Forces in Stability Operations: 101st Airborne Division, 3/2 and 1/25 Stryker BDEs in Northern Iraq* (National Defense Research Institute, 2007), <https://www.rand.org/pubs/monographs/MG593.html>.

Through modularity the U.S. Army has been able to increase capability at the BCT level. The primary focus on increasing digital communications and battle command systems capability, while likely improving BN and BCT commander's and staff's overall situational understanding, has also likely increased the information load a current operations element must manage. A deeper analysis of 3-2 SBCT's actions, specifically

operations that took place in Tal Afar, Iraq on 04 September, is required to fully understand the impacts of modularity on information overload.

04 September 2004 – Tal Afar

In September 2004, it became apparent that insurgent forces had overrun Tal Afar. Colonel Michael E. Rounds commanded the 3-2 SBCT with their SBCT TOC established at a FOB near the Iraqi city of Mosul approximately 75 kilometers from Tal Afar. The SBCT's actions in Tal Afar on 04 September were primarily focused on raids designed to capture high value targets thought to be associated with the local insurgency. This objective would result in a disruption in the insurgent's capability and allow 3-2 SBCT and Iraqi Police to regain control of the city. The 5th Battalion, 20th Infantry Regiment (TF 5-20), 3-2 SBCT would serve as the SBCT main effort and was tasked with entering the city and conducting three simultaneous cordon and search operations.¹⁶⁷ In addition to their organic equipment and teams, the SBCT was task organized with Iraqi National Guard forces in pickup trucks and supported by air assets including OH-58D Kiowa Warrior Helicopters equipped with FBCB2 systems.¹⁶⁸

At approximately 0835 elements of Bravo Company, TF 5-20 were attacked by RPG fire resulting in two Iraqi National Guard Soldiers being wounded and needing medical air evacuation.¹⁶⁹ As this action was occurring an OH-58D was shot down while

¹⁶⁷ Gonzales et al., *Networked Forces in Stability Operations*, 84.

¹⁶⁸ Ibid.

¹⁶⁹ Ibid.

conducting reconnaissance in support of 3-2 SBCT's Scout Platoon.¹⁷⁰ Within approximately five minutes, the Scout Platoon, TF 5-20 was at the crash site and prepared to evacuate the pilots.¹⁷¹ Over the course of less than an hour four pieces of information were likely impacting the current operations element. First, the RPG engagement on Bravo Company likely resulted in the battalion submitting a SITREP that included enemy composition and disposition. Second, the actions on the three separate objectives, where the cordon and searches were occurring, likely resulted in SITREPs being submitted by each one of the 3-2 SBCT elements responsible. In assessing the BCT information load, one can assume the battalion provided a single SITREP for actions on all three objectives and the RPG attack on the company. Therefore, only one piece of information is assessed for those multiple actions. The downed OH-58D resulted in a SITREP being submitted and the subsequent decision to maneuver TF 5-20 to secure and recover the crew. Finally, all the 3-2 SBCT vehicles and aviation assets were equipped with FBCB2, resulting in a final piece of information. All three of these pieces of information are assessed as favorable and scored one point.

The justification for assessing the SITREP associated with the downed OH-58D as favorable is because the ground force commander had eyes on the crash site, was able to maneuver through favorable terrain to secure the crash site, and had FBCB2 to provide clarity to the common operational picture. This clarity would have also been available to the BCT TOC as they were battle tracking the situation.

¹⁷⁰ Gonzales et al., *Networked Forces in Stability Operations*, 84.

¹⁷¹ Ibid.

Immediately upon arriving at the downed OH-58D and establishing security, the Scout Platoon received a piece of information from a Shadow UAV indicating approximately 60 enemy fighters were maneuvering on their position.¹⁷² This is assessed as a favorable piece of information. By 0900, both the Scout Platoon at the crash site and Bravo Company, who was attempting to maneuver through Tal Afar to reinforce the crash site, were both heavily engaged by enemy fighters.¹⁷³ During this time both elements were providing reports through radio to the Battalion TOC. Specifically, the Scout Platoon was reporting heavy pressure on their flanks and Bravo Company reporting a destroyed Stryker combat vehicle.¹⁷⁴ Reporting was also disseminated that the enemy was throwing grenades from second story windows down onto the Bravo Company convoy.¹⁷⁵ These combined situation updates can be assessed as one unfavorable piece of information as it can be evaluated as complex. This evaluation is due to the piece of information being made up of various elements and likely unclear as to the exact enemy situation. It was during this time that possible evidence of information overload was present at the company level.

As Bravo Company was attempting to make their way to the crash site, approximately 1.5 kilometers away, the company commander was forced to halt his

¹⁷² Gonzales et al., *Networked Forces in Stability Operations*, 85.

¹⁷³ Ibid.

¹⁷⁴ Ibid.

¹⁷⁵ Ibid.

convoy as he was unable to determine the most feasible route.¹⁷⁶ Even though the commander had radio communications with the Scout Platoon, overhead reconnaissance from UAS, additional information being provided from the BN TOC on enemy tactics and locations, as well as the exact locations of the Scout Platoon, downed aircraft and his own vehicles from FBCB2, he was unable to determine the most suitable route to get to the crash site. For approximately 15 minutes Bravo Company conducted a tactical halt, cleared the area of enemy, recovered the destroyed Stryker combat vehicle, and finally decided on which route would be most suitable. This demonstrates that when complex pieces of information are present the impact can sometimes include delayed decision making.

Pieces of information continued to be reported as Bravo Company continued maneuvering to the crash site. Around 0930, a Shadow UAV provided an additional report that approximately 20 enemy fighters armed with RPGs were moving into the area.¹⁷⁷ This piece of information is assessed as favorable and scored one point. Between 1000 and 1030 both Bravo Company and the Scout Platoon continued to take heavy fire from RPGs and mortar rounds. During this time, the TF 5-20 Commander and the BN TAC arrived on site. After the TF 5-20 Commander arrived at the crash site, a local national HUMINT source informed him that the insurgents were directing mortar fire at the U.S. forces to protect the local mosque.¹⁷⁸ However, it is unclear if this report was

¹⁷⁶ Gonzales et al., *Networked Forces in Stability Operations*, 85.

¹⁷⁷ Ibid., 87.

¹⁷⁸ Ibid.

ever forwarded to the BCT TOC. Therefore, this piece of information is not added to the information load. At approximately 1130, Charlie Company, TF 5-20 arrived at the crash site and was able to repel the remaining enemy fighters and assist the other elements of 3-2 SBCT in recovering the downed OH-58D.¹⁷⁹ This action concluded to the cordon and search operations in Tal Afar on 4 September 2004, which resulted in one downed OH-58D, a destroyed Stryker combat vehicle, and U.S. Soldiers wounded in action.

In total eight pieces of information are identified as present on 04 September between 0800 and 1130. Six pieces of information are assessed as favorable, one piece as adverse, and one piece as unfavorable for a total score of 11. The total score of 11 indicates information overload was present on 4 September. However, the evidence is unconvincing as to the impacts at the BCT level. The data reviewed did not explicitly indicate any impacts on the current operations element or the SBCT commander, COL Rounds. On the contrary, leaders and staffs at the battalion and below conducted all the analysis and made all the decisions. These findings are not surprising; however, as the U.S. Army executed most COIN operations at lower echelons. However, the evidence did indicate that complex pieces of information can impact decision-making by slowing down a leader's decision-making cycle. This impact from complex pieces of information, although observed at the company level, is likely also relevant across all levels of command and staffs.

In this case study, a mitigation strategy for handling the amount of information is simply reducing the favorable pieces of information that are not significantly improving

¹⁷⁹ Gonzales et al., *Networked Forces in Stability Operations*, 87.

situational awareness. For example, the largest source of information was voice and text communication from radio and FBCB2 systems. While the SITREPs likely provided general information that added to situational understanding, not all of them were completely necessary to the decision-making required to solve the problem. The company commander, who delayed his decision-making, could have passed off the radio communication to his first sergeant and shared the information load. The first sergeant would then filter the pieces of information and only share those critical to solving the problem.

Operation Rock Move

Operation Rock Move was a deliberate operation planned by 173rd Infantry BCT (Airborne), or TF Bayonet, to establish a combat outpost in Wanat, Afghanistan, in the summer of 2008. Colonel Charles A. Preysler commanded TF Bayonet with their headquarters located at FOB Fenty near the Afghanistan city of Jalalabad. The 173rd was responsible for an area of operations (AOs) consisting of Nuristan, Nangarhar, Konar, and Laghman provinces, an area of 15,058 square miles and with an Afghan population of two million.¹⁸⁰ The BDE's area of operation was further sub-divided with maneuver battalions responsible for their own assigned areas. These sub-divided AOs typically consisted of almost an entire province. The 2-502nd IN BN, or TF Rock, was the only organic battalion still assigned to the 173rd during this deployment and was responsible

¹⁸⁰ The Staff of the U.S. Army Combat Studies Institute (CSI), *Wanat: Combat Action in Afghanistan, 2008* (Fort Leavenworth, KS: Combat Studies Institute, 2008), 28, <https://www.armyupress.army.mil/Portals/7/combat-studies-institute/csi-books/Wanat.pdf>.

for most of Konar Province, which included the Pech River Valley and the village of Wanat.¹⁸¹ Command and control in areas of operation like AO Rock were difficult because of the rugged terrain, distances between bases, and the constant threat of IEDs and ambushes, therefore, commanders at the company and battalion levels utilized a decentralized approach to C2.¹⁸² The predominant tactic employed by the U.S. Army in Afghanistan at this time was similar to those used in Iraq during the surge. Battalions would establish a company and smaller command outposts (COP) across their AOs to increase their presence among the local population and attempt to prevent Taliban and other Anti-Afghan forces from conducting operations. One such COP in the TF Rock AO was COP Bella.

A platoon-sized element from Chosen Company, 2-502nd IN BN occupied COP Bella. Captain Matthew Myer led this company. Chosen Company's mission was to secure COP Bella to separate insurgents from the local community while beginning to stabilize the security situation.¹⁸³ The terrain around COP Bella was not ideal for defending against enemy attacks, and the TF Bayonet and TF Rock leadership agreed that it was not a perfect location for a COP.

On 9 November 2007, violence at COP Bella erupted when the AAF ambushed a Chosen Company 1st Platoon patrol moving to the COP following a *shura* in Aranas. The casualties were heavy. First Lieutenant Matthew C. Ferrara, the platoon leader who had won the Silver Star in a previous battle, was killed along with four of his paratroopers, one Marine NCO serving as an ANA advisor and

¹⁸¹ CSI, *Wanat: Combat Action in Afghanistan*, 30.

¹⁸² Ibid.

¹⁸³ Ibid., 40.

two Afghan soldiers. An additional eight Americans and three ANA Soldiers were wounded in the ambush.¹⁸⁴

As the fighting season ended in 2007, COP Bella continued to be harassed by enemy forces. It became clear that the COP was likely untenable. In the early spring of 2008, TF Bayonet moved closer to a final decision to evacuate COP Bella and to construct a new COP at Wanat.¹⁸⁵ By May 2008, COL Preysler sent an operational needs statement to CJTF, and approval was granted in early June. For leaders in TF Rock, the move to Wanat promised not only to solve the problems related to COP Bella but also to breathe new life into their effort in the Waygal Valley.¹⁸⁶

Around the same time as the planned move by TF Rock from COP Bella, the 173rd Airborne was also preparing for a relief-in-place with 3rd BCT, 1st Infantry Division. This transition was scheduled to occur by the end of July 2008. There were concerns at the CJTF level about executing a COP movement so late in the 173rd Airborne's deployment, but the CJTF staff did not want to burden 3rd BCT as they were smaller in size and unfamiliar with the terrain.¹⁸⁷ The relief-in-place added distraction at the BCT level in regards to the establishment of the COP near Wanat and the closing of COP Bella. An additional distraction occurred on 4 July.

As Chosen Company was preparing to close COP Bella and re-establish a COP at Wanat, insurgent forces conducted a mortar attack on COP Bella. Captain Myer directed

¹⁸⁴ CSI, *Wanat: Combat Action in Afghanistan*, 42.

¹⁸⁵ Ibid., 46.

¹⁸⁶ Ibid., 47.

¹⁸⁷ Ibid., 50.

two AH-64s on the suspected insurgents, which destroyed two pick-up trucks.¹⁸⁸

However, these trucks were also carrying local civilians. This airstrike likely resulted in a significant anti-coalition sentiment in the region. Anti-Afghan forces propaganda depicted the attack as an instance of an indiscriminate U.S. attack on innocent civilians.¹⁸⁹ The strike also resulted in CPT Myers investigating the incident taking some focus away from Operation Rock Move. It also likely motivated insurgents to mass and conduct the retaliatory surprise attack that occurred on 13 July and resulted in the death of nine U.S. soldiers and 27 wounded.

173rd Infantry BCT (Airborne)

This section analyzes 173rd Infantry BCT and their operation to establish a COP in Wanat in July 2008. The focus of this section is to identify the information load, negative characteristics of that load, and the impacts of the information load on the current operations element and decision-makers. This section also builds on the implications of modularity introduced in the previous case study.

At this point in the global war on terrorism, the 173rd Airborne BDE was on its third deployment. The previous two deployments included a rotation in Iraq in 2003 and Afghanistan from 2005 to 2006. The 173rd went through modernization between February and September 2006. The BDE was reorganized into the U.S. Army's new modular BCT configuration discussed during the previous case study and officially

¹⁸⁸ CSI, *Wanat: Combat Action in Afghanistan*, 50.

¹⁸⁹ *Ibid.*, 50-51.

became the 173rd Infantry BCT.¹⁹⁰ The BCT would have, therefore, deployed with similar network-centric equipment identified in the previous section, such as FBCB2, Trojan SPIRIT, and a tactical network.

The 173rd S-2 section, by doctrine and MTOE, was authorized two intelligence analysts assigned to the TAC, including one E7 and one E5. It is highly likely that the BDE Intelligence Officer, Lieutenant Colonel Jimmy Hinton, task-organized these two NCOs to work in the current operations element within the TOC when the TAC was not activated. In addition to these two analysts, the S-2 had a full section with roughly ten officers, NCOs, and Soldiers authorized and assigned to the BISE. As discussed in the previous section, a modular BDE is equipped with an organic MICO.

TF Bayonet deployed with their MICO and had their full complement of organic collection assets including HUMINT and SIGINT. TF Bayonet also deployed to Afghanistan with two types of organic UAVs: the RQ-7 Shadow and RQ-11 Raven. The Shadow was operated out of Jalalabad Airfield because it required a regular landing strip to be recovered.¹⁹¹ In direct support of TF Bayonet, 2d Squadron, 17th Cavalry (Air Cavalry) from the 101st Airborne Division, also deployed with an MQ-5B Hunter UAV that could provide similar capabilities as the organic Shadow. However, the TF could not operate the UASs within the Waygal Valley because of the rugged terrain that blocked the radio signals needed to guide the UAV. Therefore, TF Bayonet's organic UASs did not participate directly in Operation Rock Move. They were, however, conducting

¹⁹⁰ CSI, *Wanat: Combat Action in Afghanistan*, 24.

¹⁹¹ *Ibid.*, 80.

reconnaissance in other areas during the operation. As with the previous case studies, the 173rd was supported with intelligence collection from higher, specifically CJTF-101, during the preparation and early execution of Operation Rock Move.

The CJTF-101 resources included aerial SIGINT platforms that monitored radio and telephone communications and UAVs. In RC-East, CJTF-101's primary FMV assets were a single Predator UAV and one MQ-12 Warrior-Alpha UAV.¹⁹² The primary theater-level SIGINT asset was "Red Ridge," a fixed-wing, medium-altitude SIGINT platform. Because of a dedicated translator, the Red Ridge intercepts were almost immediately available to the supported units.¹⁹³

Lieutenant Colonel Pierre Gervais, the CJTF-101 Intelligence Officer, described using the optics on a UAV to search for insurgents as "looking through a soda straw...it's hit or miss." However, when SIGINT or HUMINT reports suggested the location of suspected insurgent groups, UAVs could be directed to precise spots to make an identification and to gather more meaningful information. Coalition forces used this method of coordinating or "cross cueing" imagery, human, and signals intelligence across Afghanistan in 2008.¹⁹⁴

The idea of cross-cueing assets to improve situational awareness is not unique to Afghanistan. This technique was likely also used in the previous case studies; however, it was not presented in the data reviewed. Cross-cueing is a likely contributing factor to information overload at the BCT level. When possible, BCT collection managers request multiple intelligence disciplines from their higher headquarters to collect at the same time and add redundancy to the BCT's organic collection capability. Typically, as highlighted

¹⁹² CSI, *Wanat: Combat Action in Afghanistan*, 79.

¹⁹³ Ibid.

¹⁹⁴ Ibid., 80.

by LTC Gervais, a SIGINT or JSTARS platform could collect and then cue a UAV to confirm enemy activity and refine location data. Finally, if the cross-cued information is confirmed and relevant, a ground force can be tasked to provide effects on the enemy. At a minimum, this type of intelligence operation results in two pieces of information, with a likely third piece coming in from the ground force.

Finally, within TF Bayonet, each BN would have their organic scouts equipped with two Long Range Advanced Scout Surveillance Systems (LRAS3). The LRAS3 is a ground-mounted thermal system allowing around the clock surveillance.¹⁹⁵ The BNs were also equipped with an Improved Target Acquisition System (ITAS). The ITAS provided 24-hour extended range surveillance capability limited to line of sight views and night vision capability.¹⁹⁶ At the battalion level, RQ-11 Raven systems were also available, but the evidence suggests the BN did not utilize them during Operation Rock Move. TF Rock also had an organic SIGINT capability. The battalion had available several commercially produced integrated communications radio scanners which were able to intercept insurgent radio communications.¹⁹⁷ Chosen Company also had an interpreter who typically listened into insurgent broadcasts on these scanners.¹⁹⁸ Captain Benjamin Pry, the Battalion Intelligence Officer, managed the TF Rock intelligence collection. Doctrinally, infantry battalions submit collected information higher to the

¹⁹⁵ CSI, *Wanat: Combat Action in Afghanistan*, 79.

¹⁹⁶ Ibid.

¹⁹⁷ Ibid., 83.

¹⁹⁸ Ibid.

BCT S-2. According to the Combat Studies Institute report, this was actively happening between TF Rock and TF Bayonet. Expressly, LTC Hinton indicated that on 12 July, CPT Pry passed up reports they collected of Afghan men observing the establishment of the COP and that LTC Hinton "believed that the flow of intelligence from TF Rock was good."¹⁹⁹ Therefore, when analyzing the data for a specific day in Operation Rock Move, it is valid to assume pieces of information were being sent to the current operations element from TF Rock.

In summary, TF Bayonet had a complete MICO supporting combat operations during Operation Rock Move. Two non-commissioned officer intelligence analysts likely staffed their current operations element and split their efforts between two 12-hour shifts. The 173rd also had a network-centric systems architecture allowing their subordinate elements to communicate quickly and improve situational awareness across the BCT. The CJTF-101 also supported the BCT with SIGINT and UAS during the operation. The 173rd's organic battalion, TF Rock, also had collection capability that included SIGINT and line of sight observation from LRAS and ITAS.

8 July 2008 – Wanat

The CJTF-101 commander, Major General Schloesser, approved Operation Rock Move for execution beginning on 8 July 2008. The intelligence analysts and combat commanders felt that the most likely enemy activity during the operation would be mortar and small arms sniping at ground personnel and aircraft at both Bella and Wanat and potential ambushes and IED attacks on the road between Camp Blessing and

¹⁹⁹ CSI, *Wanat: Combat Action in Afghanistan*, 118.

Wanat.²⁰⁰ Given the estimate of the enemy situation, TF Bayonet's Commander, COL Preysler, and the TF Rock Commander, LTC Ostlund, considered a night evacuation of COP Bella to be essential to Rock Move's success.²⁰¹

The Chosen Company platoon tasked with the operation conducted pre-combat checks on 7 and 8 July, and on the evening of 8 July, 2d Platoon, Chosen Company, departed from Camp Blessing after sunset in a ground assault convoy for the 90-minute long drive to Wanat.²⁰² The convoy was uneventful, but their movement would likely have been battle tracked by the BCT TOC. This assessment is based on the fact that Operation Rock Move was classified as a Level One Contingency Operation, which required resources from outside TF Bayonet, such as UAV and other intelligence collection support, as well as higher-level coordination to integrate those assets.²⁰³ Therefore, the initiation of movement on 8 July is counted as one favorable piece of information impacting the current operations element.

Also occurring on the 8th, a TF Bayonet route clearance package (RCP) was clearing the main road through the Chawkay Valley was involved in an incident where the convoy struck an IED. The route clearance operation also included members of the new RCP element from the 3rd BCT, 1st Infantry Division. This incident destroyed a vehicle, killed one member of the new unit from 3rd BCT, and wounded four other

²⁰⁰ CSI, *Wanat: Combat Action in Afghanistan*, 54.

²⁰¹ *Ibid.*, 73.

²⁰² *Ibid.*, 88.

²⁰³ *Ibid.*, 53.

engineers.²⁰⁴ The RCP was a task-organized force from the BDE engineer company designed to remove IEDs and clear ambushes from important routes in AO Rock, which would have supported logistics convoys moving supplies in support of Operation Rock Move.²⁰⁵ This event, undoubtedly, resulted in a SITREP being submitted to the BCT and the current operations element recommending dynamic re-tasking of organic collection assets. This event, at a minimum, would have been a distraction from the main effort on 8 July, which was Operation Rock Move. For this reason, one piece of adverse information is assessed.

Additionally, as identified previously, CJTF-101 was supporting TF Bayonet with SIGINT and UAV coverage beginning on 8 July. The TF was to receive 24 hours of UAV and eight hours of SIGINT support in the 24 hours starting at 0730 on 8 July, however, an imminent threat to coalition troops elsewhere in RC-East directed the UAV away from Wanat, reducing the quantity of FMV coverage from 24 to 16.5 hours.²⁰⁶ This continuous coverage from assets provided by CJTF-101 would have been directly available in the BCT TOC through networked systems. The coverage would have also been provided in real-time and the current operations element would have been expected to communicate directly with an asset to collect against prepared named areas of interest. These two assets are assessed as resulting in two separate favorable pieces of information. In addition to the communication the analyst was engaged in with those

²⁰⁴ CSI, *Wanat: Combat Action in Afghanistan*, 90.

²⁰⁵ Ibid.

²⁰⁶ Ibid.

assets, the CJTF-101 UAV feed would likely have been visible in the BCT TOC. This video feed also adds to the information load.

The organic BCT MICO was also conducting information collection on 8 July. Although the evidence indicated that the Shadow UAV was unable to collect in the area near Wanat due to terrain limitations, it is safe to assume that it was flying and obtaining information in a different area of the TF Bayonet AO, supporting different battalions. The shadow video feed would have also been visible in the BCT TOC. Since the Shadow was not directly supporting Operation Rock Move, and most likely a distraction, it is counted as one piece of adverse information. The TF Bayonet MICO's SIGINT capability, the AN/MLQ-40(V)3 Prophet system, and two LLVI systems were also in direct support of TF Rock.²⁰⁷ According to the evidence, the LLVI team and the ICOM scanners at battalion level searched daily for enemy communications that might indicate impending action against the new combat outpost.²⁰⁸ The organic ground-based SIGINT, even though it was assigned down to TF Rock, would still have sent TACREPs that the BN S-2, CPT Pry, would have forwarded to the current operations element. Therefore, one favorable piece of information is assessed.

Finally, as in previous case studies, the current operations element would have had access to the CJTF-101 daily INTSUM, the TF Bayonet INTSUM, and the BN INTSUMs. The Operation Rock Move concept of the operation brief "CONOP ROCK MOVE" with the consolidated intelligence preparation of the battlefield and initial enemy

²⁰⁷ CSI, *Wanat: Combat Action in Afghanistan*, 83.

²⁰⁸ *Ibid.*, 211.

assessments would have also been a product the current operations element had. As well as military intelligence databases with historical data on the enemy which include historic significant activities and engagements TF Bayonet were engaged in, weather data and forecasts, and insurgent network information. These various pieces of information are chunked and assessed as one complex piece of information.

In total, the information load on 8 July included five favorable pieces of information, two adverse pieces of information, and one unfavorable piece of information. The total weighted score for 8 July is 12 points. Based on this analysis, it is probable that information overload was occurring on 8 July and the current operations element's decision-making was degraded. The information load is similar on each day through 10 July. After the 10th, CJTF-101 redirected the SIGINT and UAS assets to higher priority operations across RC-East.

All collection assets feeding directly into the BCT TOC and being managed by the current operations element never indicated any significant enemy activity in and around Wanat on 8 July or any day after leading up to the complex attack that took place on 13 July. On the contrary, the pieces of information collected by the CJTF-101 assets and the TF Bayonet MICO assets all confirmed the initial enemy assessment, which did not suggest an imminent coordinated attack on the newly established COP in Wanat. However, the Soldiers assigned to the 2nd Platoon, Chosen Company, suggested a different situation based on their observations of Wanat.

Reports indicated that military-aged males were observing the platoon's actions at the COP and that the village was absent of any women and children. According to Staff Sergeant Benton, 2nd Squad Leader, "there had been times when we went to Wanat, and

that bazaar was just full of people, including men, women, and children. We knew the habits, and we knew what it looked like before. It looked like a ghost town [after 9 July].”²⁰⁹ In addition to the contradictory pieces of information being collected through direct observation by the platoon, which was never sent to the BCT level, TF Rock also received a contradictory piece of information from a local elder. The TF Rock staff acknowledged receiving a report about a suspicious shura on 12 July but did not report the Wanat elder’s warning they received on the eve of the insurgent attack.²¹⁰ The local elder who gave it “was a guy that always said that in general terms, TF Rock was going to get attacked. So, they didn’t report anything because that is not what they thought.”²¹¹ This report is an example of a diffident source providing a contradictory piece of information that was discounted even though it was accurate. Had Chosen Company at least forwarded either of these reports to the BCT S-2, the current operations element could have possibly cross-cued an asset to confirm or deny the information.

Because of information overload the current operations element was never effective in re-tasking collection to refine the enemy situation and improve the situational awareness of the COL Preysler. Therefore, the BCT leadership made no decisions to change the initial concept of the operation by reinforcing the 2nd Platoon in Wanat or expediting the construction of fortifications at the COP. In place of precise information about the enemy, the coalition chain of command from the platoon level to senior officers

²⁰⁹ CSI, *Wanat: Combat Action in Afghanistan*, 112.

²¹⁰ *Ibid.*, 211.

²¹¹ *Ibid.*

in the CJTF made assumptions about insurgent dispositions and intent.²¹² According to the Combat Studies Institute report,

Before the attack, Lieutenant Colley, the TF Rock Assistant S2, felt that "the most likely enemy course of action would be to conduct probing attacks of the new U.S. position to discover any weaknesses." Reflecting on the enemy reaction after the battle, Lieutenant Colonel Ostlund, echoed the beliefs of his staff and subordinates, "I think that the perception across the task force is that probes would come long before a deliberate effort [by the enemy]." He then stated that in his opinion, "there was enough force protection and combat power [at COP Kahler] to dissuade any anticipated attack." In terms of expectations of enemy actions, Ostlund and Myer were supported by Colonel Preysler, their BDE commander, and Generals Milley and Schloesser at CJTF-101. These officers all felt that a significant attack at Wanat was unlikely, at least in the near future.²¹³

In addition to the current operations element failing to provide a more precise current enemy situation to COL Preysler, it is also likely the entire BCT staff and COL Preysler was suffering distraction from at least two additional information sources. The first distraction was the previously mentioned relief in place and quickly approaching redeployment home. This distraction was likely significant across the TF, both mentally and the resources it takes to redeploy a BCT. The second distraction was the presence of the Chairman of the Joint Chiefs of Staff (CJCS), Admiral Michael Mullen, who toured the Korengal Valley within TF Bayonets AO on 11 July and was escorted by the TF Rock Commander, LTC Ostlund.²¹⁴ Some TF Bayonet organic information collection was likely dedicated to this mission leading up to and on the 11th.

²¹² CSI, *Wanat: Combat Action in Afghanistan*, 204.

²¹³ *Ibid.*, 205.

²¹⁴ *Ibid.*, 104.

Following the combat action at the COP in Wanat in July 2008, the U.S. Army Central Command launched an investigation into the activities of the 173rd Airborne BDE's command. A memorandum of endorsement of those investigations published by the U.S. Central Command on 10 January 2010 and signed by General Petraeus stated that the 173rd BCT Commander "should have known of the inadequacies with respect to the planning, resourcing, and supervision" of Operation Rock Move.²¹⁵ Additionally, the memorandum stated that "the BCT Commander was too passive and accepting of what proved to be incomplete and/or inaccurate information regarding Operation Rock Move."²¹⁶ The Central Command investigation resulted in letters of reprimand being issued against the Company, Battalion, and BDE commanders. The U.S. Army later reversed this decision following a review conducted by General Campbell.²¹⁷

Arguably, the current operations element was unable to manage the information load adequately by eliminating the distracting pieces of information and confirming the contradictory information. This likely contributed to COL Preysler's lack of situational awareness, and ultimately the failure at Wanat.

²¹⁵ United States Central Command, "Re-Investigation into the Combat Action at Wanat Village, Wygal District, Nuristan Province, Afghanistan on 13 July 2008" (U.S. Central Command, MacDill Air Force Base, FL, January 2010).

²¹⁶ Ibid.

²¹⁷ Military Times, "Army Overturns Reprimands of 3 Wanat Officers," March 27, 2013, <https://www.militarytimes.com/2013/03/27/army-overturns-reprimands-of-3-wanat-officers/>.

Chapter Summary

This chapter focused on identifying the presence of information overload through the analysis of four case studies where U.S. Army BDEs and BCTs participated in combat operations. The primary research question that the analysis attempted to answer is how does information overload impact the current operations element within a BCT? The secondary research questions are (1) how do the information load characteristics present in the information load variable impact the BDE S-2 current operations element; and (2) how can current intelligence analysts avoid information overload and provide intelligence that is valuable for decision makers at the BDE level? To answer these questions, it was first necessary to prove that information overload is a problem and exists across multiple units of analysis.

The data offered in the previous four sections presented the information load experienced by a combat aviation BDE, two infantry BDEs, a Stryker BCT, and an Airborne BCT, each conducting operations in different types of conflict. The data suggests that information overload was not predominant prior to modularity as the three BDEs analyzed did not experience information overload. However, following modularity, information overload was occurring in the SBCT, but not at the BCT level. The evidence also indicates that overload was occurring in the 173rd Airborne BCT and that overload likely contributed to the negative outcome of Operation Rock Move. The information load data is summarized below in Table 2, the Weighted Criteria Based Matrix introduced in chapter 3.

Table 2. Weighted Criteria Based Matrix

Criteria		Occurrences (Weighted Score)				
Classes of Information	Weight	Operation Desert Storm		Operation Anaconda	Operation Iraqi Freedom	Operation Rock Move
		CAB, 101st ABN DIV	1st BDE, 101st ABN DIV	3rd BDE, 101st ABN DIV	3rd SBCT, 2nd IN DIV	173rd Airborne
Favorable Information	1	1 (1)	3 (3)	2 (2)	6 (6)	5 (5)
Adverse Information	2	1 (2)	1 (2)	1 (2)	1 (2)	2 (4)
Unfavorable Information	3	1 (3)	0 (0)	1 (3)	1 (3)	1 (3)
Total Score		6	5	7	11	12

Source: Modified from Six Sigma Certification Course, “Prioritization Matrix,” <http://www.sixsigmacertificationcourse.com/prioritization-matrix/>.

One of the primary roles of the current operations element, and arguably the most important, is to continually update the enemy situation as it relates to the common operating picture. This role ensures the commander and BCT staff has an accurate assessment of the enemy. It also allows the BCT commander to redirect TFs, battalions, or companies as necessary to meet the changing enemy situation. The commander’s baseline knowledge to direct forces are the initial intelligence preparation of the battlefield conducted during mission analysis, as well as, the staff running estimates. The current operations element is the primary staff section responsible for modifying those initial assessments and running estimates during combat and ensuring the BCT commander is aware of the changes. An inability of the current operations element to

provide that analysis can have significant impacts on BCT tactical operations as demonstrated in the analysis of the 173rd Infantry BCT (Airborne).

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The purpose of this thesis was to highlight the impacts of information overload on the current operations element. The primary problem of information overload as it relates to the U.S. Army is that an overabundance of data and information available to intelligence analysts through persistent collection and intelligence databases, coupled with other negative information characteristics, overwhelms current operations intelligence analysts' ability to synthesize information into valuable intelligence products. Within the scope of this research, this thesis attempted to answer a primary research question and two secondary questions. The primary research question was, how does information overload impact the current operations element within a BCT? The secondary questions were (1) how do the information load characteristics present in the information load variable impact the current operations element; and (2) how can current intelligence analysts avoid information overload and provide intelligence that is valuable for decision-makers at the BCT level?

Conclusions

The evidence suggests that when information overload is present, the BCT S-2 current operations element is no longer making decisions that support the commander's situational understanding. The information load, once it reaches a weighted score of more than seven pieces of information, overloads an analyst's ability to recall and synthesize the information being presented. This situation prevents the analyst from presenting an

accurate assessment and making recommendations to the BCT Commander that the commander can then use to sufficiently direct combat power against the enemy. The most evident impact of information overload on the current operations element deduced from the review of multiple case studies is a reduction in the quality of predictive enemy analysis.

The impacts of the negative characteristics of information overload on the current operations element are identified and presented throughout the case study analysis. In review, the two negative classes of information identified are adverse and unfavorable. The adverse class of information contains distracting and diffident information. The primary impact of this class of information is that it takes the current operations analyst's focus away from the favorable pieces of information and delays the decision-making process. Distraction is inherent in combat operations and difficult to avoid, especially when the BDE TOC is at risk of being engaged by enemy forces. Similarly, diffident sources can cloud judgment and slow down decision-making as the analyst has little or no confidence in the identified diffident source. Also, diffident sources of information collected at the battalion or company levels are not typically forwarded to the BCT S-2 for analysis, thus leaving a gap in knowledge. The impacts of unfavorable information are more severe than adverse information. Contradictory information requires analysts to seek additional sources to confirm or deny the two contradictory pieces. This fundamentally results in a larger information load increasing the risk for overload. Likewise, complex information typically contains multiple components with possible unknown relationships. The complex pieces of information take significantly longer to

analyze and synthesize with other pieces of information, again, increasing the risk for information overload.

Two primary mitigations strategies for information overload are identified. The two strategies focus on the decision-maker, a human-centered view, and the information load, which is an information processing-centered view, and build upon the research conducted by Peter Gordon Roetzel presented throughout this thesis. Decision-makers, including commanders and intelligence analysts, can mitigate distraction through a disciplined approach in avoidance. This includes delegating any decisions that may be associated with the distracting pieces of information or isolating the distractions identified. Contradictory information mitigation requires a change to PIR and a focus by collection assets to confirm one of the contradictory pieces of information as quickly as possible. Commanders and intelligence analysts should identify diffident sources as soon as possible during deployments. Analysts must include any pieces of information collected from identified diffident sources in the information load and mitigated through verification by more trusted sources. Finally, analysts can mitigate the risk associated with complex pieces of information by prioritizing their review and allocating the maximum amount of time available to deduce the applicability of the information within.

Recommendations

During the literature review and analysis of the case study data, there were no guidelines presented by U.S. Army doctrine outside of CCIR for managing an information load. There was also very little presented in the literature that directs intelligence analysts on how to deal with large information loads or information loads

with negative characteristics. There are four recommendations that this research identifies as ways to avoid information overload:

1. The U.S. Army must educate all-sources intelligence analysts (35F) on the definition of information overload and train them on ways to identify it while in advanced individual training (AIT). The U.S Army should develop unit collective training to ensure mitigation measures are fully understood by all members of the BCT S-2 shop. This recommendation is necessary for the second recommendation to be successful. If the U.S. Army does not educate analysts on information overload, its impacts, and how to identify and mitigate it, simply providing more analysts will not solve the problem. This is because each analyst simply tries to process the entire information load instead of sharing it due to an ignorance of the problem.
2. After improving the awareness and education on information overload, BCTs must ensure that the BCT Intelligence Officer places, at a minimum, two all-source intelligence analysts in the current operations element. As this element is not presently authorized by MTOE but is recommended by U.S. Army doctrine, it is staffed at the discretion of the BDE Intelligence Officer, Executive Officer, and ultimately the BCT Commander. Having two analysts would allow for the information load to be split.
3. The U.S. Army must update Army Doctrine Publications to include a discussion of information overload. This should include not only intelligence doctrine (ADP 2-0 and ADP 2-19.4), but also Mission Command (ADP 6-0) and Leadership (ADP 6-22) doctrine. The U.S. Army should update doctrine

to include the proposed definition of information overload, the negative characteristics of the information load, and the classes of information identified in this thesis.

4. The U.S. Army should educate leaders at all levels, especially commanders, about the classes of information, which includes favorable, adverse, and unfavorable, and how those classes can add to the information load when weighted. Institutional training covering the topic of information management is also limited. The U.S. Army can present a class to future commanders at the U.S. Army Pre-Command Course at Fort Leavenworth. Educating future commanders is necessary to promote the findings that not all information is favorable and that more than seven pieces of information can negatively impact decision-making.

These four recommendations will improve the management of the information load that most BCTs can expect to see during combat operations. Through a combined approach of educating intelligence analysts and commanders, ensuring adequate manning of the current operations element, and updating doctrine to address information load; the U.S. Army can begin to solve the problem presented in this research.

Recommendations for Further Study

While the case studies presented are between 12 and 29 years old at the time of this research, they are still relevant to the study of information overload. Each case study reviewed presented data from different types of warfare, including large-scale combat operations in Desert Storm, limited contingency operations in Operation Anaconda, a counter-insurgency fight in Operation Iraqi Freedom, and Operation Rock Move. The

case studies also reviewed five different units of analysis which included a combat aviation BDE, two light infantry BDEs, a Stryker BCT, and an Infantry BCT (Airborne). The multiple case study methodology also allowed for analysis across three different types of terrain, including open desert, mountainous, and a densely populated urban area. Finally, the case study methodology allowed for a review of both pre and post modular BDEs. This allowed a conclusion to be made that the primary driver of information overload at the BCT level is modularity.

The modular BDE concept resulted in military intelligence assets, specifically the MICO, being assigned directly to BDEs. Before modularity, the MICO asset was organized at the division level and typically task-organized to BDEs during combat operations. Additionally, the U.S. Army provided BCTs with modern and robust communications technology, including FBCB2, Trojan SPIRIT, and tactical internet capability. This equipment significantly increased the amount of information coming into the TOC and TAC. However, the increased information load did not necessarily come with increased personnel to manage it. While the BCT S-2 section did increase in size post-modularity and is augmented by the MICO, these additional analysts are not assigned to the current operations element supporting real-time decision-making.

However, the case study methodology did not allow for a full review of all possible pieces of information impacting the current operations element. Conclusions had to be drawn about the impacts of the information load on the intelligence analysts without direct evidence of those impacts. While logic was applied and this researcher believes the conclusions are sound, more indisputable conclusions can likely be made through an alternate research methodology.

The U.S. Army and future researchers must conduct additional information overload research on BCTs. The primary methodology that should be employed by future researchers is an ethnographic study. Ethnography would allow a researcher to immerse themselves in the environment of the current operations element and observe firsthand how many pieces of information are impacting the element on any given day, as well as, identifying the specific impacts observed when negative characteristics are present.

Additionally, if ethnography is not feasible, this researcher believes that a survey of intelligence analysts that have recently deployed in support of a BCT could also result in relevant evidence. Researches could ask many questions of the analysts surveyed but two specific questions stand out to this researcher. First, at any time during your deployment did you feel overwhelmed by the amount of information you were required to process over a given period, if yes, then how did the amount of information impact your ability to assess the current enemy situation and provide predictive analysis about that enemy? Second, did you ever feel distracted while managing your day to day responsibilities as a current operations analyst, if yes, then 1) what were the impacts of that distraction, and 2) how did you mitigate the distraction present?

It would also be useful to study BCTs at the combat training centers including the National Training Center and the Joint Readiness Training Center. A study at these locations would allow a researcher to isolate the information load as a variable. This would allow for a more focused review of the impacts on the intelligence analyst. As well as, testing the recommended information overload mitigations presented in this research and identifying the outcomes of implementation.

Finally, a major assumption is made at the beginning of this research that information overload occurs when more than seven pieces of information are present. Researchers should conduct analysis that establishes a more accurate baseline of when overload occurs. George Miller's research on working memory capacity is widely accepted and has been repeated by multiple researchers. However, the working memory capacity of trained intelligence analysts with a background in processing and exploiting pieces of information has not been directly tested. For this reason, future researchers should establish the baseline working memory capacity of intelligence analysts.

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